PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



# UNIVERSITY OF ZAGREB, Faculty of Geotechnical Engineering

(name of the faculty)

# PROPOSAL OF THE DOCTORAL STUDY PROGRAMME

# Postgraduate doctoral study of Environmental Engineering

(name of the proposed doctoral programme)

Varazdin, September 2017

(place and date)

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NAME, LAST NAME AND THE TITLE OF THE CONTACT PERSON: Ranko Biondić, Ph.D, Full Professor

FUNCTION: DEAN

E-MAIL: ured.dekana@gfv.hr

**Telephone:** +385 42 408 900

Address: Hallerova aleja 7, 42000 Varaždin

Recommended font face and size: Calibri 11, Arial 10, Times New Roman 12

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# A. OVERVIEW OF THE STUDY PROGRAMME

# A.1. GENERAL INFORMATION ON THE PROPOSED DOCTORAL STUDY

# A.1.1. NAME OF THE PROPOSED DOCTORAL STUDY

Postgraduate doctoral study of Environmental Engineering

# A.1.2. NAME OF THE PROVIDER OF THE STUDY PROGRAMME

University of Zagreb, Faculty of Geotechnical Engineering

# THE COOPERATING INSTITUTION(S) PARTICIPATING IN THE STARTING AND IMPLEMENTATION OF THE DOCTORAL STUDY

The cooperating institutions participating in the implementation of the doctoral study through the involvement of their teachers, but which are not providers of the proposed doctoral study come from three EU members, Croatia, Slovenia and Austria.

( Croatia ) University of Zagreb: The Faculty of Agriculture, The Faculty of Architecture, The Faculty of Economics and Business, The Faculty of Mechanical Engineering and Naval Architecture, The Catholic Faculty of Theology, The Faculty of Science, The Faculty of Mining, Geology and Petroleum Engineering
 University of Split: The Faculty of Civil Engineering, Architecture and Geodesy
 The University of Applied Sciences Velika Gorica
 Institute for Development and Internationals Relations
 Ruđer Bošković Institute
 Ministry of Environment and Energy

Meteorological and Hydrological Institute of Croatia

Hrvatske Vode

Croatian Academy of Sciences and Arts

(Slovenia) Univerza v Ljubljani, Univerza v Mariboru

(Austria) Montanuniversität Leoben

# A.1.3. NAME OF THE IMPLEMENTER OF THE STUDY PROGRAMME

University of Zagreb, Faculty of Geotechnical Engineering

## A.1.4. SCIENTIFIC OR ARTISTIC FIELD AND DISCIPLINE OF THE PROPOSED STUDY PROGRAMME

Area: 2. Technical sciences

Field: Interdisciplinary technical sciences

Branch (if the doctoral study is performed in a branch): 2.16.01. Environmental Engineering

## A.1.5. DURATION OF THE DOCTORAL STUDY IN ACCORDANCE WITH THE REGULATIONS (IN YEARS)

Three (3)



# A.1.6. NUMBER OF REQUIRED COURSES/MODULES

There is one (1) required course / module for all students.

# A.1.7. NUMBER OF ELECTIVE COURSES/MODULES OFFERED WITHIN THE DOCTORAL STUDY

The study programme consists of one (1) common elective module with seven elective courses out of which only one (1) is chosen.

The fields of study consist of five (5) elective modules. These are: "Sustainable waste management" with five (5) courses, "Environment and nature" with eight (8) courses, "Environmental Geoengineering" with seven (7) courses, "Water management" with eight (8) courses and "Energetics" with six (6) courses. Doctoral students can choose courses from other modules if they are related to the topic of their survey.

# A.1.8. ACADEMIC TITLE EARNED UPON COMPLETION OF THE DOCTORAL STUDY

Doctor of Science (Ph.D) in the field of Environmental Engineering

# A.1.9. PROPOSED SMALLEST NUMBER OF DOCTORAL STUDENTS FOR ONE ACADEMIC YEAR

Four (4)

# A.1.10 PROPOSED HIGHEST NUMBER OF DOCTORAL STUDENTS FOR ONE ACADEMIC YEAR

Twenty (20)

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# A.2. INTRODUCTION

### A.2.1. REASONS FOR STARTING THE PROPOSED DOCTORAL STUDY

# A.2.1.1. Justifiability of starting the new doctoral study with regard to existence of similar doctoral studies at the University of Zagreb

Since the Faculty conducts an undergraduate and graduate study programme of Environmental Engineering the proposed doctoral study is a logical sequence of education, i.e. the highest level of formal education and it would be the only such doctoral study at the University of Zagreb.

Problems concerning the field of environmental engineering demand both professional and scientificresearch approach, which is the only way of finding specific solutions to them. Besides a standard doctoral profile, the specific concept of the study develops the ability of organizing, structuring and financial managing of projects. The programme emphasizes current socitetal needs concerning circular economy, which should enable sustainable waste management, natural resources management and protection, introduction of renewable energy sources and contributes to the mitigation of climate changes.

The basic differences between the proposed doctoral study and similar doctoral studies at the University of Zagreb are shown in the table below.

Table 1. Basic differences between the proposed doctoral study and similar doctoral studies at the University of Zagreb

The name of the faculty and doctoral study	Differences regarding the proposed doctoral study				
The name of the faculty and doctoral study Faculty of Chemical Engineering and Technology ( Doctoral study of Chemical Engineering and Applied Chemistry ) Faculty of Mining, Geology and Petroleum Engineering ( Doctoral study of Applied Geosciences, Mining and Petroleum Engineering ) University of Zagreb, Graz University of Technology, University of Maribor, Budapest University of Technology and Economics ( The International joint doctoral programme "Geo- Engineering and Water management" )	Ine focus of this programme is the development of new materials, advanced processes and sustainable technologies, whereas the proposed doctoral study emphasizes current social needs concerning circular economy, which has to enable sustainable waste management, the management and protection of natural resources, introduction of renewable energy sources as well as mitigation of climate changes.				
Faculty of Mining, Geology and Petroleum Engineering ( Doctoral study of Applied Geosciences, Mining and Petroleum Engineering )	Although there is a group of courses that deal with and are applicable in the field of the environment, the basic difference is in the approach to environmental problems. Environmental engineering is the main goal of the proposed doctoral study programme and it is not one of the parts of the programme.				
University of Zagreb, Graz University of Technology, University of Maribor, Budapest University of Technology and Economics ( The International joint doctoral programme "Geo- Engineering and Water management" )	The Faculty of Geotechnical Engineering together with the Faculty of Civil Engineering and the Faculty of Mining, Geology and Petroleum Engineering equally participates in its implementation. However, the structure of the study is completely different in comparison to the proposed doctoral study. The university doctoral study of Environmental Engineering has a broader programme which is not				



	restricted only to water and soil protection. The existence of the Joint doctoral programme "Geo-Engineering and Water management" does not decrease justifiability of starting the new doctoral study.
University of Zagreb, Centre for Postgraduate Studies (University interdisciplinary postgraduate specialist study of Ecoengineering )	The Faculty of Geotechnical Engineering takes equal part in the implementation of the doctoral study with other members of the University of Zagreb. The study emphasizes expert knowledge, which makes it different from the proposed doctoral study. Its existence does not decrease the justifiability of starting the new doctoral study.

According to the Ordinance on Croatian Qualifications Framework Register (Official Gazette of the Republic of Croatia No. 62/2014) the field of activity of the Faculty of Geotechnical Engineering belongs to the 16th Sectoral council – Basic technical sciences, which, among other things, comprises the area of environmental engineering, while two other areas which the proposed doctoral study is often mistakenly identified with (mining, petroleum and geological engineering and chemical technology) are integrated in the 3<sup>rd</sup> Sectoral council – Mining, geology and chemical technology.

Also, according to the Ordinance on Scientific and Artistic Areas, Fields and Branches (Official Gazette of the Republic of Croatia No. 119/09, 82/12, 32/13), the proposed doctoral study belongs to area 2. Technical sciences, field 2.16. Interdisciplinary technical sciences, branch 2.16.01 Environmental Engineering. Scientific fields 2.07 Chemical Engineering, which the Faculty of Chemical Engineering and Technology belongs to, and 2.10 Mining, Petroleum and Geological Engineering, which the Faculty of Mining, Geology and Petroleum Engineering belongs to, are two separate scientific fields.

Further elaboration of scientific fields shows that within the scientific field 2.10 there aren't any scientific branches that refer to the environment, whereas within the scientific field 2.07 there is a scientific branch 2.07.05 – Environmental protection in chemical engineering.

Concerning the above-mentioned it seems justified to claim that this kind of a study programme should be offered to the labour market. Although there are similarities, it should not be identified with study programmes which train experts in the field of mining and chemical technology and they can mutually coexist.

A.2.1.2. Usefulness of the proposed doctoral study with regard to needs of research activities in the public and private sectors, and possibilities of employment upon completion of the study program, including the opinion of 3 organizations related to the labour market (e.g. professional associations, employers and their associations, trade unions, public services) on the appropriateness of planned learning outcomes for the needs of the labour market (opinion should be enclosed at the end of this proposal);

The proposed doctoral study is organized in order to connect theoretical knowledge, scientific-research work and practical experiences in the field of interdisciplinary technical sciences. It is a further continuation of the graduate study programme of Environmental Engineering which is conducted at the Faculty of Geotechnical Engineering and which is recognizable in Croatia. Upon the completion of the study, doctoral students will be able to approach environmental problems from a research and interdisciplinary point of view as well as to upgrade the latest theoretical achievements with the results of their own research works. As a full EU member, the Republic of Croatia (CRO) is obliged to implement and enforce extensive legal regulation concerning the environment, which creates the need for highly educated professionals. Accordingly, doctoral research works at the proposed doctoral study will encompass interdisciplinary subjects, which can be divided into five main thematic units (Sustainable waste management, Environment

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and nature, Environmental geoengineering, Water management and Energetics ) in order that future scientists could be as effective as possible in solving the majority of current environmental problems.

We should also emphasise the fact that some of Croatian key strategies recognize the need for scientific research works in the field of the environment and its protection, which creates the possibility of employing future Ph.Ds. in the field of environmental engineering.

The National Environmental Protection Strategy of the Republic of Croatia (Official Gazette of the Republic of Croatia No. 46/2002) emphasizes the necessity of "strengthening general level of knowledge and technical education in the field of environmental protection... by promoting and evaluating relevant scientific research works...", and "promotion of scientific research works and technological advancement in sectoral and regional planning " stands out as one of horizontal measures. One of the aims of the proposed doctoral study is to increase knowledge and training in the field of environmental engineering, which contributes to environmental protection in Croatia.

The Water Management Strategy of the Republic of Croatia (Official Gazette of the Republic of Croatia No. 91/2008) emphasizes that water is a unique and irreplaceable natural resource and that it is necessary to set criteria and priorities concerning water management, starting from the obligation of a complete environmental protection and the achievement of a general, economic and sustainable development, which is in line with the country's development policy.

Some of the emphases of the Strategy include education of professional and scientific experts with the purpose of integral water management, which also creates a possibility of employing Ph.Ds. upon the completion of the doctoral study at the Faculty of Geotechnical Engineering.

The Waste Management Strategy of the Republic of Croatia (Official Gazette of the Republic of Croatia No. 130/2005) emphasizes "the support for scientific and specialist research works as well as professional associations in the activities of improving the waste management system". This also contributes to employing highly educated professionals, scientists in the field of environmental engineering, who will solve problems concerning waste management and who will also participate in professional associations dealing with it.

The Energy Development Strategy of the Republic of Croatia (Official Gazette of the Republic of Croatia No. 130/2009) partly refers to environmental protection in that it orders the implementation of European regulations dealing with the complete protection and monitoring of pollution as well as environmental impact assessment and waste management. In accordance with the promotion of research works and development it suggests "the increase of investments in education, scientific-research projects and development as well as systematic promotion of international cooperation in the field of renewable energy technologies." This also fosters the employment of scientists in the field of environmental engineering and their participation in developing environmentally sustainable energy technologies.

Part of **The Educational, Scientific and Technological Strategy of the Republic of Croatia ( Official Gazette of the Republic of Croatia No. 124/2014 )** refers to science and technology and it states that one of its main aims is to quickly start changes in the system of higher education and science. It especially emphasizes the fact the number of new Ph.Ds. younger than 35 does not significantly fall behind the European average ( in Croatia there are 1,4 Ph.Ds. per one thousand inhabitants and in the EU there are 1,7 ), but "there is an insufficient number of Ph.Ds. in natural-science, technical, engineering and mathematical disciplines ( about 40 % )." It also emphasizes the fact that few Ph.Ds. are employed in a business sector ( it is estimated about 15 % ). These analyses create new possibilities for doctoral students and in a way confirm the fact that doctoral students will be successfully employed and will contribute to the development of Croatia upon the completion of their doctoral study at the Faculty of Geotechnical Engineering.

**The Mineral Raw Materials Management Strategy of the Republic of Croatia** dating from 2008 states that the main guidelines of a responsible (careful) attitude towards biotic and abiotic components of the planet Earth have to be establishing the true potential of mineral raw materials, supply of sufficient

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quantities of mineral raw materials, finding the best way of exploiting them, i.e. ecologically acceptable technical solutions and rational exploitation of them, i.e. recycling of the existing with the necessity of producing new quantities of mineral raw materials.

In accordance with the five main thematic units suggested in the doctoral study, Ph.Ds. have a wide range of employment possibilities upon the completion of the proposed study. For example, scientists in the field of environmental engineering can find employment in almost all industry branches, independent companies but also as managers, board members and advisors to state administration.

Doctoral students of environmental engineering can also be employed at higher education institutions, research and development (R&D) institutions and laboratories as well as in consulting companies associated with environmental protection, and these types of research activities can create both new jobs and working places. Besides that, they will be qualified enough and ready to be employed elsewhere in the world, particularly in the EU, to do environment-related jobs. European Research Area (ERA) represents an integrated research area based on the internal market which researchers, knowledge and technology can freely circulate on. The acquired competences give Ph.Ds. countless possibilities to continue their scientific-research work at suitable research institutions and to take part in post-doctorate advancements abroad.

The proposed doctoral study of Environmental Engineering is the only such study in the Republic of Croatia, and in neighbouring countries such studies are organized only in Slovenia (*Univerza v Mariboru – PhD Environmental Engineering*) and Italy (*Politecnico Di Milano – PhD Environmental and Infrastructure Engineering*).

There are several similar study programmes in Europe: Lithuania (*Kaunas University of Technology – PhD Environmental Engineering*); Portugal (*Instituto Superior Técnico – PhD Environmental Engineering*; University of Porto – PhD Doctoral Programme in Environmental Engineering ); Spain (Universitat Politècnica de Catalunya; BarcelonaTech (UPC) – PhD Environmental Engineering ); Switzerland (*Ecole Polytechnique Fédérale de Lausanne – PhD Civil and Environmental Engineering*); Denmark (*Technical University Denmark – Climate KIC PhD*) and in Great Britain (University of Strathclyde – PhD Civil and Environmental Engineering; The University of Manchester – PhD Environmental Engineering; University of Edinburg – Civil and Environmental Engineering). It should be noticed that most of them are located in Western Europe, which is also a certain advantage of the proposed doctoral study.

## A.2.1.3. Usefulness of the proposed doctoral study with regard to the scientific, cultural, social and economic needs

Social and economic development of the EU members should, among other things, be aligned with a planned environmental policy. The Seventh Environment Action Programme (7<sup>th</sup> EAP) is being conducted in the EU currently. It will be in force by 2020 and its implementation requires qualified scientists who will be able to conduct all necessary research works concerning environmental protection. The main segments of 7<sup>th</sup> EAP are: horizontal legislation, air quality, waste management, water quality, nature protection, industrial pollution control, risk assessment, chemicals and GMOs, noise, nuclear safety and radiation protection.

The doctoral study at the Faculty of Geotechnical Engineering will provide experts who will be able to respond to the majority of the EAP demands since the courses (Sustainable waste management, Environment and nature, Environmental geoengineering, Water management and Energetics) cover most of its main segments. It will foster projects concerning environmental engineering, which will also stimulate social and economic development of the Republic of Croatia. The doctoral study will also enable cooperation with similar faculties in Croatia, but also in Europe and in the world and in that way ensure scientific and technical conditions necessary for successful practical work. Publication of popular-science papers and scientific-research results in professional and scientific journals will sensitize general public to environmental problems, which will also promote sustainable development of the Republic of Croatia. Thematic and problem-focused lectures can contribute to raising awareness about the importance and need for environmental protection.

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The Educational, Scientific and Technological Strategy of the Republic of Croatia (Official Gazette of the Republic of Croatia No. 124/2014) emphasizes that public universities should develop in such a way that they "... create new scientific, special, cultural and economic value...". It also emphasizes that doctoral studies are the main source of highly qualified researchers and that doctoral education and schools are of permanent interest to all EU members as well as to Croatia. In accordance with the above-mentioned, the proposed doctoral study is aligned with the basic conclusions and guidelines of the Strategy.

The basis of **the Smart Specialization Strategy of the Republic of Croatia (Official Gazette of the Republic of Croatia No. 32/2016 )** is "... economic progress based on knowledge in accordance with the principles of the Europe 2020 strategy, which includes smart, sustainable and inclusive growth". It suggests planned investments in research, technological development and innovations within five chosen thematic priority areas. One of them is Energy and Sustainable Environment, which is in a lot of ways presented and emphasized as an important area of specialisation in Croatia based on analyses and favourable statistical indicators. Areas of environmental protection which are considered important for the sustainable development of Croatia are: mitigation of climate changes, water resources management, air protection and control of other conditions of environmental protection ( rivers, sea, soil ). All of these segments of environmental protection are recognised in the proposal of the doctoral study at the Faculty of Geotechnical Engineering, which also provides optimism regarding the employment of future PhDs in the field of environmental engineering.

The Sustainable Development Strategy of the Republic of Croatia (Official Gazette of the Republic of Croatia No. 20/2009) emphasizes the vital importance of "... economic development based on research and development, scientific and engineering education as well as politics which promotes innovations." In order to achieve that it is necessary to "... increase financial resources for scientific research works and scientific infrastructure in order to stimulate development of fundamental ideas and directions which are the basis of innovativeness...". We think that the proposed doctoral study is aligned with the basic assumptions mentioned in the Strategy because sustainable development is one of the foundations of most research works concerning environmental problems and generally with finding solutions to them within environmental engineering.

# A.2.1.4. Foundation of the proposed study programme on competitive scientific or artistic research, and on new insights, knowledge and skills

The Faculty of Geotechnical Engineering has been carrying out the undergraduate and graduate study programmes of Environmental Engineering since obtaining the license in the academic year 2013/2014. The study programme is organized in such a way that it follows and covers new changes, trends as well as economic and social needs. What makes it unique is the fact that it encompasses environmental management, water management and environmental geoengineering. The Faculty consists of departments, which as basic units satisfy teaching and professional needs. The postgraduate study of environmental engineering is necessary because of its scientific contribution to the research works of current and acute problems of sustainable development of today's society and it is aligned with national strategies, plans and priorities (The National Strategy of Environmental Protection (Official Gazette of the Republic of Croatia No. 46/2002 ), The Waste Management Strategy of the Republic of Croatia (Official Gazette of the Republic of Croatia No. 130/2005), The Water Management Strategy of the Republic of Croatia (Official Gazette of the Republic of Croatia No. 91/2008 ), The Sustainable Development Strategy of the Republic of Croatia (Official Gazette of the Republic of Croatia No. 20/2009), the Energy Development Strategy of the Republic of Croatia (Official Gazette of the Republic of Croatia No. 130/2009), The Educational, Scientific and Technological Strategy of the Republic of Croatia (Official Gazette of the Republic of Croatia No. 124/2014 ), the Smart Specialization Strategy of the Republic of Croatia ( Official Gazette of the Republic of Croatia No. 32/2016).

There are several active scientific projects which show such intentions:

• KIC – "EIT-Raw Materials" – an international project with more than a hundred partner institutions from all over the EU participating in it. The project has connected partner institutions from an industrial,

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scientific and educational sector. The University of Zagreb is an associate partner of the KIC – "EIT-Raw Materials" consortium and several constituent units of the University, one of which is the Faculty of Geotechnical Engineering, take part in it. The aim of the project is to decrease the import dependency of non-energy raw materials and to increase the production and export of non-energy raw materials from the EU, while at the same time mitigating negative impacts on the environment, health and a society as a whole. The duration of the project: 2014 – today. (Igor Petrović, Ph.D, Assistant Professor)

• VIRTULAB – An Integrated Laboratory for Primary and Secondary Raw Materials – through the project equipping of five faculty laboratories at the University of Zagreb will be financed with the purpose of strengthening their scientific-research capacities and establishing a virtual primary and secondary raw materials research centre, which will enable a higher quality of teaching, strengthen scientific-research work at faculties and enable them equal participation in the KIC-RAW MATERIALS initiative and at the same time it will create room for the commercialization of scientific research results and for the practical economic application of innovations. The status of the project: it has been put on the indicative list of the Ministry of Science and Education. The second stage of the evaluation process is currently in progress. The value of the project: 1.685.878,20 EUR. ( Igor Petrović, Ph.D, Assistant Professor )

Besides some active projects, a list of some more relevant scientific projects which have been managed by the employees of the Faculty of Geotechnical Engineering over the past 10 years is mentioned below:

• THE NAME OF THE PROJECT: A complete system of disposing of waste sludge from wastewater treatment plants using thermal treatment; THE CODE OF THE PROJECT, THE PROJECT MANAGER: Aleksanda Anić Vučinić, Ph.D, Associate Professor; THE DURATION OF THE PROJECT (DATE AND YEAR OF BEGINNING – DATE AND YEAR OF ENDING): 2013-2014; THE PROJECT IS FINANCED BY: The University of Zagreb and the Environmental Protection and Energy Efficiency Fund

• THE NAME OF THE PROJECT: Defining trends and assessment of groundwater status in karst areas in Croatia; THE CODE OF THE PROJECT, THE PROJECT MANAGER: Ranko Biondić, Ph.D, Full Professor; THE DURATION OF THE PROJECT (DATE AND YEAR OF BEGINNING – DATE AND YEAR OF ENDING): 2015-2016; THE PROJECT IS FINANCED BY: Hrvatske vode

• THE NAME OF THE PROJECT: IPA II scientific-research project "DRAVA-GEO" transboundary programme Hungary-Croatia; THE CODE OF THE PROJECT, THE PROJECT MANAGER: No. HUHR/0901/2.1.3/0006, Miroslav Golub, Ph.D, Full Professor; THE DURATION OF THE PROJECT (DATE AND YEAR OF BEGINNING – DATE AND YEAR OF ENDING): 2010-2012; THE PROJECT IS FINANCED BY: IPA Cross-border Cooperation Programme Research on Geothermal Energy Sources

• THE NAME OF THE PROJECT: Characterization of municipal solid waste; THE CODE OF THE PROJECT, THE PROJECT MANAGER: 160-0831529-3031, Davorin Kovačić, Ph.D, Full Professor; THE DURATION OF THE PROJECT (DATE AND YEAR OF BEGINNING – DATE AND YEAR OF ENDING): 2007-2010; THE PROJECT IS FINANCED BY: Ministry of Science and Education of the Republic of Croatia

• THE NAME OF THE PROJECT: Karst Aquifers Vulnerability Assessment (KAVA) method applied to the Bakar Bay catchment area in Croatia; THE CODE OF THE PROJECT, THE PROJECT MANAGER: Ranko Biondić, Ph.D, Full Professor; THE DURATION OF THE PROJECT (DATE AND YEAR OF BEGINNING – DATE AND YEAR OF ENDING): 2015-2016; THE PROJECT IS FINANCED BY: UNESCO MedPartnership project

• THE NAME OF THE PROJECT: Intelligent Energy Europe Programme (BETTER, CROSKILLS, CITIZENERGY, WISE POWER); THE CODE OF THE PROJECT, THE PROJECT MANAGER: Robert Pašičko, Ph.D, Assistant Professor; THE DURATION OF THE PROJECT (DATE AND YEAR OF BEGINNING – DATE AND YEAR OF ENDING): 2012-2017; THE PROJECT IS FINANCED BY: The EU

• THE NAME OF THE PROJECT: Sustainable use and protection of water resources in the Plitvice Lakes National Park; THE CODE OF THE PROJECT, THE PROJECT MANAGER: 160-0000000-2569, Božidar Biondić, Ph.D, Full Professor; THE DURATION OF THE PROJECT (DATE AND YEAR OF BEGINNING – DATE AND YEAR



OF ENDING ): 2007-2010; THE PROJECT IS FINANCED BY: Ministry of Science and Education of the Republic of Croatia

• THE NAME OF THE PROJECT: The Project of rural electrification in Croatia; THE CODE OF THE PROJECT, THE PROJECT MANAGER: Robert Pašičko, Ph.D, Assistant Professor; THE DURATION OF THE PROJECT (DATE AND YEAR OF BEGINNING – DATE AND YEAR OF ENDING): 2015-2016; THE PROJECT IS FINANCED BY: The Environmental Protection and Energy Efficiency Fund

• THE NAME OF THE PROJECT: Development of energy cooperatives in Croatia; THE CODE OF THE PROJECT, THE PROJECT MANAGER: Robert Pašičko, Ph.D, Assistant Professor; THE DURATION OF THE PROJECT (DATE AND YEAR OF BEGINNING – DATE AND YEAR OF ENDING): 2013-2014; THE PROJECT IS FINANCED BY: The Heinrich Böll Foundation

• THE NAME OF THE PROJECT: The water management study of Jadro and Žrnovnica springs; THE CODE OF THE PROJECT, THE PROJECT MANAGER: Sanja Kapelj, Ph.D, Full Professor; THE DURATION OF THE PROJECT ( DATE AND YEAR OF BEGINNING – DATE AND YEAR OF ENDING ): 2005-2012; THE PROJECT IS FINANCED BY: Hrvatske vode

• THE NAME OF THE PROJECT: Technical support for the development of green economy in Tajikistan and Kyrgyzstan; THE CODE OF THE PROJECT, THE PROJECT MANAGER: Robert Pašičko, Ph.D, Assistant Professor; THE DURATION OF THE PROJECT (DATE AND YEAR OF BEGINNING – DATE AND YEAR OF ENDING): 2014-2016; THE PROJECT IS FINANCED BY: Global Environment Facility / Innovation Facility

• THE NAME OF THE PROJECT: Vulnerabiltiy mapping of Novljanska Žrnovnica karstic spring catchment area in Croatia; THE CODE OF THE PROJECT, THE PROJECT MANAGER: Ranko Biondić, Ph.D, Full Professor; THE DURATION OF THE PROJECT (DATE AND YEAR OF BEGINNING – DATE AND YEAR OF ENDING): 2013-2014; THE PROJECT IS FINANCED BY: UNESCO MedPartnership project

• THE NAME OF THE PROJECT: Common system of assessment of sustainability of water resources management of the Škocjanske jame and Risnjak National Parks; THE CODE OF THE PROJECT, THE PROJECT MANAGER: Ranko Biondić, Ph.D, Full Professor; THE DURATION OF THE PROJECT (DATE AND YEAR OF BEGINNING – DATE AND YEAR OF ENDING): 2014-2015; THE PROJECT IS FINANCED BY: IPA transboundary programme Slovenia -Croatia

Some other minor projects financed by the University of Zagreb are:

• Ecological studies of the management impact in crops of maize and cabbage on the composition of weeds in northwestern Croatia (Z. Stančić, Ph.D, Associate Professor)

• Possibilities of separating Indium from LCDs using ultrasonic baths ( A. Anić Vučinić, Ph.D, Associate Professor )

• Analysis of the influence of local soil conditions on the seismic surface motion amplification in Croatia ( M. Gazdek, Ph.D, Assistant Professor )

• Improvements of clay soils using explosives ( J. Mesec, Ph.D, Full Professor )

• Verification of natural vulnerability models in the example of karst aquifers of the Dinaric karst area, 2<sup>nd</sup> phase (H. Meaški, Ph.D, Assistant Professor)

• Experimental testing of granular stiffness of MBT waste (I. Petrović, Ph.D, Assistant Professor)

• Systematic application of solar photovoltaic energy in order to achieve sustainable irrigation systems (B. Đurin, Ph.D, Assistant Professor)

• Geophysical-geotechnical exploration of waste landfill for the purpose of environmental protection



# a (Stjepan Strelec, Associated Professor).

The concept of environmental management at the doctoral study is divided into two courses, Sustainable waste management and Environment and nature, in order to stimulate the creation of new insights, knowledge and skills necessary for the application of research results in a competitive economy. It also introduces a course in Energetics which will be used for research and application of new technologies of sustainable energy sources, for the application of energy efficiency technologies and for the environmental impact assessment of energy sector.

The significance of competitive research works which enable this doctoral study confirms the fact that the doctoral study is compliant with the main priority of the Horizon 2020 programme- Societal challenges. The proposed doctoral study is aligned with the following strategic priorities of the programme such as Health, Demographic Changes and Wellbeing; Marine, Maritime and Inland Water Research and Bio economy; Secure, Clean and Efficient Energy; Climate Action, Environment Efficiency and Raw Materials, which keeps balance between social-economic needs and the demands for healthy environment and nature.

Besides social and economic needs, an important foundation of the study is also the interest individuals show in concrete and active changes of the way we relate to the environment and nature. That is why this study programme would also be attractive to foreign students and environmental engineering has turned out to be the basic platform for initiation and implementation of international and intergovernmental scientific and professional projects. The employment of the experts with the highest level of education outside academic institutions is a necessary prerequisite for the development of national economies, for the application of progressive technologies and for the creation of a stable and safe social community. This need has been recognized in Europe and the world as well as in Croatia and it is expected to grow in upcoming years.

(The Educational, Scientific and Technological Strategy of the Republic of Croatia, Croatian Parliament, 2014; The Strategic Plan of the Ministry of Environment and Energy 2015 – 2017; Horizon 2020 Work Programme, European Commission Decision C (2016)4614, 2016).

# A.2.1.5. Innovativeness of the proposed study programme, that is, potential of the proposed study programme for creation of new and relevant knowledge or artistic practices

The modules of the doctoral study create numerous possibilities for innovations and creation of new knowledge since the subject matter of the programme has not been sufficiently researched, especially in Croatia. According to this concept, every module connects several scientific disciplines, which makes possible the application of collaborative research projects besides the methodology of comparative research. The cooperation of doctoral students with researchers form partner institutions and their involvement in development projects stimulates the creation of a competitive environment, which is mainly focused on the production of quality scientific papers rather than final results. This enables active participation of doctoral students in lectures and raises the quality of mentorship. Besides gaining experience, which is priceless in every scientific system, it allows a more dynamic personal development of each doctoral student, because it tests new ideas and trains the ability of a transformation for different approaches to solving complex problems. Relevant knowledge and innovations are achieved by creating cooperation on research projects, which gives doctoral students a chance to take the initiative despite the fear of failure, which builds self-confidence necessary for accepting failure as an inevitable part of a research work. Mentoring approach is expanded into the domain of motivation, inspiration and creating permanent tendency towards research works.

Thanks to its implementation, which consists of four phases during a three-year period, the proposed study programme enables the creation of new ideas and knowledge: I. opening research themes from the curriculum, II. studying the subject matter of the curriculum and development of the contents (studying bibliography and communication with the experts on a chosen area), III. planning and intensive work on a personal research theme; IV. closing the theme, creating a system of results and finalizing the doctoral dissertation.

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During the study the attention is paid to research interests of doctoral students in order to achieve the following goals:

- intensive research and preparation of materials for paper publication already during the first year of the study ( preparation of two papers in the initial phase of the doctoral study programme ).
- shaping the doctoral thesis plan; a new look at the existing research data, new approaches to collecting data or their combination.
- creation of a personal network of researchers and associates from different natural-science or engineering profiles. That is necessary because of multi- / interdisciplinary topics of the curriculum. Participation in the existing research networks, professional organizations and scientific institutions enables a quicker progress in writing a doctoral dissertation. In that way the access to data and information is direct and efficient, which creates room for identifying new research goals and accomplishes a better understanding of the development of the selected area of a doctoral dissertation.
- realization of the importance of theory, bibliography and paper publishing in the field of the specialization. Creation of a personal system which includes a complete review of confirmed theories sophisticated in a written form and with programme solutions (softwares). Such a system is a motivational foundation for the research work which brings an important progress in science and valuable practical results.
- creation of a personal system for vertical and horizontal data search according to the principle of recency, relevance and reliability. Acquisition of basic concepts such as impact factor, peer review, scientific contribution, scientific insight, knowledge bases.

# A.2.2. ANALYSIS OF THE COMPATIBILITY OF THE DOCTORAL STUDY WITH THE RESEARCH STRATEGY OF THE UNIVERSITY OF ZAGREB

The Research, Technology and Innovations Development Strategy of the University of Zagreb (2014), among other things, particularly fosters academic excellence, a motivational research environment as well as an international cooperation and networking. It emphasizes the need for additional institutional and regional deliberation and positioning in the system of Smart Specializations, which should enable recognition of capacities and research excellence in particular milieus. It states that the research works which directly contribute to the improvement in the position and innovativeness of Croatian economy should be particularly valued since such an attitude promotes a positive financing cycle through a direct creation of a new value. Exactly this is what is achieved by a more rational use of energy and raw materials with the protection of all environmental components, which meets modern-day challenges such as sustainable development and climate changes.

Furthermore, the Strategy states that the big questions of international science are usually solved with the help of scientists of different profiles because the nature of such problems is extremely complex and versatile, which fosters an interdisciplinary and transdisciplinary approach at the University of Zagreb. It emphasizes the need for research infrastructure development intended for top science, which can provide the economy with an added value. The Strategy also states that infrastructure development should fit into European financing instruments, and interdisciplinary research works in particular have great financial resources at their disposal ( for things such as circular economy, adaptation to climate changes or their mitigation and the like ).

Insight into the item A.1.2. of the Overview shows that through cooperation in the teaching process among various institutions in and outside Croatia the proposed doctoral study programme significantly contributes to the main strategic goal of the Strategy, which emphasizes the encouragement of cooperation and multidisciplinary approach to research works.

Furthermore, the proposed doctoral study programme will also contribute to the following direct goals of the Strategy:

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1 fostering academic excellence – through paper publishing in journals with a high IF and indexed in the Current Contents and WoS databases

2 development of international cooperation and networking

3 fostering the application and management of international projects

4 fostering more extensive and more ambitious research projects

- through the already existing Joint doctoral study established on the basis of an Inter-university Consortium Agreement ( contract signers are the Graz University of Technology, The Budapest University of Technology and Economics, The University of Zagreb and University of Maribor ) also through the KIC Raw Materials consortium

- through the KIC-"EIT- Raw Materials" international project with more than a hundred partner institutions form all over the EU taking part in it. The University of Zagreb is an associate partner of the KIC – "EIT – Raw Materials" consortium and participates in the project with several member faculties, one of which is the Faculty of Geotechnical Engineering. The goal of the project is to decrease the import dependency of non-energy raw materials. The role in the project: project manager at a member faculty level; The duration of the project: 2014- until today

- through the VIRTULAB project - An Integrated Laboratory for Primary and Secondary Raw Materials; Through the project equipping of five faculty laboratories at the University of Zagreb will be financed with the purpose of strengthening their scientific-research capacities and establishing a virtual primary and secondary raw materials research centre. The role in the project: project manager at a member faculty level. The status of the project: it has been put on the indicative list of the Ministry of Science and Education. The second stage of the evaluation process is currently in progress.

## A.2.3. PRIOR EXPERIENCES OF THE PROGRAMME PROPOSER IN IMPLEMENTATION OF DOCTORAL STUDIES

Since 2012/2013 the Faculty of Geotechnical Engineering has been participating in conducting the International Joint doctoral programme "Geo-Engineering and Water management" as an active and full partner. This is the only such joint study which the University of Zagreb participates in. In this matter it should be mentioned that the Faculty of Geotechnical Engineering was the founder of the study together with the Graz University of Technology. At the moment the implementer of the study is the University of Zagreb, and besides the Faculty of Geotechnical Engineering, The Faculty of Mining, Geology and Petroleum Engineering and the Faculty of Civil Engineering also take part in giving lectures. The International joint doctoral programme has been established on the basis of the Inter-university Consortium Agreement signed by the Graz University of Technology, The Budapest University of Technology and Economics, The University of Zagreb and University of Maribor. Lectures at the International joint doctoral programme started in the academic year 2012 / 2013. Five employees of the Faculty of Geotechnical Engineering regularly give lectures at it, a representative from the Faculty is a member of the international Study Council and so far two Joint Schools have taken place at the Faculty in Varaždin.

Besides that, the Faculty of Geotechnical Engineering also takes part in giving part of the lectures at the university interdisciplinary postgraduate specialist study in Ecoengineering, which is also implemented by the University of Zagreb, Centre for Postgraduate studies. The study provider is the Faculty of Chemical Engineering and Technology and other institutions of the University of Zagreb which participate in its implementation include the Faculty of Geotechnical Engineering, The Faculty of Mining, Geology and Petroleum Engineering, the Faculty of Civil Engineering, The Faculty of Science and the Faculty of Architecture.

To conclude with, several employees of the Faculty of Geotechnical Engineering give lectures or mentor the development of doctoral dissertations at doctoral studies of other faculties.

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# **A.2.4.** INTERNATIONAL RECOGNISABILITY OF THE PROPOSER OF THE DOCTORAL STUDY IN SCIENTIFIC OR ARTISTIC RESEARCH, OR ARTISTIC CREATION

The Faculty of Geotechnical Engineering has been building its international recognisability by including the employees of the Faculty in all spheres of international cooperation. Numerous scientific papers published in international scientific journals as well as the participation in different international conferences show that. Furthermore, employees of the Faculty take part in scientific and organizational boards of international scientific conferences, they attend lectures they are invited to and they also participate in conference review boards and in international journals.

An active participation in the organization and implementation of the International joint doctoral programme "Geo-Engineering and Water management" together with the Graz University of Technology, The Budapest University of Technology and Economics, The University of Zagreb and University of Maribor has also greatly contributed to the international recognisability of the Faculty of Geotechnical Engineering.

Furthermore, the Faculty stimulates its employees to suggest and conduct internationally financed scientific-research projects, such as COST – EU projects with the aim of protecting groundwater resources in karst; FP7 cooperation- development of a programme for the Dubrovnik littoral trial area; development of a model for the protection of coastal water systems in the Mediterranean- financed by UNESCO; MedPartnership project within GEF UNEP / MAP; IPA project SI-CRO 2007- 2013- a programme of a transboundary cooperation between Slovenia and Croatia.

The international recognisability of the Faculty of Geotechnical Engineering can be seen through positive experiences from international exchanges of students and teaching staff from different parts of the world: Slovenia, Austria, Italy, Spain, Turkey, Bulgaria, Indonesia and Great Britain. In this academic year the Faculty has signed a student mobility agreement within the Erasmus+ project with Montanuniversität Leoben (Austrian), Univerza v Ljubljani (Slovenia), Univerza v Mariboru (Slovenia), Univerza v Novi Gorici (Slovenia), Universitat Politecnica de Cataluna (Spain), The University of Skopje (Macedonia) and University of Bucharest (Rumania). Besides that, the Faculty has signed agreements with different institutions abroad for the purpose of conducting professional practice of students.

# A.2.5. COMPARABILITY WITH SIMILAR DOCTORAL PROGRAMMES OF HIGHLY RANKED FOREIGN UNIVERSITIES

The majority of top universities in the USA which conduct undergraduate and graduate study programmes of environmental engineering also have a doctoral study programme of environmental engineering such as University of California, Berkley; Georgia Institute of Technology; The University of Michigan; University of Illinois at Urbana Champaign or Massachusetts Institute of Technology. The majority of these doctoral study programmes provide an opportunity for obtaining a doctoral degree in one of the following main areas: clean air engineering, clean water engineering and hydrology, waste management, pollution control and industrial ecology. At several universities environmental engineering is integrated with civil engineering ( Civil and Environmental Engineering ). Particular attention is paid to application of new technologies such as nanotechnology, multimedia simulation, new technologies in transportation and new technologies in waste disposal.

There are several such study programmes in Europe: in Lithuania (Kaunas University of Technology – PhD Environmental Engineering); Portugal (Instituto Superior Técnico – PhD Environmental Engineering; University of Porto – PhD Doctoral Programme in Environmental Engineering); Spain (Universitat Politècnica de Catalunya; BarcelonaTech (UPC) – PhD Environmental Engineering); Switzerland (Ecole Polytechnique Fédérale de Lausanne – PhD Civil and Environmental Engineering); Denmark (Technical University Denmark – Climate KIC PhD) and there are several in Great Britain (University of Strathclyde – PhD Civil and Environmental Engineering; Cardiff University – PhD Energy and Environmental Engineering; The University of Manchester – PhD Environmental Engineering; University of Edinburgh – Civil and Environmental Engineering). It should be noticed that most of them are located in Western Europe, which is a certain advantage of the proposed doctoral study.

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The insight into similar doctoral programmes in Europe shows that they have a clear tendency towards an interdisciplinary approach unlike American universities. For example, doctoral studies in environmental engineering at the observed universities ( such as University of Denmark, University of Edinburgh, Trinity College Dublin ) expand a classical approach which prevails in the USA ( the attention is almost solely paid to water, air and soli protection ) on new challenges which the EU is a global leader in such as renewable energy sources, circular economy, protection from radiation, raw materials management, climate change, sustainable development, the influence of innovations, recycling. It is interesting to note that these research areas mostly appear at smaller and specialised European universities such as, for example, University of Strathclyde from Glasgow, whose main research areas include environmental impact assessment, public and environmental health, soil remediation, water, environment, energetics and circular economy.

# A.2.6. REQUIREMENTS FOR ADMISSION TO THE STUDY PROGRAMME

Requirements for admission to the proposed doctoral study programme of environmental engineering are defined by the Board of Postgraduate Studies in accordance with the Article 8 of the Ordinance on Doctoral Study Programmes at the University of Zagreb. A public call for the enrolment in the doctoral study programme is issued at least a month prior to the commencement of lectures.

The study programme can be enrolled by the candidates who have completed:

- a university graduate study of Environmental Engineering
- a university graduate study of Geoengineering
- a university graduate study of Geotechnics

• a university graduate or undergraduate study in the field of technical sciences at a Croatian or foreign university

The procedure of recognition of qualifications acquired abroad is done according to the existing regulations in the Republic of Croatia. The Board of Postgraduate Studies can demand that candidates pass supplementary exams in order to gain basic knowledge necessary for the attendance and completion of the study in accordance with the Act 5, subsection 6 of the Ordinance on Doctoral Study Programmes at the University of Zagreb. In that case candidates attend supplementary courses and take exams from them according to the regular graduate study programme of the Faculty of Geotechnical Engineering and they are not accounted as ECTS points of the doctoral study.

The minimum average grade of a graduate or undergraduate study required for the admission to the doctoral study programme is 3,5 (grade point average).

The knowledge of the English language in necessary for the enrolment in the study.

## THE STATUS OF DOCTORAL STUDENTS

The status of doctoral students is regulated by the Article 12 of the Ordinance on Doctoral Studies at the University of Zagreb.

Doctoral students enrolled in the university doctoral study of Environmental Engineering can be:

- individuals whose study fees are covered by the system of science and high education
- Croatian or international scholarship holders
- Croatian or international foundation scholarship holders
- doctoral students whose fees are covered by Croatian or international scientific research projects
- doctoral students whose fees are covered by a legal entity which they are employed by



## • doctoral students who cover their own fees

While enrolling in the study, doctoral students determine the terms of study funding (the terms of research funding are determined when choosing a mentor and the draft of a doctoral dissertation). It is possible to change a financing source during the study.

# **A.2.7. D**ESCRIPTION OF THE SELECTION OF APPLICANTS WITH A SPECIAL EMPHASIS ON DESCRIPTION OF ADMISSION REQUIREMENTS CRITERIA AND TRANSPARENCY OF THE APPLICANT SELECTION PROCEDURE

An interview with applicants is a necessary part of the admission procedure. If there are more applicants than the envisaged number of free places, there will be a selection procedure consisting of several criteria such as grade point average, published papers, patents, awards, research interests shown during the interview and the like.

The final selection of applicants is based on the decision of the Board of Postgraduate Studies.

During the admission applicants make a written statement whether they want to be full-time or part-time students.

# A.2.8. DESCRIPTION OF THE INSTITUTIONAL MANAGEMENT OF THE STUDY

The Faculty of Geotechnical Engineering as a provider and implementer of the doctoral study programme of Environmental Engineering, i.e. the Board of Postgraduate Studies, determines the admission criteria in accordance with the Article 8 of the Ordinance on Doctoral Studies at the University of Zagreb.

The Board keeps a detailed record of research work and other completed study assignments of each doctoral student including obligation plans (for example, the creation of a doctoral portfolio). The Board is obliged to take care of the workload and efficiency of mentors and for each mentor it should keep a record of the number of enrolled doctoral students and of the number of doctoral students who have defended their doctoral dissertation. The Board also regularly conducts self-assessment based on annual reports of mentors and doctoral students (a Dr.Sc.05 form) and informs the Faculty Council of the Faculty of Geotechnical Engineering. It also sends an annual report to the University of Zagreb on a University Dr.Sc. 09 form.

The Board consists of a president, vice-president and three members and they are chosen by the Faculty Council of the Faculty of Geotechnical Engineering at the suggestion of the dean. The Board's mandate lasts three (3) years. Basically, the Board is chosen among the heads of study modules. A head of a study module is also a doctoral student's study advisor until the appointment of a mentor.

The doctoral study is organised and conducted according to the study programme and curriculum.

Self-assessment reports are enclosed during the process of reaccreditation. The doctoral study rating criteria consist of the scientific production of course lecturers and doctoral students, the quality of lectures, relevance and quality of doctoral dissertations, statistical indicators of the study duration, statistical indicators of an annual number of new Ph.Ds. with regard to the number of enrolled doctoral students and achieved international cooperation.

The Student Registrar's manages the administrative work of the doctoral study.

A detailed timeframe of the doctoral study is shown in Table 2.



	The Doctoral Study Programme Timeframe accordin		ame according	to the Ordinance on Doctoral S	tudes a th	e University of	<sup>f</sup> Zagreb <sup>1</sup>	
DOCTORAL STUDENT	C	OCTORALS	STUDY					
Year	Semester	Obligation	Form	Deadline	Obligation	Form	Responsible authority	Deadline
		<ol> <li>Enrolment in the study programme</li> <li>Research field proposal</li> </ol>		1	1. Definition of enrolment conditions and issuing of a public call			At least a month prior to the commencement
0	0	3. Statement about a full-time or part-time mode of studying		Up to the enrolment	2. Interview with a candidate 3. Public announcement of the names of selected candidates		Doctoral Study Council <sup>2</sup>	of lecturs
		4. Statement about the ability of fulfilling the obligations according to the study plan ( part- time students only)		in the 1 <sup>st</sup> semester	4. Appointment of a study advisor ( if necessary )			Beginning of a new semester
1	1 2	<ol> <li>Dissertation theme selection and submission</li> <li>Mentor selection</li> <li>Proposal of research funding conditions</li> </ol>	DR.SC01 DR.ART01	Up to the enrolment in the 3 <sup>rd</sup> semester	1. Approval of an Ethics committee ( if necessary )	DR.SC01 DR.ART 01	Ethics committee	
Adactoral	student's ann			Up to the enrolment in a new	Annual report on the work of the study	DR.SC09 DR.ART 09	Doctoral Study Council	Up to the enrolment in a new academic
A doctoral student's annual		ומו עוסצופיזי ופעטרנ	DR.ART04	academic year	Study advisor`s / mentor`s annual report on a doctoral student`s progress	DR.SC05 DR.ART05	Study advisor / mentor	year

<sup>&</sup>lt;sup>1</sup> The given deadlines represent maximum allowed deadlines according to *the Ordinance on Doctoral Studies at the University of Zagreb*. The activitie can be performed before the given deadline.



<sup>&</sup>lt;sup>2</sup> A Doctoral Study Council at the level of a constituent member can be an Expert Council or some other responsible body. Doctoral Study Council at the level of the University of Zagreb can be a Field Council, the Senate or some other responsible body. The study provider detremines its members.

<sup>&</sup>lt;sup>3</sup> A competent body of the study is an Expert Council of the Institution, i.e. a Field Council or the Senate of the University.



3	5	Writing of a doctoral dissertation						
	6	Writing of a doctoral dissertation						
A doctoral student`s annual progress report		DR.SC04	Up to the enrolment in a new academic	Annual report on the work of the study	DR.SC09 DR.ART09	Doctoral Study Council	Up to the enrolment in a new academic	
			DR.ART04	year	Mentor`s annual report on a doctoral student`s progress	DR.SC05 DR.ART05	Mentor	year

	1. At least one		1. Mentor's consent and opinion about a conducted research		Mentor	
Λ_	internationally reviewed scientific paper related to a doctoral research must be published or accepted for publication or a public		2. Appointment of the Committee for the Evaluation of a Doctoral Dissertation		Competent body of the study programme	Two months
<b>4</b> <sup>-</sup> <b>8</b> <sup>4</sup>	presentation of a work of art 2. Fulfilment of all the		3. Publishing of a title and abstract of a doctoral dissertation on the University`s web pages		The University of Zagreb	after the appointment of the Committee
	2. Fulfilment of all the obligations envisaged by the study programme		4. Written report with a grade awarded to a doctoral dissertation	DR.SC11 DR.ART 11	The Committee for the Evaluation of a Doctoral	

<sup>&</sup>lt;sup>4</sup> The dynamics of writing and submitting a doctoral dissertation in the period from the 4th to the 8th study year depends on the full-time or part-time mode of studying. At the end of each academic year a doctoral student and a mentor submit progress reports, and a PhD programme director submits an annual report on the work of the study. The reports are written on appropriate University forms.



							Dissertation	
		3. Submission of a doctoral dissertation to a registration			5. Acceptance of the decision of the Committee for the Evaluation of a Doctoral Dissertation		Competent body of the study	1
		office of the Institution or the University			6. Appointment of the Committee for the Defence of a Doctoral		Competent body of the study	Two months after the evaluation of a doctoral dissertation
	4. Report to the Office for Technology Transfer on the			Dissertation		programme		
		defence ( if necessary )			7. Decision of the Committee for the Defence of a Doctoral Dissertation	DR.SC10 DR.ART	The Committee for the Defence of a Doctoral Discortation	
		5. Public defence of a doctoral dissertation	DR.SC10 DR.ART10			10	Dissertation	
				COMPLETI	ON OF THE STUDY			
		Submission of a graduation ceremony form of doctors of science		A month after the defence of a doctoral	1. Publishing of a doctoral dissertation on the University's web pages		The University of Zagreb	A month after the defence of a doctoral dissertation
				dissertation	2. Graduation ceremony of doctors of science		The University of Zagreb	Twice a year

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# A.3. CURRICULUM OF THE DOCTORAL STUDY

# A.3.1. DESCRIPTION OF THE STRUCTURE OF THE PROGRAMME OF THE DOCTORAL STUDY

The structure and implementation of the doctoral study programme of Environmental Engineering at the Faculty of Geotechnical Engineering is determined by the Faculty's Ordinance on Doctoral Studies, which is aligned with the Ordinance on Doctoral Study Programmes at the University of Zagreb. The curriculum consists of modules in order that doctoral students can recognize their research interests more easily. A particular module is managed by a head. During the study students can choose one required and seven elective courses out of which one is chosen. There are five elective modules: B1. Sustainable waste management; B2. Environment and nature; B3. Environmental Geoengineering; B4. Water management and B5. Energetics. With the approval of a PhD programme director students enrol in four courses which they choose from offered modules. Besides choosing courses form only one module, applicants can also choose their personal structure of the curriculum by enrolling in courses from all the other modules. Required types of teaching work also include research seminars and discussion groups. Other activities include paper publishing, specialization at other scientific institutions as well as international summer schools and courses, which is in detail shown in Table 3. Regarding the recognition of ECTS credits earned from other types of teaching work, students should consult the Board of Postgraduate Studies. Table 4 shows modules which constitute the structure of the study programme.

Table 3. Structure of the doctoral study programme of Environmental Engineering at the Faculty of

TYPES OF WORK	CONTENTS	DESCRIPTION	ECTS	ECTS cumulatively
	1 required course	at the level of the study	5	
	1 elective course	at the level of the study	4	
Lectures	4 elective courses	at the level of modules or according to their own choice from different modules	4 x 5	29
Other required types of teaching work	research seminar	at the level of a module once during the study	2	31
WOIK	discussion groups	at the level of a module once during the study	1	
Other types of teaching		a paper published in a journal covered in the CC database	4	
work	scientific papers	a paper published in a journal covered in the SCI/SCI database expanded	3	
		a paper published in a journal covered in the Scopus database	2	
		a paper published in a journal covered in other databases	1	

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	domestic and		a pap	per with a		2		
	international conferences	_	a po	ster section		1		
	specialization at other institution	S	at least 1 month			3		
	(maximum 2) summer schools workshops and courses (maximum 2 sch )	, iools	with an exam ( su schools ), with a c of attendance / co course and / or w workshops and co		ummer certificate completed vorkshop ( ourses )	2	5	0
Doctoral dissertation	research, a mandatory pape a CC / SCIE jourr preparation and defence of a doo dissertation	er in ial, ctoral				130	18	30
					Year c	of study		
Types of work		1st year		2nd	2nd year		3rd year	
		1s seme	t ster	2nd semester	3rd semester	4th semester	5th semester	6th semester
Lectures		•		•				
Other required	research seminar					•		
teaching work	discussion groups				•			
	scientific	recom dati	men on	recommen dation	recommen dation	recommen dation	recommen dation	recommen dation
		•		•	•	•	•	•
Other types of teaching work	Other types of teaching work conferences		men on	recommen dation •	recommen dation •	recommen dation •	recommen dation •	recommen dation •
	specialization at other scientific institutions				recommen dation •	recommen dation •	recommen dation •	
	summer schools and courses					recomme ndation	recommen dation •	

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	submission of a theme	•				
Doctoral	public defence of a theme		•			
dissertation	research	•	•	•	•	•
	preparation of					
	a doctoral		•	•	•	•
	dissertation					
	defence of a doctoral dissertation					recommen dation •

# Table 4. Modules of the study programme

# Required courses:

No.	Course lecturer(s) (associates)	Course name	Required/ elective	L	E	ECTS
1.	Božičević	Methods of scientific research	R	30	-	5

# Elective courses at the level of the study programme:

No.	Course lecturer(s) ( associates )	Course name	Required/ elective	L	E	ECTS
1.	Koprivanac/Anić Vučinić	Environmental management	E	45	0	4
2.	Koprivanac (Šimurina)	Environmental economics	E	45	0	4
3.	Tišma (Boromisa)	Environmental protection policy	E	30	15	4
4.	Matulić	Moral and ethical approach to the environment	E	30	15	4
5.	Kovač S./Rumenjak	Ecological models	E	35	10	4
6.	Koprivanac	Corporate environmental management systems	E	45	0	4

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7.	Anić Vučinić (Premur)	Communication and education in environmental protection	E	30	15	4
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# Module "Sustainable waste management"

No.	Course lecturer(s) (associates)	Course name	ame elective		E	ECTS
1.	Anić Vučinić (Premur)	Circular economy in waste management	E	30	30	5
2.	Petrović	Mechanical and biological waste E treatment and final disposal		15	45	5
3.	Kalambura	Waste management in the world	E	30	30	5
4.	Šarc	Energy recovery and thermal treatment of waste	E	45	15	5
5.	Ptiček Siročić	Recycling and disposal of polymers	E	30	30	5

# Module "Environment and nature"

No.	Course lecturer(s) (associates)	Course name	Required/ elective	L	E	ECTS
1.	Stančić	Habitats of Croatia	labitats of Croatia E		50	5
2.	Stančić	Ecological engineering	E	10	50	5
3.	Kniewald (Kovač I.)	Environmental forensics	E	45	15	5
4.	Sakač/Lobnik	Sensors in environmental protection	E	30	30	5
5.	Kisić (Zgorelec)	Remediation of contaminated soil	E	30	30	5
6.	Klasinc (Herjavić)	Air quality management	E	45	15	5



7.	Sakač/Šarkanj	Green analytical chemistry	E	15	45	5
8.	Klobučar	Ecotoxicology	E	30	30	5

Module "Environmental geoengineering"

No.	Course lecturer(s) (associates)	Course name	Required/ elective	L	E	ECTS
1.	Strelec/Gazdek	Subsurface investigations	E	30	30	5
2.	Strelec/Gazdek	Engineering and environmental geophysics	E	30	30	5
3.	Kavur/ Kovačević Zelić	Geotechnology in environmental protection	E	45	15	5
4.	Mesec	Mineral Resources Exploitation and Environmental Protection	E	30	30	5
5.	Hećimović/Rezo	Satellite missions	E	30	30	5
6.	Ivandić	Environmental Geotechnics	E	30	30	5
7.	Kortnik	Urban mining	E	30	30	5

# Module " Water management"

No.	Course lecturer(s) (associates)	Course name	Required/ elective	L	E	ECTS
1.	Biondić B./Pandžić/Pašičko	The impact of climate changes on water systems	E	30	30	5
2.	Biondić, R./Meaški	Management and protection of water resources	E	30	30	5
3.	Meaški/Biondić, R.	Environmental hydrogeology	E	30	30	5
4.	Kapelj/Horvatinčić	Isotope hydrochemistry	E	30	30	5
5.	Loborec	Water quality in the environment	E	15	45	5



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6.	Đurin	Urban and rural water systems	E	15	45	5
7.	Šiljeg	Water treatment for human consumption	E	30	30	5
8.	Biondić, D.	Impact of extreme hydrological events on the environment	E	30	30	5

Module "Energetics"

No.	Course lecturer(s) (associates )	Course name	Course name Required / elective		E	ECTS
1.	Golub/Kurevija	Geothermal energy	E	30	30	5
2.	Pašičko/Đukić	New technologies of renewable energy sources	E	30	30	5
3.	Pašičko	Financing of renewable energy sources and energy efficiency		30	30	5
4.	Lisac	Sustainable cities planning and low-carbon urban development	E	30	30	5
5.	Žakula	Energy in the buildings	E	30	30	5
6.	Golub/Kurevija	Environmental thermodynamics	E	30	30	5

# **A.3.2.** DESCRIPTION OF THE MANNER OF TRAINING DOCTORAL STUDENTS FOR ACQUISITION OF SCIENTIFIC OR ARTISTIC KNOWLEDGE, EXPERIENCES AND SKILLS THAT WILL ENABLE THEM TO SOLVE COMPLEX SOCIAL AND ECONOMIC PROBLEMS CREATIVELY AND ON THE BASIS OF RESEARCH

In an intensive and tiring process of a research work, which is the central part of the study programme, the cooperation with a mentor is the most important factor. This is exactly what all the activities and obligations of doctoral students are subordinated to during the doctoral study, in order to enable them to gain necessary scientific insights and knowledge and to develop experiences and skills necessary for solving complex social and economic problems. For this reason, the proposed doctoral study offers a certain amount of lectures which are necessary for the acquisition of scientific knowledge and also because education is important in solving economic and social problems. However, the attention is also paid to other types of teaching work such as research seminars and discussion groups, with the purpose of writing, publishing and presenting scientific papers. Besides that, the subject matter of the proposed doctoral study requires that doctoral students have an interdisciplinary approach to solving engineering problems, that they develop critical thinking and adjustment to teamwork. By conducting a scientific research, doctoral students acquire knowledge and research competences such as analytical and critical thinking and planning, organizing and managing of scientific projects- in this case a doctoral research, from which their

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original contribution to science eventually results through the process of writing and defence of their doctoral dissertation.

# **A.3.3. D**ESCRIPTION OF THE PROGRAMME POTENTIAL FOR TRAINING DOCTORAL STUDENTS FOR AN INDEPENDENT, RESEARCH-BASED AND INTERDISCIPLINARY APPROACH TO PROBLEMS, FOR INDEPENDENT RESEARCH AND FOR CRITICAL EVALUATION OF THE WORK OF OTHERS

During the study doctoral students have required activities whose function is to train them for an independent research work. First of all, it refers to the writing of a research seminar and mentorship. By participating in discussion groups they are trained to critically evaluate the work of others. The instruments of planning and evaluation of their work are annual progress reports (written on University forms) as well as a mentor's annual report on a doctoral student's progress. This enables doctoral students to make a detailed research plan for every year and stimulates them to make a detailed elaboration of research methods and through systematic monitoring and mentorship they are encouraged to conduct independent research and to develop an interdisciplinary approach to solving problems. Enrolment in elective courses from other constituent members of the University of Zagreb or other universities, attending workshops of visiting professors and the like enable an interdisciplinary approach to problems.

# **A.3.4. D**ESCRIPTION OF THE PROGRAMME POTENTIAL FOR ACQUISITION OF WORK COMPETENCES, INCLUDING LIST OF COURSES FOR DEVELOPMENT OF GENERIC AND TRANSFER SKILLS

The entire structure of the proposed doctoral study doctoral stimulates students to work independently, to manage research works responsibly and to acquire work competences and responsibility for their own progress. A course which particularly develops generic and transfer skills of a scientific work is Research work methodology, which is required in the first year of the study. Besides that, each elective course from the A1 group such as Environmental management, Environmental economics, Environmental protection policy, Moral and ethical approach to the environment, Ecological problems, Corporate and environmental management systems, Communication and education in environmental protection in a way contributes to the development of generic skills in solving the problems of environmental engineering. Furthermore, during the study either as part of the curriculum or for the needs of conducting a research, doctoral students have a possibility to develop other generic or transfer skills firstly through their work in well-equipped laboratories or through participation in field research works. In that sense they are involved in the entire work process from samples preparation, device calibration, measurement, analysis and data management, which enables them to acquire work competences in a practical way. Also, doctoral students can use a specialized programme package in the field of doctoral research, which is another necessary work competence as well as a transfer skill necessary for their future career.

# **A.3.5.** POTENTIAL OF THE STUDY FOR ESTABLISHING COOPERATION WITH OTHER HIGHER EDUCATION INSTITUTIONS, RESEARCH INSTITUTES, AND PRIVATE AND PUBLIC BUSINESS SECTORS

## POTENTIAL AT AN INTERNATIONAL LEVEL

The Faculty of Geotechnical Engineering is one of 4 constituent members of the University of Zagreb participating in the European Institute of Innovation and Technology ( <a href="https://eit.europa.eu/">https://eit.europa.eu/</a>) – "KIC Raw Materials" consortium ( <a href="https://eitrawmaterials.eu/">https://eitrawmaterials.eu/</a>). The aim of the consortium is to provide access, sufficient amount and sustainable management of raw materials serving the needs of the economy and citizens. The consortium connects more than 100 partner institutions from economic and academic sector from more than 20 EU countries. This is a long term project lasting 15 years with the aim of providing self-sustainability of the project upon the completion of that time period. Due to a big number of partner institutions, the consortium is managed by 6 Co-Location Centres situated in Belgium, Finland, France, Italy, Poland and Sweden. Some of the aims of the project are knowledge transfer, information and expertise towards emerging companies, start-up companies and SMEs. It is clear from the above-mentioned that the Faculty of Geotechnical Engineering has a well-branched network of partner institutions in the EU who they can establish different types of cooperation with.

We should also mention the Erasmus agreements which the faculty has signed with Univerza v Maribor ( Slovenia ), Universitat Politecnica de Cataluna (Spain ), Montanuniversität Leoben (Austria ), Univerza v

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Ljubljani ( Slovenia ), Namik Kemal Universitesi Çorlu ( Turkey ), Univerza v Nova Gorica, SS. Cyril and Methodius University in Skopje ( Macedonia ) and Technical University of Civil Engineering Bucharest ( Rumania ), which also ensure cooperation with other higher education institutions.

The Faculty has an International Cooperation Office which administratively manages all the activities concerning international cooperation of the Institution.

We would also like to emphasize that through personal scientific and business contacts of the Faculty staff cooperation with other institutions can be established.

# POTENTIAL AT A NATIONAL AND LOCAL LEVEL

Cooperation with other member faculties of the University of Zagreb is ensured through the involvement of their teachers in the implementation of the proposed doctoral study.

Furthermore, a good cooperation with a private and public business sector at a national level results from the fact that the Faculty is well-equipped with laboratory and field equipment. This cooperation can be seen in a number of conducted studies, overviews and projects in the field of soil and water protection, water management, geotechnics and geodesy.

A cooperation with a private and public business sector at a local level is ensured through a business document from December 2010 "The development strategy of Varaždin County 2011-2016". In this document a number of strategic goals are mentioned which are compatible with the strategic development of the Faculty of Geotechnical Engineering as well as with the proposed doctoral study such as the improvement of a life quality, human resources development, environmental protection, rational regional management and infrastructural development.

We would also like to point out that our two employees, Mario Šiljeg, Ph.D., Assistant Professor and Milan Rezo, Ph.D., Assistant Professor, are currently employed as state officials. The former is a State Secretary in The Ministry of Environment and Energy and the latter is an Assistant Minister in the Ministry of Construction and Physical Planning, which also ensures a good cooperation with a public sector at a national level.

# A.3.6. REQUIREMENTS FOR STUDENTS' ADVANCING DURING THE STUDY

Requirements for students` advancing during the study are based on the ECTS credit system which evaluates the entire dedication and fulfilment of study obligations, other types of teaching work and progress in writing a doctoral dissertation. The dynamics of fulfilling the set obligations according to the years of study is clearly defined in Table 3. *Structure of the doctoral study programme of Environmental Engineering at the Faculty of Geotechnical Engineering.* Based on a mentor's and doctoral student's annual report the Board of Postgraduate Studies keeps a record of the fulfillment of each doctoral student's study obligations including the creation of a doctoral portfolio.

# A.3.7. REQUIREMENTS FOR APPROVING THE PROPOSAL OF THE DOCTORAL DISSERTATION

During the study, by the end of the second semester at the latest, a mentor and a theme of a doctoral dissertation are determined.

# The procedure of submission, evaluation and approval of the draft of the doctoral dissertation theme

The conditions for the procedure of submission, evaluation and approval of the draft of the doctoral dissertation theme are more precisely defined in the Act 16 of the Ordinance on Doctoral Studies at the University of Zagreb.

• during the study, up to the end of the second semester at the latest, a mentor and a doctoral

dissertation theme are determined ( this and similar regulations also refer to the case of a double mentorship ),



- when a mentor and a theme are chosen, working conditions, especially research funding conditions are also determined,
- a doctoral student initiates the procedure of approving a doctoral dissertation theme by filling in a University Dr. Sc. 01 application form, which contains general information about a doctoral student, a CV, a list of doctoral student's papers, a title of the proposed theme, information about a proposed menthor, co-mentor and their competences, a detailed explanation of the theme ( Summary in Croatian and English; Introduction and overview of previous research works; Goal and hypothesis of the research; Materials, methodology and research plan; Expected scientific contribution of the proposed research; List of quoted bibliography; Estimation of total costs of the proposed research ), suggested sources of financing and a statement that a doctoral thesis with the similar theme has not been submitted at some other faculty of the University or at some other university,
- the Board of Postgraduate Studies appoints a Committee for the Evaluation of a Theme and Mentor Proposal. It consists of three members, where at least one member must not either be a teacher at the study or employed by the provider of the study. A proposed mentor cannot be appointed as a chairman of the Committee,
- a proposed theme is defended publicly in front of the Committee, other doctoral students and all the others who are interested,
- the Committee evaluates the potential of an original scientific contribution, financial and organizational feasibility of a research and suggests a mentor. The Committee awards their grade three months after the submission of the application at the latest ( a Dr.Sc.02 form ),
- the Board of Postgraduate Studies must express their opinion about the Committee's proposal at the next session,

The Technical Field Council of the University of Zagreb suggests that the Senate of the University of Zagreb accepts a proposed theme and a mentor. The Senate confirms a theme and a mentor at the next session (a Dr.Sc.03 form).

# A.3.8. REQUIREMENTS FOR COMPLETION OF STUDY

Since the proposed doctoral study is research oriented, the proportion of a typical type of instruction such as lectures or tutorials makes up less than 20 % of the total study load. As we have previously stated, doctoral students choose from a group of courses which are common at the level of the study and enrol in one required and one elective course and they enrol in four elective courses form offered modules. The attention is paid to a research itself and other types of gaining knowledge and skills (workshops, seminars, discussion groups, attendance of domestic and international conferences, writing and presentation of papers and posters). The requirements for students` advancing during the study, i.e. for completion of the study, are defined in Table 3. At the end of the fourth semester a student must have a minimum of 180 ECTS credits, out of which 29 ECTS credits are earned through lectures, 130 ECTS credits are earned through a doctoral dissertation and the remaining 21 ECTS credits are earned through other types of teaching work.

# DOCTORAL DISSERTATION

A doctoral dissertation is defined by the Acts 13, 14 and 15 of the Ordinance on Doctoral Studies at the University of Zagreb.

A doctoral dissertation is a public scientific paper subject to public scientific evaluation.

In case the research results of a doctoral dissertation include an innovation which requires intellectual property rights protection, a doctoral student and a mentor can inform the Office for Technology Transfer at the University of Zagreb. In that case, with a mentor's consent before submitting a doctoral dissertation

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for evaluation, a doctoral student can demand that the submitted doctoral dissertation is handled secretly up to the moment of a public defence.

The Office for Technology Transfer conducts the Legal Protection and Commercialization of Research Results in accordance with the Ordinance on the Office for Technology Transfer. In that case a public defense, with a student's consent, can be postponed to the maximum of one year after a doctoral dissertation has been submitted for evaluation. A confirmation of the Office for Technology Transfer should be enclosed with the request for the postponement of the public defense of a doctoral dissertation.

Types of doctoral dissertations are:

- A scientific monograph
- A set of published scientific papers accompanied by a critical review chapter consisting of an introduction, a discussion, a conclusion and a detailed review of a relevant bibliography ( the so called Scandinavian model ). A critical review puts the results of a doctoral dissertation in the context of existing scientific knowledge. That type of a work is possible only within a research work at a doctoral study and scientific papers must be published after the enrolment in the doctoral study. Joint scientific papers that are proposed as a doctoral dissertation must constitute a logical unity consisting of at least three papers which have been published in journals covered in a Web of Science database out of which at least one has been published in a journal whose impact factor is higher than the median impact factor of a journal which the results of a doctoral dissertation have been published in. Each paper, except with a special explanation, can qualify only one doctoral student. Joint scientific papers must give a new scientific contribution with regard to individual papers.

A doctoral dissertation can be written in Croatian or English.

An introduction, abstract and key words of a doctoral dissertation must be written in both Croatian and English.

An abstract should enable the understanding of the purpose of a doctoral dissertation, research methods, results and conclusion.

Graphic layout of a doctoral dissertation is determined by the University of Zagreb ( a Dr.Sc.08 form ).

## The evaluation process of a doctoral dissertation

Requirements for the evaluation process of a doctoral dissertation are more precisely defined in the Act 17 of the Ordinance on Doctoral Studies at the University of Zagreb.

- a doctoral student submits a doctoral dissertation to a registration office at the Faculty of Geotechnical Engineering together with a mentor's written consent and opinion about a conducted research and achieved original scientific contribution. If a mentor does not want to give a consent, he / she must give an explanation within 15 days. In both cases a mentor's explanation is delivered to the members of the Committee for the Evaluation of a Doctoral Dissertation, who have to take it into consideration during the evaluation,
- before submitting a doctoral dissertation for evaluation, it has to be determined whether a doctoral student has fulfilled all the required conditions
- in order for a doctoral dissertation to be evaluated, a doctoral student submits a printed and an electronic version
- the Committee for the Evaluation of a Doctoral Dissertation is appointed at the suggestion of the Board of Postgraduate Studies. The Committee has at least three evaluators where at least one of them is neither a lecturer at a doctoral study nor is employed by the Faculty of Geotechnical Engineering, which is the provider of the study. If possible, he / she is employed by some other

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Croatian or foreign university or a similar institution. A proposed mentor cannot be appointed as a president of the Committee,

- members of the Committee for the Evaluation of a Doctoral Dissertation must be elected to at least the scientific-teaching title of Assistant Professor or Research Associate or to an equivalent title if a title has been gained abroad,
- simultaneously with the appointment of the Committee for the Evaluation of a Doctoral Dissertation, the University publishes on its website a title and an abstract of a doctoral dissertation in Croatian and English
- members of the Committee for the Evaluation of a Doctoral Dissertation have to handle the data and information arising from a doctoral dissertation confidentially before announcing a grade, in order to protect the scientific contribution of a dissertation and intellectual property
- the Committee is obliged to issue a written report and award a grade to a doctoral dissertation within three months, not taking into account non-working days. The Committee president prepares a report based on collected opinions of the Committee members, and the report is signed by all the Committee members. Each Committee member is allowed to submit a separate grade,
- the Committee's report ( a Dr.Sc.10 form ) contains the following suggestions:
  - o acceptance of a doctoral dissertation with an explicit statement about an original scientific
    - contribution or
  - o revision of a doctoral dissertation and final grading or
  - o refusal of a doctoral dissertation, after which a doctoral student loses the right to obtain
    - his / her doctor`s degree in the study programme.

Explanation is a necessary part of the report. A competent body makes a decision about the grade awarded to a doctoral dissertation and appoints a Committee for the Defence of a Doctoral Dissertation at the next session. After a grade has been awarded, interested members of public-sector experts are allowed to have a supervised insight into it.

After a competent body accepts a positive evaluation of a doctoral dissertation, a doctoral student can defend it.

## The Procedure of a doctoral dissertation defence

The requirements for the procedure of a doctoral dissertation defence are more precisely defined by the Acts 18 and 19 of the Ordinance on Doctoral Studies at the University of Zagreb.

- a doctoral student can defend a doctoral dissertation after a competent body accepts a positive grade awarded by the Committee for the Evaluation of a Doctoral Dissertation , within two months at the latest
- the Committee for the Defence of a Doctoral Dissertation has at least three evaluators. It can have the same members as the Committee for the Evaluation of a Doctoral Dissertation. A mentor can participate in the procedure of doctoral dissertation defence,
- a doctoral dissertation defence is public. A call for a public defence of a doctoral dissertation must be announced at a Faculty's notice board and published on a Faculty's website at least 8 days prior to the defence. The defence takes place in premises determined by the Board of Postgraduate Studies in a language which a dissertation has been written in
- the Committee for the Defence of a Doctoral Dissertation awards a grade after the defence. An awarded grade can be "defended" or "not defended". The grade is awarded by the majority of votes of the Committee members



- a report about the defence procedure is written in Croatian, and in case of a defence in English, a report is written in English ( a Dr.Sc.11 form )
- a final defence of a doctoral dissertation can take place only once.

# A.3.9. POSSIBILITY OF IMPLEMENTATION OF THE DOCTORAL STUDY PROGRAMME IN THE ENGLISH LANGUAGE

Taking into account a list of courses from item A.3.10., which course lecturers are also ready to offer in English, it is obvious that there is a possibility of implementing the doctoral study in English.

# A.3.10. LIST OF COURSES/MODULES THAT CAN BE OFFERED IN ENGLISH

Module A0 - required at the study level: Methods of scientific research

Module A1 – required at the study level: Environmental management, Environmental economics, Corporate environmental management systems,

Module B1 – Sustainable waste management: Mechanical and biological waste treatment and final disposal, Waste management in the world, Energy recovery and thermal treatment of waste

Module B2 – Environment and nature: Environmental forensics, Sensors in environmental protection, Remediation of contaminated soil, Air quality management, Green analytical chemistry, Ecotoxicology

MODULE B3 – Environmental geoengineering: Subsurface investigations, Engineering and environmental geophysics, Geotechnology in environmental protection, Environmental geotechnics, Urban mining

Module B4 – Water management: The impact of climate changes on water systems, Management and protection of water resources, Environmental hydrogeology, Isotope hydrochemistry, Water quality in the environment, Urban and rural water systems

Module B5 – Energetics: Geothermal energy, New technologies of renewable energy sources, Financing of renewable energy sources and energy efficiency, Sustainable cities planning and low-carbon urban development, Energy in the buildings, Environmental thermodynamics.

# A.3.11. CRITERIA AND REQUIREMENTS FOR ENROLLING IN COURSES/MODULES FROM OTHER DOCTORAL STUDIES

Doctoral students can achieve horizontal mobility within the University of Zagreb according to the Article 5, subsection 5 of the Ordinance on Doctoral Studies at the University of Zagreb and in accordance with the study programme they can enrol in particular courses from other university studies (study programmes) at the University of Zagreb which are not offered within their own study programme. In that case a person responsible for the study programme and an ECTS coordinator of the member faculty which is the provider of the study programme allow the enrolment in courses with the approval of an ECTS coordinator and a course lecturer of the member faculty which offers a selected course. A similar case is also with the courses of study programmes at the universities which the Faculty of Geotechnical Engineering has signed a student exchange agreement with within the Erasmus project- currently these universities: Univerza v Mariboru (Slovenia), Universitat Politecnica da Cataluna (Spain), Montanuniversität Leoben (Austria), Univerza v Ljubljani (Slovenia), Namik Kemal Universitesi Çorlu (Turkey) and Univerza v Novoj Gorici (Slovenia).

In terms of vertical mobility the doctoral study is opened for students who have completed a graduate study programme at the Faculty of Geotechnical Engineering or a similar graduate programme at an appropriate domestic or foreign faculty. Their passed exams have to be checked and they should earn at least 180 ECTS credits and a decision about that is made by the Board of Postgraduate Studies.



# **A.3.12.** DESCRIPTION OF THE SYSTEM OF ADVISING AND GUIDING DOCTORAL STUDENTS THROUGH THE DOCTORAL STUDY, APPOINTMENT OF STUDY ADVISOR IN THE PROCESS OF ENROLMENT INTO THE DOCTORAL STUDY, AND HIS/HER DUTIES

The Board of Postgraduate Studies coordinates the PhD study programme and appoints a study advisor to a doctoral student in the process of enrolment in the doctoral study. The study advisor guides and helps a doctoral student until the appointment of a mentor. After a mentor has been elected and confirmed, he / she encourages a doctoral student during his / her research work, guides and monitors the writing of a dissertation and the quality of a doctoral student's work. A doctoral portfolio contains all important information about a doctoral student from his enrolment in the study until a graduation ceremony.

# A.3.13. RIGHTS AND OBLIGATIONS OF DOCTORAL STUDENTS, MENTORS AND STUDY PROVIDERS

# **RIGHTS AND OBLIGATIONS OF DOCTORAL STUDENTS**

Rights and obligations of doctoral students, mentors and a study provider are determined by the Acts 4, 9, 10 and 11 of the Ordinance on Doctoral Studies at the University of Zagreb. A doctoral student is obliged to submit an annual report about his / her work ( with a possible presentation of his / her research ) to the Doctoral Study Council. The report should be written on a University form, the so called Dr.Sc. 04 form – "A doctoral student's annual progress report".

A doctoral student is allowed to change a mentor or a theme once. In order to do that, he / she needs to submit a written request and a previous mentor's statement also on a University Dr.Sc.06 form – "Request for the change of a theme and / or mentor". The decision about that is made by the Board of Postgraduate Studies.

Before the defence of a doctoral dissertation, a doctoral student has to fulfil all the necessary conditions stated the item A3.8. A doctoral student is allowed to finish the study under the conditions under which he / she is of enrolled within 8 years.

# MENTORSHIP

The decision on the appointment of a mentor is made by the Board of Postgraduate Studies. In accordance with the Act 9 subsection 1 of the Ordinance on Doctoral Studies at the University of Zagreb, a mentor can be a person who:

- has been elected to at least the scientific-teaching title of Assistant Professor or Research Associate or to an equivalent title if a title has been gained abroad,
- is a manager or a member of a scientific research project or an active researcher in the research field of a doctoral dissertation
- is scientifically active, relevant in an international scientific community, a person who has published scientific papers associated with the theme of a doctoral research and whose scientific papers have been published over the last five years.

A mentor can be a professor emeritus, i.e. a member of the Croatian Academy of Sciences and Arts.

The decision on the appointment of a mentor is made by the Board of Postgraduate Studies.

A mentor who is not employed by the Faculty of Geotechnical Engineering or the University of Zagreb must sign a cooperation agreement with the dean of the Faculty. With the approval of the Board of Postgraduate Studies, a person appointed as a mentor before his / her retirement is allowed to bring mentorship to an end.

A mentor has to guide a doctoral student during the writing of a doctoral dissertation, monitor the quality of a doctoral student's work, encourage paper publishing and enable a doctoral student to participate in scientific projects.

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If there are several mentors, each of them takes responsibility for a predetermined part of research and the procedure of writing a doctoral dissertation.

Once a year a mentor submits a report on a doctoral student's progress to the Board of Postgraduate Studies. Before a mentor's appointment, the report is submitted by a study advisor.

If a need for a double mentorship is necessary (for example, in case of an interdisciplinary character of a research or if a research is conducted at several institutions), this need must be met in order to ensure the quality of a doctoral dissertation. One of mentors must be employed by the Faculty of Geotechnical Engineering.

# **OBLIGATIONS OF THE PROVIDER OF THE STUDY**

The Faculty of Geotechnical Engineering as a provider and implementer of the doctoral study programme in Environmental Engineering, i.e. the Board of Postgraduate Studies, determines the admission criteria in accordance with the Article 8 of the Ordinance on Doctoral Studies at the University of Zagreb. The Board of Postgraduate Studies keeps a detailed record of a research work and other completed study assignments of each doctoral student including plans of obligations ( for example, the creation of a doctoral portfolio ). The Board of Postgraduate Studies is obliged to take care of the workload and efficacy of mentors and for each mentor it should keep a record of the number of enrolled doctoral students and of the number of doctoral students who have defended their doctoral dissertation. The Board also regularly conducts self-assessments based on mentors` and doctoral students` annual reports and informs the Faculty Council of the Faculty of Geotechnical Engineering. It also sends an annual report to the University of Zagreb written on a University form.

The Board consists of a president, vice-president and three members and they are chosen by the Faculty Council of the Faculty of Geotechnical Engineering at the suggestion of the dean. The Board's mandate lasts three (3) years. Basically, the Board is chosen among the heads of study modules. A head of a study module is also a doctoral student's study advisor until the appointment of a mentor.

REVENUES			Number of students	Number of semesters	Total
1. Tuition revenues	Tuition	10.000,00 kn	1	6	60.000,00 kn
EXPENDITURES			Number of classes	Gross fees per class	Total
1. Fees for held lectures	Required courses	1	30	860,00 kn	25.800,00 kn
	Elective courses	5			15.000,00 kn
	Total				40.800,00 kn
2. PhD Programme Coordination			Number of months		Total
1. PhD Programme Director	Monthly gross compensation				2.600,00 kn

## A.3.14. COST OF THE STUDY PROGRAMME PER DOCTORAL STUDENT



2. PhD Programme Secretary	Monthly gross				
	compensation				1.500,00 kn
	Total				
					4.100,00 kn
3. Compensation for participation					
in Committees for the Evaluation					
and Defence of a Doctoral					
Dissertation					
1. Committee for the Evaluation of			Gross	Number of	Total
the Theme of a Doctoral			compensation	doctoral	
Dissertation				students	
	Writer of a	1	2 600 00 kn	1	
	report	1	2.000,00 km		2 600 00 kn
					21000,00 km
	Other	2	1.500,00 kn	1	
	members				3.000,00 kn
	Total				
					5.600,00 kn
2. Committee for the Evaluation			Gross	Number of	Total
and Defence of a Doctoral			compensation	doctoral	
Dissertation				students	
	The first	1		1	
	member of	-		-	3.000.00 kn
	the		3.000,00 kn		,
	committee				
	A	2	1 700 00 hm	1	
	A committee	2	1.700,00 kh		3 400 00 kp
	member				3.400,00 KH
	Total				
					6.400,00 kn
4. Professional literature for the			Number of		Total
study			semesters		
	Fees per				
	semester				1.500,00 kn
			Number of		
			semesters		
5. Fixed study fees	Fees per	1.000,00 kn			
	semester				1.500,00 kn
TOTAL EXPENDITURES					
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					59.900,00 kn
REVENUES / EXPENDITURES DIFFERENCE					100,00 kn
Fees for lectures from elective courses: two course lecturers from Zagreb will be paid 500 kn per 15 arrivals and three courses will be conducted by our course lecturers through seminars free of charge.					



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# A.4. METHODS OF MONITORING QUALITY OF THE DOCTORAL STUDY

Quality assurance of the doctoral study is determined by the Article 22 of the Ordinance on Doctoral Studies at the University of Zagreb.

A.4.1. LIST OF QUALITY INDICATORS SUCH AS SCIENTIFIC OR ARTISTIC PRODUCTION OF TEACHERS AND DOCTORAL STUDENTS, QUALITY OF INSTRUCTION, RELEVANCE AND QUALITY OF DOCTORAL DISSERTATIONS, STATISTICAL DATA ON DURATION OF STUDY, STATISTICAL DATA ON THE NUMBERS OF NEW HOLDERS OF DOCTORAL DEGREES IN RELATION TO THE NUMBERS OF DOCTORAL STUDENTS ANNUALLY, INTERNATIONAL COOPERATION REALIZED, EMPLOYABILITY OF NEW HOLDERS OF DOCTORAL DEGREES

The quality of the doctoral study will be monitored by quality indicators during and after the completion of a (three-year) cycle of the doctoral study.

Quality indicators during a (three-year) cycle of the doctoral study are:

- evaluation of the quality of instruction by students in form of anonymous student questionnaires after the end of a semester
- self-assessment of the quality of instruction by course lecturers through standardized selfassessment forms after the end of a semester
- evaluation of scientific production of course lecturers and doctoral students by analysing the number and type of published papers, but also by analysing the participation of doctoral students in scientific projects and scientific conferences
- analysis of the statistical indicators of enrolled, attended and passed courses

Quality indicators after the completion of a (three-year) cycle of the doctoral study are:

- analysis of the statistical indicators of the duration of the study and of the number of doctoral students who have quit or gave up studying
- analysis of the number of enrolled doctoral students and the number of doctoral degree holders
- anonymous externals reviews regarding the assessment of relevance and quality of doctoral dissertations
- analysis of achieved international cooperation

## **A.4.2. D**ESCRIPTION OF THE METHOD OF PARTICIPATION BY DOCTORAL STUDENTS IN PROCEDURES OF EVALUATION OF THE PROGRAMME OF THE DOCTORAL STUDY

Once a year a doctoral student submits a report about his / her work to the Board of Postgraduate Studies. On a university Dr.Sc.04 form a doctoral student evaluates the quality of his / her work, the quality of a mentor ( the clarity of setting research goals, help with planning annual activities, regularity of a mentorship with a doctoral student, stimulation of publishing and help with the publication of scientific papers as well as mentor's attitude towards a doctoral student ) and states satisfaction with the quality of the doctoral study.

**A.4.3. P**ROCEDURES FOR MONITORING AND IMPROVING THE QUALITY OF THE DOCTORAL STUDY PROGRAMME, AS WELL AS FOR MONITORING OF SUCCESS IN IMPLEMENTATION OF THE DOCTORAL STUDY (PROCEDURES OF EVALUATION

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AND SELF-EVALUATION — ANNUAL SELF-EVALUATION OF THE STUDY PROGRAMME, ANNUAL SELF-EVALUATION OF DOCTORAL STUDENTS, REVISION AND IMPROVEMENT OF THE DOCTORAL STUDY IN ACCORDANCE WITH QUALITY MONITORING RESULTS AND RESULTS OF SELF-EVALUATION OF THE PARTICIPANTS IN THE DOCTORAL PROGRAMME)

The contents and implementation quality of the doctoral study is monitored at several levels. The first level is an anonymous internal evaluation in which only students participate by evaluating each held course and the entire academic year of the study by filling in a questionnaire. The contents and the criteria of the questionnaires are uniform in order that teaching forms which are interesting to students and stimulating for their research work can be recognized more efficiently. This level also includes an anonymous student questionnaire at the end of the study in which doctoral students express an opinion about the importance of a selected module to their scientific, professional and personal development.

The second level are all the types of self-assessment and self-analyses. This includes questionnaires in which doctoral students self-assess the progress of mastering the curriculum and obligations as well as self-assessment of the curriculum of a particular module which is conducted by course lecturers.

The third level is an external evaluation according to achieved results of the prepared and published professional and scientific papers of students and their mentors. It also includes the number of defended doctoral dissertations, i.e. the results of a scientific and professional career of each doctoral degree holder. An important goal of the study is the involvement of Ph.Ds. in the field of interdisciplinary technical sciences in scientific research and professional projects at an international level.

A PhD Programme Director together with a selected committee for the improvement of the programme gives an opinion and makes suggestions and recommendations in a document which is based on the analysis of all the conducted types of evaluation and self-assessment. The contents and implementation auditing process is coordinated with the needs and goals of each course lecturer in order that research potential of each module, i.e. of the study as a whole, could be ensured. The introduction of changes must be acceptable from the point of view of legal regulations and norms which do not either harm the status and integrity of doctoral students, course lecturers, the study or the institution.

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### A.5. LIST OF COURSES/MODULES

#### ORDINAL NUMBER: 1

TITLE OF COURSE/MODULE: Methods of scientific research STATUS OF COURSE/MODULE (REQUIRED/ELECTIVE): Obligatory NAME OF COURSE/MODULE TEACHER: Mladen Božičević, Full Professor NAMES OF COURSE/MODULE TEACHER/ASSOCIATE TEACHER: LANGUAGE OF INSTRUCTION IN COURSE/MODULE: Croatian NUMBER OF INSTRUCTION HOURS: 30 (30 L) OUTLINE OF COURSE/MODULE CONTENT

Science and scientific research. The process of the scientific research. Methods and techniques of the scientific research. Collecting and recording scientific data, citing literature. Scientific communication. Preparing and writing scientific and professional papers for publication, skills of writing. Publishing and evaluating scientific papers. Participating in conferences, preparing posters and presentations.

#### READING LIST

1. R. Zelenika: Metodologija i tehnologija izrade znanstvenog i stručnog djela, Ekonomski Fakultet, Rijeka, 2000.

2. V. Silobrčić: Kako sastaviti, objaviti i ocijeniti znanstveno djelo, Medicinska naklada, Zagreb, 2003.

3. J. Kniewald: Metodika znanstvenog rada, Multigraf, Zagreb, 1993.

#### **DESCRIPTION OF INSTRUCTION METHODS**

Ex cathedra lectures, presentation and discussion of seminar papers.

#### **DESCRIPTION OF COURSE/MODULE REQUIREMENTS**

Regular class attendance, preparing and presenting a seminar paper, oral exam.

#### **DESCRIPTION OF MONITORING OF TEACHING QUALITY**

Student evaluations of course and instructor.

PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



#### **ORDINAL NUMBER: 2**

TITLE OF COURSE/MODULE: Environmental Management

STATUS OF COURSE/MODULE (REQUIRED/ELECTIVE): Elective

**NAME OF COURSE/MODULE TEACHER:** Natalija Koprivanac, Prof. Emerita and Aleksandra Anić Vučinić, Associate Professor

NAMES OF COURSE/MODULE TEACHER/ASSOCIATE TEACHER:

LANGUAGE OF INSTRUCTION IN COURSE/MODULE: Croatian/English

NUMBER OF INSTRUCTION HOURS: 45 (45 L)

#### **OUTLINE OF COURSE/MODULE CONTENT**

This course presents a comprehensive overview of the chemical and chemical engineering sciences, technologies and strategies used to reduce the threat of all kinds of pollutants to the air, water and land.

Environmental impact assessment. Techniques for impact prediction. Environmental monitoring. Pollution prevention. Methodology and techniques. Life Cycle Assessment (LCA). Cleaner production and sustainable processes. Separation and recycling systems. Process modification and integration. Minimization and reduction of air pollution. Dry and wet collectors. Thermal destruction. Biofiltration. Odor control strategy. Noise pollution. Wastewater treatment and minimization. Advanced oxidation processes (AOPs) for wastewater pollutions minimization and mineralization. Industrial sewer design. Storm wastewater management. Common drainage systems and their alternatives. Ground water cleanup and remediation. Solid waste. Reduction, separation and recycling. Treatment and disposal. Waste – to – energy incinerators. Pyrolysis of solid waste. Hazardous waste. Biological treatment.

#### READING LIST

Required:

1. Henry, J.G., Heinke, G.W.: Environmental Science and Engineering, Prentice Hall, New Yersey, 1996.

2. Allen, D.T., Rosselot, K.S.: Pollution Prevention for Chemical Processes, John Wiley, New York, 1997.

3. Corbitt, R.A.: Standard Handbook of Environmental Engineering, McGraw-Hill, New York, 1999.

4. Liu, D.H.F., Liptak, B.G., Bouis, P.A.: Environmental Engineers' Handbook, Lewis Publishers, New York, 1996.

5. Wickramanayake, G.B., Gavaskar, A.R.: Physical and Thermal Technology, Batteelle Press, Columbus, Ohio, 2000.

Optional:

www.sciencedirect.com

#### **DESCRIPTION OF INSTRUCTION METHODS**

Lectures, e-learning

#### **DESCRIPTION OF COURSE/MODULE REQUIREMENTS**

Attention of classes, seminars, case studies development; alternatively written and /or oral exam

#### **DESCRIPTION OF MONITORING OF TEACHING QUALITY**

Periodical evaluation (student survey)

PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



#### **ORDINAL NUMBER: 3**

TITLE OF COURSE/MODULE: Environmental Economics STATUS OF COURSE/MODULE (REQUIRED/ELECTIVE): Elective NAME OF COURSE/MODULE TEACHER: Natalija Koprivanac, Prof. Emerita NAMES OF COURSE/MODULE TEACHER/ASSOCIATE TEACHER: Jurica Šimurina, Full Professor LANGUAGE OF INSTRUCTION IN COURSE/MODULE: Croatian/English NUMBER OF INSTRUCTION HOURS: 45 OUTLINE OF COURSE/MODULE CONTENT Economics and Environment. Environmental degradation. Environmental goals. Environmental policy

planning. Fundamentals of market operations. Supply and Demand. Market equilibrium. Efficiency criteria. Welfare measures. Market failure. Public goods. Externalities. Property rights. Environmental standards. Command-and-control regulation. Market regulation. Pollution fees. Environmental subsidies. Deposit/return system. Pollution permit trading. Environmental risk analysis. Envrinomental benefits analysis. Environmental cost analysis. Benefit-cost analysis.

#### READING LIST

Required:

1. Callan, S. J., Thomas, J. M., (2013) Environmental Economics and Management: Theory, Policy, and Applications, 6ed, Cengage

2. Perman, R., Ma, Y., Common, M., Maddison, D., McGilvray, J. (2011) Natural Resources and Environmental Economics, 4ed, Pearson

Optional:

1. Edvards-Jones, G., Davies, B., Hussain, S.: Ecological Economics, An Introduction, Blackwell Science, Oxford, 2010.

2. Roper, D. Sites for ecological economics, http://csf.colorado.edu/ecolecon/related.html Communication for a sustainable future, http://csf.colorado.edu/

#### **DESCRIPTION OF INSTRUCTION METHODS**

Lectures, e-learning (google classroom)

#### **DESCRIPTION OF COURSE/MODULE REQUIREMENTS**

Exams, essays, take home assignments and active class participation

#### **DESCRIPTION OF MONITORING OF TEACHING QUALITY**

According to the manual for quality assurance of the Faculty of Geotechnical Engineering

PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



#### **ORDINAL NUMBER:** 4

TITLE OF COURSE/MODULE: Environmental Protection Policy STATUS OF COURSE/MODULE (REQUIRED/ELECTIVE): Elective NAME OF COURSE/MODULE TEACHER: Sanja Tišma, scientific advisor, PhD NAMES OF COURSE/MODULE TEACHER/ASSOCIATE TEACHER: Ana-Maria Boromisa, PhD LANGUAGE OF INSTRUCTION IN COURSE/MODULE: Croatian NUMBER OF INSTRUCTION HOURS: 45 (30L + 15E)

#### **OUTLINE OF COURSE/MODULE CONTENT**

Review of the historical development of environmental policies in the EU (2). Key strategic documents, instruments and principles for the implementation of EU environmental policy (2). International cooperation in the implementation of environmental policy (2). Past achievements and challenges in the implementation of the new programming period (2014-2020) (4).

Environmental protection as a component of sustainable development and sustainable development goals -UN SDG (2). Results and challenges (financial, administrative, organizational) of the management of environmental policy in the Republic of Croatia in the context of the EU acquis (2). Integration of environmental issues in development policy (2). The structure of the legislative and institutional framework for environmental protection in the Republic of Croatia, the key strategic documents, the objectives of environmental policy (4). The functions and responsibilities of stakeholders at national and local levels of government (2). The state of environmental components in Croatia - the degree of preservation, the main risks of pollution, the key challenges (2). Cross-border cooperation of Croatia and neighboring countries in the field of environmental protection (2). The role of EU funds in achieving the objectives of environmental policy - the realization of the objectives of the operational programs in the pre-accession period (2). Examples of successful projects (2). Programming and planning the implementation of Croatian environmental policy 2014-2020 + (2). Preparation of environmental projects (13).

#### READING LIST

Book:

1. Boromisa, Ana-Maria; Tišma, Sanja; Ležaić, Anastasya Raditya (2016) Green Jobs for Sustainable Development . Padstow, Cornwall : Routledge (monografija).

2. Carmin J., Vandeveer D.S., eds. (2005) EU Enlargement and the Environment, New York, Routledge

3. Črnjar, M. (2002) Ekonomika i politika zaštite okoliša, Rijeka, Ekonomski fakultet u Rijeci i Glosa

4. Goodstein, E. S. (2003) Ekonomika i okoliš, MATE, Zagreb

5. Jordan A., Adelle C. (2013) Environmental policy in the EU – Actors, Institutions and Processes, New York, Routledge

6. Managi, Shunsuke (2015) The Economics of Green Growth: New indicators for sustainable societies . Abingdon : Routledge

7. Tišma, Sanja; Boromisa, Ana-Maria; Pavičić Kaselj; Ana (2012) Environmental Finance and Development . Abingdon : Routledge (monografija).

8. Tišma, S. I Maleković S., ur. (2009) Zaštita okoliša i regionalni razvoj-iskustva i perspektive, Zagreb, Institut za razvoj i međunarodne odnose (IRMO)

Selected articles for seminars

PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



1. Boromisa A., Pavičić-Kaselj A., Tišma S. (2009). Analysis of environmental financing through various development strategies-recommendations for environmental protection financing system//ESEE 8th International Conference of the European Society for Ecological Economics, Transformation, Innovation and Adaptation for Sustainability, Ljubljana, Slovenia/Perpar A. (ur.), Ljubljana: Biotechnical Faculty-Department of Agronomy of the University of Ljubljana and European Society of Ecological Economics, 1-24

2. Butković H., Tišma S. (2008), Main Challenges in Adopting Environmental Acquis//Communicating Integration Impact in Croatia and Ireland/ Samardžija V., Dukes A. (ur.), Institute for Development and International Relations, Zagreb and Institute for International and European Affairs Dublin, 175-190

3. Tišma, Sanja; Funduk, Marina. Croatian Environmental Policies in the EU Context // EU public policies seen from a national perspective: Slovenia and Croatia in the European Union / Lajh, Damjan ; Petak Zdravko (ur.). Ljubljana : Faculty of Social Sciences, 2015. Str. 225-239.

4. Tišma S, Funduk M. (2013) Green Development: A Notion Affecting Sustainable National Economies, Environmental Security and International Relations//Mediating Security:Comprehensive Approaches to an Ambiguous Subject/Klimburg, A., Pospisil J. (ur.), Frankfurt am Main, Peter Lang gmbh, 2013, 23-40

6. Tišma, S.; Funduk, M. Hrvatska budućnost - Europska zelena paradigma (2012), // Hrvatska u EU - Kako dalje? / Puljiz, Vlado ; Ravlić, Slaven ; Visković, Velimir (ur.). Zagreb : Centar za demokraciju i pravo Miko Tripalo, 207-229.

7. Tišma, S., Demonja D., Pavičić Kaselj A., Instruments of Environmental Protection in the Republic of Croatia: A Strategic Impact Assessment Plans and Programs on the Environment.// Croatian International Relations Review, 14 (2008), 52/53; 99-108)

#### **DESCRIPTION OF INSTRUCTION METHODS**

Lectures / analysis of relevant documents / independent work / exercises / group work

#### **DESCRIPTION OF COURSE/MODULE REQUIREMENTS**

An essay on agreed topic / writing problem solving / discussion

#### **DESCRIPTION OF MONITORING OF TEACHING QUALITY**

Students' questionnaire

PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



#### **ORDINAL NUMBER:** 5

**TITLE OF COURSE/MODULE:** Moral and ethical approach to the environment

STATUS OF COURSE/MODULE (REQUIRED/ELECTIVE): Elective

NAME OF COURSE/MODULE TEACHER: Tonči Matulić, Full Professor

NAMES OF COURSE/MODULE TEACHER/ASSOCIATE TEACHER:

LANGUAGE OF INSTRUCTION IN COURSE/MODULE: Croatian

NUMBER OF INSTRUCTION HOURS: 45 (30L+15E)

#### **OUTLINE OF COURSE/MODULE CONTENT**

The idea of nature and the environment (3h). Man as natural and cultural being (3h). Causes of environmental degradation (3h). Phenomenology of environmental degradation (3h). Anthropocentric, biocentric and holistic approaches to the environment (3h). Health, sustainability, security, and planning (3h). Environmental protection or moral and political responsibility for the environment (3h). The idea of the environment as a common home (3h). Personal contribution to the environment as a moral-ethical challenge (3h). Common discussion about given topics (15).

#### READING LIST

1. Acton Institute, *Environmental Stewardship in the Judeo-Christian Tradition: Jewish, Catholic, and Protestant Wisdom on the Environment*, Grand Rapids, 2007.

2. Cifrić I., Okoliš i održivi razvoj. Ugroženost okoliša i estetika krajolika, Zagreb, 2002.

3. Cifrić I., Kultura i okoliš, Zaprešić, 2009.

4. Franjo, Laudato sì. Enciklika o brizi za zajednički dom (18. lipnja 2015.), Zagreb, 2015.

5. Matulić T., *Bioetika*, Zagreb, <sup>2</sup>2012.

6. Matulić T., Vodič kroz bioetiku 2. Život u ljudskim rukama, Zagreb, <sup>2</sup>2011.

7. Pozaić V. (ur), Ekologija. Znanstveno-etičko-teološki upiti i obzori, Zagreb, 1991.

#### **DESCRIPTION OF INSTRUCTION METHODS**

Lectures. Group discussions.

#### **DESCRIPTION OF COURSE/MODULE REQUIREMENTS**

Participation in the lectures and discussions. Written or oral exam.

#### **DESCRIPTION OF MONITORING OF TEACHING QUALITY**

Anonymous student survey.

PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



#### **ORDINAL NUMBER:** 6

TITLE OF COURSE/MODULE: Ecological models

STATUS OF COURSE/MODULE (REQUIRED/ELECTIVE): Elective

**NAME OF COURSE/MODULE TEACHER:** Sanja Kovač, Associate Professor, Damir Rumenjak, PhD and Ivan Kovač, Assistant Professor

NAMES OF COURSE/MODULE TEACHER/ASSOCIATE TEACHER:

LANGUAGE OF INSTRUCTION IN COURSE/MODULE: Croatian

NUMBER OF INSTRUCTION HOURS: 45 (35L+10E)

#### **OUTLINE OF COURSE/MODULE CONTENT**

Notion of the model (1h). Basic models in science (0,5). Environmental engineering and ecological modelling (0,5 h). The basic ecological models (0,5 h). Mathematical modelling of ecological processes by differential equations and application of difference equations in modelling (1,5 h). Types of problems and model-problems levelling (2 h).

Transport models through environmental media (1h). Physical and chemical transport and processes (4 h). Other models: electromagnetic radiation and noise (2 h). The basic of climate modelling (2h). Models of risk: accidental and long term exposure risk (1 h). Models of ecological systems: growth and interaction models (5 h). Stability of ecological systems (1h). The common mathematical background for transport through media and ecological system models (1h). Social modelling: models of impacts on society and environment (1 h). Models of sociophysics (1 h). Conceptual models of impacts on society and environment (1 h). Models of uncertainty: from statistical to other ideas of uncertainty ("fuzzy logic") (2h). Deterministic and stochastic models (1 h). Other divisions of models important in environmental protection: monitoring models (2 h). The integration of models into the instruments of environmental protection (2h). Decision – making models (1 h). Limitation of the models (1 h). Exercises and evaluation of student solutions with discussion (10 h).

#### **READING LIST**

1. Feretić D. i sur. (2000.): Elektrane i okoliš, Element, Zagreb

2. Mihelcic J.R., Zimmerman J.B. (2010): Environmental Engineering-Fundamentals, Sustainability, Design, John Wiley&Sons, New York

- 3. Nikolić S. i Trinajstić N.: Kemija u industriji 49, broj 6, 2000.
- 4. Ortolano L. (1997): Environmental Regulation and Impact Assessment, J. Wiley&Sons, New York
- 5. Reible D.D. (1999): Fundamentals of Environmental Engineering, Springer&Lewis Publishers, Boca Raton
- 6. Rumenjak D. i Štambuk S: Geofizika 24(2)/2007
- 7. Schmitz R. (2009): Ecological Models and Dynamics- An Interactive Textbook, Garland science, New York
- 8. Sinha S. i sur. (2011): Econophysics-An Introduction, Wiley-VCH, Weinhaim
- 9. Slingerland R., Kump L. (2011): Mathematical Modeling of Earth's Dynamical Systems- A Primer, Princenton University Press, Princenton
- 10. Smith J., Smith P. (2007): Environmental modelling-An Introduction, Oxford University Press, Oxford

11. Frontiers of Climate Modeling (ur. Kiehl J.T., Ramanathan V.), (2006), Cambridge University Press, Cambridge

PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



12. The International Handbook of Social Impact Assessment-Conceptual and methodological Advances (ur. Becker H.A., Vanclay F.), (2003), Edward Elgar, Chelthenham

#### **DESCRIPTION OF INSTRUCTION METHODS**

Oral presentation with multimedia aid, the exercises on programme packages

#### **DESCRIPTION OF COURSE/MODULE REQUIREMENTS**

Oral, written practical solutions, discussion, final exam

#### **DESCRIPTION OF MONITORING OF TEACHING QUALITY**

Students surveys about quality, content and idea of the course

PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



#### **ORDINAL NUMBER:** 7

**TITLE OF COURSE/MODULE:** Corporate environmental management systems

STATUS OF COURSE/MODULE (REQUIRED/ELECTIVE): Elective

NAME OF COURSE/MODULE TEACHER: Natalija Koprivanac, Prof. Emerita

NAMES OF COURSE/MODULE TEACHER/ASSOCIATE TEACHER:

LANGUAGE OF INSTRUCTION IN COURSE/MODULE: Croatian/English

**NUMBER OF INSTRUCTION HOURS: 45** 

#### **OUTLINE OF COURSE/MODULE CONTENT**

The principles of environmental management systems (EMS). Harmonization with the law, regulations and rules. EMS as an important tool in environmental management for various organizations. The implementation of international standards such as: EMS ISO 14001 (standard ISO 14001: 2015); Environmental management and audit scheme (EMAS). Comparison of the ISO 14001 and EMAS. Occupational health and safety management systems, OHSAS 18001, Life Cycle Assessment LCA ISO 14040. The EVABAT concept (Economically Viable Application of Best Available Technology) and continuous improvement. The methodology of cleaner production and eco-efficiency. ISO 50001-Energy Management. ISO 31000-Risk management. The role of environmental engineers for the implementation of integrated corporate environmental management system.

#### READING LIST

Required:

1. Hall, T. J.: The Quality Manual, John Wiley & Sons, Chichester 1992.

2. McCreary, J.H.: ISO 14000: A Framework for Co-ordinating Existing Environmental Management Responsibilities, Dewars & Doyle, UK, 1995.

3. Sheldon, C.: ISO 14000 and Beyond, Environmental management Systems in the real World, Greenleaf Publishing, UK, 1997.

4. Moeller, D.W.: Environmental Health, Press Harvard University, London, UK, 1997.

5. Piper, Lennart, Ryding, Sven-Olof, Henricson, Curt, Continual Improvement with ISO 14000, IOS press, Amsterdam, 2006.

Optional:

http://www.sciencedirect.com/

#### **DESCRIPTION OF INSTRUCTION METHODS**

Lectures, e-learning, study visits

#### **DESCRIPTION OF COURSE/MODULE REQUIREMENTS**

Active participation in classes, case study development

#### **DESCRIPTION OF MONITORING OF TEACHING QUALITY**

Periodical evaluation (student survey)

PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



#### **ORDINAL NUMBER: 8**

**TITLE OF COURSE/MODULE:** Communication and education in environmental protection

STATUS OF COURSE/MODULE (REQUIRED/ELECTIVE): Elective

NAME OF COURSE/MODULE TEACHER: Aleksandra Anić Vučinić, Associate Professor

NAMES OF COURSE/MODULE TEACHER/ASSOCIATE TEACHER: Vitomir Premur, PhD

LANGUAGE OF INSTRUCTION IN COURSE/MODULE: Croatian

NUMBER OF INSTRUCTION HOURS: 45 (30L+15E)

#### **OUTLINE OF COURSE/MODULE CONTENT**

Communication and education in general; EU and national legislation; methods of education; understanding of the market and its behaviour; environmental awarness; public participation; communication campaign; campaign planning; tools of communicating environmental protection issues; raising of public participation in questions regarding waste management and environmental protection; the role of the media; managing crisis communication; ecological acitivism; examples of good pratice

#### READING LIST

Required:

1. Aarhus Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters;

2. UNEP (2007). Public Environmental Awareness and Education;

3. Dietz, T., Stern, C. Paul (2002): New tools for environmental protection: education, information and voluntary measures;

Optional:

http://www.sciencedirect.com

#### **DESCRIPTION OF INSTRUCTION METHODS**

Lectures, exercises, seminars

#### **DESCRIPTION OF COURSE/MODULE REQUIREMENTS**

Attendance, active participation in class. Seminar. Written and oral examination in case of a negative review of seminar.

#### **DESCRIPTION OF MONITORING OF TEACHING QUALITY**

Cyclic evaluation of the work of teachers by students every three years and the implementation of other forms of monitoring the quality of teaching provided by Quality Assurance Manual of Faculty of Geotechnical Engineering.

PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



#### **ORDINAL NUMBER:** 9

TITLE OF COURSE/MODULE: Circular economy in waste management

STATUS OF COURSE/MODULE (REQUIRED/ELECTIVE): Elective

NAME OF COURSE/MODULE TEACHER: Aleksandra Anić Vučinić, Associate Professor

NAMES OF COURSE/MODULE TEACHER/ASSOCIATE TEACHER: Vitomir Premur, PhD

LANGUAGE OF INSTRUCTION IN COURSE/MODULE: Croatian

NUMBER OF INSTRUCTION HOURS: 60 (30L + 30 E)

#### **OUTLINE OF COURSE/MODULE CONTENT**

Introduction in circular economy; EU strategy for achieving circular economy; planning, construction and assessment of life cycle of product; "eco-design"; longterm liability of manufacturer; waste recovry, waste as resource of secondary raw materials; primar waste separation; priority sectors (plastics, food waste, critical raw materials, building and demolition waste, biomass); role of centres of waste management; investments and inovations as a key to CE; examples of good practice of circular economy.

#### READING LIST

Required:

1. Communication from the Commission to the European Parliament, The Council, The European conomic and social committee and the Committee of the regions towards a circular economy: a zero waste programme for Europe;

2. EU action plan for the circular economy;

3. World economic forum and The Ellen MacArthur foundation: intelligent assets: unlocking the circular economy potential

Optional:

http://www.sciencedirect.com/

#### **DESCRIPTION OF INSTRUCTION METHODS**

Lectures, exercises, seminar

#### **DESCRIPTION OF COURSE/MODULE REQUIREMENTS**

Attendance, active participation in class. Seminar. Written and oral examination in case of a negative review of seminar.

#### **DESCRIPTION OF MONITORING OF TEACHING QUALITY**

Cyclic evaluation of the work of teachers by students every three years and the implementation of other forms of monitoring the quality of teaching provided by Quality Assurance Manual of Faculty of Geotechnical Engineering.

PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



#### **ORDINAL NUMBER:** 10

TITLE OF COURSE/MODULE: Mechanical and Biological Waste Treatment and Final Disposal

STATUS OF COURSE/MODULE (REQUIRED/ELECTIVE): Elective

NAME OF COURSE/MODULE TEACHER: Igor Petrović, Assistant Professor

NAMES OF COURSE/MODULE TEACHER/ASSOCIATE TEACHER:

LANGUAGE OF INSTRUCTION IN COURSE/MODULE: Croatian

NUMBER OF INSTRUCTION HOURS: 60 (15L + 45E)

OUTLINE OF COURSE/MODULE CONTENT

#### LESSONS:

Mechanical treatment - equipment for mechanical processing (crushing, screening, separating, sorting, compacting, baling, raw materials for further processing); Principles, apparatus and recycling methods of individual waste types (municipal solid waste, plastics, glass, metal, construction waste); Biological treatment - preparation of raw materials, aerobic treatment (composting, bio-drying); anaerobic treatment, products of anaerobic digestion, control of anaerobic digestion; Types of mechanical and biological treatment (MBT and BMT); Refuse-derived fuel (RDF) or solid recovered fuel/specified recovered fuel (SRF), biogas; Physical and chemical waste treatment (15); Waste disposal - disposal methods and classification, landfill siting and site investigation; Landfill design (landfill body and liners); Reactions in the landfill - production and composition of biogass, active and passive gass collection system; - generation, composition and management of leachate; Daily cover and final closure; Landfill management; Rules on the methods and conditions of waste disposal, categories and operational requirements for landfills (15)

#### EXERCISES:

Numerical modelling of mechanical and biological treatment processes with software packages SuperPro Designer and/or Aspen Plus. (45)

#### READING LIST

Required:

1. Tchobanglous, G., Theisen, H., Vigil, A., S.: Integrated Solid Waste Management, Engineering Principles and Management Issues, McGraw-Hill International Editions, Civil Engineering Series, 1993

2. Sredojević, J.: Obrada i deponije otpada, Mašinski fakultet u Zenici, Univerzitet u Sarajevu, Zenica, 2003

3. Qian, X., Koerner, R.M., Gray, D.H: Geotechnical aspects of landfill design and construction, Prentice-Hall Inc., Upper Saddle River, New Jersey, 2001

4. SuperPro Designer and Aspen Plus Users Manuals

Optional:

http://www.online-baze.hr

http://hrcak.srce.hr/

**DESCRIPTION OF INSTRUCTION METHODS** 

Lectures, exercises in computer lab, e-learning

#### **DESCRIPTION OF COURSE/MODULE REQUIREMENTS**

PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



Class participation in lecture classes, seminars and exercises. Course assignment. The grade is based on these elements, or a written and oral examination (for students who do not receive passing grades on the course assignments).

#### **DESCRIPTION OF MONITORING OF TEACHING QUALITY**

Anonymous student questionnaire every three years and conducting of additional quality control measures as anticipated in the Faculty of Geotehenical Engineering Quality Assurance Guide.

PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



#### **ORDINAL NUMBER:** 11

**TITLE OF COURSE/MODULE:** Waste management in the world

STATUS OF COURSE/MODULE (REQUIRED/ELECTIVE): Elective

NAME OF COURSE/MODULE TEACHER: Sanja Kalambura, Assistant Professor

NAMES OF COURSE/MODULE TEACHER/ASSOCIATE TEACHER: -

LANGUAGE OF INSTRUCTION IN COURSE/MODULE: Croatian/English

NUMBER OF INSTRUCTION HOURS: 60 (30L+30E)

#### **OUTLINE OF COURSE/MODULE CONTENT**

Definition of zones according world selection on developed and developing countries. Institutional framework, standards, legislation, guidelines and norms in USA, EU, Asia and Australia and Comparation of similarities and differences in waste management politics and infrastructures. Comparation of waste management sector in Asia and Africa. The rule of NGO sector in waste management sector for developing countries, example of Bangladesh. Influence and importance of humanitarian organisations in waste management sector. Waste management technologies in developing countries with special point on home recycling. Methodology for rising the awareness and building capacities in waste management.

#### READING LIST

1. Integrated Waste Management, Sunil Kumar, ISBN 978-953-307-447-4, 2011.: Imad A. Khatib,

Municipal Solid Waste Management in Developing Countries: Future Challenges and Possible Opportunities

2. S.Kalambura, A.Racz: Održivo gospodarenje otpadom, 2015., Zdravstveno Veleučilište, ISBN: 978-953-6239-48-1

3. T. Hazra, S. Goel: Solid waste management in Kolkata, India: practices and challenges, Journal of Waste Management, 29 (2009), pp. 470–478

4. R.K. Henry, Z. Yongsheng, D. Jun: Municipal solid waste management challenges in developing countries – Kenyan case study, Journal of Waste Management, 26 (2006), pp. 92–100.

#### **DESCRIPTION OF INSTRUCTION METHODS**

Lectures, paper work, project work in group.

#### **DESCRIPTION OF COURSE/MODULE REQUIREMENTS**

Attendance and active work at lectures and work tasks. Seminar paper works. Written and oral exams.

#### **DESCRIPTION OF MONITORING OF TEACHING QUALITY**

Periodical surveys of teaching quality every year and other methods set by Quality assurance handbook at Geotechnical Faculty.

PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



#### **ORDINAL NUMBER: 12**

**TITLE OF COURSE/MODULE:** Energy Recovery and Thermal Treatment of Waste

STATUS OF COURSE/MODULE (REQUIRED/ELECTIVE): Elective

NAME OF COURSE/MODULE TEACHER: Dipl.-Ing.Dr.mont. Renato Šarc

NAMES OF COURSE/MODULE TEACHER/ASSOCIATE TEACHER: -

LANGUAGE OF INSTRUCTION IN COURSE/MODULE: Croatian/English/Deutsch

NUMBER OF INSTRUCTION HOURS: 60 (45L+15E)

#### **OUTLINE OF COURSE/MODULE CONTENT**

In the course, different technical possibilities for energy revocery of waste (e.g. Waste to Energy, Incineration Plants, Usage of Waste Fuels in the Cement Industry, Power Plants and Metal Industry) as well as thermal treatment of waste (e.g. Hazardous Waste Incinerator) will be explained. Next to the presentation of technical components of selected plants and their function, requirements on and waste treatment for co-incineration processes will be discussed. Furhtermore, holistic waste management system and the role and position of energy recovery and thermal treatment of waste will be shown. In the part of lecture where Waste Fuels (RDF) are presented, waste system, quality of input waste materials, (mechanical-biological) production and quality accurance as well as composition and quality of RDF produced will be described. Aditionally, modern technologies applied for separation of valuable and unwanted fractions that can be recycled or disposed of will be shown too. Finally, current examples from European and wordwide waste management sector will be presented.

#### READING LIST

#### Required:

1. Aldrian, A; Sarc, R.; Pomberger, R.; Lorber, K.E. & Sipple, E.M. (2016): Solid recovered fuels in the cement industry – semi-automated sample preparation unit as a means for facilitated practical application. In: Waste Management and Research 34(3), 254-264. Sage publications.

2. CEN (ed.) (2011) "CEN/TC 343-Solid Recovered Fuels". Standards for Waste Fuels. Brussels, Belgium, 2011.

3. EC (European Commission) (ed.) (2000) Directive 2000/76/EC of the European Parliament and of the council of 4th December 2000 on the incineration of waste. Brussels, Belgium: European Commission.

4. EC (European Commission) (ed.) (2006) Reference Document on Best Available Techniques for Waste Incineration. Brussels, Belgium: European Commission.

5. EC (European Commission) (ed.) (2010) Reference Document on Best Available Techniques in the Cement, Lime and Magnesium Oxide Manufacturing Industries. Brussels, Belgium: European Commission.

6. Sarc, R. & Lorber, K.E. (2013) Production, quality and quality assurance of Refuse Derived Fuels (RDFs). In: Waste Management 33 (2013). ISSN: 0956-053X. S. 1825-1834.

7. Sarc, R.; Lorber, K.E.; Pomberger, R.; Rogetzer, M. & Sipple, E.M. (2014): Design, quality and quality assurance of solid recovered fuels for the substitution of fossil feedstock in the cement industry. In: Waste Management and Research 32, 565-585. Sage publications.

8. Thomé-Kozmiensky K.J. & Thiel, S. (2015) Waste Management. ISBN: 978-3-944310-22-0. (www.vivis.de). Optional:

PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



Scientific contributions in Journals Waste Management & Research, Waste Management-Science Direct as well as from the homepage www.vivis.de (book: Energie aus Abfall and Waste Management).

#### **DESCRIPTION OF INSTRUCTION METHODS**

Lectures, expert discussion, consultations. During the lecture part, theory is given in form of presentation and current, practical case studies are discussed and presented. Furthermore, seminar work (paper) on selected issue is elaborated and presented by students.

#### **DESCRIPTION OF COURSE/MODULE REQUIREMENTS**

Presence at lectures and active participation in the course. Written and oral examination.

#### **DESCRIPTION OF MONITORING OF TEACHING QUALITY**

Monitoring of teachnig quality by students in every academic year and performing of other monitoring actions provided by the documents of the University.

PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



#### **ORDINAL NUMBER:** 13

**TITLE OF COURSE/MODULE:** Recycling and disposal of polymers

STATUS OF COURSE/MODULE (REQUIRED/ELECTIVE): Elective

NAME OF COURSE/MODULE TEACHER: Anita Ptiček Siročić, Asisstant Professor

NAMES OF COURSE/MODULE TEACHER/ASSOCIATE TEACHER:

LANGUAGE OF INSTRUCTION IN COURSE/MODULE: Croatian

NUMBER OF INSTRUCTION HOURS: 60 (30L+30E)

#### **OUTLINE OF COURSE/MODULE CONTENT**

The polymers and polymeric materials, classification. The properties of polymer materials, processing methods (extrusion, injection), application. Life cycle analysis of polymers, polymer characterization, sources of polymer waste, disposal and recycling system depending on type of polymer material. Students will gain knowledge with the aim of working in industry of synthesis and processing of polymers as well as in determination of quality of recycled products and control health safety of polymer packaging.

#### READING LIST

1. J.Scheirs, Polymer Recycling Science, Technology and Applications, J.Wiley & Sons, Brisbane, 1998

2. H.Alter, Disposal and Reuse of Plastics, in Encyclopaedia of Polymer Science and Engineering, H.F.Mark, N.M.Bikales, C.G.Overberger i G.Menges, J.Wiley & Sons, New York, 1986, 5.

3. A. L. Andrady, «Plastics and the Environment», J.Wiley & Sons, Hoboken, New Jersey, 2003.

4. A. Azapagic, A. Emsley, I. Hamerton, "Polymers, the Environmental and Sustainable Development" J. Wiley & Sons, N.Y. 2003.

#### **DESCRIPTION OF INSTRUCTION METHODS**

LECTURES/CONSULTATIONS/INDIVIDUAL ASSIGNMENT

#### **DESCRIPTION OF COURSE/MODULE REQUIREMENTS**

Class attendance/ research/seminar/exam

#### DESCRIPTION OF MONITORING OF TEACHING QUALITY

Anonymous student surveys at the end of the semester

PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



#### **ORDINAL NUMBER:** 14

TITLE OF COURSE/MODULE: Habitats of Croatia STATUS OF COURSE/MODULE (REQUIRED/ELECTIVE): Elective NAME OF COURSE/MODULE TEACHER: Zvjezdana Stančić, Associate Professor NAMES OF COURSE/MODULE TEACHER/ASSOCIATE TEACHER: LANGUAGE OF INSTRUCTION IN COURSE/MODULE: Croatian NUMBER OF INSTRUCTION HOURS: 60 (10L+30S+20E) OUTLINE OF COURSE/MODULE CONTENT

LECTURES - 1. Short overview of the history of habitat research in Croatia and the rest of Europe (1/2 hour); 2. Methodology for investigating habitats and vegetation (1 hour); 3. Classification of habitats and vegetation (according to the National Classification of Habitats of the Republic of Croatia) (1/2 hour); 3.1. Aquatic and marshland vegetation (1/2 hour); 3.2. Barren and sparsely vegetated land surfaces (1/2 hour); 3.3. Grasslands, fens and tall forb (1 hour); 3.4. Scrub and forest (1 hour); 3.5. Sea coast (1/2 hour); 3.6. Habitats in the sea and under the ground (1/2 hour); 3.7. Cultivated non-forest areas and habitats with weeds and ruderal vegetation (1/2 hour); 4. Biodiversity (1 hour); 5. Vegetation map, habitat map of Croatia, databases (1/2 hour); 6. Ecological problems and causes of threat to certain habitat types (1/2 hour); 7. Methods of habitat protection (1 hour); 8. Legislation (1/2 hour). SEMINARS - Topics adjusted in accordance with issues of doctoral theses of students (30 hours). EXERCISES - field work (20 hours).

#### **READING LIST**

1. Ausden, M. 2007: Habitat Management for Conservation: A Handbook of Techniques. Oxford University Press, Oxford.

2. De Cáceres, M.; Wiser, S.K. 2012: Towards consistency in vegetation classification. Journal of Vegetation Science 23: 387–393.

3. Dierschke, H. 1994: Pflanzensoziologie. Verlag Eugen Ulmer, Stuttgart.

4. Državni zavod za zaštitu prirode 2014: Nacionalna klasifikacija staništa Republike Hrvatske, Zagreb.

5. Horvat, I. 1962: Vegetacija planina zapadne Hrvatske. Prirodoslovna istraživanja, Acta Biologica II, 30: 5-179.

6. Horvat, I.; Glavač, V.; Ellenberg, H. 1974: Vegetation Südosteuropas. Geobotanica Selecta Bd. IV Gustav Fischer Verlag, Stuttgart.

7. Horvatić, S. 1963: Vegetacijska karta otoka Paga s općim pregledom vegetacijskih jedinica Hrvatskog primorja. Prirodoslovna istraživanja, Acta Biologica IV, 33: 5–187.

8. Pravilnik o izmjenama i dopunama Pravilnika o vrstama stanišnih tipova, karti staništa, ugroženim i rijetkim stanišnim tipovima te o mjerama za očuvanje stanišnih tipova. Narodne novine 119/09.

9. Pravilnik o popisu stanišnih tipova, karti staništa te ugroženim i rijetkim stanišnim tipovima. Narodne novine 80/13.

10. Pravilnik o vrstama stanišnih tipova, karti staništa, ugroženim i rijetkim stanišnim tipovima te o mjerama za očuvanje stanišnih tipova. Narodne novine 07/06.

11. The Council of the European Communities 1992: Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora. The Council of the European Communities, Bruxelles.

PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



12. Topić, J.; Vukelić, J. 2009: Priručnik za određivanje kopnenih staništa u Hrvatskoj prema Direktivi o staništima EU. Državni zavod za zaštitu prirode, Zagreb.

13. Trinajstić, I. 2008: Biljne zajednice Republike Hrvatske. Akademija šumarskih znanosti, Zagreb.

14. Vukelić, J. 2012: Šumska vegetacija Hrvatske. Sveučilište u Zagrebu, Šumarski fakultet, Državni zavod za zaštitu prirode, Zagreb.

15. Vukelić, J.; Rauš, Đ. 1998: Šumarska fitocenologija i šumske zajednice u Hrvatskoj. Sveučilište u Zagrebu, Šumarski fakultet, Državni zavod za zaštitu prirode, Zagreb.

#### **DESCRIPTION OF INSTRUCTION METHODS**

Lectures, discussions based on set texts and read literature, seminars, exercises, individual consultations.

#### **DESCRIPTION OF COURSE/MODULE REQUIREMENTS**

The final grade will be obtained based on: written seminar, student activity during teaching, and oral interview.

#### **DESCRIPTION OF MONITORING OF TEACHING QUALITY**

Cyclical evaluation of teachers' work by the students will be carried out every three years and will include the implementation of other forms of monitoring of the teaching quality as provided for in the Quality Assurance Manual of the Faculty of Geotechnical Engineering.

PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



#### **ORDINAL NUMBER:** 15

TITLE OF COURSE/MODULE: Ecological engineering STATUS OF COURSE/MODULE (REQUIRED/ELECTIVE): Elective NAME OF COURSE/MODULE TEACHER: Zvjezdana Stančić, Associate Professor NAMES OF COURSE/MODULE TEACHER/ASSOCIATE TEACHER: LANGUAGE OF INSTRUCTION IN COURSE/MODULE: Croatian NUMBER OF INSTRUCTION HOURS: 60 (10L+30S+20E) OUTLINE OF COURSE/MODULE CONTENT

LECTURES - 1. What is ecological engineering? (1/2 hour); 2. The importance of ecosystems knowledge, cycling of matter, energy flow and ecological successions (1 hour); 3. Application of ecological principles in environmental management (1/2 hour); 4. Methods of ecological engineering (1 hour); 5. Restoration of existing ecosystems and construction of new ones (1 hour); 5.1. Ecological restoration of watercourses and lakes (1 hour); 5.2. Replacement wetlands (1 hour); 5.3. Constructed wetlands for wastewater treatment (1 hour); 5.4. Phytoremediation and bioremediation (1 hour); 5.5. Sustainable agriculture and forestry (1 hour); 5.6. The restoration of abandoned mines, gravel pits, industrial plants and dumping grounds (1 hour). SEMINARS - Topics adjusted in accordance with issues of doctoral theses of students (30 hours). EXERCISES - field work (20 hours).

#### **READING LIST**

1. Ali, H., Khan, E., Sajad, M. A. (2013) Phytoremediation of heavy metals - Concepts and applications. Chemosphere 91: 869–881.

2. Ausden, M. 2007: Habitat Management for Conservation: A Handbook of Techniques. Oxford University Press, Oxford.

3. Jørgensen, S. E. (ed.) (2009) Applications in Ecological Engineering. Elsevier, Amsterdam.

4. Kangas, P. C. (2005) Ecological engineering: principles and practise. Lewis Publishers, Boca Raton.

5. Mitsch, W.J., Jørgensen, S. E. (2004) Ecological engineering and ecosystem restoration. John Wiley and sons, Inc., Hoboken.

6. van Bohemen, H. (2005) Ecological engineering: bridging between ecology and civil engineering. Æneas, Technical Publishers, Delft.

#### **DESCRIPTION OF INSTRUCTION METHODS**

Lectures, discussions based on set texts and read literature, seminars, exercises, individual consultations.

#### **DESCRIPTION OF COURSE/MODULE REQUIREMENTS**

The final grade will be obtained based on: written seminar, student activity during teaching, and oral interview.

#### **DESCRIPTION OF MONITORING OF TEACHING QUALITY**

Cyclical evaluation of teachers' work by the students will be carried out every three years and will include the implementation of other forms of monitoring of the teaching quality as provided for in the Quality Assurance Manual of the Faculty of Geotechnical Engineering.

PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



#### **ORDINAL NUMBER:** 16

TITLE OF COURSE/MODULE: Environmental forensics STATUS OF COURSE/MODULE (REQUIRED/ELECTIVE): Elective NAME OF COURSE/MODULE TEACHER: Goran Kniewald, Full Professor NAMES OF COURSE/MODULE TEACHER/ASSOCIATE TEACHER: Ivan Kovač, Assistant Professor LANGUAGE OF INSTRUCTION IN COURSE/MODULE: English/Croatian NUMBER OF INSTRUCTION HOURS: 60 (45L+15E)

#### **OUTLINE OF COURSE/MODULE CONTENT**

(1) Introduction to environmental forensics (3L+1E), (2) Scene investigation and initial activities by rapid response teams (3L+1E), (3) Sampling and sample homogeneity (3L+1E), (4) Photogrammetry, interpretation of aerial photographs and digital mapping in environmental forensics (3L+1E), (5) Measurements in environmental forensics (3L+1E), (6) Applications of statistical methods in environmental forensics (3L+1E), (7) PCA – principal component analysis and receptor models (3L+1E), (8) Spectroscopic and quantum-chemical analysis of biomolecules (3L+1E), (9) Applications of stable and radioactive isotopes in environmental forensics (3L+1E), (10) Microscopic methods in environmental forensics (3L+1E), (11) Application of laser ablation in mass spectrometry of solid samples (3L+1E), (12) Modern analytical techniques in environmental forensics (3L+1E), (13) Case study 1 – environmental incident of limited impact (3L+1E), (14) Case study 2 – environmental accidents of regional and broader impact (3L+1E), (15) Demonstration of physico-chemical analytical techniques in environmental forensics (3L+1E).

#### READING LIST

#### Required:

1. Murphy, B.L., Morrison, R.D. (Eds.), 2007, Introduction to Environmental Forensics, second edition, Elsevier, Amsterdam

2. Grupa autora, 2014, Pollution Crime Forensic Investigation Manual – Vol. I and II. Interpol, Lyon

Optional:

http://books.elsevier.com/companions/9780123695222

Online and other data bases (list to be discussed and approved by course teacher)

#### **DESCRIPTION OF INSTRUCTION METHODS**

Auditory lectures. Demonstration of instrumental analytical methods in environmental forensics.

#### **DESCRIPTION OF COURSE/MODULE REQUIREMENTS**

Active student participation in coursework. Term paper. Written and oral final examination.

#### **DESCRIPTION OF MONITORING OF TEACHING QUALITY**

Evaluation of course and teacher(s) by students – every 3 years. Other monitoring measures stipulated in the Monitoring and teaching quality manual of the Faculty of Geotechnical Engineering.

PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



#### **ORDINAL NUMBER:** 17

TITLE OF COURSE/MODULE: Sensors in environmental protection

STATUS OF COURSE/MODULE (REQUIRED/ELECTIVE): Elective

NAME OF COURSE/MODULE TEACHER: Nikola Sakač, Assistant Professor and Aleksandra Lobnik, Full Professor

NAMES OF COURSE/MODULE TEACHER/ASSOCIATE TEACHER:

LANGUAGE OF INSTRUCTION IN COURSE/MODULE: Croatian/English

NUMBER OF INSTRUCTION HOURS: 60 (30L+30S)

#### **OUTLINE OF COURSE/MODULE CONTENT**

The course summarizes the state of the art technologies in a field of chemical sensors for environmental monitoring. Global chemical sensor market is constantly growing, since it offers a low-cost and compact substitution to expensive and bulky laboratory techniques for environmental analysis. Chemical sensors offer could be used as a continuous real-time "in situ" measuring systems. Course content presents an insight of chemical sensor types, working mechanisms and use in monitoring and environmental protection.

Content:

- Chemical Sensors and Biosensors definitions, theoretical background, parts of the sensor system, design.
- Transducer elements: electrochemical, optical, thermal and mass converters.

• Sensing elements: mechanisms of chemical and biological recognition, biomimetic systems, chemical and biological active ingredients in the sensory systems,

• Sensing elements: alternative methods of chemical and biological reagents, the role of materials in the sensory systems - polymers.

• Performance measure of the sensor selectivity, sensitivity, precision, accuracy, repeatability, reversibility.

• Electrochemical sensors and biosensors: potentiometric and amperometric ion-selective electrodes (ISES), modified electrodes, microelectrodes, standard electrodes in sensor systems; Conductometric and FET (field effect transistor) sensors.

• Optical Sensors and Biosensors: Techniques optical detection, visible absorption spectroscopy, fluorescence spectroscopy, methods of reflection, light scattering techniques, direct methods, Indicator, Optical sensors based on optical fibers.

• Mass and thermal sensors: piezoelectric effect, surface acoustic waves, thermal sensors. Applications of chemical sensors: industrial processes, environmental protection, medicine.

• Manufacturing and design of sensors, new materials and technologies. Lab-on-a-chip systems, nanosensors.

#### READING LIST

1. Banica, F.G.: Chemical Sensors and Biosensors: Fundamentals and Applications, Wiley, 2012.

2. Korotcenkov, G.: Chemical Sensors: Comprehensive Sensor Technologies, Vol 6, Chemical Sensors Applications (Sensors Technology Series), Momentum Press, 2011.

#### **DESCRIPTION OF INSTRUCTION METHODS**

Lectures (L), research seminar (S) – problem orientated project, work in group, consultations.

#### DESCRIPTION OF COURSE/MODULE REQUIREMENTS

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Course participation and active participation during lectures and research seminar (problem orientated project).

The final exam is passed when the problem orientated project is successfully solved and presented. The project is about finding the solution of an existing problem in a field of environment. To successfully finish the exam, the student should:

- Propose a chemical sensor or biosensor,
- Propose a cost effective solution,
- Propose a functional/efficient sensor concerning the environment issues.

Students will be able to find and choose the most appropriate sensor for solving a certain problem in environmental monitoring, also concerning the most cost effective, functional and user friendly sensor.

If the student fails to successfully finish the project, the student will be obligated to participate the written and oral exam.

#### **DESCRIPTION OF MONITORING OF TEACHING QUALITY**

Anonymous survey at the end of the course. Survey includes lectures quality, content of the subjects, and suggestions for course improvements.

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#### **ORDINAL NUMBER:** 18

TITLE OF COURSE/MODULE: Remediation of Contaminated Soil STATUS OF COURSE/MODULE (REQUIRED/ELECTIVE): Elective NAME OF COURSE/MODULE TEACHER: Ivica Kisić, Full Professor NAMES OF COURSE/MODULE TEACHER/ASSOCIATE TEACHER: Željka Zgorelec, Associate Professor LANGUAGE OF INSTRUCTION IN COURSE/MODULE: Croatian/English NUMBER OF INSTRUCTION HOURS: 60 (30L+15P+15S) OUTLINE OF COURSE/MODULE CONTENT

#### Lectures:

Introduction - generally about the soil (2). Roles of soil in the environment (2). Classification of soil damage (4). Definition and description of locations considering potential sources and types of soil contamination (4). Types of pollution and soil contamination - organic and inorganic pollution (4). Marginal, alarming and critical emissions of hazardous substances in the soil (4). Types, methods and technologies for remediation of contaminated soils (2). Biological remediation (bioremediation and phytoremediation) (2). Chemical remediation (electrokinetics, in situ soil flooding, solidification and soil washing) (2). Physical remediation (in situ cover, soil excavation and soil mixing) (2). Thermal remediation (incineration and vitrification) (2).

Practice: The legal legislation related to the protection and monitoring of soil (4). The selected locations for permanent monitoring points of potentially contaminated and polluted soils (4). A field trip and visit the polluted site (7).

Seminar papers (15).

#### READING LIST

1. Kisic I. (2012). Remediation of Contaminated Soils. Textbooks of University of Zagreb, p. 276.

2. Kisic I. (2016). Anthropogenic Soil Erosion. Textbooks of University of Zagreb, p. 273.

3. Various authors (2008). Croatian Soil Monitoring Program. Development of Croatian Soil Monitoring Program with a Pilot Project. Life Third Countries, LIFE05 TCY/CRO/000105. Croatian Environment Agency, Zagreb, p. 131.

4. Swartjes F.A. (2011). Dealing with Contaminated Sites – From theory towards Practical Application, p. 1114, Springer.

5. Mirsal I.A. (2008). Soil Pollution – Origin, Monitoring & Remediation, p. 312. Springer.

6. Braimoh A.K., Vlek P.L.G. (2008): Land Use and Soil Resources, p. 252. Springer.

#### **DESCRIPTION OF INSTRUCTION METHODS**

Lectures, field trip – a visit to potentially polluted and remediated site, individual consultations.

#### **DESCRIPTION OF COURSE/MODULE REQUIREMENTS**

Attendance and active participation in class, a written paper on the example of the remediation of contaminated sites, oral exam.

#### **DESCRIPTION OF MONITORING OF TEACHING QUALITY**

Student survey

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#### **ORDINAL NUMBER:** 19

TITLE OF COURSE/MODULE: Air quality management STATUS OF COURSE/MODULE (REQUIRED/ELECTIVE): Elective NAME OF COURSE/MODULE TEACHER: Leo Klasinc, Academician NAMES OF COURSE/MODULE TEACHER/ASSOCIATE TEACHER: Glenda Herjavić, PhD LANGUAGE OF INSTRUCTION IN COURSE/MODULE: Croatian/English NUMBER OF INSTRUCTION HOURS: 60 (45L + 15E)

#### **OUTLINE OF COURSE/MODULE CONTENT**

The purpose of the course is to become familiar with all the activities that are an integral part of the air quality management and that regulatory authorities undertake to protect human health and the environment from harmful effects of air pollution. During the lectures the following contents will be processed: Establishing goals related to air quality (4 L)/ Air pollutants and their sources, physical and chemical changes and transport (8 L)/ Emission measurements, emission inventories, ambient air measurements and air quality networks, evaluation of measurement methods and data, air quality modelling and other tools (8 L + 10 E)/ Determination of required emission reduction (4 L)/ Control techniques (mitigation and prevention) of emissions of air pollutants - process technology (8 L)/ Implementation of programs and strategies for pollution control and improvement of air quality - regulations and international agreements in the area of air protection (8 L)/ Permanent evaluation to meet the goals of air quality (4 L)/ Scientific research as an integral part of the air quality management process (5 L + 5 E) / Air quality and climate change interactions (4 L).

#### READING LIST

#### Required:

Basic: Principles of Air Quality Management, Second Edition, Roger D. Griffin, 2006; Air Quality Monitoring, Assessment and Management, Ed. Nicolás A. Mazzeo, 2011 (Open Access).

#### Optional:

More recent articles in the field published in scientific and professional journals.

#### **DESCRIPTION OF INSTRUCTION METHODS**

Lectures, seminars, e-learning, consultation.

#### **DESCRIPTION OF COURSE/MODULE REQUIREMENTS**

Active participation in lectures. The exam is taken by writing and defending a seminar paper.

#### **DESCRIPTION OF MONITORING OF TEACHING QUALITY**

Anonymous student surveys on the quality of course content and teachers.

PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



#### **ORDINAL NUMBER: 20**

TITLE OF COURSE/MODULE: Green analytical chemistry

STATUS OF COURSE/MODULE (REQUIRED/ELECTIVE): Elective

NAME OF COURSE/MODULE TEACHER: Nikola Sakač, Assistant Professor

NAMES OF COURSE/MODULE TEACHER/ASSOCIATE TEACHER: Bojan Šarkanj, Assistant Professor

LANGUAGE OF INSTRUCTION IN COURSE/MODULE: Croatian/English

NUMBER OF INSTRUCTION HOURS: 60 (30L+30P)

#### OUTLINE OF COURSE/MODULE CONTENT

Content:

- The Concept of Green Analytical Chemistry
- Green Analytical Laboratory Experiments
- Greening Sampling Techniques
- Direct Analysis of Samples
- Green Analytical Chemistry Approaches in Sample Preparation
- Green Sample Preparation with Non-Chromatographic Separation Techniques
- Capillary Electrophoresis
- Green Chromatography
- Green Analytical Atomic Spectrometry
- Derivative Techniques in Molecular Absorption, Fluorimetry and Liquid Chromatography as Tools for Green Analytical Chemistry
- Greening Electroanalytical Methods
- Energy Savings in Analytical Chemistry
- Microfluidics
- Miniaturization
- Lab-on-a-Chip Technology
- Photocatalytic Treatment of Laboratory Wastes Containing Hazardous Organic Compounds
- Green Bioanalytical Chemistry
- Infrared Spectroscopy in Biodiagnostics: A Green Analytical Approach
- Environmental Analysis
- Green Industrial Analysis

#### READING LIST

1. S. Armenta, S. Garrigues, M. de la Guardia, Green Analytical Chemistry, 2008.

2. R. Greenwood, G.A. Mills, B. Vrana, Passive sampling techniques in environmental monitoring, Comprehensive Analytical Chemistry. (2007)

3. M. Guardia, S. Garrigues, Handbook of Green Analytical Chemistry Handbook of Green Analytical Chemistry, 2012.

4. M. de la Guardia, S. Garrigues, eds., Challenges in Green Analytical Chemistry, Royal Society of Chemistry, Cambridge, 2011.

#### **DESCRIPTION OF INSTRUCTION METHODS**

Lectures (L), research seminar (S) – problem orientated project, work in group, consultations.

#### **DESCRIPTION OF COURSE/MODULE REQUIREMENTS**

As a successful result of a problem orientated project, student should investigate and find the most suitable green analytical chemistry strategy for environmental issues; student should chose and use the most

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appropriate instrumental method for analysis using green analytical chemistry approach and greening sample preparation, including energy saving; student should use modern up-to-date methods and procedures concerning nanotechnology, miniaturisation and microfluidics. The student should actively participate in the problem orientated project. Problem orientated project participation is obligatory.

#### **DESCRIPTION OF MONITORING OF TEACHING QUALITY**

Anonymous survey at the end of the course. Survey includes lectures quality, content of the subjects, and suggestions for course improvements.

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#### **ORDINAL NUMBER: 21**

TITLE OF COURSE/MODULE: Ecotoxicology STATUS OF COURSE/MODULE (REQUIRED/ELECTIVE): Elective NAME OF COURSE/MODULE TEACHER: Göran Klobučar, Full Professor NAMES OF COURSE/MODULE TEACHER/ASSOCIATE TEACHER: LANGUAGE OF INSTRUCTION IN COURSE/MODULE: Croatian/English NUMBER OF INSTRUCTION HOURS: 60 (30L+15E+15S) OUTLINE OF COURSE/MODULE CONTENT

1. Basic concepts in toxicology, history of toxicology, toxicity, sublethal and lethal effects, measurement of toxicity, quantitative aspects of toxicity: dose-effect and dose-time relationship, acute and chronic toxicity, no adverse effect level, aditive effect, sinergistic effect, quantitative ratio of structure and activity, selective toxicity, hormesis. (2 hour lecture)

2. Review of major classes of pollutants (anorganic, organic...) and their mechanisms of toxicity, definiton of xenobiotics. (2 hour lecture)

3. Insuficient knowledge on the toxicity of currently known chemicals, standard toxicology and ecotoxicology tests, REACH, maximal allowed concentrations of toxic chemicals in environment, toxicity of mixtures. (2 hour lecture)

4. Dispersal of substances in the environment (water, soil and atmosphere), emission, imission, transmission, distribution, adsorption, transformation, resistency, adaptation, persistency and degradation of pollutants, dilution paradigm and boomerang paradigm, advantages and disadvantages of chemical analysis use in prediction of consequences on the biosphere - biological availability of the pollutant. (2 hour lecture)

5. Pathways of entrance and distribution of potentially toxic compounds in the organism - ADME principle (adsorption, distribution, metabolism and excretion), exposition, toxicokinetics, toxicodynamics, bioconcentration, biomagnification, bioaccumulation, biotransformation, (bio)inactivation, processing and excretion mechanisms, abiotic and biotic factors influencing toxicity. (2 hour lecture)

6. Biological transformation/biotransformation: Phase I. reactions (mixed function oxidase system): detoxification, bioinactivation, bioactivation; Phase II reactions and its enzymes. (2 hour lecture)

7. Definition and history of ecotoxicology, its interdisciplinarity (environmental chemistry, toxicology, ecology), most known examples of ecotoxicological problems (DDT, methyl mercury and Minamata bay etc.), Global changes caused by anthropogenic impact, acid rains, greenhouse effect, persistent organic pollutants (POPs). (2 hour lecture)

8. Causal relationship of changes caused by the pollution from molecular and cellular level over the level of the organism and to the level of populations, communities and ecosystems; Effects of pollutants on the populations, communities and ecosystems, bioindicator species, diversity indices, biotic indices. (2 hour lecture)

9. Methods of determing and measuring changes caused by the pollution/toxicant on the environment: toxicity tests-bioassays, biomonitoring, biomarkers - definition and their categorization (biomarkers of exposition and effect, specific and non specific biomarkers). (2 hour lecture)

10. Changes caused by toxicants on the level of the organism, organs and tissues. (2 hour lecture)



11. Changes caused by toxicants on the molecular and cellular level. (2 hour lecture)

12. Endocrine modulators, feminization/masculinization. (2 hour lecture)

13. Ecogenotoxicology, ecotoxicogenomics, evolutionary toxicology. (2 hour lecture)

14. Biological pollution: spreading of the alochthonous plant and animal species and its consequences on the ecosystems. (2 hour lecture)

15. Risk assessment: for humans and for the environment (ecotoxicological risk assessment). (2 hour lecture)

#### READING LIST

1. "Analitika okoliša" Ašperger D., Babić S., Bolanča T., Darbra R.M., Ferina S., Ginebreda A., Horvat A.J.M., Kaštelan-Macan M., Klobučar G., Macan J, Mutavdžić Pavlović D., Petrović M., Sauerborn Klobučar R., Štambuk A., Tomašić V, Ukić Š. 2013. Hinus, Zagreb, str. 294

2. "Environmental toxicity testing" Thompson KC, Wadhia K, Loibner AP (Eds.) 2005 Blackwell Publishing Ltd.

#### **DESCRIPTION OF INSTRUCTION METHODS**

Lectures, practical work, seminars, discussions and consultations with students

#### **DESCRIPTION OF COURSE/MODULE REQUIREMENTS**

Seminar essays, written exam, oral exam (if required)

#### **DESCRIPTION OF MONITORING OF TEACHING QUALITY**

Students questionnaires

PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



#### **ORDINAL NUMBER: 22**

TITLE OF COURSE/MODULE: Subsurface Investigations

STATUS OF COURSE/MODULE (REQUIRED/ELECTIVE): Elective

**NAME OF COURSE/MODULE TEACHER:** Stjepan Strelec, Associated Professor and Mario Gazdek, Assistant Professor

NAMES OF COURSE/MODULE TEACHER/ASSOCIATE TEACHER:

LANGUAGE OF INSTRUCTION IN COURSE/MODULE: Croatian/English

NUMBER OF INSTRUCTION HOURS: 60 (30L+30E)

#### **OUTLINE OF COURSE/MODULE CONTENT**

GEOPHYSICAL INVESTIGATIONS: Seismic Refraction (RF), Seismic Down-hole, Seismic Microtremor and Vibrations, Spectral and Multichannel Analysis of Surface Waves (SASW and MASW), Ground Penetration Radar (GPR), Vertical Electrical Sounding (VES), Electric Resistivity Tomography (ERT). DRILLING AND SAMPLING OF SOIL AND ROCK: Soil Investigation (Soil Drilling, Soil Sampling and Sample Identification), Rock Investigation (Rock Drilling and Sampling, Core Drilling and Non-Core Drilling, Observation During Core Drilling), Boring Closure, Safety Guidelines for Geotechnical Borings. BORING LOG PREPARATION: Project Information, Boring Locations and Elevations, Stratigraphy Identification, Sample Infromation, Soil Description/Soil Classification (Consistency and Apparent Density, Moisture, Color, Type of Soil, USCS Classification), Logging Procedures for Rock Core Drilling (Rock Description, Rock Type, Color, Grain Size and Shape, Strength, Hardness, Rock Discontinuity, Rock Quality Designation - RQD). IN SITU INVESTIGATIONS: Standard Penetration Test (SPT), Dynamic Penetration Heavy (DPH), Seismic Piezocone Penetration Test (SCPT-u), Vane Shear Test (VST), Pressuremeter Testing (PMT). GROUNDWATER INVESTIGATIONS: General, Determination of Groundwater Levels and Pressures (Open Borings, Observation Wells, Water Level Measurements), Field Measurements of Permeability (Pressure "Packer" Test, Pumping Tests, Slug Tests).

#### **READING LIST**

1. Acker, W. L., III (1974): Basic Procedures for Soil Sampling and Core Drilling, Acker Drill Co. Inc., P.O.Box 830, Scranton, PA., 18501.

2. EN 1997-2:2007 Eurocode 7 – Geotechnical design – Part 2: Ground investigation and testing.

3. EN ISO 22476-1:2012 Geotechnical investigation and testing – Field testing – Part 1: Electrical cone and piezocone penetration test.

4. Gonzalez de Vallejo, L.I.; Ferrer, M. (2011). Geological Engineering, CRC Press/Balkema, Taylor & Francis Group, London, UK.

5. Hoek, E. Practical rock engineering, www.rocscience.com.

6. ISO 22475-1: Geotechnical investigation and testing – Sampling methods and groundwater measurments.

7. Jayawickrama, P.W., Amarasiri, A. L. and Regino, P. E., (2000). Use of dynamic cone penetrometer to control compaction of granular fill. Trans. Res. Board, Trans. Res. Rec., No. 1736.

8. Lowe III, J. and Zaccheo, P.F. (1991): Subsurface explorations and sampling, Foundation Engineering Handbook, H. Y. Fang, ed., Van Nostrand Reinhold, New York, 1-71.

9. Burt G. Look (2014). Handbook of Geotechnical Investigation and Design Tables, Second Edition. Croydon, UK.

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10. Lunne, T.; Lacasse, S.; Rad, N.S. (1994). General report: SPT, CPT, PMT, and recent developments in insitu testing, Proceedings, 12th International Conference on Soil Mechanics & Foundation Engineering, Vol. 4, Rio de Janeiro, 2339-2403.

11. Mayne ,W. Paul; Barry R. Christopeher, and DeJong Jason (2001): Manual on Subsurface Investigations, Geotechnical Site Characterization, Federal Highway Administration, Washington, DC, Publication No. FHWA NHI-01-031.

12. Mitchell, J.K. (1993). Fundamentals of Soil Behavior, Second Edition, John Wiley & Sons, New York, 437.

13. Robertson, P. K. (2010). Estimating in-situ state parameter and friction angle in sandy soils from CPT.

14. Robertson, P.K., (1990). Soil classification using the cone penetration test. Canadian Geotechnical Journal, 27(1): 151-158.

#### **DESCRIPTION OF INSTRUCTION METHODS**

Lectures, auditorial exercises and seminars.

#### **DESCRIPTION OF COURSE/MODULE REQUIREMENTS**

Attending lectures and exercises and preparation of a seminar.

#### **DESCRIPTION OF MONITORING OF TEACHING QUALITY**

Mechanisms of institutional quality monitoring at the University of Zagreb.

PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



#### **ORDINAL NUMBER: 23**

TITLE OF COURSE/MODULE: Engineering and Environmental Geophysics

#### STATUS OF COURSE/MODULE (REQUIRED/ELECTIVE): Elective

**NAME OF COURSE/MODULE TEACHER:** Stjepan Strelec, Associated Professor and Mario Gazdek, Assistant Professor

NAMES OF COURSE/MODULE TEACHER/ASSOCIATE TEACHER:

LANGUAGE OF INSTRUCTION IN COURSE/MODULE: Croatian/English

NUMBER OF INSTRUCTION HOURS: 60 (30L+30E)

#### **OUTLINE OF COURSE/MODULE CONTENT**

The Engineering and Environmental Geophysics can provide geoscience graduates with the advanced methods and technical skills appropriate to develop a scientific research program with professional engineering and environmental companies, consultancies, agencies and authorities. Course offer advanced scientific and professional training in a specific area of the near surface geophysics related to the aspects of environmental and engineering investigations and exploration.

Main research and teaching subjects are: time lapse 3D and 4D ERT imaging, linking geoelectrical parameters to the pollution parameters in geomedia; 2D high-resolution seismic and GPR methods; dynamic and seismic CPT; imaging techniques and characterisation in complex media, incorporating small-scale effects and multi-scale analysis in imaging; development of investigation design based on geotechnical-geophysical data.

#### READING LIST

1. John M. Reynolds. An Introduction to Applied and Environmental Geophysics. ISBN-13:978-0471485360, ISBN-10:0471485365.

2. W. M. Telford, L. P. Geldart, R. E. Sheriff. Applied Geophysics. ISBN-13:978-0521339384, ISBN-10:0521339383.

3. Mark E. Everett. Near-Surface Applied Geophysics. ISBN-10:1107018773.

4. H. Robert Burger, Anne F. Sheehan, Craig H. Jones. Introduction to Applied Geophysics: Exploring the Shallow Subsurface. ISBN-13:978-0393926378, ISBN-10:0393926370.

5. John Milsom, Asger Eriksen. Field Geophysics. ISBN-13:978-0470749845, ISBN-10:470749849.

#### **DESCRIPTION OF INSTRUCTION METHODS**

The course comprises specialised core modules, topics and a research thesis. Fundamental but essential core modules give distinct engineering and environmental angle necessary for acquiring and interpretation of geophysical data. Advanced processes and state-of-the-art technologies are considered. Concept of integrated information and analysis that can reduced ambiguities is introduced.

Geophysical surveying design, field work, data processing and interpretation is a part of the curriculum and is aimed at resolving actual geo-engineering and geo-environmental problems.

The thesis work integrate theory with data derived from field observations, tests or laboratory work and has to be part of the research activities applicable in environmental engineering.

#### **DESCRIPTION OF COURSE/MODULE REQUIREMENTS**

Attending lectures and exercises and preparation of a seminar.

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#### **DESCRIPTION OF MONITORING OF TEACHING QUALITY**

Mechanisms of institutional quality monitoring at the University of Zagreb.
PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



#### **ORDINAL NUMBER: 24**

TITLE OF COURSE/MODULE: Geotechnics in environmental protection

#### STATUS OF COURSE/MODULE (REQUIRED/ELECTIVE): Elective

**NAME OF COURSE/MODULE TEACHER:** Boris Kavur, Assistant Professor and Biljana Kovačević Zelić, Full Professor

NAMES OF COURSE/MODULE TEACHER/ASSOCIATE TEACHER: Boris Kavur (2/3); Biljana Kovačević Zelić (1/3)

LANGUAGE OF INSTRUCTION IN COURSE/MODULE: Croatian/English

NUMBER OF INSTRUCTION HOURS: 60 (45L+15E)

#### **OUTLINE OF COURSE/MODULE CONTENT**

Consideration of different geo-environmental problems: behaviour of host rocks in the nuclear waste (NW) repository (the concept of deep geological disposal), behaviour of expansive backfill material (bentonite) surrounding the canister with NW, behaviour of natural expansive and/or collapsible soil/rocks in processes of drying and wetting, behaviour of compacted clay liners in the engineered barrier systems, evaluation of infiltration and evaporation processes in unsaturated zone. Understanding of the physical and thermodynamic principles governing unsaturated soil/rock behaviour. Properties and phase relations between the solid particles, water and gas in the pore spaces. Suction and pore water potential in unsaturated soil/rock. The state of stress acting at grain to grain contacts in the unsaturated porous media and its physical behaviour (volume changes, shear strength) at the macroscopic level. Suction measurement techniques. Methods for determination of hydraulic conductivity of unsaturated porous media. Methods for modelling and prognosis of fundamental hydraulic characteristics of unsaturated porous media: water retention curve (relation between suction and saturation), hydraulic conductivity curve (relation between conductivity and saturation), swelling and shrinkage curves (relation between volume change and water content or suction). Problem of hysteresis in the water retention curve behaviour during cyclic drying and wetting of earthen materials. Numerical modelling of the water seepage in unsaturated porous media. In situ test methods for determination of rock mass deformability characteristics and interpretation of test results: plate jacking test, large flat jack test, flexible dilatometer test etc. Determination of engineering characteristics of soils using a piezocone penetration test.

#### **READING LIST**

1. Chapman, N., McCombie, C. (2003). Principles and standards for the disposal of the long-lived radioactive wastes. Waste management series - 3. Elsevier Science Ltd. Oxford. UK.

2. Rowe, R.K. (2001). Geotechnical and Geoenvironmental Engineering Handbook. Kluwer Academic Publishers.

3. Lu, N., Likos, J. (2004). Unsaturated Soil Mechanics. John Wiley & Sons, Inc. New York.

4. Fredlund, D. G., Rahardjo, H., Fredlund, M. D. (2012). Unsaturated Soil Mechanics in Engineering Practice. John Wiley & Sons, Inc. New York.

5. Hudson, J.A., Harrison, J.P. (1997). Engineering Rock Mechanics: An Introduction to the Principles. Elsevier Science.

#### **DESCRIPTION OF INSTRUCTION METHODS**

Lectures and consultation.

#### **DESCRIPTION OF COURSE/MODULE REQUIREMENTS**

PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



Attending lectures and preparation of a seminar. **DESCRIPTION OF MONITORING OF TEACHING QUALITY** Mechanisms of institutional quality monitoring at the University of Zagreb.

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#### **ORDINAL NUMBER: 25**

TITLE OF COURSE/MODULE: Mineral Resources Exploitation and Environmental Protection

STATUS OF COURSE/MODULE (REQUIRED/ELECTIVE): Elective

NAME OF COURSE/MODULE TEACHER: Josip Mesec, Full Professor

NAMES OF COURSE/MODULE TEACHER/ASSOCIATE TEACHER:

LANGUAGE OF INSTRUCTION IN COURSE/MODULE: Croatian

NUMBER OF INSTRUCTION HOURS: 60 (30L + 30E)

**OUTLINE OF COURSE/MODULE CONTENT** 

MINERAL RESOURCES - types and use, methods and technologies of obtaining.

MINING AT THE BEGINNING OF THE CENTURY 21 - the world's reserves, production and consumption of primary energy production and consumption of energy in the Republic of Croatia, the existing ore reserves in the Republic of Croatia.

MINERAL RESOURCES EXPLOITATION AND ENVIRONMENTAL PROTECTION - Mineral resources exploitations influences on the environment (occupies the space; changes in the landscape; degradation and soil pollution; soil loss and degradation of surface mining tailings disposal; pollution such as oil spills, oil, lubricants and the like; subsidence due to underground works; harmful effects of blasting like seismic oscillations of soil, dust and noise; air pollution gases liberated during blasting, exhaust machinery, dust in exploitation, loading, transporting and mineral processing; surface water pollution (muddy wastewater from "wet" process separation and leaching of fine dust surface flow) erosion and underground (possible spills of pollutants through a permeable surface to the aquifer); creating excessive noise when working heavy machinery in obtaining, loading and transporting and processing; impact on the microclimate due to changes in the landscape, removing the major forest areas, creating artificial lakes; impact on the flora of clear cutting forests and dust; the impact on fauna exploitation process; impact on traffic and transport infrastructure; risks of environmental accidents.), Measures to reduce the impact of the exploitation of mineral resources on the environment. Monitoring.

#### **READING LIST**

1. Mesec, J. (2009): MINERALNE SIROVINE, VRSTE I NAČINI DOBIVANJA, sveučilišni udžbenik, Sveučilište u Zagrebu, Geotehnički fakultet Varaždin, ISBN 978-953-96597-4.

2. Arndt, P., Luttig, G.W.: Mineral resources, extraction, environmental protection and land-use planning in the industrial and developing countries. Stuttgart 1987.

3. AM FREEMAN III, JA HERRIGES, CL KLING - 2014 - BOOKS.GOOGLE.COM, THE MEASUREMENT OF ENVIRONMENTAL AND RESOURCE VALUES: THEORY AND METHODS.

#### **DESCRIPTION OF INSTRUCTION METHODS**

The curriculum is accomplished through lectures, seminars and consultations. During the lecture is processed theoretical matter related to the course and practices. During the exercises shall be presented the properties and testing methods and ways of protecting the environment from unwanted influences exploitation of mineral resources and equipment to monitor the impact.

## DESCRIPTION OF COURSE/MODULE REQUIREMENTS

Seminar and oral examination.

#### DESCRIPTION OF MONITORING OF TEACHING QUALITY

PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



Anonymous student surveys at the end of the semester. The survey covers the quality of teaching, content and structure of the course.

PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



#### **ORDINAL NUMBER: 26**

TITLE OF COURSE/MODULE: Satellite Missions

STATUS OF COURSE/MODULE (REQUIRED/ELECTIVE): Elective

**NAME OF COURSE/MODULE TEACHER:** Željko Hećimović, Associated Professor and Milan Rezo, Assistant Professor

NAMES OF COURSE/MODULE TEACHER/ASSOCIATE TEACHER:

LANGUAGE OF INSTRUCTION IN COURSE/MODULE: Croatian

NUMBER OF INSTRUCTION HOURS: 60 (30L+30E)

#### OUTLINE OF COURSE/MODULE CONTENT

LECTURING: MASTERING THE THEORETICAL AND PRACTICAL KNOWLEDGE ABOUT SATELLITE MISSIONS AND PROGRAMS, AS WELL PROCESSING AND APPLICATION OF SATELLITE DATA IS ONE OF THE MAIN GOALS OF THIS SUBJECT. HISTORICAL OVERVIEW OF SATELLITE MISSIONS THAT SIGNIFICANTLY CONTRIBUTED TO THE NEW KNOWLEDGE AND DEVELOPMENT, AS WELL SIGNIFICANTLY IMPROVING SCIENTIFIC FIELDS AND ECONOMIC BRANCHES. SYSTEMATIZATION OF SATELLITE MISSIONS, PROGRAMS AND SYSTEMS. GETTING KNOW AND ANALYSE ACTIVE SATELLITE MISSIONS. ABOUT 1200 SATELLITES IS CURRENTLY ACTIVE. AN OVERVIEW OF THE SPACE INDUSTRY AND MARKETS THAT ARE THE KEY FOR DEVELOPMENT OF A WHOLE RANGE OF OTHER ECONOMIES AND SOCIETY AS A WHOLE. THE BASICS OF SATELLITE CELESTIAL MECHANICS. NEWTON'S LAWS AND MICRO GRAVITY CONDITIONS. KEPLER'S LAWS AND SATELLITE ORBITS. NEWTON'S ABSOLUTE SPACE AND TIME AND THE RELATIVISTIC SPATIAL-TIME CONTINUUM. EUCLIDEAN METRIC AND METRICS OF RELATIVISTIC SPACE-TIME. POST-NEWTON'S RELATIVITY THEORY. RELATIVISTIC INFLUENCE ON SATELLITE MISSIONS. UNDISTURBED AND DISTURBED SATELLITE TRAJECTORIES. SPACE WEATHER. PREDICTION OF SATELLITE TRAJECTORY. SATELLITE REGISTRATIONS AND SATELLITE TRACKING SYSTEMS. PRACTICAL USE OF SATELLITE DATABASES. DETERMINING THE POSITION OF SATELLITES IN REAL TIME. MODELLING THE SATELLITE TRAJECTORY WITH RESPECT TO THE REQUIREMENTS OF SPATIAL, TEMPORAL, SPECTRAL, RADIOMETRIC RESOLUTION AND OTHER THEMATIC CRITERIA. THE DIVISION OF THE SATELLITE ORBITS (CONSIDERING THE INCLINATION AND SHAPE OF THE TRAJECTORY, FLIGHT HEIGHT, ETC.). MODELLING OF GEOSYSTEMS. SPHERICAL HARMONICS, WAVELETS, AND OTHER MODELLING METHODS. OVERVIEW OF GEOSPATIAL MODELS SUCH AS GRAVITY AND MAGNETIC FIELD, TOPOGRAPHY, EARTH TIDAL WAVES, GEOCENTRE POSITION, MOHOROVIČIĆ DISCONTINUITY, GEOTECTONIC PLATE, LOADING EFFECT, POST GLACIAL CRUST UPLIFT, BATIMETRIC MODELS, ALBEDO AND REFLEXIVITY, SOIL MOISTURE, SOIL AND SEA SURFACE TEMPERATURE, VEGETATION, AEROSOL, EVAPORATION, WINDS, RADIATION, ATMOSPHERE, TOPOGRAPHY AND OCEAN AND SEA CURRENTS, OCEAN COLOUR/BIOLOGY, WAVES, SALINITY, SNOW COVER TOPOGRAPHY, DISTRIBUTION OF SNOW AND ICE AND MANY OTHERS. SATELLITE MISSIONS AND SENSORS BECOME THE DOMINANT TECHNOLOGY OF GATHERING DATA ON EARTH AND THE CELESTIAL BODIES, AND THE BASIS FOR ECONOMIC DEVELOPMENT AND SOLVING EVERYDAY PROFESSIONAL AND OTHER TASKS. CURRENT AND NEW NASA, ESA AND OTHER NATIONAL SATELLITE PROGRAMS AND MISSIONS FOR CLIMATE MONITORING, ENVIRONMENTAL PROTECTION, SCIENTIFIC RESEARCH, TELECOMMUNICATIONS, NAVIGATION, SECURITY, HEALTH, TRANSPORT, SPATIAL PLANNING, AGRICULTURE, FORESTRY, FISHERIES, TOURISM AND OF A WHOLE RANGE OF OTHER SCIENTIFIC AND ECONOMIC AREAS. SOME OF THE SATELLITE MISSIONS AND PROGRAMS: SWARM, CRYOSAT, GPS, SPOT, ERS-1 AND 2, TERRASAR-X, GLONASS, GALILEO, ENVISAT, SEASAT, SEAWINDS, SMOS, GOCE, PROBA-1, SENTINEL, ACRIMSAT, ACT-AMERICA , GEOSAT, JASON-1, LAGEOS 1 & 2, LANDSAT, MOMS, MOS, NOAA-N, ADEOS, AIRMOSS, AQUA, AQUARIUS, ATOM, AURA, CLOUDSAT, CYGNSS, EARTH OBSERVING,

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ECOSTRESS, GEOSAT, QUIKSCAT, RADARSAT, SMAP, SRTM, SWOT, TERRA, TRMM AND MANY OTHERS. APPLICATIONS OF SATELLITE TECHNOLOGIES IN SUSTAINABLE DEVELOPMENT AND DEVELOPMENT OF INDIVIDUAL SCIENTIFIC AND ECONOMIC AREAS. A REVIEW OF TECHNOLOGICAL ACHIEVEMENTS IN THE FIELD OF EARTH OBSERVATION SYSTEMS (EOS). COPERNICUS, THE EU EARTH OBSERVATION PROGRAM, WHICH DEVELOPS SEVERAL THEMATIC SANTINEL SATELLITE MISSIONS. IT WILL PROVIDE EARTH DATA AND ENABLE, IN COMBINATION WITH ADDITIONAL IN SITU MEASUREMENTS, A WHOLE RANGE OF PRODUCTS AND SERVICES ESSENTIAL TO THE DEVELOPMENT OF SOCIETY AND THE ECONOMY. OVERVIEW OF THE LATEST TECHNOLOGICAL ACHIEVEMENTS IN THE FIELD OF SATELLITE TECHNOLOGIES, GEOINFORMATION SYSTEMS AND SERVICES. SATELLITE AND TERRESTRIAL MEASURING SYSTEMS FOR DATA COLLECTION ABOUT EARTH'S AND CELESTIAL'S BODIES. SATELLITE OBSERVATIONS OF EARTH TOPOGRAPHY (E.G. TOPOGRAPHY, ALBEDO AND REFLEXIVITY, SOIL MOISTURE, SOIL SURFACE TEMPERATURE, VEGETATION, ETC.). SATELLITE OBSERVATIONS OF GRAVITATIONAL AND MAGNETIC FIELDS AND GEODYNAMIC MEASUREMENTS. SATELLITE OBSERVATIONS OF ATMOSPHERES (E.G. AEROSOLS, THUNDERSTORMS, ATMOSPHERIC HUMIDITY, EVAPORATION, HUMIDITY AND EVAPORATION RATIO, TEMPERATURE, OZONE, WIND, RADIATION, CLOUD PROPERTIES, GASES, TYPE AND TEMPERATURE OF CLOUD PEAKS ETC.). SATELLITE OBSERVATION OF THE OCEAN AND SEA (TOPOGRAPHY AND OCEAN AND SEA CURRENTS, OCEAN COLOUR/BIOLOGY, WAVES, SALINITY, SURFACE TEMPERATURE ETC.). SATELLITE OBSERVATIONS OF SNOW AND ICE (E.G. TOPOGRAPHY OF SNOW COVER, THICKNESS ETC.). COMBINING SATELLITE, TERRESTRIAL, MARINE AND AERO MEASUREMENT SYSTEMS. NEW TRENDS IN SATELLITE TECHNOLOGY DEVELOPMENT. DEVELOPMENT OF SMALL SATELLITES AND SATELLITE SYSTEMS (MICRO, NANO AND PICNIC SATELLITES). FUTURE SATELLITE MISSIONS AND PROGRAMS.

EXERCISES: WORK ON EXAMPLES OF REAL-WORLD SATELLITE MISSIONS AND PROGRAMS AND MODELLING OF THE CORE ELEMENTS OF SATELLITE-SUPPORTED SYSTEMS SUCH AS THE DEFINITION OF SATELLITE MISSION OBJECTIVES, DESIGN, SATELLITE SENSOR AND INSTRUMENTATION SELECTION, MEASUREMENT TECHNIQUES, EARTH SEGMENT, COMMUNICATION AND DATA COLLECTION, DATA MODELLING, DISTRIBUTION TO USERS. MODELLING THE SATELLITE PATH WITH RESPECT TO THE SPECIFIC THEMATIC REQUIREMENTS OF SATELLITE MISSIONS (SPATIAL, TEMPORAL, SPECTRAL, RADIOMETRIC RESOLUTION AND OTHER SPECIFIC MISSION PARAMETERS). DEVELOP DATA COLLECTION SYSTEMS BY COMBINING SATELLITE, TERRESTRIAL, MARINE AND AERO MEASUREMENT TECHNIQUES (SATELLITE, UNMANNED AERIAL, SHIP AND OTHER SENSORS, DATA COLLECTION AND DISTRIBUTION SYSTEMS). DEVELOPMENT OF SPECIFIC SATELLITE-SUPPORTED SYSTEMS FOR LOCAL FIRE PROTECTION, HABITAT MONITORING, ENVIRONMENTAL PROTECTION, AGRICULTURE, FORESTRY, SECURITY, TOURISM, SPATIAL PLANNING, ETC. SOLUTION OF PRACTICAL PROBLEMS RELATED TO MODELLING, PROCESSING AND USE OF SATELLITE DATA COMBINED WITH OTHER DATA. COMBINING SATELLITE AND DATA OF OTHER INTERNET SERVICE DATA PROVIDERS INTO UNIQUE GEOINFORMATIONS SYSTEMS. ANALYSIS OF SATELLITE TECHNOLOGIES AND SYSTEMS FOR INDIVIDUAL SCIENTIFIC AND ECONOMIC AREAS. MODELLING OF GEOSYSTEMS. PRACTICAL COMPUTATION OF RELATIVISTIC IMPACTS ON SATELLITE SYSTEMS AND MEASUREMENT TECHNIQUES.

#### READING LIST

Required:

1. Capderou, M. (2014): Handbook of satellite orbits - from Kepler to GPS. Springer. Berlin, New York.

2. Flechtner, F.; T. Gruber; A. Güntner; M. Mandea; M. Rothacher; T. Schöne; J. Wickert (Eds.) (2010): System Earth via Geodetic-Geophysical Space Techniques. Springer. Berlin, New York.

3. Kramer, H. J. (2002): Observation of the Earth and Its Environment. Springer. Berlin, New York.

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4. Liping, D.; H. K. Ramapriyan (2014): Standard-Based Data and Information Systems for Earth Observation. Springer. Berlin, Heidelberg.

5. Macdonald, M.; V. Badescu (2014): The International Handbook of Space Technology. Springer. Berlin, Heidelberg.

- 6. Seeber, G. (2003): Satellite Geodesy. Walter de Gruyter. Berlin, New York.
- 7. Sen, Z. (2009): Spatial Modelling Principles in Earth Sciences. Springer. Berlin, New York.

8. Wiley J. L.; J. R. Wertz (2009): Space Mission Analysis and Design, 3rd edition. Space Technology Library. Springer, New York.

Optional:

- 1. Committee on Earth Observation Satellites (CEOS): http://www.ceos.org
- 2. ESA: http://www.esa.int
- 3. ESA: The Earth Observation Handbook, http://www.eohandbook.com
- 4. Keller, W.: Wavelets in Geodesy and Geodynamics. Walter de Gruyter. Berlin, New York 2004.
- 5. NASA http://www.nasa.gov

6. Wiley J. Larson, James R. Wertz (Eds.) (2011): Space Mission Engineering. Space Technology Library. Springer. New York.

#### **DESCRIPTION OF INSTRUCTION METHODS**

Lectures, exercises in computer classroom, e-learning.

#### **DESCRIPTION OF COURSE/MODULE REQUIREMENTS**

Attendance and active participation in classes and exercises. Seminar. Written and verbal knowledge assessment in the case of negatively evaluated seminar work.

#### **DESCRIPTION OF MONITORING OF TEACHING QUALITY**

Cyclical assessment of teacher work by students every three years and implementation of other forms of quality monitoring provided by the Quality Assurance Manual of the Faculty of Geotechnics.

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**ORDINAL NUMBER: 27** 

**TITLE OF COURSE/MODULE:** Environmental Geotechnics

STATUS OF COURSE/MODULE (REQUIRED/ELECTIVE): Elective

NAME OF COURSE/MODULE TEACHER: Krešo Ivandić, Associated Professor

NAMES OF COURSE/MODULE TEACHER/ASSOCIATE TEACHER:

LANGUAGE OF INSTRUCTION IN COURSE/MODULE: Croatian/English

NUMBER OF INSTRUCTION HOURS: 60 (30L + 30E)

**OUTLINE OF COURSE/MODULE CONTENT** 

INTRODUCTION - basic mechanics of soil, water flow in the ground.

WASTE DISPOSAL ENGINEERING FUNDAMENTALS I - terminology, definitions, units, multidisciplinary areas, classification and characterization of foundation soil and waste.

WASTE DISPOSAL ENGINEERING FUNDAMENTALS II - risk assessment, technical observation, sustainability components landfills, quality assurance and control.

BASIC MATERIALS IN SYSTEMS LANDFILL WASTE - waste, foundation soil, geosynthetics.

BASE AND SURFACE WASTE DISPOSAL BARRIERS - materials, transfer of contaminants and water flow through the sealing layers.

DESIGN of liners and barriers, drainage systems landfills.

REHABILITATION OF CONTAMINATED LAND AND ABANDONED landfills - waste testing, geotechnical investigations, solving tasks of treating the waste or its isolation. Contaminated areas management. Use of contaminated soil and recycled material for earth structures.

GEOTHERMAL ENERGY.

TRANSPORT INFRASTRUCTURE.

GROUNDWATER PROTECTION.

Nuclear waste dump - surveying, excavation damaged zone, remediation of contaminated sites.

SEISMIC DESIGN OF SOLID WASTE LANDFILLS AND LINING SYSTEMS I - Introduction to the embankment stability analysis during the earthquake, the seismic response to seismic excitation, the permanent embankment displacement, the waste behavior specifics.

SEISMIC DESIGN OF SOLID WASTE LANDFILLS AND LINING SYSTEMS II - selection of soil parameters for seismic analysis, seismic response of the landfill body and sealing and covering layers, stability analysis during and after the seismic activity.

EDUCATION IN GEOENVIRONMENTAL ENGINEERING.

#### READING LIST

1. EN 1997-1:2007 Eurocode 7 – Geotechnical design – Part 1: Geotechnical Design.

2. Lakshmi N. Reddi, Hilary I. Inyang; Geoenvironmental Engineering, Principal and Applications, Marcel Dekker, 2000.

3. Robert W. Sarsby; Environmental Geotechnics, Thomas Telford Limited 2013.



## **DESCRIPTION OF INSTRUCTION METHODS**

Lectures, exercises in computer lab, e-learning.

#### **DESCRIPTION OF COURSE/MODULE REQUIREMENTS**

Class participation in lecture classes, seminars and exercises. Course assignment. The grade is based on these elements, or a written and oral examination (for students who do not receive passing grades on the course assignments).

#### **DESCRIPTION OF MONITORING OF TEACHING QUALITY**

Anonymous student questionnaire every three years and conducting of additional quality control measures as anticipated in the Faculty of Geotehenical Engineering Quality Assurance Guide.

PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



#### **ORDINAL NUMBER: 28**

TITLE OF COURSE/MODULE: Urban Mining

STATUS OF COURSE/MODULE (REQUIRED/ELECTIVE): Elective

NAME OF COURSE/MODULE TEACHER: Jože Kortnik, Assistant Professor

NAMES OF COURSE/MODULE TEACHER/ASSOCIATE TEACHER: /

LANGUAGE OF INSTRUCTION IN COURSE/MODULE: Croatian/English

NUMBER OF INSTRUCTION HOURS: 60 (30L+30E)

## **OUTLINE OF COURSE/MODULE CONTENT**

LECTURES: Urban Mining basics (1). Potential of Urban Wastes (2). Processing techniques basics of urban wastes (3). Extraction/recycling processes for secondary raw materials (4). Processes for the production of fuel from waste (5). Lanfills as energy and raw materials resources (6). Treatment, storage and urban waste disposal (7). Processing of refuse derived fuel (8)

EXERCISES: Modeling in computer practicum: C2C model, end of pipe model, LCA model.

## READING LIST

1. Allwood, J.M., Cullen, J.M. (2012). SUSTAINABLE MATERIALS WITH BOTH EYES OPEN, UIT Cambridge Ltd. 373 str.

2. Bagchi, A. (2004). DESIG OF LANDFILLS AND INTEGRATED SOLID WASTE MANAGEMENT, John Wiley&Sons, Inc., str. 696.

3. Holmes, G., Singh, B.R., Theodore, L. (1993). HANDBOOK OF ENVIRONMENTAL MANAGEMENT AND TECHNOLOGY, John Wiley, New York, 650 str.

4. Lund, H.F. (2000). RECYCLING HANDBOOK, McGraw-Hill, 750 str.

5. Masters, G.M., Ela, W.P. (2005), INTRODUCTION TO ENVIRONMENTAL ENGINEERING AND SCIENCE, Pearson Education International, 3rd edition, 708 str.

6. Pichtel, J. (2005). WASTE MANAGEMENT PRACTICES - Municipal, Hazardous, and Industrial, Taylor&Francis Group, 659 str.

7. Vesilind, P.A., Worrell, W., Reinhart, D. (2002), SOLID WASTE ENGINEERING, Brooks/Cole Pub CO, USA, str. 428.

8. Wang, L.K., Hung, Y-T., Lo, H.H., Yapijakis, C. (2006). WASTE TREATMENT IN THE PROCESS INDUSTRIES, CRC Press, Taylor&Francis Group, 638 str.

#### **DESCRIPTION OF INSTRUCTION METHODS**

Lectures, Exercises in a computer classroom, e-learning.

#### **DESCRIPTION OF COURSE/MODULE REQUIREMENTS**

The presence and active participation on class lectures and discussions. The exam is conducted by making and defending seminar work. In the case of a negative evaluation of seminar work student performs written and oral exam.

PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



## **DESCRIPTION OF MONITORING OF TEACHING QUALITY**

Cyclically-evaluation of teacher work by students questionary every three years and the implementation of other forms of monitoring work and the quality of courses provided by the Geotechnical faculty quality assurance manual.

PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



#### **ORDINAL NUMBER: 29**

TITLE OF COURSE/MODULE: The impact of climate change on water systems and environment

STATUS OF COURSE/MODULE (REQUIRED/ELECTIVE): elective

NAME OF COURSE/MODULE TEACHER: Božidar Biondić, Prof. Emeritus and Krešo Pandžić, Assistant Professor

NAMES OF COURSE/MODULE TEACHER/ASSOCIATE TEACHER: Robert Pašičko, Assistant Professor

LANGUAGE OF INSTRUCTION IN COURSE/MODULE: Croatian/English

NUMBER OF INSTRUCTION HOURS: 60 (30P+30V)

#### **OUTLINE OF COURSE/MODULE CONTENT**

LECTURES (30 hours): Overview of the climate variability and climate science - climate system, climate change and forecasts (1h). Basics of global climate - components and appearance of climate system, irradiation, energy balance, atmospheric circulation, ocean circulation, surface processes (3h). Physical processes in the climate system - the preservation of the pulse movement, the first law of thermodynamics, equation of state, waves in the atmosphere and oceans (2h). El Nino and annual forecasts - the base of the appearance El Nino, climate of the tropical Pacific, mechanisms of ENSO, the analyses of historical data, the mechanism of occurrence of EL NINO, predicting of the occurrence of EL NINO, other interannual phenomenon (2h). Climate models - making climate models, the numerical presentation of atmospheric and oceanic equation, parameterization of small scale processes, a hierarchy of climate models, impact of climate models on the current climate (2h). The greenhouse effect and climate feedback mechanism - the greenhouse effects in the current climate, global warming as a result of changes in energy balance, the feedback mechanism (effect of water vapor, snow and ice covers, cloud cover) and other mechanisms of feedback (2h). Scenarios of climate models of global warming - global warming scenario, comparison of different projections of climate models, the spatial distribution of climate parameters, projections of climate extremes (3h). Climate changes in the geological past and their impact on changes in natural water systems - changes of glacial and inter glacial periods, the creation of large karst and inter-granular aquifer systems, changes in sea levels during the Quartenary (3h). Overview of water resources which can be influenced with recent climate changes - the oceans and inland seas, melting of ice cover at the poles ect (2h). The changes of precipitation and runoff regimes in the catchments of major rivers - the formation of extreme flood waves in the basins of major rivers, technical possibilities of defense from such conditions, appearances of extreme droughts and technical possibilities of defense, the impact on rivers in Croatia (3h). The impact of climate change on water resources of the Mediterranean - geological events in the Mediterranean during the Quarternary, the impact on the different types of aquifers open to the influence of the sea (2h). The impact of climate change on water resourcesin the coastal area of the Adriatic in Croatia - penetration of seawater deep in karst aquifers, exploitation of drinking water in the zones of influence, what will happen to the coastal aquifers in the case of sea level rise, the protection against possible future impacts (3h). How to harmonize systems of water management in Croatia with the expected climate change - good organization of monitoring due to the EU Water Framework Directives, detailed observations of vulnerable areas, periodic assessment of the state of water (2h).

#### READING LIST

1. Neelin, J.D. 2011: Climate change and climate modeling. Cambridge University Press, New York, 285 pp.

2. Battarbee, R.W. and H.A. Binney, 2008: Natural climate variability and global warming. Wiley-Blackwell, Oxford. 276 pp.



3. Hilborn, R.C., 1994: Chaos and nonlinear dynamics – an introduction for scientists and engineers. Oxford Univrsity Press, Oxford. 654 pp.

4. Kiehl, J.T. and Ramanathan, V., 2006: Frontiers of climate modeling. Cambridge University Press, Cambridge. 381 pp.

5. Lorenz, E., 1993: The essence of chaos. University of Washington Press, Seattle. 227 pp

6. Milanković, M, 2008: Astronomska teorija klimatskih promjena i njena primjena u geofizici. Prosvjeta, Zagreb. 192 pp.

7. Neelin, J.D., 2011: Climate change and climate modeling. Cambridge University Press, Cambridge. 282.

8. Ott, E., 2002: Chaos in dynamical systems. Cambridge University Press, Cambridge. 478 pp.

9. Trenberth, K.E (editor)., 1992: Climate system modeling. Cambridge University Press, Cambridge, 788 pp.

10. Jeftić, Lj., Kečkeš, S. and Perneta, J. C., (editors), 1992: Climatic change and the Mediterranean. UNEP study, 564 pp.

11. Biondić, B. and Biondić, R. (2014): Hidrogeologija Dinarskog krša u Hrvatskoj. Udžbenik Sveučilišta u Zagrebu, 341 str.

12. Tulipano, L. (editor), 2005: Groundwater management of coastal karst aquifers, EU COST action 621, Luxemburg.

13. Calaforra, J.M. (editor) 2004: The main coastal karstic aquifers of southern Europe, EU COST action 621, Luxemburg.

14. Ciscar, J.A. et al (2011): Physical and economic consequences of climate change in Europe, PNAS, 108 (7), 2678-2683.

15. Hamilton, J.M. & Tol, R.S.J. (2007): The Impact of Climate Change on Tourism and Recreation, In Schlensinger, M.E., Kheshgi, H.S., Smith, J., de la Chesnaye, F.C., Reilly, J.M., Wilson, T. & Kolstad, C. (eds) "Human-Induced Climate Change : An Interdisciplinary Assesment, Cambridge University Press, pp 147-161.

16. Pašičko, R., Branković, Č. & Šimić, Z. (2012): Assesment of climate change impacts on energy generation from renewable sources in Croatia, Renewable Energy 46, 224-231. DOI: 10.1016/j. renene.2012.03.029.

17. Stern, N. (2008): The economics of climate change, American Economic Review 98, 1-37.m

#### **DESCRIPTION OF INSTRUCTION METHODS**

Oral presentations of individual thematic units with a joint discussion with the students. The organization of invited lectures for specific topics. Acquiring knowledge and skills through seminar tasks associated with specific problems. Organization of field work at the end of the semester.

#### **DESCRIPTION OF COURSE/MODULE REQUIREMENTS**

The presence on lectures and open discussion during lectures, seminar work and exam

#### **DESCRIPTION OF MONITORING OF TEACHING QUALITY**

Anonymous student surveys at the end of the course. The survey covers the quality of teaching, content and structure of the course.

PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



#### **ORDINAL NUMBER: 30**

TITLE OF COURSE/MODULE: Management and protection of water resources

STATUS OF COURSE/MODULE (REQUIRED/ELECTIVE): Elective

NAME OF COURSE/MODULE TEACHER: Ranko Biondić, Full Professor and Hrvoje Meaški, Asisstant Professor

NAMES OF COURSE/MODULE TEACHER/ASSOCIATE TEACHER: /

LANGUAGE OF INSTRUCTION IN COURSE/MODULE: Croatian/English

NUMBER OF INSTRUCTION HOURS: 60 (30P+30V)

## **OUTLINE OF COURSE/MODULE CONTENT**

LECTURES (30 HOURS). Water resources and their function in natural systems (2h). The water demand (urban and rural areas, inland and coastal part, artificial recharge ...) (2h). Forms of water use (2h). The link between surface water and groundwater (2h). The principles of the Water Framework Directive of the EU (2h). Delineation of water bodies (4h). The methodology of assessment of water bodies (4h). Risk Assessment Methodology of water bodies (3h). Further characterization of water bodies (3h). Monitoring the quantitative and chemical status (2h). Measures to achieve good status (2h). Forms of protection of water resources (Zone of sanitary protection of drinking water sources ...) (2h).

EXERCISES (30 HOURS). Seminar works and assigning concrete examples related to the management and protection of water resources. Preparation of proposals to solve specific problems of protection of water resources.

#### READING LIST

1. M.K. Jermar (1987): Water Resources and Water Management.- Elsvier.

2. Biswas, A.K. & Tortajada, C. (2009): Water Management in 2020 and beyond.- Springer, 268 P.

3. Technical Report 1 (2001): The EU Water Framework Directive: statistical aspects of the identification of groundwater pollution trends, and aggregation of monitoring results. Final report.

4. Okvirna Direktiva O Vodama (ODV) 2000/60/EC (2000): Water framework directive of the European Parliament and of the Council establishing a framework for Community action in the field of water policy.

#### **DESCRIPTION OF INSTRUCTION METHODS**

Lectures, exercises and consultations

#### **DESCRIPTION OF COURSE/MODULE REQUIREMENTS**

Seminar work and oral exame

## **DESCRIPTION OF MONITORING OF TEACHING QUALITY**

Anonymous student surveys at the end of the course. The survey covers the quality of teaching, content and structure of the course.

PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



#### **ORDINAL NUMBER: 31**

**TITLE OF COURSE/MODULE:** Environmental Hydrogeology

STATUS OF COURSE/MODULE (REQUIRED/ELECTIVE): elective

NAME OF COURSE/MODULE TEACHER: Hrvoje Meaški, Assistant Professor and Ranko Biondić, Full Professor

NAMES OF COURSE/MODULE TEACHER/ASSOCIATE TEACHER: /

LANGUAGE OF INSTRUCTION IN COURSE/MODULE: Croatian/English

NUMBER OF INSTRUCTION HOURS: 60 (30P+30V)

## **OUTLINE OF COURSE/MODULE CONTENT**

LECTURES (30 HOURS). Introduction to hydrogeology, environment and their correlation (2h). The link between surface water and groundwater due to the different ways of appearance of water resources (2h). Overview of different types of aquifers in Croatia and in the World (2h). Analysis of the flow of underground water and categorization of local, medium-sized and regional flow system based on hydrogeological, hydrological and hydrochemical knowledge (2h). Water resources in urban and rural areas (2h). Overview and examples of environmental problems (pressure) associated with hydrogeological systems (natural and anthropogenic impacts): the impact of climate change, seawater, natural sources of pollution, lowering the surface, causes and effects of floods, irrigation, landslides, impacts of landfills, pumping and groundwater recharge (8h). Application of hydrogeological investigations and information obtained in dealing with specific environmental problems, depending on the type of aquifer and how to use ground water - the possibilities of prevention, control and remediation (6h). Review of basic methodology environmental impact assessment in the context of the use of hydrogeological data (2h). Assessing the sustainability of water resources in the context of environmental, economic and social values and the possible benefits and disadvantages of such analysis (4h).

EXERCISES (30 HOURS). Seminar works and assigning examples from Croatian and world. Preparation of proposals to solve specific environmental problems.

#### READING LIST

1. Andreo, B., Carrasco, F., Durán, J. J., Jiménez, P. & LaMoreaux, J. W. (eds.) (2015): Hydrogeological and Environmental Investigations in Karst Systems. Environmental Earth Sciences, Volume 1. Springer

2. Anjaneyulu, Y. & Manickam, V. (2011): Environmental impact assessment methodologies. BS Publications

3. Bocanegra, E., Hérnandez, M. & Usunoff, E. (eds.) (2005): Groundwater and Human Development. IAH Selected Papers, Vol 6. CRC Press.

4. Cobbing, J., Adams, S., Dennis, I. & Riemann, K. (eds.) (2013): Assessing and Managing Groundwater in Different Regions. IAH Selected Papers, Vol 19. CRC Press.

5. Karanth, K. R. (1987): Ground Water Assessment: Development and Management. Tata McGraw-Hill Education

6. LaMoreaux, P. E., Soliman, M. M., Memon, B. A., LaMoreaux, J. W. & Assaad, F. A. (2009): Environmental hydrogeology, 2nd Edition. CRC Press.

7. Maloszewski, P., Witczak, S. & Malina, G. (eds.) (2012): Groundwater quality sustainability. IAH Selected Papers, Vol 17. CRC Press.

8. Margat, J. & Van der Gun, J. (2013). Groundwater Around the World: A Geographic Synopsis. CRC Press.

PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



9. Stevanović, Z., Krešić, K. & Kukurić, N. (2016): Karst without Boundaries. IAH Selected Papers, Vol 23. CRC Press.

## **DESCRIPTION OF INSTRUCTION METHODS**

Oral presentations of individual thematic units with a joint discussion with the students. The organization of invited lectures for specific topics. Acquiring knowledge and skills through seminar tasks associated with specific problems. Organization of field work at the end of the semester.

## **DESCRIPTION OF COURSE/MODULE REQUIREMENTS**

Attending lectures and participate in discussions, seminars, assessment written and oral examination.

## DESCRIPTION OF MONITORING OF TEACHING QUALITY

Anonymous student surveys at the end of the course. The survey covers the quality of teaching, content and structure of the course.

PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



#### **ORDINAL NUMBER: 32**

TITLE OF COURSE/MODULE: Isotope Hydrochemistry STATUS OF COURSE/MODULE (REQUIRED/ELECTIVE): Elective NAME OF COURSE/MODULE TEACHER: Sanja Kapelj, Full Professor NAMES OF COURSE/MODULE TEACHER/ASSOCIATE TEACHER: Nada Horvatinčić, PhD LANGUAGE OF INSTRUCTION IN COURSE/MODULE: Croatian/English NUMBER OF INSTRUCTION HOURS: 60 (30P+30V)

#### **OUTLINE OF COURSE/MODULE CONTENT**

**LECTURES (30 HOURS).** Concept of reservoirs, determination of mean residence time of groundwater and dating of groundwater in hydrology and hydrogeological studies (**2h**). Stable isotopes of oxygen (<sup>18</sup>O) and hydrogen (<sup>2</sup>H) in precipitation, surface and groundwater (**3h**). Tritium dating - <sup>3</sup>H i <sup>3</sup>H/<sup>3</sup>He (3h). Radiocarbon dating (<sup>14</sup>C) (**2h**), Dating using isotope <sup>36</sup>Cl, noble gases, isotopes <sup>4</sup>He i <sup>39</sup>Ar, <sup>81</sup>Kr, <sup>85</sup>Kr and uranium isotopes <sup>234</sup>U/<sup>238</sup>U (**4h**). Application of isotopes in groundwater protection (**4h**). Application of isotopes in lake studies (origin, geochemistry and influences (**2h**). Application of isotopes in coastal aquifer studies (origin, geochemistry and influences (**2h**). Application of isotopes in coastal aquifer studies (origin, geochemistry and pollution sources by stable isotopes of carbon, nitrogen and sulphur (**2h**). Mixing models of waters. Application of geochemical mass balance model (NETPATH) and reaction Path model (PHREEQC) (**4h**).

**EXCERSISES (30 HOURS).** Sampling, preparation and conservation of water samples. Analytical techniques and methods (8h). Spatial and temporal design of isotope monitoring (2h). Practical excersises and evaluation of case study problems by geochmical modeling (10h). Seminar work presentation and disscussion (10h).

#### READING LIST

1. Appelo, C.A.J. and Postma, D (2005): Geochemistry, Groundwater and Pollution, CRC Press, Taylor and Francis, 2nd Edition, 649 p. Appelo, C.A.J. & D. Postma (1994): Geochemistry, groundwater and pollution. Balkema, Rotterdam.

2. Clark, I.; Fritz, P. (1997). Environmental Isotopes in Hydrogeology, Lewis Publishers, Boca Raton.

3. IAEA (1981): Stable Isotope Hydrology. Tehnical Report Series No. 210, Vienna.

4. IAEA (1983): Guidebook on Nuclear Techniques in Hydrology, Techical report series No. 91, International Atomic Energy Agency, Vienna.

5. Kendall, C.; McDonell, J.J. (eds.) (1998),. Isotope Tracers in Catchment Hydrology, Elsevier Science.

6. Fritz.P.; Fontes, J.C. (eds.) (1980). Handbook of Environmental Isotope Geochemistry. Elsevier, Amsterdam.

7. Mazor, E. (2004): Chemical and Isotopic Groundwater Hydrology. Marcel Dekker, Inc., New York – Basel.

8. Parkhurst, D.L. (1995). PHREEQC - computer program for speciation, reaction-path, advective-transport and inverse geochemical calculations. Water-Resources Investigations Report 95-4227, USGS, Colorado.

9. Plummer, L.N.; Prestemon, E.C.; Parkhurst, D.L. (1994). An interactive code (NETPATH) for modelling net geochemical reactions along flow path, Version 2.0. USGS Water-Resources Investigation Report 94-4169, Reston, Virginia.

PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



## **DESCRIPTION OF INSTRUCTION METHODS**

Lectures, exercises, seminar works and discussions.

#### **DESCRIPTION OF COURSE/MODULE REQUIREMENTS**

Tuition will include permanent examination of adopted knowledge throughout the mid-terms exams, seminar works and discussion.

#### **DESCRIPTION OF MONITORING OF TEACHING QUALITY**

An anonymous questionnaire will be filled in by all of the course participants. This procedure is compulsory for all subjects and is aimed at evaluation both of the teacher's performance (quality of delivery) and of the overall content and structure of the course.

PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



#### **ORDINAL NUMBER: 33**

TITLE OF COURSE/MODULE: Water quality in the environment STATUS OF COURSE/MODULE (REQUIRED/ELECTIVE): Elective NAME OF COURSE/MODULE TEACHER: Jelena Loborec, Assistant Professor NAMES OF COURSE/MODULE TEACHER/ASSOCIATE TEACHER: / LANGUAGE OF INSTRUCTION IN COURSE/MODULE: Croatian/English NUMBER OF INSTRUCTION HOURS: 60 (15L+45E)

#### **OUTLINE OF COURSE/MODULE CONTENT**

LECTURES (15 hours). Natural water systems (1h). Quality standards of individual water systems in nature (1h). Water quality criteria for different purposes of human consumption (1h). Objectives of Water Quality Management (1h). Sampling methods of water in the environment (1h). Physical, chemical and biological indicators of water quality (1h). Methods and laboratory tests for measuring the indicators of water quality (1h). Hazards and risk criteria for assessment the impact on water quality (1h). Sources and types of pollution, the impact of pollution on water quality (1h). The impact of polluted water on the other components of the environment and human health (1h). Water treatment processes, monitoring the effectiveness of the treatment (1h). The procedures for water quality monitoring (1h). Legislation of water quality management (1h). Water protection measures to preserve water quality (1h). Examples of water quality management in the environment. (1h)

EXERCISE (45 hours). The implementation of individual research and writing a seminar paper with consultations on the topic covered by the course, and from the field of interest of the student.

#### **READING LIST**

1. Y. Li, K. Migliaccio: Water Quality Concepts, Sampling, and Analyses, CRC Press, 2010.

2. S. Ahuja: Monitoring Water Quality, 1st Edition, Pollution Assessment, Analysis, and Remediation, Elsevier, 2013.

3. Schmoll, Oliver. Protecting groundwater for health: managing the quality of drinking-water sources. World Health Organization, 2006.

4. A.W. Hounslow: Water Quality Data: Analysis and Interpretation 1st Edition, CRC Press, 1995.

#### **DESCRIPTION OF INSTRUCTION METHODS**

Lectures and / or consultations / individual assignment

#### **DESCRIPTION OF COURSE/MODULE REQUIREMENTS**

Class attendance / research / seminar / exam

#### **DESCRIPTION OF MONITORING OF TEACHING QUALITY**

Anonymous student surveys at the end of the semester

PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



#### **ORDINAL NUMBER: 34**

TITLE OF COURSE/MODULE: Urban and rural water systems STATUS OF COURSE/MODULE (REQUIRED/ELECTIVE): Elective NAME OF COURSE/MODULE TEACHER: Bojan Đurin, Assistant Professor NAMES OF COURSE/MODULE TEACHER/ASSOCIATE TEACHER: / LANGUAGE OF INSTRUCTION IN COURSE/MODULE: Croatian/English NUMBER OF INSTRUCTION HOURS: 60 (15L+45E)

#### **OUTLINE OF COURSE/MODULE CONTENT**

LECTURES (15 HOURS). Parts (subparts) of urban and rural water systems and their definitions (2h): water supply system, waste water sewage system, storm water sewage system. The concept of urban and rural water systems (URWS-a) with mutual interconnections (1h). Energy and hydraulic relations in URWS (2h): water supply system, waste water sewage system, storm water sewage system, mutual interconnections. Climate change and URWS: generally about climate changes (1h), water supply system (1h), waste water sewage system (1h). The use of renewable energy sources (RES) in URWS-in (3h): generally about RES, water supply system, waste water sewage system, storm water sewage system. Multicriteria decision making in URWS-in (3h): water supply system, waste water sewage system, storm water sewage system.

EXERCISES (45 HOURS). Sizing of the water supply system (15h). Sizing of the sewage system (15h). Application of the multicriteria methods (9h). Economic analysis (6h)

#### **READING LIST**

1. Margeta J. (2010): Vodoopskrba naselja: planiranje, projektiranje, upravljanje, obrada vode. Gradevinskoarhitektonski fakultet Sveucilista u Splitu.

2. Margeta J. (2009): Kanalizacija naselja (odvodnja i zbrinjavanje otpadnih i oborinskih voda), Građevinskoarhitektonski fakultet Sveučilišta u SplituGeotehnički fakultet Sveučilišta u Zagrebu.

3. Mays, L. W. (2004): Urban Water SupplyHandbook, McGraw-Hillcompanies, New York.

4. Loucks, D. P.; van Beek, E., Stedinger, J. R.; Dijkman, J. P. M.; Villars, M. T. (2005). Water Resources Systems Planningand Management-AnIntroduction to Methods, ModelsandApplications. Unesco i WL Hydraulics, Paris i Delfth.

5. Đurin, B.; Margeta, J. (2014): AnalysisofthePossible Use ofSolarPhotovoltaic Energy in Urban Water Supply Systems. Water 6, (6): 1546-1561.

6. Đurin, B. (2016): Some AspectsoftheOperationWorkofPumpStationand Water Reservoir. PeriodicaPolitechnica Civil Engineering 60.

#### **DESCRIPTION OF INSTRUCTION METHODS**

Lectures, constructive exercises, discussion.

#### **DESCRIPTION OF COURSE/MODULE REQUIREMENTS**

Oral examination, written tasks, discussion.

#### **DESCRIPTION OF MONITORING OF TEACHING QUALITY**

Anonymous student surveys at the end of the course. The survey covers the quality of teaching, content and structure of the course.

PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



#### **ORDINAL NUMBER: 35**

TITLE OF COURSE/MODULE: Water treatment for human consumption STATUS OF COURSE/MODULE (REQUIRED/ELECTIVE): Elective NAME OF COURSE/MODULE TEACHER: Mario Šiljeg, Assistant Professor NAMES OF COURSE/MODULE TEACHER/ASSOCIATE TEACHER: / LANGUAGE OF INSTRUCTION IN COURSE/MODULE: Croatian NUMBER OF INSTRUCTION HOURS: 60 (30L+30E)

#### **OUTLINE OF COURSE/MODULE CONTENT**

LECTURES (30 HOURS). Water chemistry (2h). Surface waters (1h). Groundwaters (2h). Methods of conditioning waters - in general (2h). Deposition methods (1h). Coagulation and flocculation methods (2h). Filtration methods (2h). Calculation of filter characteristics (2h). Aeration (2h). Removal of metals and non - metals (2h). Removal of taste, smell and color of water (2h). Membrane technologies for water treatment - in general (2h). Reverse osmosis and desalination of water (2h). Disinfection of water (2h). Characteristic water pollutions of the Adriatic Basin (2h). Characteristic water pollutions of the Black Sea Basin (2h). Arsenic in water and its removal (2h). Calculation and sizing of unit technological operations (2h). Preliminary water analysis (2h). Creation of a pilot water treatment plants (2h). Effectiveness monitoring of the water treatment plant (1h). Disposal of by-products from water conditioning processes: sludges, chemicals (2h). Seminars and discussions (4h).

EXERCISES (30 HOURS). The exercises will be organized in cooparation with Public utility companies that have production capacity and plants for the preparation of drinking water.

#### **READING LIST**

1. Daniel Flynn, Nalco Water Handbook, (2009) Third Edition, Nalco

2. Environmental protection Agency, European Communities - Drinking Water (2007) (No. 2) Regulations

3. James Edzwald, Water Quality & Treatment: A Handbook on Drinking Water, (2011) Sixth Edition, American Water Works Association

#### **DESCRIPTION OF INSTRUCTION METHODS**

Getting to know the issues of water treatment for human consumption, acquiring necessary knowledge and skills in the field of technologies and applications in the scientific work through lectures, seminars, general discussion.

#### **DESCRIPTION OF COURSE/MODULE REQUIREMENTS**

Oral communication, seminar papers, discussion.

#### **DESCRIPTION OF MONITORING OF TEACHING QUALITY**

Anonymous student surveys at the end of the course. The survey covers the quality of teaching practice, content and concept of the course.

PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



#### **ORDINAL NUMBER: 36**

**TITLE OF COURSE/MODULE: I**mpact of extreme hydrological events on the environment

STATUS OF COURSE/MODULE (REQUIRED/ELECTIVE): Elective

NAME OF COURSE/MODULE TEACHER: Danko Biondić, Assistant Professor

NAMES OF COURSE/MODULE TEACHER/ASSOCIATE TEACHER: Darko Barbalić, PhD

LANGUAGE OF INSTRUCTION IN COURSE/MODULE: Croatian

NUMBER OF INSTRUCTION HOURS: 60 (30L + 30E)

## **OUTLINE OF COURSE/MODULE CONTENT**

**LECTURES (30 HOURS).** Causes and consequences of extreme hydrological events (3h). Flood types and their features - river floods, floods, floods, artificial flooding due to possible demolition or flooding of high dams and dams, ice floods (4h). Flood Risk Management - Earlier Flood Risk Assessment, Flood Hazard Cards and Flood Risk Maps, Flood Risk Management Plan (6h). Construction and non-construction measures to reduce flood risk (4h). State Flood Defense Plan and its implementation (3h). Features of drought (2h). Measures to relieve consequences of drought in agriculture (4h). National program of irrigation and National program of agricultural land and waters management and its implementation (4h).

**EXERCISES (30 HOURS).** Seminar on Flood Protection - preparation and presentation (15h). Seminar on irrigation - preparation and presentation (15h).

#### READING LIST

Biondić, D, Barbalić, D., Petraš, J. (2007): Creager and Francou-Rodier envelope curves for extreme floods in the Danube River basin in Croatia, Proceedings of the PUB Kick-off meeting held in Brasilia, 20 - 22 November 2002, IAHS Publ. 309, 221-228.

Biondić, D, Holjević, D., Petraš, J. (2013): Floods in the Danube River Basin in Croatia in 2010, Geomorphological Impacts of Extreme Weather - Case Studies from Central and Eastern Europe, Springer Geography, 141-153, Springer, The Netherlands.

Žugaj, R. (2015): Hidrologija, Sveučilište u Zagrebu, Rudarsko-geološko-naftni fakultet.

Ondrašek, G., Petošić, D., Tomić, F., Mustać, I., Filipović, V., Petek, M., Lazarević, B., Bubalo, M. (2015): Voda u agroekosustavima, Sveučilište u Zagrebu, Agronomski fakultet.

EU Direktiva o procjeni i upravljanju rizicima od poplava; http://www.voda.hr/hr/direktiva-o-procjeniupravljanju-poplavnim-rizicima

Prethodna procjena rizika od poplava; http://korp.voda.hr/

Karte opasnosti od poplava i karte rizika od poplava; http://korp.voda.hr/

Plan upravljanja vodnim područjima (Plan upravljanja rizicima od poplava); http://www.voda.hr/sites/default/files/plan\_upravljanja\_vodnim\_podrucjima\_za\_razdoblje\_2016.\_-\_2021.pdf

Višegodišnji program gradnje regulacijskih i zaštitnih vodnih građevina i građevina za melioracije; http://www.voda.hr/sites/default/files/nn\_117\_2015\_visegodisnji\_program\_gradnje\_regulacijskih\_i\_zastit nih\_vodnih\_gradevina\_i\_gradevina\_za\_melioracije.pdf

#### **DESCRIPTION OF INSTRUCTION METHODS**

Lectures, consultations, seminar papers.

PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



## **DESCRIPTION OF COURSE/MODULE REQUIREMENTS**

The final grade is based on grades of written and presented seminar papers, assessment of students' activities during the teaching and oral assessment.

## **DESCRIPTION OF MONITORING OF TEACHING QUALITY**

An anonymous student survey at the end of the course. The survey covers the quality of teaching, content and concept of the course

PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



#### **ORDINAL NUMBER: 37**

**TITLE OF COURSE/MODULE:** Geothermal energy

STATUS OF COURSE/MODULE (REQUIRED/ELECTIVE): Elective

NAME OF COURSE/MODULE TEACHER: Miroslav Golub, Full Professor

NAMES OF COURSE/MODULE TEACHER/ASSOCIATE TEACHER: Tomislav Kurevija, Associate Professor

LANGUAGE OF INSTRUCTION IN COURSE/MODULE: Croatian/English

NUMBER OF INSTRUCTION HOURS: 60(30L+30E)

#### **OUTLINE OF COURSE/MODULE CONTENT**

- Heat and Mass Transfer from The Earth Interior
- Deep and Shallow Geothermal Sources
- Application of Shallow Geothermal Resources for Energy Production
- Climate Changes and Hydrogeological Factors Influencing Geothermal Gradient and Heat Flow Distribution (Density)
- Crucial Data Need Affecting Heat Exchange Assessment for Downhole Heat Pumps Application
- Heat Transport Model of Geothermal Reservoirs According to Market Needs

#### READING LIST

1.H.S. Carslaw; J.C. Jaeger: «Conduction of Heat in Solids" SE, Oxford Science Publications, 2003, pp.504

2.Pitts, Sissom: «Heat Transfer», Schaum's Outline Series McGraw-Hill Book Co., 1998

3.T. Kurevija: "Energetsko vrednovanje plitkih geotermalnih potencijala Republike Hrvatske" doktorska disertacija, RGN fakultet 2010, Znv projekt 0195045 financiran od MZOŠ

4.K. Jelić : "Termičke osobine sedimentacionog kompleksa jugozapadnog dijela Panonskog bazena", doktorska disertacija, RGN fakultet 1979.

#### **DESCRIPTION OF INSTRUCTION METHODS**

Oral Presentation, Consultation Hours According to The Scientific Topics Issue, Seminar Papers

#### **DESCRIPTION OF COURSE/MODULE REQUIREMENTS**

Public Presentation of Scientific Seminar Papers

#### **DESCRIPTION OF MONITORING OF TEACHING QUALITY**

According to The University of Zagreb Responsibility Law for Academic Postgraduate Studies

PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



## **ORDINAL NUMBER: 39**

TITLE OF COURSE/MODULE: New tehnologies of renewable energy sources STATUS OF COURSE/MODULE (REQUIRED/ELECTIVE): Elective NAME OF COURSE/MODULE TEACHER: Robert Pašičko, Assistant Professor NAMES OF COURSE/MODULE TEACHER/ASSOCIATE TEACHER: Ankica Djukic, Assistant Professor LANGUAGE OF INSTRUCTION IN COURSE/MODULE: Croatian/English NUMBER OF INSTRUCTION HOURS: 60(30L+30E)

## **OUTLINE OF COURSE/MODULE CONTENT**

Technical and economic characteristics of new generation renewable energy sources for heat and electricity generation. Advanced and experimental photovoltaic systems. New types of wind turbines, offshore wind turbines. Micro grids control methods and autonomous energy system. Virtual power plants. Energy generation hybrid systems. Advanced utilization technologies of biomass and biogas energy. Electrical co-generation and thermal renewable energy. Energy storages and new technologies. Hydrogen energy and fuel cells. Trends and expected market development, emphasis on business models. Link between energy and transport. Advanced management methods of renewable energy sources integrated in buildings.

#### READING LIST

Required:

1.IPCC, Intergovernmental Panel on Climate Change, "Fifth Assessment Report", 2014.

2.EC, "Roadmap for moving to a low-carbon economy in 2050", COM (2011) 112, March 2011.

3.EC, "The Roadmap to a Resource Efficient Europe", (COM(2011) 571), 2011.

4.Neuhoff K. et al, "Staying with the leaders - Europe's path to a successful low-carbon economy", Climate Strategies, February 2014.

5.IEA, World Energy Investment Outlook, 2014.

6.Majdandžić, Lj., "Obnovljivi izvori energije", Graphis, 2008.

7. Matić, Z., "Sunčevo zračenje na području Republike Hrvatske : Priručnik za energetsko korištenje Sunčevog zračenja", EIHP, 2007.

8.EurObserv`ER – European renewable energy data.

Optional:

http://www.online-baze.hr

http://hrcak.srce.hr/

#### **DESCRIPTION OF INSTRUCTION METHODS**

Lectures, practical exercises in computer classroom, e-learning. Individual and regular consultations with students, ie. periodical meetings based on the read literature. Each student will write an essay on a selected topic.

**DESCRIPTION OF COURSE/MODULE REQUIREMENTS** 

PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



Presence and active participation in classes and exercises. The exam is taken by making and defending the written essay. In the case of negative rated essay work, a student will have to take an exam through a written and oral test.

#### **DESCRIPTION OF MONITORING OF TEACHING QUALITY**

Cyclic evaluation of teachers work by students every three years and quality monitoring forms implementation of classes by the Quality Assurance Manual of Faculty of Geotechnical Engineering.

PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



#### **ORDINAL NUMBER:** 40

**TITLE OF COURSE/MODULE:** Financing the renewable energy sources and energy efficiency

STATUS OF COURSE/MODULE (REQUIRED/ELECTIVE): Elective

NAME OF COURSE/MODULE TEACHER: Robert Pasicko, Assistant Professor

NAMES OF COURSE/MODULE TEACHER/ASSOCIATE TEACHER:

LANGUAGE OF INSTRUCTION IN COURSE/MODULE: Croatian/English

NUMBER OF INSTRUCTION HOURS: 60 (30L+30E)

## **OUTLINE OF COURSE/MODULE CONTENT**

Integrated approach to financing green energy projects. Levelized energy costs from different available technologies. Assessment of costs and benefits analysis for installed systems. Comparation of subsidies for fossil fuels and renewable energy sources. Traditional financing sources and their opportunities and limitations. Innovative financing sources such as crowdfunding, energy cooperatives, ESCO model etc. Socio-economic financing assessment of green technologies. Encouraging investment schemes in renewable energy sources generation. Green energy investment project financial plan – creation and analysis, detailed costs and benefits analysis. EU emissions trading scheme and comparison with other measures of adding carbon costs. External internalization costs in the energy sector. Different business models analysis of investment in renewable energy sources. Green energy supply as a support for financing the projects. Role of national and investment funds for green energy installations. Possibilities of green energy co-financing from EU funds. Review of national regulations to encourage green energy.

#### READING LIST

Required:

1. Stern, N. et al, "Stern Review - The Economics Of Climate Change", Hm Treasury, London, 2006

2.Kovačević, A., "Fossil fuels subsidies in the Western Balkans", a Report for UNDP BRC; 2011

3.IRENA, "Renewable energy and jobs", 2014

4.EC: Description of innovative financing models of green energy developed as a part of projects funded by the Intelligent Energy Europe programme, projects Citizenergy, (www.citizenergy.eu), RESCOOP (www.rescoop.eu) I WISE POWER (http://wisepower-project.eu/)

5.IPCC, Intergovernmental Panel on Climate Change, "Fifth Assessment Report", 2014.

6.EC, "Roadmap for moving to a low-carbon economy in 2050", COM (2011) 112, March 2011.

7.EC, "The Roadmap to a Resource Efficient Europe", (COM(2011) 571), 2011.

8. Majdandžić, Lj., "Obnovljivi izvori energije", Graphis, 2008.

9. Matić, Z., "Sunčevo zračenje na području Republike Hrvatske : Priručnik za energetsko korištenje Sunčevog zračenja", EIHP, 2007.

10.EurObserv`ER – European renewable energy data.

11.Pašičko Robert, Ana Pavičić Kaselj, "Energy as Low Hanging Fruit in Croatia)", HBS, Zagreb, 2014, available at: http://unlocking-the-future.com/energetika/energija-nadohvat-ruke/

12.Mak Djukan, Robert Pasicko, et al, "Manual for Setting up Energy cooperatives in Croatia", HBS, 2013, available at: http://www.energetskezadruge.hr/blobs/docs/Prirucnik\_za\_energetske\_zadruge.pdf

PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



13.Pašičko, Robert, "Optimization of Power System Operation and Development Under Emission Trading Scheme, Disertacija, Sveučilište u Zagrebu, 2014

14.Bukarica, Vesna: "Integration Of Multi-Criteria Analysis In Energy Efficiency Policy Making", Disertacija, Sveučilište u Zagrebu, 2013

Optional:

http://www.online-baze.hr

http://hrcak.srce.hr/

## **DESCRIPTION OF INSTRUCTION METHODS**

Lectures, practical exercises in computer classroom, e-learning. Individual and regular consultations with students, ie. periodical meetings based on the read literature. Each student will write an essay on a selected topic.

## **DESCRIPTION OF COURSE/MODULE REQUIREMENTS**

Presence and active participation in classes and exercises. The exam is taken by making and defending a seminar paper. In the case of negative rated seminar paper, a student will have to take an exam through a written and oral test.

## **DESCRIPTION OF MONITORING OF TEACHING QUALITY**

Cyclic evaluation of teachers work by students every three years and quality monitoring forms implementation of classes by the Quality Assurance Manual of Faculty of Geotechnical Engineering.

PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



#### **ORDINAL NUMBER:** 41

TITLE OF COURSE/MODULE: Sustainable cities planning and low-carbon urban development

STATUS OF COURSE/MODULE (REQUIRED/ELECTIVE): Elective

NAME OF COURSE/MODULE TEACHER: Robert Pašičko, Assistant Professor

NAMES OF COURSE/MODULE TEACHER/ASSOCIATE TEACHER: Rene Lisac, Assistant Professor

LANGUAGE OF INSTRUCTION IN COURSE/MODULE: Croatian/English

NUMBER OF INSTRUCTION HOURS: 60(30L+30E)

## **OUTLINE OF COURSE/MODULE CONTENT**

Sustainable development principles. Approaches and strategies for sustainable future. Sustainable cities in sustainable society-roles and importance. Guidelines for sustainable planning of urban areas. Sustainability measurement, evaluation and certification of urban intervention. Interdisciplinary and participatory approach in sustainable planning. Energy planning that includes full overlook on domestic available energy resources, with an emphasis on renewable energy sources and implementation of energy efficiency measures. Planning process of low-carbon cities development that includes stakeholders, preparation of vision, sectoral objectives and guidelines. Socio-economic models of low-carbon planning in urban areas.

#### READING LIST

Required:

1.Lanier, J. (2013.), Who Owns The Future, Simon & Schuster, New York, SAD

2.Lisac, R. (2012). "Guidelines System for University Campuses Sustainable Planning". doctors dissertation, University of Zagreb, Faculty of Architecture

3.Pravdić, V. (1993.), Institucionalni okviri znanosti za održivi razvitak: izazov za znanost ili politiku? Socijalna Ekologija, Hrvatsko sociološko društvo, Zavod za sociologiju Filozofskog fakulteta, Sveučilište u Zagrebu

4.Rifkin, J. (2011.), The Third Industrial Revolution, Palgrave, Macmillan, New York, SAD

5.Schumacher, E.F. (1973.), Small Is Beautiful: A Study of Economics As If People Mattered, Blond & Briggs (1973-2010), HarperCollins (2010-present), London, UK

6.Vale, R.; Vale, B. (2009.), Time to Eat the Dog; the real guide to sustainable living, Thames&Hudson, London, UK

7.Weizsacker, E. U. (1990.), Prices Should Tell the Ecological Trouth, Sustainable Development, Science and Policy, Institut fur Europaeische Umwelt Politik, Bonn

8.Declaration of the United Nations Conference on the Human Environment (1972.), United Nations Environment Programme, Stockholm

9.UEAB (2012). "Ecosystemic urbanism certification", Urban Ecology Agency of Barcelona

10.EC: Easy tools and concepts for local energy planning (ec.europa.eu)

11.ICLEI: Local Energy Action Plan LEAP wizard (http://www.iclei.org/details/article/local-energy-actionplan-leap-wizard.html)

12.Stenlund Nilsson, J. et al, Mårtensson, A., "Municipal energy-planning and development of local energysystems", Applied Energy, Volume 76, 2003

13.ACEEE: "Local Energy Planning in Practice: A Review of Recent Experiences", 2012



## 14. Guldson A. et al: "The Economic Case for Low Carbon Cities", Stockholm Environment Institute, 2014

Optional:

http://www.online-baze.hr

http://hrcak.srce.hr/

## **DESCRIPTION OF INSTRUCTION METHODS**

Lectures, practical exercises in computer classroom, e-learning. Individual and regular consultations with students, ie. periodical meetings based on the read literature. Each student will write an essay on a selected topic

## DESCRIPTION OF COURSE/MODULE REQUIREMENTS

Presence and active participation in classes and exercises. The exam is taken by making and defending a seminar paper. In the case of negative rated seminar paper, a student will have to take an exam through a written and oral test.

## DESCRIPTION OF MONITORING OF TEACHING QUALITY

Cyclic evaluation of teachers work by students every three years and quality monitoring forms implementation of classes by the Quality Assurance Manual of Faculty of Geotechnical Engineering.

PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



#### **ORDINAL NUMBER:** 42

TITLE OF COURSE/MODULE: Energy in the buildings STATUS OF COURSE/MODULE (REQUIRED/ELECTIVE): Elective NAME OF COURSE/MODULE TEACHER: Tea Zakula, Assistant Professor NAMES OF COURSE/MODULE TEACHER/ASSOCIATE TEACHER: LANGUAGE OF INSTRUCTION IN COURSE/MODULE: Croatian/English NUMBER OF INSTRUCTION HOURS: 60(30L+30E) OUTLINE OF COURSE/MODULE CONTENT

Multidisciplinary approach for energy efficiency in the buildings. Smart buildings and buildings with almost zero-energy consumption. Computer modelling for simulation and optimization of the buildings. Building envelope parameters. Shadowing parameters optimization. Passive methods of heating and cooling. Mechanical heating, cooling, ventilation and air-conditioning systems. Use of daylights and electrical lighting. Advanced energy systems management in buildings. Energy production at building location (solar, wind, wave energy...). Building participation in smart grids system.

#### READING LIST

Required:

ASHRAE Handbook Fundamentals 2013, American Society of Heating, Refrigeration and Air-Conditioning Engineer

Lechner, N., 2009. Heating, Cooling, Lighting: Sustainable Design Methods for Architects, 3rd Edition. John Wiley

McQuiston, F.C., Parker, J.D., Spitler, J.D. Heating, Ventilating and Air Conditioning: Analysis and Design, 6th Edition. John Wiley

Optional:

http://www.online-baze.hr

http://hrcak.srce.hr/

#### **DESCRIPTION OF INSTRUCTION METHODS**

Lectures, practical exercises in computer classroom, e-learning. Individual and regular consultations with students, ie. periodical meetings based on the read literature. Each student will write an essay on a selected topic.

#### **DESCRIPTION OF COURSE/MODULE REQUIREMENTS**

Presence and active participation in classes and exercises.

The exam is taken by making and defending a seminar paper. In the case of negative rated seminar paper, a student will have to take an exam through a written and oral test.

#### **DESCRIPTION OF MONITORING OF TEACHING QUALITY**

Cyclic evaluation of teachers work by students every three years and quality monitoring forms implementation of classes by the Quality Assurance Manual of Faculty of Geotechnical Engineering.

PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



#### **ORDINAL NUMBER:** 43

**TITLE OF COURSE/MODULE:** Environmental Thermodynamics

STATUS OF COURSE/MODULE (REQUIRED/ELECTIVE): Elective

NAME OF COURSE/MODULE TEACHER: Miroslav Golub, Full Professor

NAMES OF COURSE/MODULE TEACHER/ASSOCIATE TEACHER: Tomislav Kurevija, Associated Professor

LANGUAGE OF INSTRUCTION IN COURSE/MODULE: Croatian/English

NUMBER OF INSTRUCTION HOURS: 60(30L+30E)

## **OUTLINE OF COURSE/MODULE CONTENT**

- • Thermodynamics Indicator for Energy and Environment Degradation Exergy Law Correlate to Anergy Transformation
- Primary and Secondary Anthropogenic Influences on Environment Due to Temperature Changes
- Sequestration of Greenhouse Gasses
- Sustainable Energy and Environmental Management
- Thermodynamics of Irreversible Processes in Soil, Water and Air

## READING LIST

1.H.S. Carslaw; J.C. Jaeger: «Conduction of Heat in Solids" SE, Oxford Science Publications, 2003, pp.504

2.H.J. Ramey: Well Bore Heat Transmission, JPT, 1962, p.427-435

3.Ž.Prnić: Contribution to Computing Distribution of Temperature in Production Wells, Mathl. Comput. Modelling, Vol.26, No.7, 1997, pp.1-10

4.Bird, Stewart, Lightfoot: « Transport Phenomena», John wiley & Sons, 1960, pp.780

5.Pitts, Sissom: «Heat Transfer», Schaum's Outline Series McGraw-Hill Book Co., 1998

6.E.B.Chekaluk: «Thermodinamika Neftianogo Plasta, Nedra, Moskva, 1965, pp.238

7.A.B.Beiser: "Earth Science", Schaum's Outline Series, McGraw Hill Book Co.1975.

8.A.J. Dessler, F.C. Michel edit. "Physics of The Earth" John Wiley and Sons, 1969.

9.V. Glavač: " Uvod u globalnu ekologiju" Hrvatska sveučilišna naklada, Zagreb 2001.

#### **DESCRIPTION OF INSTRUCTION METHODS**

Oral Presentation, Consultation Hours According to Scientific Topics Issue, Seminar Papers

## **DESCRIPTION OF COURSE/MODULE REQUIREMENTS**

Public Presentation of Scientific Seminar Papers

#### **DESCRIPTION OF MONITORING OF TEACHING QUALITY**

According to The University of Zagreb Responsibility Law for Academic Postgraduate Studies



## A.6. TEACHING AND RESEARCH CONDITIONS FOR IMPLEMENTATION OF THE DOCTORAL STUDY

## A.6.1. LIST OF TEACHERS

## **ORDINAL NUMBER:** 1

FIRST NAME, LAST NAME, AND TITLE OF THE TEACHER: Mladen Božičević, Full Professor

NAME OF INSTITUTION OF EMPLOYMENT OF THE TEACHER: Faculty of Geotechnical Engineering, University of Zagreb

## BIOGRAPHY

Mladen Božičević was born in Varaždin in 1957. He graduated mathematics in 1980 at the Department of Mathematics, University of Zagreb, and obtained Ph. D. in mathematics in 1988 from the University of Utah. Since 1996 he has been teaching mathematics at the Faculty of Geotechnical Engineering, University of Zagreb. He was a visiting professor at the Rutgers University, at the Oklahoma State University and Cornell University. His research interest in the area of representation theory of real Lie groups.

## DATE OF LAST APPOINTMENT TO A RESEARCH-AND-TEACHING OR ART-AND-TEACHING RANK: 19.04.2016.

# LIST OF PUBLISHED WORK WHICH QUALIFY HIM/HER FOR IMPLEMENTATION OF THE PROGRAMME, THAT IS, WHICH ARE RELEVANT FOR THE FIELD OF THE DOCTORAL PROGRAMME

1. A limit formula for elliptic orbital integrals, Duke Mathematical Journal, 113(2) (2002), 331-353.

2. Double cells for unitary groups, Journal of Algebra, 254 (2002), 115-124.

3. Characteristic cycles of standard sheaves associated with open orbits, Proceedings of the American Mathematical Society, 136(1) (2008), 367-371.

4. A limit formula for even nilpotent orbits, International Journal of Mathematics, 19(2) (2008), 223-236.

5. Limit Formulas for Groups with One Conjugacy Class of Cartan Subgroups, Annales de l'Institut Fourier, 58(4) (2008), 153-168.

#### LIST OF PUBLISHED WORK IN THE LAST FIVE YEARS

Limit formulas for minimal nilpotent orbits and Richardson orbits, International Congress of Mathematicians, Seoul, 2014. (Abstracts-Short Communications, Posters, pg. 195.)

## LIST OF SCIENTIFIC AND ARTISTIC PROJECTS IN WHICH HE OR SHE PARTICIPATED AND WHICH ARE RELEVANT FOR THE FIELD OF THE DOCTORAL PROGRAMME

1. Nilpotentne orbite i primjene u teoriji reprezentacije (no. 160123); 2002.-2006.

2. Harmonijska analiza na poluprostoj Liejevoj algebri (no. 160-0372794-2813); 2007.-2013.

## LIST OF SCIENTIFIC AND ARTISTIC PROJECTS IN WHICH HE OR SHE PARTICIPATED IN THE LAST FIVE YEARS

Dirac operators and representation theory, HZZ scientific grant, principal investigator is prof. dr. sc. P. Pandžić.

PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



#### **ORDINAL NUMBER: 2**

FIRST NAME, LAST NAME, AND TITLE OF THE TEACHER: Natalija Koprivanac, Professor Emerita

**NAME OF INSTITUTION OF EMPLOYMENT OF THE TEACHER:** Faculty of Chemical Engineering and Technology, University of Zagreb, in retirement

#### BIOGRAPHY

Professor emerita Natalija Koprivanac was born on 12 September 1943 in Zagreb. She obtained a master degree at Chemical Technology Department of Technology, University of Zagreb in 1967 and master of science degree in 1974 at the Faculty of Science, University of Zagreb with the theme "Contribution to the structure of some complex compounds with 1-azo / pyridine N-oxide-2/2-naphthol". She received her PhD in 1981 at the Faculty of Technology in Zagreb with the thesis entitled "Synthesis of 5,6-di-substituted benzimidazole-triazatrimethincyanine" in the scientific field of natural sciences. The dissertation was made partly at the Institute of Chemistry of the University of dyes in Basel, Switzerland. Since 1968 she is an assistant at the Faculty of Technology in Zagreb; 1982 started a tenure track career: assistant professor, associate professor in 1987 and full professor in 1996. In 2000 she was elected to the permanent rank of full professor at the Faculty of Chemical Engineering and Technology, University of Zagreb.

She has published a total of 143 works of which 90 scientific papers published in journals cited in tertiary publications; a book (published by Nova Science Published, Inc., USA, 2 book chapters, 8 scientific papers published in journals cited in secondary publications, 32 scientific papers peer reviewed and published in the Proceedings of the international conference, five scientific papers and published in the Proceedings of the national scientific meetings, held 25 invited lectures at international and national conferences and 7 other public lectures, scientific editor of the 6 professional books, actively participated in 100 international and 66 domestic meetings.

She was the leader of 5 international scientific research projects and 9 national scientific research projects and actively participated in the implementation of 4 projects. He also published 5 scientific papers and participated in 4 national professional meetings. He is author of 2 technical improvements, and the author or co-author of 26 research projects (studies and expertise).

She was the leader of about 120 graduate theses, 9 final work of undergraduate study, 12 master's theses, 13 specialist papers and 8 doctoral theses.

Her scientific work begun with the Institute of Organic Chemistry with technology Oil and petrochemical department in Sisak, Faculty of Technology, University of Zagreb in 1968, and continued at the Department of Polymer Engineering and Organic Chemical Technology. The first scientific experience gained at the Institute for Research of structure and properties of organic textile dyes in cooperation with the technical University of Maribor, resulted in the first published work in this area.

After the appointment as assistant professor in 1982, she continued to deal with scientific research oriented to the application of knowledge and methodology of chemical engineering in the process of purification of industrial waste water primarily from organic textile dyes. The production of organic dyes and their use become the one of the world's biggest problems of environmental pollution, especially water resources. Physico- chemical treatment by flocculation / coagulation was then one of the most represented technology for processing of non-ferrous water and the research results have been applied and in the Department for the production of dyes, Celje zinc works, where the professor Koprivanac authored two technological improvements on the disposal of industrial waste water production of sulfur and azo reactive dyes. The application of chemical engineering knowledge and understanding of production technology

PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



printing ink resulted in long-term cooperation with an industrial company "Graphic color Samobor» Samobor.

In 1999, prof. Koprivanac started as a visiting professor under Fulbright's scholarship at the FAMU - FSU "College of Engineering", the Department of Chemical Engineering in Tallahassee, Florida, USA, and began cooperation with Prof. Bruce Locke on a high voltage electric discharge in liquid phase as a method for the treatment of colored waste water. This process is one of the so-called advanced oxidation processes (AOPs) which are now increasingly used for the breakdown of different organic pollutants in industrial wastewater. This cooperation resulted in the joint Croatian-American project funded by the "National Science Foundation" in 2000-2004. From then onwards, a continued research on this very propulsive scientific area allowed prof. Koprivanac and her associates numerous publications in prestigious international journals. Knowledge of chemical engineering expanded in the field of environmental engineering resulted in the Annual Award for Science of the Republic of Croatia in the field of technical sciences in 2006, for significant results in the application of chemical engineering methodology in the field of environmental engineering, particularly in wastewater water and the award Fran Bošnjaković for the promotion and development of technical sciences in 2008. The latest scientific research is focused on the development of models to predict the toxicity of nanoparticles in various industrial environments in surface, ground and industrial waste waters (started cooperation with the University of Jackson, MS, USA, 2007 .-).

Throughout her career, prof. Koprivanac intensively participated in creating new study programmes within the framework of undergraduate and postgraduate studies of Chemical Engineering, as well as undergraduate, graduate and postgraduate specialist and doctoral study in environmental engineering. She is the coordinator of a university graduate, master's and doctoral interdisciplinary studies "Environmental Management" and the university graduate with interdisciplinary specialist study "Sustainable Environmental management".

Prof. Koprivanac performed research abroad on many occassions: In 1974/75 at "Institut für Farben Chemie" at the University of Basel, Switzerland, from 1988 to today she realized study visits for a period of 1-3 months at the University of Wales, Swansea, United Kingdom. In 1999/2000 she was visiting professor researcher at the FAMU-FSU College of Engineering, Department of Chemical Engineering, Tallahassee, Florida, USA, as a Fulbright's scholarship. She was a coordinator of the TEMPUS Project "Master Program of Environmental Management - Policy and Sustainability ", JEP\_CD-19075-2004, RC and EC (2005-2009). She was the president of the Committee for the engineering sciences 2004- 2009, president of the Council for environmental protection, Republic of Croatia, 2005-2008, president of the Council for sustainable development and environment of Croatia 2008- 2012, and member of the executive board of the European network of the sustainable development and environmental protection (EEAC). She organized the 1st Croatian conference on environmental engineering, Ekoi 2002 Plitvice Lakes, 2002. She was also the president of the scientific Organizing Committee of the 1st, 2nd and 3rd International Symposium on environmental management Zagreb, SEM2003, SEM2007 and SEM2011, EEAC international conference, Dubrovnik, 2009. As a member of the scientific organizing committee, she participated in many international and national scientific meetings. She is a member of the "Environmental Committee" of the US- Croatian Chamber of Commerce; a member of the Main Board of the Croatian Society of Chemical Engineers (CSCE), the president of the Section for eco-engineering CSCE's (1995-2011) and member of the central committee of the Croatian-American Society and head of the Section for Sustainable Development; Council of the Society for Sustainable Development; Croatian Association of University Teachers and other Scientists in Zagreb; Alumni organization of graduate engineers and friends of chemical and technological studies (AMACIZ) in Zagreb.
PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



Apart form her exceptional and intensive scientific and educational activities prof. Koprivanac pays special attention to work with young scientists and their research activities. She is a member of the editorial board of the Journal of Applied Chemistry, Hindawi Publishing Corporation, and serves as a reviewer for about 20 prominent scientific journals in the field of chemical engineering, applied chemistry, environmental engineering and environmental management.

DATE OF LAST APPOINTMENT TO A RESEARCH-AND-TEACHING OR ART-AND-TEACHING RANK: 2000 LIST OF PUBLISHED WORK WHICH QUALIFY HIM/HER FOR IMPLEMENTATION OF THE PROGRAMME, THAT IS, WHICH ARE RELEVANT FOR THE FIELD OF THE DOCTORAL PROGRAMME

# LIST OF PUBLISHED WORK IN THE LAST FIVE YEARS

1. Koprivanac, Natalija; The Circular Economy Concept on ESD, Sustainable Mediterranean, , Special Issue, 72, 26-27, 2016

2. Grčić, Ivana; Koprivanac, Natalija; Andričević, Roko, Reliability study of laboratory scale water treatment by advanced oxidation processes. // Environmental Engineering and Management Journal. (2017) (prihvaćen za objavljivanje)

3. Koricic, Kresimir; Kusic, Hrvoje; Koprivanac, Natalija; Papic, Sanja. Mineralization of salicylic acid in water by catalytic ozonation. // Environmental Engineering and Management Journal. 15 (2016) 151-166.

4. Papić, Sanja; Peternel, Igor; Krevzelj, Željko; Kušić, Hrvoje; Koprivanac, Natalija. Advanced oxidation of an azo dye and its synthesis intermediates in aqueous solution: effect of Fenton treatment on mineralization, biodegradability and toxicity. // Environmental Engineering and Management Journal. 13 (2014), 10; 2561-2571

5. Grčić, Ivana; Papić, Sanja; Mesec, Danijela; Koprivanac, Natalija; Vujević, Dinko.The kinetics and efficiency of UV assisted advanced oxidation of various types of commercial organic dyes in water. // Journal of Photochemistry and Photobiology A: Chemistry. 273 (2014) ; 49-58 (članak, znanstveni). (CC, SCI, SCIex) IF = 2.416 (2012)

6. Grčić, Ivana; Papić, Sanja; Koprivanac, Natalija. Sonochemical effectiveness factor (eUS) in the reactors for wastewater treatment by sono-Fenton oxidation: Novel considerations. // Ultrasonics Sonochemistry.
20 (2013), 4; 1037-1045 (članak, znanstveni). (CC, SCI, SCIex) IF = 3.516 (2012)

 7. Grčić, Ivana; Vujević, Dinko; Žižek, Krunoslav; Koprivanac, Natalija. Treatment of organic pollutants in water using TiO2 powders: Photocatalysis vs. Sonocatalysis. // Reaction Kinetics, Mechanisms and Catalysis.
 109 (2013), 2; 335-354 (članak, znanstveni). (CC, SCI, SCIex) IF = 1.104 (2012)

8. Kušić, Hrvoje; Koprivanac, Natalija; Lončarić Božić, Ana. Environmental aspects on the photodegradation of reactive triazine dyes in aqueous media. // Journal of photochemistry and photobiology. A, Chemistry. 252 (2013) ; 131-144 (članak, znanstveni). (CC, SCI, SCIex) IF = 2.416 (2012)

9. Peternel, Igor; Kušić, Hrvoje; Marin, Vedrana; Koprivanac, Natalija. UV-assisted persulfate oxidation: the influence of cation type in persulfate salt on the degradation kinetic of azo dye pollutant. // Reaction Kinetics, Mechanisms and Catalysis. 108 (2013) , 1; 17-39 (članak, znanstveni). (CC, SCI, SCIex) IF = 1.104 (2012)

10. Cornu, Cécile; Bonardet, Jean-Luc; Casale, Sandra; Davidson, Anne; Abramson, Sébastien; Andre, Gilles; Porcher, Florence; Grčić, Ivana; Tomašić, Vesna; Vujević, Dinko; Koprivanac, Natalija. Identification and Location of Iron Species in Fe/SBA-15 catalysts : Interest of Heterojunctions for Fenton Reactions. // Journal of physical chemistry. C. 116 (2012), 5; 3437-3448 (članak, znanstveni). (CC, SCI, SCIex) IF = 4.814

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11. Grčić, Ivana; Papić, Sanja; Koprivanac, Natalija; Kovačić, Iva. Kinetic modeling and synergy quantification in sono and photooxidative treatment of simulated dyehouse effluent. // Water research. 46 (2012) , 17; 5683-5695 (članak, znanstveni). (CC, SCI, SCIex) IF = 4.655

12. Grčić, Ivana; Papić, Sanja; Žižek, Krunoslav; Koprivanac, Natalija. Zero-valent iron (ZVI) Fenton oxidation of reactive dye wastewater under UV-C and solar irradiation. // Chemical engineering journal. 195 (2012) ; 77-90 (članak, znanstveni). (CC, SCI, SCIex) IF = 3.473

13. Grčić, Ivana; Šipić, Ana; Koprivanac, Natalija; Vrsaljko, Domagoj. Global parameter of ultrasound exploitation (GPUE) in the reactors for wastewater treatment by sono-Fenton oxidation. // Ultrasonics sonochemistry. 19 (2012) , 2; 270-279 (članak, znanstveni). (CC, SCI, SCIex) IF = 3.516

14. Kušić, Hrvoje; Koprivanac, Natalija; Lončarić Božić, Ana. Application of sensitivity and flux analyses for the reduction of model predicting the photooxidative degradation of an azo dye in aqueous media. // Environmental modeling & assessment. 17 (2012), 6; 653-671 (članak, znanstveni). (CC, SCI, SCIex) IF = 0.977

15. Kušić, Hrvoje; Koprivanac, Natalija; Papić, Sanja; Lončarić Božić, Ana. Influence of substituent type and position on photooxidation of phenolic compounds : response surface methodology approach. // Journal of photochemistry and photobiology. A, Chemistry. 242 (2012) ; 1-12 (članak, znanstveni). (CC, SCI, SCIex) IF = 2.416

16. Juretić, Daria; Kušić, Hrvoje; Koprivanac, Natalija; Lončarić Bozić, Ana. Photooxidation of benzene structured compounds: influence of substituent type on degradation kinetic and sum water parameters. // Water research. 46 (2012) , 9; 3074-3084 (članak, znanstveni). (CC, SCI, SCIex) IF = 4.655

17. Peternel, Igor; Koprivanac, Natalija; Grčić, Ivana. Mineralization of p-chlorophenol in water solution by AOPs based on UV irradiation. // Environmental Technology. 33 (2012) , 1; 27-36 (članak, znanstveni). (CC, SCI, SCIex) IF = 1.606

# LIST OF SCIENTIFIC AND ARTISTIC PROJECTS IN WHICH HE OR SHE PARTICIPATED AND WHICH ARE RELEVANT FOR THE FIELD OF THE DOCTORAL PROGRAMME

# LIST OF SCIENTIFIC AND ARTISTIC PROJECTS IN WHICH HE OR SHE PARTICIPATED IN THE LAST FIVE YEARS

1. Wastewater treatment in DINA-Petrokemija Omišalj as a contribution to ecosystem preservation, Croatian Science Foundation, 2008-2013

2. Wastewater treatment by advanced oxidation technologies, Ministry of Science, Technology and Sports, 2007-2013

3. Advanced ultrasound-assisted photocatalytic oxidation processes in environmental protection, Shortterm financial support for the investigations of the University of Zagreb in 2016

4. Purification of aqueous and hydrocarbon media using sono and photocatalysis, Short-term financial support for the investigations of the University of Zagreb in 2015

5. Optimization of sono and photocatalytic processes in water and hydrocarbon media aiming at protection of environment, Short-term financial support for the investigations of the University of Zagreb in 2014

PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



#### **ORDINAL NUMBER: 3**

FIRST NAME, LAST NAME, AND TITLE OF THE TEACHER: Aleksandra Anić Vučinić, Associate Professor

**NAME OF INSTITUTION OF EMPLOYMENT OF THE TEACHER:** Faculty of Geotechnical Engineering, University of Zagreb

#### BIOGRAPHY

Aleksandra Anić Vučinić was born on December 19<sup>th</sup> 1971 in Hilversum, Netherlands. In year 1990 she enrolled graduate study "Biochemical Engineering" at University of Zagreb Faculty of Food and Biotechnology, where she gratuated in 1995 with graduate thesis "The effect of pyridinium salts on iron oxidation in sulphate acid". For this thesis she was rewarded with Rector's award for best student work. In year 2002 she enrolled Postgraduate study Biotechnology - bioprocessing engineering on Faculty of Food and Biotechnology, where she listened to all classes and passed 10 exams in period until 2004. In the same year she enrolled Postgraduate interdisciplinary scientific doctoral study Ecoengineering at University of Zagreb Faculty of Chemical Engineering and Technology. She gained her PhD title in 2008 with PhD thesis "Optimization of technological process of wastewater treatment in wetlands". She was appointed scientific researcher in scientific area Technical Sciences, field basic technical sciences in December 2009. She was appointed research -and- teaching position assisstant professor in area of Technical Sciences, field Interdisciplinary technical sciences, scientific branch environmental engineering in 2011 on University of Zagreb Faculty of Geotechnical Engineering in five year period. Between 2000 and 2011 she was employed on University of Zagreb Faculty of Mechanical Engineering and Naval Architecture as professional associate on Department of ecology and water technology. At the same time she was lecturer on Polytechnics Velika Gorica, in period from 2009 to 2011 was lecturer on Polytechnics Zagreb. Since 2010 she is lecturer on interdisciplinary postgraduate specialistic study Ecoengineering, where she is also head of courses Instruments of environmental protection and Environmental management. Since 2011 she is assisstant professor on University of Zagreb Faculty of Geotechnical Engineering, where she was Head of Department of Environmental Engineering from her arrival until October 2016 when she became Vice Dean for science and international cooperation. In May 2016 she was appointed scientific title higher scientific researcher and was in September 2016 appointed research -and- teaching position associate professor. She is head of following courses Basic principles of waste management on Undergraduate study Environmental Engineering and on Graduate study Environmental Engineering Waste managements, Mechanisms in environmental management, Applied environmental protection and Life cycle assessment of products. She is author and co-author of numerous scientific and professional papers. Also, she is president of Croatian Waste Management Association.

#### DATE OF LAST APPOINTMENT TO A RESEARCH-AND-TEACHING OR ART-AND-TEACHING RANK: 03.10.2016.

# LIST OF PUBLISHED WORK WHICH QUALIFY HIM/HER FOR IMPLEMENTATION OF THE PROGRAMME, THAT IS, WHICH ARE RELEVANT FOR THE FIELD OF THE DOCTORAL PROGRAMME

Anić-Vučinić, Aleksandra; Vouk, Dražen; Zebić, Maja. Structural Measures to Improve the Efficiency of Biological Wastewater Treatment Plants. Strojarstvo 52 (2010), 3; p. 333-342.;

Anić Vučinić, Aleksandra; Zebić, Maja; Ružinski, Nikola; Berković, Katarina. Coagulation and flocculation treatment of wastewater from wood pulp production. Transaction of FAMENA, 33 (2009), 2; 79-90.;

Rožić, Mirela; Kropar Vančina, Vesna; Anić-Vučinić, Aleksandra; Sekovanić, Lavoslav; Košutić, Krešimir. Surfactant-modified microporous zeolites for wastewater treatment// Proceedings 11th International Conference of Printing, Design and Graphic Communications, Zadar/ Baromić, B.; Bolanča, Z. (Eds.)/ Croatia, 2007., p.p. 26-29.



Hasanbašić, Vedrana; Anić Vučinić, Aleksandra. Sewage sludge production and handling in croatia and the European union // Environmental Management; Trends and Results/ Koprivanec, Natalija; Kušić, Hrvoje (ur.). Zagreb: Faculty of Chemical Engineering and Technology, University of Zagreb, 2007. ISBN: 978-953-6470-34-1, p. 105-112.;

Ružinski, Nikola; Anić Vučinić, Aleksandra. Obrada otpadnih voda biljnim uređajima, Hrvatska sveučilišna naklada, 2009, ISBN: 978-953-169-201-4, znanstvena knjiga

# LIST OF PUBLISHED WORK IN THE LAST FIVE YEARS

Anić Vučinić, Aleksandra; Tepeš, Predrag; Hrenović, Jasna. Efficiency of Subsurface Flow Constructed Wetland with Trickling Filter. Environmental technology 33 (2012),11; p.1323-1330.;

Krajačić, Goran; Duić, Neven; Zmijarević, Zlatko; Vad Mathiesen, Brian; Anić Vučinić, Aleksandra; Carvalho, Maria Da Graça. Planning for a 100% independent energy system based on smart energy storage for integration of renewables and CO<sub>2</sub> emissions reduction. Applied thermal engineering (31) 2011, 13; p.2073-2083.;

Anić Vučinić, Aleksandra; Vujević, Dinko; Mujkić, Kerim, Novak, Mateja. Recycling of Waste Toner in the Republic of Croatia – An Environmentally Friendly Approach. Chemical Engineering Transactions 34 (2013); p. 121-126.;

Vujević, Dinko; Mikić, Aleksandra; Lenček, Sandra; Dogančić, Dragana; Zavrtnik, Saša; Premur, Vitomir; Anić Vučinić, Aleksandra. Integralni pristup rješavanju problematike industrijskih otpadnih voda. // Inženjerstvo okoliša. Vol 1 (2014), 1; p.25-32

# LIST OF SCIENTIFIC AND ARTISTIC PROJECTS IN WHICH HE OR SHE PARTICIPATED AND WHICH ARE RELEVANT FOR THE FIELD OF THE DOCTORAL PROGRAMME

Scientific project "Disposal of sludge from wastewater treatment plants", project leader, project perid 10/30/2013 until 06/30/2014, financing: University of Zagreb.

Scientific project "Intergrated system of waste sludge disposal by thermal treatment", project leader, project period 10/30/2016 until 10/30/2014, financing University of Zagreb (40%) and Fond for environmental protection and energy efficiency (60%).

# LIST OF SCIENTIFIC AND ARTISTIC PROJECTS IN WHICH HE OR SHE PARTICIPATED IN THE LAST FIVE YEARS

Scientific project "Quantitative evaluation of circular economy in WEEE management", project member, project period 07/30/2015 until 12/31/2015, financing University of Zagreb

PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



#### **ORDINAL NUMBER:** 4

FIRST NAME, LAST NAME, AND TITLE OF THE TEACHER: Jurica Šimurina, Full Professor, PhD

NAME OF INSTITUTION OF EMPLOYMENT OF THE TEACHER: Faculty of Economics and Business, University of Zagreb

#### BIOGRAPHY

GENERAL INFORMATION ON COURSE TEACHER/INSTRUCTOR

Year of birth: 1975

Scientist ID: 225873

Area and field of election into research: social sciences; field: economics

### INFORMATION ON EMPLOYMENT

Institution(s) where employed:

1997 – present - Faculty of Economics and Business, University of Zagreb 2010 – 2016 – University of Zadar Field of research: Macroeconomics, development economics, environmental economics

Function: Editor-in-Chief of international journal "Zagreb International Review of Economics and Business"

INFORMATION ON EDUCATION AND PROFESSIONAL ACTIVITIES

Degree:

Ph.D. in Economics, Faculty of Economics and Business, University of Zagreb (2005)

M.Sc. in Economics, Faculty of Economics and Business, University of Zagreb (2000)

B.Sc. in Economics, Faculty of Economics and Business, University of Zagreb (1997)

Membership in international institutions:

Member of the Editorial Board of the international journal Panoeconomicus, published by the Association of Economists of Vojvodina.

Member of the Editorial Board of the international journal The Journal of Philosophical Economics, published in association with Development Studies at Brown University

Member of the Organizing Committee of the international conference "An Enterprise Odyssey", organized by the Faculty of Economics and Business, Zagreb, since 2002.

American Economic Association (member)

European Environmental and Resource Economists Association (member)

Professional activities:

Other activities (invited lectures):

Fort Hays State University, USA, February 12, 2008, titled "Croatian Economy and Society: Facts and Challenges"

Fort Lewis College, USA, February 19, 2009, titled "Croatian Economy and Society: Facts and Challenges"

University of Pittsburgh, USA, February 26, 2010, titled "The Effect of the Global Economic Crisis on Central and Eastern Europe."

PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



Alpe Adria University, Klagenfurt, Austria, May 29, 2012, within the program "Short Time Study Abroad in SEE/CEE, held at the University of Zadar, Croatia, titled "Croatian Economic Outlook".

Alpe Adria University, Klagenfurt, Austria, May 29, 2013, within the program "Short Time Study Abroad in SEE/CEE, held at the University of Zadar, Croatia, titled "Croatian Economy".

INFORMATION ON ADDITIONAL TRAINING (POST-DOC EDUCATION, RESEARCH, VISITS)

Year(s), places(s), institution(s):

July 2003 – February 2004 – Research Fellow at the Australian National University, Canberra, Australia

January – March 2000 – Research and seminars, International Programme on Banking for Development, Pune, India

July 1998 – International Institute on Political and Economic Systems, Greece, The Fund for American Studies

July 1997 – International Summer University, University of Economics and Business, Vienna

July 1994 – Summer International School, University of Sussex, Institute of Development Studies

### COMPETENCES AND THE INTELLECTUAL ACTIVITY

Teaching experience: Faculty of Economics and Business, University of Zagreb

- Macroeconomics (intermediate)
- Development Economics
- Environmental Economics
- Croatian Economy

University of Zadar, Department of Tourism and Communication Sciences

- Principles of Economics
- Microeconomics
- Environmental Economics
- Public Economics

DATE OF LAST APPOINTMENT TO A RESEARCH-AND-TEACHING OR ART-AND-TEACHING RANK: 19.07.2016.

# LIST OF PUBLISHED WORK WHICH QUALIFY HIM/HER FOR IMPLEMENTATION OF THE PROGRAMME, THAT IS, WHICH ARE RELEVANT FOR THE FIELD OF THE DOCTORAL PROGRAMME

T. Gelo, J. Šimurina, I. Šušnjar (2017) Economic Performance of the Energy Sector in Croatia, International Symposium on Economics and Social Science, 2017 / Wong Kin Ho (ur.), International Business Academics Consortium, pp. 26-39

M. Škare, J. Šimurina, D. Tomić (2012) Income terms of trade trend and volatility in Croatia, Economic Research, Vol 25, No. 4, pp. 905-924.

J. Šimurina, A. Dobrović (2011) Analysis of environmental Kuznets curve, Zbornik Ekonomskog fakulteta u Zagrebu, 123-143

J. Šimurina, I. Tolić (2008), Dynamics of the Technology Progress in Economic Development, Ekonomska istraživanja, Vol. 21, No. 3, 12-24.

E. Banovac, T. Gelo, J. Šimurina (2007), Analysis of Economic Characteristics of a Tariff System for Thermal Energy Activities, Energy Policy, Vol. 35, No. 11, November.

PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



J. Šimurina, T. Gelo, O. Vukoja (2007), Regulating Thermal Energy: Case of Croatia, 7 th International Conference Enterprise in Transition, Split-Bol, Conference Proceedings, May.

# LIST OF PUBLISHED WORK IN THE LAST FIVE YEARS

T. Gelo, J. Šimurina, I. Šušnjar (2017) Economic Performance of the Energy Sector in Croatia, International Symposium on Economics and Social Science, 2017 / Wong Kin Ho (ur.), International Business Academics Consortium, pp. 26-39

T. Klarin, J. Šimurina (2014) Taxes and tourism in Croatia, European journal of Business Research 14 (3), 39-46

M. Marković, J. Šimurina, J. Pavičić (2013) Economic and Business Impact of Crisis on Croatian Trade, Review of Integrative Business & Economics Researc, Vol. 2(2), pp. 672-680.

M. Škare, J. Šimurina, D. Tomić (2012) Income terms of trade trend and volatility in Croatia, Economic Research, Vol 25, No. 4, pp. 905-924.

A. Obadić, J. Šimurina, J. Tica (2011) Kriza: preobrazba ili propast?.Zagreb : Ekonomski fakultet Zagreb (edited book).

J. Šimurina (2011) Razvoj i tehnologija, in Čavrak, V. (ed.), Gospodarstvo Hrvatske, Zagreb : Politička kultura, 271-293

J. Šimurina, A. Dobrović (2011) Analysis of environmental Kuznets curve, Zbornik Ekonomskog fakulteta u Zagrebu, 123-143.

LIST OF SCIENTIFIC AND ARTISTIC PROJECTS IN WHICH HE OR SHE PARTICIPATED AND WHICH ARE RELEVANT FOR THE FIELD OF THE DOCTORAL PROGRAMME

2015 – 2018 scientific project "Sustainability of Croatian Economic Policy and Development" funded by the Croatian Science Fundation, principle investigator

# LIST OF SCIENTIFIC AND ARTISTIC PROJECTS IN WHICH HE OR SHE PARTICIPATED IN THE LAST FIVE YEARS

2015 – 2018 scientific project "Sustainability of Croatian Economic Policy and Development" funded by the Croatian Science Fundation, principle investigator

2013 – Short term expert na projektu "Europe China Research and Advice Network" (ECRAN), EUROPEAID/129502/SER/CN.

PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



#### **ORDINAL NUMBER:** 5

FIRST NAME, LAST NAME, AND TITLE OF THE TEACHER: Sanja Tišma, Scientific Advisor, PhD

**NAME OF INSTITUTION OF EMPLOYMENT OF THE TEACHER:** Institute for Development and International Relations (IRMO)

#### BIOGRAPHY

Mrs. Sanja Tišma, Ph.D., was born in Zagreb, 30 July 1965, where she finished elementary and high school. She graduated at the Faculty of Economics in Zagreb in December 1987. She obtained her Master's degree in December 1991 at the same faculty defending his master's thesis "The ecological approach to economic evaluation of energy sources". She obtained a PhD in December 1997 at the same faculty with doctoral dissertation "Methodological appropriateness and practical usability methods of cost-benefit analysis in Croatian eco-forest economy". She has specialized in many international seminars abroad.

Since 2001, she has been the the Head of Resource Economics, Environmental Policy and Regional Development Department of the Institute for Development and International Relations in Zagreb. From 2002 to 2006, she was the principal researcher in the context of interdisciplinary scientific research project of the Croatian Ministry of Science and Technology "Ecological and economic utilization of natural zeolite in environmental conservation, and a member of the Board of the Institute for Development and International Relations, and from 2007 to 2014, she was the principal researcher in the context of interdisciplinary scientific research project of the Ministry of Education, Science and Sports of the Republic of Croatia "Natural and Human Resources - Regional Development and Environmental Protection".

Since June 2009, Sanja Tišma has been the Director of the Institute for Development and International Relations.

In 1993, she became a research assistant, in 1998 a research associate, and in 2005 a senior research associate. Her research interests include environmental economics, environmental policy of the Republic of Croatia, environmental policy of the European Union, sustainable development and public administration, as well as cost - benefit analysis.

She is the member of the Croatian department of the European Association for Regional Research, DOOR -Society for Sustainable Development, the International Society for Ecological Economics - ISEE, EADI - the European Association of Development Research and Training Institutes; New York Academy of Science; Croatian Academy of Sciences and Arts (The Scientific Council for Transport and Environment, The Scientific Council for Peace and Human Rights), the Karst Network.

Sanja Tišma speaks and writes in Croatian and English, and is actively using the German language. A complete list of publications is available on the Croatian scientific bibilography: http://bib.irb.hr/lista-radova?autor=169566

#### **RESEARCH EXPERIENCE**

She has participated in long-term scientific research at the Institute for Development and International Relations, Zagreb.

#### TEACHING

Lecturer at postgraduate study "The Economics of the European Union", the Faculty of Economics, University of Zagreb - subject "EU Regional Policy and Project Management", since 2008.

Lecturer at the Faculty of Law of the University of Zagreb on the "Economics of Public Sector", since 2008.

Lecturer at the Postgraduate specialist study "Adapting the European Union: project management and use of funds and programs of the European Union", Faculty of Political Science, since 2014

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Lecturer at the Faculty of Political Science of the University of Zagreb, subject "Environmental policy in the context of EU membership"

Lecturer at the Business School Experta, Zagreb, program: Project Manager of EU funds, since 2010.

Lecturer at the National School of Public Administration, Zagreb, study "Introduction to Project Management" subject "Project Management", from 2013.

Lecturer at PDS "Preparation and implementation of EU projects" Faculty of Law, University of Zagreb on the subject of strategic programming and planning, of 2015.

Lecturer at PDS "Preparation and implementation of EU projects" Faculty of Law, University of Zagreb in the course Practicum for proposals to apply for EU funds from 2015.

DATE OF LAST APPOINTMENT TO A RESEARCH-AND-TEACHING OR ART-AND-TEACHING RANK: June 11, 2010

# LIST OF PUBLISHED WORK WHICH QUALIFY HIM/HER FOR IMPLEMENTATION OF THE PROGRAMME, THAT IS, WHICH ARE RELEVANT FOR THE FIELD OF THE DOCTORAL PROGRAMME

1. Boromisa, Ana-Maria; Tišma, Sanja; Ležaić, Anastasya Raditya. Green Jobs for Sustainable Development. Padstow, Cornwall : Routledge, 2016 (monografija).

2. Boromisa, Ana-Maria; Tišma, Sanja. Mogućnosti korištenja obnovljivih izvora energije i energetska učinkovitost na razini gradova i općina . Zagreb : IMO, 2012 (priručnik).

3. Tišma, Sanja; Boromisa, Ana-Maria; Pavičić Kaselj; Ana. Environmental Finance and Development. Abingdon : Routledge, 2012 (monografija).

4. Tišma, Sanja; Funduk, Marina. Croatian Environmental Policies in the EU Context // EU public policies seen from a national perspective: Slovenia and Croatia in the European Union / Lajh, Damjan ; Petak Zdravko (ur.). Ljubljana : Faculty of Social Sciences, 2015. Str. 225-239.

5. Tišma, Sanja; Funduk, Marina. Green development: a notion affecting sustainable national economies, environmental security and international relations // Mediating security : comprehensive approaches to an ambiguous subject / Klimburg, Alexander ; Pospisil, Jan (ur.). Frankfurt am Main : Peter Lang GmbH, 2013. Str. 23-40.

6. Tišma, Sanja; Funduk, Marina. Hrvatska budućnost - Europska zelena paradigma // Hrvatska u EU - Kako dalje? / Puljiz, Vlado ; Ravlić, Slaven ; Visković, Velimir (ur.). Zagreb : Centar za demokraciju i pravo Miko Tripalo, 2012. Str. 207-229.

# LIST OF PUBLISHED WORK IN THE LAST FIVE YEARS

Author's books

1. Boromisa, Ana-Maria; Tišma, Sanja; Ležaić, Anastasya Raditya. Green Jobs for Sustainable Development. Padstow, Cornwall : Routledge, 2016 (monograph).

2. Jurlin, Krešimir; Boromisa, Ana-Maria; Tišma, Sanja; Vučković, Valentina. Ekološka i ekonomska analiza izvedivosti uvođenja poreznog sustava na osobna motorna vozila u Hrvatskoj zavisna o emisiji CO2 i Euro normama o emisijama štetnih plinova . Zagreb : Institut za razvoj i međunarodne odnose, IRMO, 2013. (monograph).

3. Boromisa, Ana-Maria; Tišma, Sanja. Mogućnosti korištenja obnovljivih izvora energije i energetska učinkovitost na razini gradova i općina . Zagreb : IMO, 2012 (handbook).

4. Boromisa, Ana-Maria; Tišma, Sanja; Raditya Ležaić, Anastasya. Gospodarska diplomacija Republike Hrvatske ili zašto Hrvatskoj nužno treba snažna i sustavna gospodarska diplomacija . Zagreb : Institut za međunarodne odnose, 2012 (monograph).



5. Butković, Hrvoje; Samardžija, Višnja; Tišma, Sanja. Učinci gospodarske krize na industrijske odnose u Hrvatskoj . Zagreb : Institut za međunarodne odnose - IMO, 2012. (monograph).

6. Tišma, Sanja; Boromisa, Ana-Maria; Pavičić Kaselj; Ana. Environmental Finance and Development. Abingdon : Routledge, 2012 (monograph).

Editor's books

1. Želja za znanjem / Tišma, Sanja (ur.). Zagreb : Institut za razvoj i međunarodne odnose (IRMO), 2014

2. Hrvatska i Europska unija : Prednosti i izazovi članstva / Tišma, Sanja; Samardžija, Višnja; Jurlin, Krešimir (ur.). Zagreb : Institut za međunarodne odnose (IMO), 2012

# **Book chapters**

1. Tišma, Sanja; Funduk, Marina. Croatian Environmental Policies in the EU Context // EU public policies seen from a national perspective: Slovenia and Croatia in the European Union / Lajh, Damjan ; Petak Zdravko (ur.). Ljubljana : Faculty of Social Sciences, 2015. Str. 225-239.

2. Tišma, Sanja; Funduk, Marina. Green development: a notion affecting sustainable national economies, environmental security and international relations // Mediating security : comprehensive approaches to an ambiguous subject / Klimburg, Alexander ; Pospisil, Jan (ur.). Frankfurt am Main : Peter Lang GmbH, 2013. Str. 23-40.

3. Tišma, Sanja; Funduk, Marina. Hrvatska budućnost - Europska zelena paradigma // Hrvatska u EU - Kako dalje? / Puljiz, Vlado ; Ravlić, Slaven ; Visković, Velimir (ur.). Zagreb : Centar za demokraciju i pravo Miko Tripalo, 2012. Str. 207-229.

# Articles

1. Jelinčić, Daniela Angelina; Farkaš, Anamarija; Tišma, Sanja. Social Innovations: Sign of the Times?. // Annales-Anali za Istrske in Mediteranske Studije-Series Historia et Sociologia. 26 (2016), 2; 271-284 (članak, znanstveni)

2. Horvatinčić, Karolina; Demonja, Damir; Tišma, Sanja. Green Jobs for Green Food: New Knowledge and Skills for Family Farms in Food Production in Croatia. // Quality - Access to Success. 17 (2016) , 154; 80-84 (izvorni znanstveni rad, znanstveni).

3. Maleković, Sanja; Tišma, Sanja; Keser, Ivana. The importance of entrepreneurial learning on the example of the South East European Center for entrepreneurial learning in Croatia. // The European Journal of Applied Economics. 13 (2016), 1; 60-71 (članak, znanstveni).

4. Tišma, Sanja; Škunca, Ognjen; Boromisa, Ana-Maria; Čermak; Helena. Marine Litter Management in Fisheries Sector in Croatia: Social Innovation for Circular Economy // Challenges of Europe: Growth, Competitiveness and Inequality. Split : Ekonomski fakultet u Splitu, 2015. 291-305 (pozvano predavanje,objavljeni rad,znanstveni).

5. Tišma, Sanja; Mileusnić Škrtić, Mira; Čermak, Helena; Horvatinčić, Karolina. Sustainable Waste Management: European Experiences - Croatian Perspectives // Seventh Scientific International Conference / Bundo, Sherif (ur.). Prishtine : Globus-College of International Management, 2014. 357-366 (pozvano predavanje,međunarodna recenzija,objavljeni rad,znanstveni).

6. Butković, Hrvoje; Samardžija, Višnja; Tišma, Sanja; Funduk, Marina. Industrial relations and social dialogue in the period of crisis: a comparative perspective. // Public and Municipal Finance. 3 (2014) , 2; 7-18

PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



7. Đukić, Vesnja; Volić, Ivana; Tišma, Sanja, Jelinčić, Daniela Angelina. Responsible Community Based Ecotourism Initiatives in Protected Rural Areas of the Balkans: Case Studies from Serbia and Croatia. // American Journal of Tourism Management. 3 (2014) , 1B; 51-63

8. Mileusnić Škrtić, Mira; Farkaš Anamarija; Tišma, Sanja. From Wish to Action – How does Croatia Manage its Hazardous Waste?. // Environmental Economics. 5 (2014) , 3; 8-17

9. Samardžija, Višnja; Tišma, Sanja; Skazlić, Ivana. Chalenges of Effective Civil Security System in Croatia in the Context of the EU Membership. // Collegium antropologicum. 38 (2014) , S1; 113-124

10. Mileusnić Škrtić, Mira; Horvatinčić, Karolina; Tišma Sanja. E-learning in banking. // Croatian Journal of Education. 14 (2012) , 2/2012; 257-274

11. Tišma, Sanja; Maleković, Sanja; Keser, Ivana. Methodological applicability and practical use of functional analysis for public administration reform: the case of Croatia. // Public and Municipal Finance. 1 (2012), 2; 51-60

12. Maleković, Sanja; Puljiz, Jakša; Tišma, Sanja. New Opportunities for Regional and Local Actors in Croatia in Supporting Socio-Economic Development. // Southeastern Europe. 35 (2011) , 2; 168-190

# LIST OF SCIENTIFIC AND ARTISTIC PROJECTS IN WHICH HE OR SHE PARTICIPATED AND WHICH ARE RELEVANT FOR THE FIELD OF THE DOCTORAL PROGRAMME

Protection of Nature and Environment from Forest Fires – ForestEye, EU IPA program prekogranične suradnje Hrvatska – Bosna i Hercegovina 2007.-2013. (3/2015. – 3/2017.), Pozicija: stručnjak

DEFISHGEAR – Derelict Fishing Gear Management System in the Adriatic Region, IPA Adriatic CB programme (6/2014. – 7/2016.), Pozicija: voditelj projekta

InTourAct – Local Action Plan for Integrated ans Sustainable Tourism, IPA Adriatic (4/2014. – 6/2014.), Pozicija: stručnjak

SmartInno – R&I System Analysis – Transnational Mapping and Common Operating Model, IPA Adriatic, (6/2014. – 12/2014.), Pozicija: voditelj projekta

Water Demand Management in Mediterranean Countries: Thinking outside the water box! Croatian case study, UN Blue Plan Regional Activity Center (04/2011 – 04/2012). Pozicija: Voditelj projekta

# LIST OF SCIENTIFIC AND ARTISTIC PROJECTS IN WHICH HE OR SHE PARTICIPATED IN THE LAST FIVE YEARS

Polo Cro 28. Opservatorij javnih politika u Hrvatskoj. Jean Monnet potpora institucijama, Erasmus +, (9/2015. – 8/2018.), Pozicija: stručnjak

Zaštita prirode i okoliša od šumskih požara – ForestEye, EU IPA program prekogranične suradnje Hrvatska – Bosna i Hercegovina 2007.-2013. (3/2015. – 3/2017.), Pozicija: stručnjak

DEFISHGEAR – Derelict Fishing Gear Management System in the Adriatic Region, IPA Adriatic CB programme (6/2014. – 7/2016.), Pozicija: voditelj projekta

Improving Information to the Croatian Business Community – BIZimpact II "Mini Guide on Environmental Protection" IPA program EU (9/2014. – 11/2014.), Pozicija: voditelj projekta

Extension of Potentiality of Adriatic UNESCO sites (EX.PO AUS), IPA CBC Adriatic 2007-2013 (7/2013. - 4/2014.), Pozicija: stručnjak

InTourAct – Local Action Plan for Integrated ans Sustainable Tourism, IPA Adriatic (4/2014. – 6/2014.), Pozicija: stručnjak

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SmartInno – R&I System Analysis – Transnational Mapping and Common Operating Model, IPA Adriatic, (6/2014. – 12/2014.), Pozicija: voditelj projekta

ANVIL—Analysis of Civil Security Systems in Europe, FP7-SEC-2011-1 in the scope of the Funding scheme "Coordination and support action" (03/2012 – 03/2014). Pozicija: stručnjak

Studija, Marketinška strategija i Akcijski plan razvoja zdravstvenog turizma na području Grada Buzeta -AHVN projekt, IPA CBC Adriatic 2007-2013 (7/2012. – 2/2013.), Pozicija: voditelj projekta

ClosE\_UP / Europa izbliza, Delegacija Europske unije u Republici Hrvatskoj (7/2013. – 12/2014.), Pozicija: stručnjak

The economic crisis impact on Industrial relations national systems: Policy responses as key recovery tools, supported by the European Commission via contract VS/2011/0432 (12/2011 – 12/2012) . Pozicija: stručnjak

Water Demand Management in Mediterranean Countries: Thinking outside the water box! Croatian case study, UN Blue Plan Regional Activity Center (04/2011 – 04/2012). Pozicija: Voditelj projekta

Gospodarska diplomacija Republike Hrvatske ili zašto Hrvatskoj danas nužno treba snažna i sustavna gospodarska diplomacija, ADRIS Foundation, Hrvatska (02/2012 – 08/2012). Pozicija: voditelj projekta

Drafting the Ex-ante Evaluation and the Strategic Environmental Assessment for the Hungary-Croatia Crossborder Co-operation Programme 2014-2020, HU – HR IPA PROGRAMME (07/2013 – 2015). Pozicija: evaluator

Evaluation of Project proposals in the scope of IPA Programme Slovenia – Croatia 2007-2013, Ministry of Regional Development and EU funds (5/2013 - 8/2013). Pozicija: evaluator

SIDA – Support to Local Governments in Serbia in the EU integration process – for the Standing Conference of Towns and Municipalities (SKGO) (02/2013 – 06/2013). Pozicija: stručnjak

Delivery of Technical and Training Assistance to Una-Sana Canton in the Process of Participatory Creation of the Integrated Cantonal Development Strategy and Support to Initial Capacities for its Follow-Up Effective Management and Implementation (02/2013 – 12/2013). Pozicija: voditelj projekta

Interim evaluacija i META evaluacija IPA pomoći u zemljama jugoistočne Europe i Turskoj (projekt pokriva nekoliko paralelnih pod-projekata), Europska komisija (1/2012. – 6/2013.), ). Pozicija: evaluator

Citizen Participation in Energy Efficiency Action Planning (CENEP) – IPA 2008 – component I, "National Programme for Croatia under the IPA Transition Assistance and Institution Building Component for 2008" (02/2011 – 02/2013). Pozicija: stručnjak

Stručni domaći projekti:

Prethodno vrednovanje (ex-ante evaluacija) Zagrebplana 2020. , Grad Zagreb (5/2014. – 9/2015.), Pozicija: voditelj projekta

Strategija razvoja Zagrebačkog holdinga od 2015. do 2020. , Zagrebački holding (3/2014. – 7/2015.), Pozicija: voditelj projekta

Izrada Razvojne strategije Vukovarsko-srijemske županije, Agencija za razvoj Vukovarsko-srijemske županije Hrast d.o.o. (09/2010 – 05/2011). Pozicija: stručnjak

Zagreb plan - Ocjena i prijedlog za dopune sektorskih podloga za osnovnu analizu Zagreb plana, Gradski ured za strategijsko planiranje i razvoj Grada Zagreba (10/2010 – 05/2011). Pozicija: voditelj projekta

PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



#### **ORDINAL NUMBER:** 6

FIRST NAME, LAST NAME, AND TITLE OF THE TEACHER: Ana-Maria Boromisa, PhD

**NAME OF INSTITUTION OF EMPLOYMENT OF THE TEACHER:** Institute for Development and International Relations (IRMO)

### BIOGRAPHY

Ana-Maria Boromisa was born in Zagreb on 8<sup>th</sup> December 1969. She took her first degree at the Electrical Engineering Faculty in Zagreb (1994), a master's in European Studies, College of Europe, Natolin, Poland (1995) and PhD the Economics Faculty in Zagreb (2004).

She worked at the Zagreb Airport (1994-1995) and at the Institute for International Relations (1996-2000). She was appointed by the Croatian Parliament as a member of the Croatian Energy Regulatory Council (2001-2005). Since 2006 she works at the Institute for Development and International Relations in Zagreb She was a member of the IRMO management board (2006-2012) and since 2013 she is the president of the IRMO Scientific Board. Currently, Dr Boromisa is a research adviser and head of the Department for International Economic and Political Relations.

Her research interests include environmental economics, energy economics and trade policy. In these areas Ana-Maria Boromisa manages projects, publishes papers, teaches, presents papers and gives speeches at lectures and conferences. She teaches at postgraduate level at the University of Zagreb (the Advanced Master of European Studies Programme at the Faculty of Political Science and Preparation and Implementation of EU-funded projects). She writes and speaks in Croatian and English, and also uses French and German.

DATE OF LAST APPOINTMENT TO A RESEARCH-AND-TEACHING OR ART-AND-TEACHING RANK: 27th Februaray 2015, scientific adviser

# LIST OF PUBLISHED WORK WHICH QUALIFY HIM/HER FOR IMPLEMENTATION OF THE PROGRAMME, THAT IS, WHICH ARE RELEVANT FOR THE FIELD OF THE DOCTORAL PROGRAMME

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Boromisa, Ana-Maria (2011). True Colour of Croatian Economy: Blue, Green, Rose...?, Proceedings of the 2011 SEE Management Forum, South East Europe and the European Union, Looking Ahead, Croatian Economic Association, Zagreb, pp 91-116

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Boromisa, Tišma, Omrčen . 2009 Emisije i ponori CO2 – izazovi i mogućnosti za kompaniju INA d.d., Naftaplin, Knjiga 53/54/09, ISSN-1330-2434, god 29, br. 8/2009, HUNIG, Zagreb, 2009. (CO2 emissions and sinks – challenges for INA), 189 pp

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Donato De Rosa, Sanja Madzarevic-Sujster, Ana-Maria Boromisa, Velimir Sonje. (2009) Barriers to Competition in Croatia. The Role of Government Regulation, The World Bank, Europe and Central Asia Region, Private and Financial Sector Department, Working Papers Series, October 2009, WPS5100

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Boromisa, Ana-Maria: Traditional Solutions in the Traditional Sector – (Un)expected Outcomes? Energy Sector in the SEE in: Dialogues, Ownership for Regional Cooperation in the Western Balkan Countries (ur. M. Weichert) Friedrich Ebert Stiftung, Berlin, 2009. str. 117-129

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Boromisa, Ana-Maria, Tišma, S., Gracin, P. Pavlus, N. Environmental Management in Urban Areas: Croatian Challenges towards EU accession, Croatian International Relations Review, January/June 2008, NO 50/51, str.25-32

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Boromisa, Šućur, Tišma: European Strategis for Minimizing Climate Change: Opportunities and Threats for Croatia", 21th International Conference Energy and Environment, Proceedings, vol. II, pp. Opatija, 2008 (međunarodna recenzija, znanstveni rad)

Boromisa, Ana-Maria (Ed). Completing Eastern Enlargement and its effects on the Accession of Croatia, Hanns Seidel Stiftung, Zagreb, 2007. pp 1-125.

Boromisa, Ana-Maria. Tišma, Sanja. Kyoto Protocol: Can We Meet, Croatian International Relations Review, January/June 2007, pp. 29-37

Boromisa, Ana-Maria; Samardžija, Višnja. Croatia and the Lisbon Strategy: Convergence towards Goals? // Croatian Accession to the European Union: The Challenges of Participation / Ott, Katarina (ed.).Zagreb : Institut za javne financije, 2006. pp. 199-226.

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Boromisa, A.: "Energy Trade in Europe: Competition and Regulation in view of the EU Enlargement", Virtual Proceedings of the Fourth Annual Conference of the European Trade Study Group, Institut fuer Weltwirtshcafforschung, Kiel, 13-15 September 2002, www.etsg.org

# LIST OF PUBLISHED WORK IN THE LAST FIVE YEARS

Books

Boromisa, Ana-Maria (2016). Od troškova do koristi - Analiza troškova i koristi u pripremi projekta, Alinea, Zagreb.

Boromisa, Tišma, Ležaić (2015) Green jobs for sustainable development. Routledge, London

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Boromisa, Ana-Maria. Strateške odluke za energetsku budućnost Hrvatske. Friedrich Ebert Stiftung i Institut za međunarodne odnose, Zagreb, 2012. 54 str.

**Book chapters** 

Boromisa, Ana-Maria. Will outsiders apply EU rules and why? u:Rubino, Alessandro i Cambini, Carlo (ur.), , Regional Energy Initiatives: MedReg and the Energy Community, 2014. London and New York, Routledge, str. 95-127.

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### Articles

Tišma,S. Škunca, O. Boromisa,A.-M. Čermak, H.(2016) Marine litter management in fisheries sector in Croatia: social innovation for circular economy. In: Proceedings, International Conference challenges of Europe: growth, competitiveness and inequality, Faculty of Economics, University of Split. Split.

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Boromisa, Ana-Maria. Ležaić, Anastasyia (2014) Croatian commerical diplomacy- stepping stone toward economic recovery? International journal Diplomacy and Economy, Vol 2, NO3, pp 172-184

# LIST OF SCIENTIFIC AND ARTISTIC PROJECTS IN WHICH HE OR SHE PARTICIPATED AND WHICH ARE RELEVANT FOR THE FIELD OF THE DOCTORAL PROGRAMME

2015-2018 Polo Cro 28. Policy Observatory in Croatia. Jean Monnet support to institution. Erasmus +, expert

2015-2018. Economic and Social Effects of Energy Sector Reforms on Sustainable Economic Growth, Project financed by Croatian Science Foundation.

2015-2016 Increasing competitiveness of Croatia and Montenegro by internationalisation of business- role of economic diplomacy), Croatian team leader; Ministry of Science, education and sports.

2014-2018 COST (European Cooperation in Science and Technology) aktivnost Innovations in Climate Governance: Sources, Patterns and Effects (INOGOV), management committee member

2014 (od lipnja- 2015) Bilateral scientific project Croatia-Slovenia; Economic Diplomacy, Croatian team leader; Ministry of Science, education and sports.

2007-2011. Economic aspects of security. Ministry of science, education and sports

2008. Integration perspectives and synergic effect of European transformation in the countries targeted by EU enlargement and negihborhood policies". Project coordinated by Central European University, Budapest, expert

2006-2009 Lisbon strategy – catalyst of reform in Croatia. Ministry of Science and technology.

2007 EU CONSENT: Wider Europe, Deeper Integration? FP6 projekt. Istraživač

# LIST OF SCIENTIFIC AND ARTISTIC PROJECTS IN WHICH HE OR SHE PARTICIPATED IN THE LAST FIVE YEARS

2015-2018 Polo Cro 28. Policy Observatory in Croatia. Jean Monnet support to institution. Erasmus +, expert

2015-2018. Economic and Social Effects of Energy Sector Reforms on Sustainable Economic Growth, Project financed by Croatian Science Foundation.

2015-2016 Increasing competitiveness of Croatia and Montenegro by internationalisation of business- role of economic diplomacy), Croatian team leader; Ministry of Science, education and sports.

PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



2014-2018 COST (European Cooperation in Science and Technology) aktivnost Innovations in Climate Governance: Sources, Patterns and Effects (INOGOV), management committee member

2014 (od lipnja- 2015) Bilateral scientific project Croatia-Slovenia; Economic Diplomacy, Croatian team leader; Ministry of Science, education and sports.

2007-2011. Economic aspects of security. Ministry of science, education and sports

PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



#### **ORDINAL NUMBER: 7**

#### FIRST NAME, LAST NAME, AND TITLE OF THE TEACHER: Tonči Matulić, Full Professor

#### NAME OF INSTITUTION OF EMPLOYMENT OF THE TEACHER: Catholic Theological Faculty, University of Zagreb

#### BIOGRAPHY

Tonči Matulić was born in Supetar, island of Brač, Republic of Croatia, on October 26, 1966. He attended elementary school in Postira, island Brač, and secondary school in Supetar and Split. He graduated in the Archdiocesan Little Seminary in Split on June 1985. He performed a military service from 1985 until 1986. From 1986 until 1991 he studied theology at the Theology Institute in Split of the Catholic Theological Faculty in Zagreb. In 1991/92 he attended the post-graduate studies of moral theology at the Catholic Theological Faculty University of Zagreb. He has been ordained a catholic priest of the Diocese of Hvar in 1992. From 1993 until 1998 he has studied moral theology at the Accademia Alfonsiana – Higher Institute for Moral Theology of the Pontifical Lateran University in Rome where he obtained his licentiate (master) in June 1995, and he defended his doctoral dissertation in June 1998. In the summer semester 1995/96 he finished the Corso di Perfezionamento in Bioetica at the Institute for Bioethics of the Medical Faculty of the Catholic University Sacro Cuore in Rome, and in the winter semester of 1996/97 he finished the Visiting Fellowship Program at the Kennedy Institute of Ethics, Georgetown University in Washington, D.C. in the USA. Since the summer semester of 1998/99 he has started to teach courses in moral theology, bioethics, social teaching of the Church at the Catholic Theological faculty University of Zagreb. In March 2000 he has been appointed to the associate grade and on the job position of a senior assistant in the Department of moral theology, in March 2003 in the scientific-teaching grade of assistant professor, in May 2007 in the scientific-teaching grade of associate professor, in July 2011 in the scientific-teaching grade of full professor. Finally in September 2016 in the grade of tenured professor. Since 2002 he has been a member of the Editorial Board of the scientific theological journal Bogoslovska smotra, and since October 2011 he is its main and responsible editor-in-chief. From 2005 until 2010 he has been the Vice-dean for Science at the Faculty. Since October 2009 he is the acting head of the Department for Moral Theology, and since October 2014 he has been the head of the Department for Canon Law. Since October 2012 to March 2017 he has been the Dean of the Faculty in two term mandate.

**DATE OF LAST APPOINTMENT TO A RESEARCH-AND-TEACHING OR ART-AND-TEACHING RANK:** September 15, 2016, Tenured Professor

# LIST OF PUBLISHED WORK WHICH QUALIFY HIM/HER FOR IMPLEMENTATION OF THE PROGRAMME, THAT IS, WHICH ARE RELEVANT FOR THE FIELD OF THE DOCTORAL PROGRAMME

1. Bioetika kao znanost o preživljavanju i mjesto interdisciplinarnoga dijaloga, In: *Prirodoslovlje*, Vol. 2 (2002.), N° 1, pp. 25-47;

2. Ideja antropocentrizma u ozračju biocentričke paradigme, In: *Socijalna ekologija*, Vol. 15 (2006.) N° 1-2, pp. 23-41;

3. Suvremena ekološka kriza kao locus theologicus: Teologija stvaranja kao ishodište ekološke teologije u Jürgena Moltmanna, In: *U služenju Božjemu narodu*. Zbornik radova, Požega, 2007, pp. 158-180;

4. Kršćanstvo kao odgovor na ekološku krizu, In: Triljski most – List za kulturu, Vol. 2 (2007.), N° 1, pp. 38-41;

5. Prirodoznanstvena paradigma i tajna života: Filozofsko-teološka razgraničenja u diskursu o pojmu života, In: ARAČIĆ, Pero (Ed.), *Teologija u dijalogu s drugim znanostima*. Zbornik radova, Đakovo, 2008, pp. 263-286.

#### LIST OF PUBLISHED WORK IN THE LAST FIVE YEARS

1. Bioetika, Zagreb, <sup>3</sup>2012.

- 2. Bioetički izazovi kloniranja čovjeka. Filozofsko-teološko tematiziranje, Zagreb, <sup>2</sup>2012.
- 3. Vodič kroz bioetiku 1: Oblikovanje identiteta bioetičke discipline, Zagreb , <sup>2</sup>2012.



4. Vodič kroz bioetiku 2: Život u ljudskim rukama, Zagreb, <sup>2</sup>2012.

5. Vodič kroz bioetiku 3: Medicinsko prevrednovanje etičkih granica, Zagreb, <sup>2</sup>2012.

# LIST OF SCIENTIFIC AND ARTISTIC PROJECTS IN WHICH HE OR SHE PARTICIPATED AND WHICH ARE RELEVANT FOR THE FIELD OF THE DOCTORAL PROGRAMME

1. Theological Foundation of Solidarity in Croatian Society (0203007), 2003-2006;

2. European System of Human Rights and Croatian Family Law (066-0662501-2523), 2006-2009.

### LIST OF SCIENTIFIC AND ARTISTIC PROJECTS IN WHICH HE OR SHE PARTICIPATED IN THE LAST FIVE YEARS

European Values Study (Survey 2017).

PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



#### ORDINAL NUMBER: 8

FIRST NAME, LAST NAME, AND TITLE OF THE TEACHER: Sanja Kovač, Associate Professor

NAME OF INSTITUTION OF EMPLOYMENT OF THE TEACHER: Faculty of Geotechnical Engineering, University of Zagreb

#### BIOGRAPHY

I was born on September 7, 1976 in Čakovec. I finished an elementary and grammar school in Varaždin. I graduated from the Mathematics Department of the Faculty of Science, University of Zagreb in 1995 with graduate thesis "De Finetti's Theorem of Representation" focusing on mathematical statistics and computing. In 2001 I enrolled in Postgraduate study in Mathematics at the Faculty of Science of the University of Zagreb and finished it in 2005 with a Master's degree thesis "Operational Stabile Distribution" by acquiring the academic degree of Masters of Natural Sciences, field of Mathematics. In 2008, I got a PhD title at the Mathematics Department of the Faculty of Sciences and Mathematics of the University of Zagreb. During my postgraduate studies I was an active member of a seminar for probability theory and a seminar for inequalities at PMF-MO.

Working experience: teaching mathematics in a secondary school (2001) and teaching and implementation of e-learning at the Faculty of Geotechnical Engineering(2001-today): Mathematics 1,2,3, Computer practicum, Mathematical Methods in Environmental Engineering. In 2015/2016 and 2016/2017 – vice dean for teaching and quality assurance. 2013/2014 and 2014/2015 – head of Department for science, 2013-2015- an ECTS coordinator.

The field of my research are applied mahematical inequalities in mathematical analysis and mathematical and statistical methods in environmental engineering. I am an author and coauthor of 13 scientific papers (7 indexed in Current Contents, 8 indexed in SCIE, 12 indexed in Mathematical reviews "cover to cover", 2 accepted for publication). I am a coauthor of a scientific book "General Integral Identities and Related Inequalities" indexed in Mathematical Reviews "cover to cover" basis. I have participated in several scientific and research projects. I am a reviewer for professional research journals.

I won the Award for excellence of the Rotary club Varaždin – the first prize in a master theses category in 2006. In 2012 I won the Award for scientific paper – a category of the scientific paper with a high impact factor and in 2013 I won the Award for the most productive researcher, both awarded by the Faculty of Geotechnical Engineering.

I am a member of the Croatian Mathematical Society and American Mathematical Society.

I live in Varaždin. I am married and I have three children.

#### DATE OF LAST APPOINTMENT TO A RESEARCH-AND-TEACHING OR ART-AND-TEACHING RANK: 20.12.2016.

# LIST OF PUBLISHED WORK WHICH QUALIFY HIM/HER FOR IMPLEMENTATION OF THE PROGRAMME, THAT IS, WHICH ARE RELEVANT FOR THE FIELD OF THE DOCTORAL PROGRAMME

1. Kovač, Sanja; Pečarić, Josip: Generalization of an integral formula of Guessab and Schmeisser. // Banach Journal of Mathematical Analysis. 5 (2011) , 1; 1-18

2. Aglić Aljinović, Andrea; Kovač, Sanja; Pečarić, Josip: Error bounds for weighted 2-point and 3-point Radau and Lobatto quadrature rules for functions of bounded variation. // Mathematical and computer modelling. 54 (2011) , 5/6; 1365-1379

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3. Aglić Aljinović, Andrea; Kovač, Sanja; Pečarić, Josip: General weighted two-point Radau and Gauss and three-point Lobatto quadrature formulae for functions in Lp spaces. // Periodica mathematica Hungarica. 66 (2013) , 1; 23-44

4. Kovač, Sanja; Pečarić, Josip; Tipurić-Spužević, Sanja: Weighted Ostrowki type inequalities with application to onepoint integral formula. // Mediterranean journal of mathematics. 11 (2014) , 1; 13-30

5. Kovač, Sanja; Pečarić, Josip; Tipurić-Spužević, Sanja: New error bounds of the Chebyshev functional and application to the two–point integral formula. // Journal of mathematical inequalities. 9 (2015), 4; 1323-1335.

6. Đurin, Bojan; Baić, Lucija; Kovač, Sanja: <u>Novi pogledi na povezanost režima crpljenja i potrošnje vode za</u> <u>piće u naseljima</u> // 7. međunarodni znanstveno-stručni skup "Voda za sve", Knjiga sažetaka / Habuda Stanić, Mirna (ur.).Osijek : Sveučilište Josipa Jurja Strossmayera u Osijeku, Prehrambeno-tehnološki fakultet Osijek, 2017. 38-38 (predavanje,međunarodna recenzija,sažetak,znanstveni

7. Đurin, Bojan; Baić, Lucija; Kovač, Sanja: New aspects of the connection between the pumping and consumption regime of drinking water in human settlements // accepted for publication in Proceedings of 7th International Conference WATER FOR ALL

# LIST OF SCIENTIFIC AND ARTISTIC PROJECTS IN WHICH HE OR SHE PARTICIPATED AND WHICH ARE RELEVANT FOR THE FIELD OF THE DOCTORAL PROGRAMME

- 1. *Harmonijska analiza na realnoj poluprostoj Liejevoj algebri* (project manager: prof. dr. sc. Mladen Božičević). 2008-2013.
- **2.** Algebarske i geometrijske invarijante reprezentacija realnih reduktivnih grupa (support University of Zagreb, project manager: prof.dr.sc. Mladen Božičević, 2014.)
- **3.** *Održivo recikliranje LCD zaslona* (support University of Zagreb, project manager: doc.dr.sc.A. Anić Vučinić, 2014.)
- **4.** *Kvantitativna evaluacija cirkularne ekonomije u gospodarenju električnim i elektroničkim otpadom* (support University of Zagreb, project manager: doc.dr.sc. D. Vujević, 2015.)
- 5. Inequalities and applications (HRZZ, project manager: academician J. Pečarić, 2014.-).

PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



#### **ORDINAL NUMBER:** 9

FIRST NAME, LAST NAME, AND TITLE OF THE TEACHER: Damir Rumenjak, Scientific Advisor, PhD

NAME OF INSTITUTION OF EMPLOYMENT OF THE TEACHER: Ministry of environmental protection and energy

#### BIOGRAPHY

Personal informations:

Last and first name: Rumenjak, Damir

Pivotal number of researcher: 178342

Education

2012. Training programme for leading state officials

State school for public administration, Zagreb

2009. DSc.

Faculty of mining, geology and petroleum engineering, University of Zagreb

1990. MSc. chemical engineering

Faculty of technology, University of Zagreb

1983. BSc. mining engineering

Faculty of mining, geology and petroleum engineering, University of Zagreb

Employment

since 1996. – Ministry of environmental and nature protection; as expert adviser, senior expert adviser for environmental impact assessment, head of division for environmental (IPPC) permitting

**Teaching activities** 

from 2008 to 2013 – teaching on subjects Law and environment and Ecological modeling on Geotechnical Faculty in Varaždin, University of Zagreb

In student year 2013 /2014 teaching on subject Ecological modeling through Programme of International student exchange ERASMUS on Geotechnical Faculty in Varaždin

Memberships

since 1996. - Croatian society of chemical engineers

Skills

Numerical packages : Math CAD,

Languages

Croatian

English

#### DATE OF LAST APPOINTMENT TO A RESEARCH-AND-TEACHING OR ART-AND-TEACHING RANK: June 3<sup>rd</sup>, 2014

# LIST OF PUBLISHED WORK WHICH QUALIFY HIM/HER FOR IMPLEMENTATION OF THE PROGRAMME, THAT IS, WHICH ARE RELEVANT FOR THE FIELD OF THE DOCTORAL PROGRAMME

Rumenjak D., Salopek B., Rajković D. (2005): Application of Environmental Engineering Models in Systems for Decision Making Support, Proceedings of second International Conference Sustainable Development Indicators in the Mineral Industry - SDIMI 2005, 18-20 May 2005, Aachen, str. 447-459

PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



Rumenjak D., Štambuk S. (2007): Fuzzy Modelling in Air Protection, Geofizika, Vol. 24, No. 2, 123-135)

Rumenjak D., Rajković D., Salopek B.(2011): Evidence theory in the construction of linguistic variables for minerals industry, Proceedings of Fifth International Conference Sustainable Development Indicators in the Mineral Industry - SDIMI 2011, 14-17 June 2011, Aachen, str.473-478.

Rumenjak D.(2012.): Ekspertni sustavi za zaštitu okoliša s primjenom u rudarstvu, (Expert systems for environmental protection for application in mining), RGN Zbornik, vol.25, str.107-113

Rumenjak D., Rajković D., Štambuk S.. (2013): Some principles of expert systems for environment and mining, Proceedings of International Conference Sustainable Development Indicators in the Mineral Industry - SDIMI 2013, 30 June-3 July 2013, Milos island, str.44-47

Rumenjak D.(2015): Normizacija pokazatelja onečišćenja podzemnih i površinskih voda primjenom aparata neizrazite logike (Standardization of pollution indicators of surface and ground waters using fuzzy logic), Znanstveni skup, Održivo korištenje i zaštita voda u sjeverozapadnoj Hrvatskoj, HAZU i GFV, (in connection to work: Rumenjak D.,Štambuk S. (2007): Fuzzy Modelling in Air Protection, Geofizika, Vol. 24, No. 2, 123-135)

### LIST OF PUBLISHED WORK IN THE LAST FIVE YEARS

Rumenjak D., Rajković D., Salopek B.(2011):Evidence theory in the construction of linguistic variables for minerals industry, Fifth International Conference Sustainable Development Indicators in the Mineral Industry - SDIMI 2011, 14-17 June 2011, Aachen, str.473-478.

Rumenjak D.(2012.): Ekspertni sustavi za zaštitu okoliša s primjenom u rudarstvu, RGN Zbornik, vol.25, str.107-113

Rumenjak D., Rajković D., Štambuk S.. (2013): Some principles of expert systems for environment and mining, Sustainable Development Indicators in the Mineral Industry - SDIMI 2013, 30 June-3 July 2013, Milos island, str.44-47

Rumenjak, D. Štambuk, S.: Iskustva u primjeni IPPC direktive u Hrvatskoj, XII. Simpozij gospodarena otpadom Zagreb, 2012.

Štambuk S, Rumenjak D.: Iskustva u primjeni IED (IPPC) direktive u Hrvatskoj na postrojenjima za obradu otpada, XIII. Simpozij gospodarena otpadom Zagreb, 2014.

# LIST OF SCIENTIFIC AND ARTISTIC PROJECTS IN WHICH HE OR SHE PARTICIPATED AND WHICH ARE RELEVANT FOR THE FIELD OF THE DOCTORAL PROGRAMME

Project: Oplemenjivanje kvarcnog pijeska i procjena utjecaja na okoliš (Quarz sand dressing and environmental impact assessment) (195-1951825-1301)

Projekt: Racionalno korištenje energetskih mineralnih sirovina u Hrvatskoj (Rational energy minerals spending in Croatia) (2013-6-5)

#### LIST OF SCIENTIFIC AND ARTISTIC PROJECTS IN WHICH HE OR SHE PARTICIPATED IN THE LAST FIVE YEARS

PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



#### **ORDINAL NUMBER:** 10

FIRST NAME, LAST NAME, AND TITLE OF THE TEACHER: Vitomir Premur, PhD

NAME OF INSTITUTION OF EMPLOYMENT OF THE TEACHER: Faculty of Geotechnical Engineering, University of Zagreb

#### BIOGRAPHY

He was born in Varazdin in 1960. In 1981 graduated at the Geotechnical school in Varazdin, in 1985 graduated, in 1992 attained a master's degree and in 2016 he took a PhD degree at the Faculty of Mining-Geology and Petroleum Engineering, University of Zagreb. Until 1993 year he worked in the coal mine, at the Institute of Geotechnical Engineering in Varazdin and at the Mining school in Varazdin. Since 1993 he is employee at the Faculty of Geotehnical Engineering in the status of senior lecturer teaching several professional courses related to mining and environmental protection. The research work focused on the area of municipal and hazardous waste management. He has published several scientific and professional papers and participated in conferences at home and abroad. With native he speaks English language.

DATE OF LAST APPOINTMENT TO A RESEARCH-AND-TEACHING OR ART-AND-TEACHING RANK: Senior Lecturer, Sept. 22nd. 2014

# LIST OF PUBLISHED WORK WHICH QUALIFY HIM/HER FOR IMPLEMENTATION OF THE PROGRAMME, THAT IS, WHICH ARE RELEVANT FOR THE FIELD OF THE DOCTORAL PROGRAMME

1. Radetić, L., Vujević, D., Premur, V., Melnjak, I., Anić Vučinić, A. (2016): The assessment of air emissions increase due to the collection of municipal solid waste with old collection vehicles: A case study of Ludbreg (Croatia), Waste Management and Research, 34, 10; 1046-1053.

2. Premur, V. (2016): Recovery of Waste Printed Circuit Boards Using Mineral Processing Methods, Ph. D. thesis, Uniwersity of Zagreb Faculty of Mining, Geology and Petroleum Engineering, Zagreb, March 13th 2016, 154 pg.

3. Premur, V., Vujević, D., Anić Vučinić, A., Bedeković, G. (2016): The Possibility for Environmental Friendly Recycling of Printed Circuit Boards, Journal of Sustainable Development of Energy, Water And Environment Systems, 4, 1; 14-22.

4. Anić Vučinić, A., Vujević, D., Premur, V., Melnjak, I., Canjuga, D. (2014): Zbrinjavanje nemetalne komponente tiskanih pločica. Inženjerstvo okoliša, 1, 2, 67-76, Varaždin.

5. Premur, V., Anić Vučinić, A., Vujević, D., Bedeković, G. (2013): The possibility for environmental friendly recycling of printed circuit boards. Book of Proceedings 8th Conference on Sustainable Development of Energy, Water and Environmental System, Dubrovnik 22-27.09.2013, 1-8, Zagreb.

6. Anić Vučinić, A., Vujević, D., Premur, V., Lilek, H., Blažić, D., Lenček, S., Mikić, A., Kaniški, M., (2012): Caracterization and the Possibilities of the Waste Management Generated in the Printed Circuit Boards Reuse Process, Proceedings of 12th International Symposium on Waste Management Zagreb 2012, Oct. 29th-30th. 2012, Zagreb

7. Gotić, I; Levačić, E; Premur, V; Dodigović, I; Štuhec, D: (1996): Mogućnost iskorištenja jalovine kamenoloma Donje Orešje, Zbornik radova Znanstveno-stručnog skupa Zaštita okoliša i eksploatacija mineralnih sirovina, Varaždin 18.-21. rujan 1996, str. 75-78, Varaždin.



8. Premur, V; Levačić, E; Gotić, I. (1996): Istraživanje otpadne kamene vune u cilju recikliranja, Zbornik radova Znanstveno-stručnog skupa Zaštita okoliša i eksploatacija mineralnih sirovina, Varaždin 18.-21. rujan 1996, str. 79-86, Varaždin.

9. Gazarek, M. i Premur, V. (1993): Pelletizing of Fine Industrial Solid Wastes: A Contribution to the Protection of The Environment. XVIII International mineral processing congress, 23-28 May, Sydney, Australia.

10. Gazarek, M., V. Premur, E. Levačić. 1993. Phosphogypsum pelletization tests. Proc. of Int. Conference: Energy Waste and Environment, Pieštany, Slovakia, pp. 179-186.

11. Premur, V., Gazarek, M. (1992): Rezultati ispitivanja peletiranog sitnozrnog anorganskog otpada te mogućnost korištenja u građevinarstvu. Simpozij industrija nemetala u obnovi i razvoju Hrvatske, Zagreb, 23.-24. 4. 1992, str. 179-187, Zagreb.

12. Premur, Vitomir. (1992): Ispitivanje mogućnosti dobivanja peleta od letećeg pepela termoelektrana,/ magistarski rad. Zagreb, Sveučilište u Zagrebu, Rudarsko-geološko-naftni fakultet, 11.12.1992, 90 str. Voditelj: Salopek, Branko.

#### LIST OF PUBLISHED WORK IN THE LAST FIVE YEARS

1. Radetić, L., Vujević, D., Premur, V., Melnjak, I., Anić Vučinić, A. (2016): The assessment of air emissions increase due to the collection of municipal solid waste with old collection vehicles: A case study of Ludbreg (Croatia), Waste Management and Research, 34, 10; 1046-1053.

2. Premur, V. (2016): Recovery of Waste Printed Circuit Boards Using Mineral Processing Methods, Ph. D. thesis, Uniwersity of Zagreb Faculty of Mining, Geology and Petroleum Engineering, Zagreb, March 13th 2016, 154 pg.

3. Premur, V., Vujević, D., Anić Vučinić, A., Bedeković, G. (2016): The Possibility for Environmental Friendly Recycling of Printed Circuit Boards, Journal of Sustainable Development of Energy, Water And Environment Systems, 4, 1; 14-22.

4. Premur, V., Vujević, D., Anić Vučinić, A., Bedeković, G. (2015): Laboratorijska ispitivanja električnog i elektroničkog otpada. Zbornik sažetaka 11. međunarodne konferencije Kompetentnost laboratorija 2015, Zadar 23-25.10.2015, 64-70, Zadar.

5. Anić Vučinić, A., Vujević, D., Premur, V., Melnjak, I., (2015): Treatment of Leachate Water by the Pilot Scale Constructed Wetland, Proceedings of 13th International Symposium on Waste Management Zagreb 2014, Nov. 6th-7th. 2014, pp. 224-233. Zagreb

6. Anić Vučinić, A., Vujević, D., Premur, V., Melnjak, I., Canjuga, D. (2014): Disposal of Non-metalic Components of Printed Circuit Boards. Inženjerstvo okoliša, 1, 2, 67-76, Varaždin.

7. Vujević, D., Mikić, A., Lenček, S., Dogančić, D., Zavrtnik, S., Premur, V., Anić Vučinić, A. (2014): An integrated Approach to the Industrial Wastewater Treatment, Inženjerstvo okoliša, 1, 1, 25-32.

8. Anić Vučinić, A., Vujević, D., Premur, V., Melnjak, I., Canjuga, D. (2014): Disposal of Non-metalic Components of Printed Circuit Boards. Inženjerstvo okoliša, 1, 2, 67-76, Varaždin.

9. Premur, V., Anić Vučinić, A., Vujević, D., Bedeković, G. (2013): The possibility for environmental friendly recycling of printed circuit boards. Book of Proceedings 8th Conference on Sustainable Development of Energy, Water and Environmental System, Dubrovnik 22-27.09.2013, 1-8, Zagreb.

10. Anić Vučinić, A., Vujević, D., Premur, V., Lilek, H., Blažić, D., Lenček, S., Mikić, A., Kaniški, M., (2012): Caracterization and the Possibilities of the Waste Management Generated in the Printed Circuit Boards

PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



Reuse Process, Proceedings of 12th International Symposium on Waste Management Zagreb 2012, Oct. 29th-30th. 2012, Zagreb

# LIST OF SCIENTIFIC AND ARTISTIC PROJECTS IN WHICH HE OR SHE PARTICIPATED AND WHICH ARE RELEVANT FOR THE FIELD OF THE DOCTORAL PROGRAMME

1. Sveučilište u Zagrebu: Projekt "Mogućnosti izdvajanja indija iz LCD-a pomoću ultrazvučne kupelji", Kratkoročna financijska potpora istraživanja za 2016., suradnik

2. Sveučilište u Zagrebu: Projekt "Kvantitativna evaluacija cirkularne ekonomije u gospodarenju električnim i elektroničkim otpadom", Kratkoročna financijska potpora istraživanja za 2015, suradnik

3. Sveučilište u Zagrebu: Projekt "Održivo recikliranje LCD zaslona", Kratkoročna financijska potpora istraživanja za 2014., suradnik

4. Znanstveni projekt Ministarstva znanosti, obrazovanja i športa: Karakterizacija krutog komunalnog otpada, 1. siječnja 2007 god., suradnik

5. Znanstveni projekt SVIBOR-a br. 2-99-153: Oplemenjivanje i recikliranje industrijskog i komunalnog otpada, suradnik.

# LIST OF SCIENTIFIC AND ARTISTIC PROJECTS IN WHICH HE OR SHE PARTICIPATED IN THE LAST FIVE YEARS

1. Sveučilište u Zagrebu: Projekt "Mogućnosti izdvajanja indija iz LCD-a pomoću ultrazvučne kupelji", Kratkoročna financijska potpora istraživanja za 2016., suradnik

2. Sveučilište u Zagrebu: Projekt "Kvantitativna evaluacija cirkularne ekonomije u gospodarenju električnim i elektroničkim otpadom", Kratkoročna financijska potpora istraživanja za 2015, suradnik

3. Sveučilište u Zagrebu: Projekt "Održivo recikliranje LCD zaslona", Kratkoročna financijska potpora istraživanja za 2014., suradnik

PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



#### **ORDINAL NUMBER:** 11

FIRST NAME, LAST NAME, AND TITLE OF THE TEACHER: Igor Petrovic, Assistant Professor

NAME OF INSTITUTION OF EMPLOYMENT OF THE TEACHER: Faculty of Geotehcnical Engineering, University of Zagreb

#### BIOGRAPHY

#### PERSONAL INFORMATION

Family name, First name: Petrovic, Igor

Identification number of the scientist: 275766

URL for web site:

ResearchGate: https://www.researchgate.net/profile/lgor\_Petrovic6

LinkedIN: https://www.linkedin.com/in/igor-petrovi%C4%87-17631492/

Croatian Scientific Bibliography: http://bib.irb.hr/lista-radova?autor=275766&lang=EN

Google Schoolar: https://scholar.google.hr/citations?user=69c1aPIAAAAJ&hl=hr

#### **EDUCATION**

2010 PhD

University of Zagreb, Faculty of Civil Engineering (FCE)

2009 Soil Modelling - PhD Course

Norwegian University of Science and Technology (NTNU)

2008 Pedagogical and Psychological Education

University of Zagreb, Faculty of Teacher Education – Cakovec Branch

2007 Environmental Microbiology and Process Eco Engineering – PhD Courses

University of Zagreb

2005 Master of Science

University of Zagreb, FCE

2000 Master of Engineering

University of Zagreb, Faculty of Geotechnical Engineering (FGE)

CURRENT POSITION(S)

since 2012 - Assistant Professor

University of Zagreb, FGE

PREVIOUS POSITIONS

2001 – 2012 Teaching and Research Assistant

University of Zagreb, FGE

FELLOWSHIPS AND AWARDS

2010 – excellency award in "Doctoral Disertations" category – Rotary Club Varazdin

1998-2001 – Scholarship of Ministry of Science, Education and Sport

PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



#### 1998 - University of Zagreb - Rector's award for the best student work

### TEACHING ACTIVITIES

since 2001 – Civil and Environmental Engineering (Soil Mechanics, Waste Mechanics, Statics, Strength of Materials, Saniray Landfills, Modelling in geotechnics and hydrotechnics) at University of Zagreb, FGE

# ORGANISATION OF SCIENTIFIC MEETINGS

2016 - 14th International Symposium on Waste Management Zagreb 2012/ Member of Organizing and Scientific Committee/International Symposium /November 2016/Croatia

2014 - 13th International Symposium on Waste Management Zagreb 2014/ Member of Organizing and Scientific Committee/International Symposium /November/Croatia

2014 - 15th conference with international participation "Waste Management – GzO'14"/Member of International Scientific Committee/International Symposium/60/Slovenia

2012 - 12th International Symposium on Waste Management Zagreb 2012/ Member of Organizing and Scientific Committee/International Symposium /400/Croatia

### INSTITUTIONAL RESPONSIBILITIES

since 2011 – member of Faculty Council, University of Zagreb/ FGE / Croatia

2011 - 2016 head of the Committee for quality management at FGE. The Committee's responsibility is to conduct procedures of quality assurance in all spheres of the Faculty activities

since 2011 – 2014 member of a Committee for development the new graduate study programme in Environmental Engineering field at FGE

since 2015 - member of a Committee for development the new doctoral study programme in Environmental Engineering field at FGE

since 2016 - 2017 - Head of the Department for environmental engineering

since 2017 - Vice-dean for teaching and quality assurance

MEMBERSHIPS

2007-2009 Affiliate member of American Society of Civil Engineers (ASCE)

since 2001 – member of Croatian Geotechnical Society

MAJOR SCIENTIFIC COLLABORATIONS

Fredlund, Murray - PhD, Finite Element Method and Waste mechanics, SoilVision Systems LtD.,

Saskatoon, Canada

Sarc, Renato - Dipl.-Ing., MBT waste, Montanuniversitaet Leoben, Leoben, Austria

Kortnik, Joze – As. Prof. – MBT waste, University of Ljubljana, Ljubljana, Slovenia

# SCIENTIFIC PROJECTS

# Supervisor

KIC - "EIT – Raw materials", University of Zagreb (associated partner), according to the Rector's decision I am the main contact person for the Faculty of Geotechnical Engineering, 2014 - present "Experimental testing of granular stiffness MBT waste", Faculty of Geotechnical Engineering, University of Zagreb, project funded by University of Zagreb, 2015 – to present

PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



### Deputy head

"Characterization of municipal solid waste", under the supervision of Professor Davorin Kovacic,

PhD, Faculty of Geotechnical Engineering, University of Zagreb, project number 160-0831529-3031, project funded by Croatian Ministry of Science, Education and Sports, 2007 – 2010

# Assistant

"Modeling of soil consolidation", under the supervision of Professor Vlasta Szavits-Nosan, PhD,

Faculty of Geotechnical Engineering, University of Zagreb, project number 160052, project funded by Croatian Ministry of Science, Education and Sports, 2001-2004

"Testing and modeling of fine-grained soil behavior", under the supervision of Professor Vlasta

Szavits-Nosan, PhD, Faculty of Geotechnical Engineering, University of Zagreb, project number 160252, project funded by Croatian Ministry of Science, Education and Sports, 2004 - 2007

"Geophysical and geotechnical investigations of waste landfills with aim of environment

protection", under the supervision of Professor Stjepan Strelec, PhD, Faculty of Geotechnical Engineering, University of Zagreb, project funded by University of Zagreb, 2013 – 2014

"The potential removal of heavy metals using phytoremediation next to railroad tracks in the

northwestern part of Croatia", under the supervision of Associate Professor Zvjezdana Stančić, PhD, Faculty of Geotechnical Engineering, University of Zagreb, project funded by University of Zagreb, 2014 - 2015

# EDUCATIONAL PROJECTS

# Supervisor

"Geoengineering – a profession for future generations", Faculty of Geotechnical Engineering,

University of Zagreb, project funded by University of Zagreb, January - December 2012

# TECHNICAL SKILLS

Developing of non-standard laboratory solutions, assembling, testing and tuning of laboratory equipment like a large-scale oedometer apparatus. Conducting experiments on actual waste samples. Qualified to independently perform and interpret experimental results obtained with large-scale oedometer as well as with GDS Consolidation Testing System (GDSCTS).Computer-aided simulation: Plaxis, GeoStudio, SoilVision, GGU, Mathematica.

# SOCIAL AND ORGANIZATIONAL SKILLS

Ability to work in teams or as an individual:

I am communicative and open. I am enthusiastic, motivated, and always full of ideas and energy which I like to transfer to my co-workers. I encourage the development of harmonic relationships among other people, encourage the development of sensitivity to self and others and actively listen to my interlocutors. I possess a good team spirit.

Leadership and project management skills:

2007-2010 deputy head of the team which developed non-standard laboratory equipment at the FGE. I have a great sense for organization and finish my assignments before deadlines. These are skills which I gained as a member of several Faculty Committees like for example Committee for development of new Bologna syllabus and Committee for implementation of "environmental engineering" scientific field in the existing Croatian nomenclature of scientific fields.

PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



### LANGUAGES

Croatian

English

#### DATE OF LAST APPOINTMENT TO A RESEARCH-AND-TEACHING OR ART-AND-TEACHING RANK: December 2011

# LIST OF PUBLISHED WORK WHICH QUALIFY HIM/HER FOR IMPLEMENTATION OF THE PROGRAMME, THAT IS, WHICH ARE RELEVANT FOR THE FIELD OF THE DOCTORAL PROGRAMME

Petrovic, I.; Szavits-Nossan, V.; Stuhec, D. Laboratory testing of waste after biomechanical treatment// Gradevinar, 63 (2011), 1; 43-53

Petrovic, I.; Szavits-Nossan, V.; Kovacic, D. Deformability of municipal waste biomechanical treatment// Gradevinar 63 (2011), 3; 255-264

Petrović, I.; Bauer, E. A simple hypoplastic model for modelling the mechanical behaviour of MBT waste // International Symposium on Computational Geomechanics (ComGeo II), Cavtat-Dubrovnik, April 2011.

Petrović, I.; Štuhec, D.; Kovačić, D. Large Oedometer for Measuring Stiffness of MBT Waste // Geotechnical Testing Journal, Vol. 37, No. 2, 2014, pp. 296–310, doi:10.1520/GTJ20130015. ISSN 0149-6115

Petrovic, I.; Hip, I.; Fredlund, M. (2015) Application of continuous normal-lognormal bivariate density functions in a sensitivity analysis of municipal solid waste landfill // Waste Management, Epub ahead of print 21 November 2015, DOI: 10.1016/j.wasman.2015.11.021

Petrovic, I. (2016) Mini-review of the geotechnical parameters of municipal solid waste: MB-pre-treated vs. raw untreated waste // Waste Management & Research/ DOI: 10.1177/0734242X16649684

# LIST OF PUBLISHED WORK IN THE LAST FIVE YEARS

Petrovic, I.; Szavits-Nossan, V.; Stuhec, D. Laboratory testing of waste after biomechanical treatment// Gradevinar, 63 (2011), 1; 43-53

Petrovic, I.; Szavits-Nossan, V.; Kovacic, D. Deformability of municipal waste biomechanical treatment// Gradevinar 63 (2011), 3; 255-264

Petrović, I.; Bauer, E. A simple hypoplastic model for modelling the mechanical behaviour of MBT waste // International Symposium on Computational Geomechanics (ComGeo II), Cavtat-Dubrovnik, April 2011.

Petrović, I.; Štuhec, D.; Kovačić, D. Large Oedometer for Measuring Stiffness of MBT Waste // Geotechnical Testing Journal, Vol. 37, No. 2, 2014, pp. 296–310, doi:10.1520/GTJ20130015. ISSN 0149-6115

Petrovic, I.; Hip, I.; Fredlund, M. (2015) Application of continuous normal-lognormal bivariate density functions in a sensitivity analysis of municipal solid waste landfill // Waste Management, Epub ahead of print 21 November 2015, DOI: 10.1016/j.wasman.2015.11.021

Petrovic, I. (2016) Mini-review of the geotechnical parameters of municipal solid waste: MB-pre-treated vs. raw untreated waste // Waste Management & Research/ DOI: 10.1177/0734242X16649684

# LIST OF SCIENTIFIC AND ARTISTIC PROJECTS IN WHICH HE OR SHE PARTICIPATED AND WHICH ARE RELEVANT FOR THE FIELD OF THE DOCTORAL PROGRAMME

SCIENTIFIC PROJECTS

Supervisor

KIC - "EIT – Raw materials", University of Zagreb (associated partner), according to the Rector's decision I am the main contact person for the Faculty of Geotechnical Engineering, 2014 - present

PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



"Experimental testing of granular stiffness MBT waste", Faculty of Geotechnical Engineering,

University of Zagreb, project funded by University of Zagreb, 2015 - to present

#### Deputy head

"Characterization of municipal solid waste", under the supervision of Professor Davorin Kovacic,

PhD, Faculty of Geotechnical Engineering, University of Zagreb, project number 160-0831529-3031, project funded by Croatian Ministry of Science, Education and Sports, 2007 – 2010

#### Assistant

"The potential removal of heavy metals using phytoremediation next to railroad tracks in the

northwestern part of Croatia", under the supervision of Associate Professor Zvjezdana Stančić, PhD, Faculty of Geotechnical Engineering, University of Zagreb, project funded by University of Zagreb, 2014 - 2015

"Geophysical and geotechnical investigations of waste landfills with aim of environment

protection", under the supervision of Professor Stjepan Strelec, PhD, Faculty of Geotechnical Engineering, University of Zagreb, project funded by University of Zagreb, 2013 – 2014

#### PROFESSIONAL PROJECTS

MBT plant Varazdin, Croatia - court expert - evaluation of annual MBT plant capacity, 2015

VIDOVEC, VARAZDIN; CROATIA, 2012, - revision of remediation plan of illegal waste landfills in

Vidovec county

VIDOVEC, VARAZDIN; CROATIA, 2008, - remediation plan of illegal waste landfills in Vidovec

County

Gacka river, CROATIA, 2007 – geotechnical survey for improvement of sanitary conditions on existing structures (like illegal waste dumps for example) inside the water-protected area of Gacka river LIST OF SCIENTIFIC AND ARTISTIC PROJECTS IN WHICH HE OR SHE PARTICIPATED IN THE LAST FIVE YEARS SCIENTIFIC PROJECTS

#### Supervisor

KIC - "EIT – Raw materials", University of Zagreb (associated partner), according to the Rector's decision I am the main contact person for the Faculty of Geotechnical Engineering, 2014 - present "Experimental testing of granular stiffness MBT waste", Faculty of Geotechnical Engineering, University of Zagreb, project funded by University of Zagreb, 2015 – to present

Deputy head

"Characterization of municipal solid waste", under the supervision of Professor Davorin Kovacic,

PhD, Faculty of Geotechnical Engineering, University of Zagreb, project number 160-0831529-3031, project funded by Croatian Ministry of Science, Education and Sports, 2007 – 2010

# Assistant

"The potential removal of heavy metals using phytoremediation next to railroad tracks in the northwestern part of Croatia", under the supervision of Associate Professor Zvjezdana Stančić, PhD, Faculty of Geotechnical Engineering, University of Zagreb, project funded by University of Zagreb, 2014 - 2015

PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



"Geophysical and geotechnical investigations of waste landfills with aim of environment

protection", under the supervision of Professor Stjepan Strelec, PhD, Faculty of Geotechnical Engineering, University of Zagreb, project funded by University of Zagreb, 2013 – 2014

# PROFESSIONAL PROJECTS

MBT plant Varazdin, Croatia – court expert – evaluation of annual MBT plant capacity, 2015

VIDOVEC, VARAZDIN; CROATIA, 2012, - revision of remediation plan of illegal waste landfills in

Vidovec county

VIDOVEC, VARAZDIN; CROATIA, 2008, - remediation plan of illegal waste landfills in Vidovec

County

Gacka river, CROATIA, 2007 – geotechnical survey for improvement of sanitary conditions on

existing structures (like illegal waste dumps for example) inside the water-protected area of Gacka river

PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



#### **ORDINAL NUMBER:** 12

FIRST NAME, LAST NAME, AND TITLE OF THE TEACHER: Sanja Kalambura, Assistant Professor NAME OF INSTITUTION OF EMPLOYMENT OF THE TEACHER: University of Applied Science, Velika Gorica BIOGRAPHY

1997 - 2004

IGM lepoglava d.o.o., Hrvatskih Pavlina 41, 42250 Lepoglava

Leader and coordinator for environmental protection department

Leading of environmental projects

2004. do 2007

Environmental protection and energy efficiency fund, Ksaver 208, 10000 Zagreb, Environmental department leader

Projects: remediation of landfills, cleaner production, decereasing emissions, bidiversity and landscape projects

EU team in accesion negotiations member, expert in the field of slaughter house waste

Ministry of environment - expert for EIA

Member for Waste management Strategy, Waste management Plan and other sub lows

2008 - open

University of Applied Science Velika Gorica, professor, vice dean for quality assurance

ESG standard expert, lectures in ecology and environmental protection,

Waste management and chemistry. Leader of (7) subjects (Chemistry (2+1), Basic chemistry for optometrists

(2+1), Basic of ecology (2+0), Ecology, (2+1), Waste manageemnt (2+1), Waste management II (2+1), Sea protection (2+1).

2012 - open

University of Applied health science, proffessorWaste management, Chemistry.

2012 - open

Agricultural Faculty Zagreb, PhD program, Waste management in Agriculture.

Education:



#### 2005-2009

PhD, professor and asis. professor

Basic and advanced knowledge in ecology, chemistry, biology in environment, waste management, waters, air.

1991-1997

Ms. chemistry

Organic chemistry, phisical, analitical, gemeral

University of Zagreb, Faculty of natural science

1986-1990

High school, V. Gymnasium, Zagreb

**DATE OF LAST APPOINTMENT TO A RESEARCH-AND-TEACHING OR ART-AND-TEACHING RANK:** prof.asist. – 28.March 2013.

# LIST OF PUBLISHED WORK WHICH QUALIFY HIM/HER FOR IMPLEMENTATION OF THE PROGRAMME, THAT IS, WHICH ARE RELEVANT FOR THE FIELD OF THE DOCTORAL PROGRAMME

1.Obradović, Mario; Kalambura, Sanja; Smolec, Danijel; Jovičić, Nives: Odlaganje i ilegalna trgovina opasnog otpada, opanost za moderno društvo. // Collegium antropologicum. 38 (2014) , 2; 793-803.

2. Matešić, Mirjana; Kalambura, Sanja; Bačun, Dubravka: Development of the Competitive Business in the Context of Environmental Legislation in Croatia. // Collegium antropologicum. 38 (2014) , 1; 349-356.

3. Kalambura, Sanja; Černi, Srđan; Jovičić, Nives: Važnost i obveze republike hrvatske u uspostavi mjera sprječavanja i smanjenja nastanka otpada od hrane. // Krmiva : časopis o hranidbi životinja, proizvodnji i tehnologiji krme. 56 (2015), 3; 138-149.

4.Kalambura, Sanja; Jovičić, Nives; Funda, Dragutin; Kalambura, Dejan: Uloga zelenih tehnologija u krizama – primjer hrvatske. // Tranzicija. 17 (2015.) , 35; 77-86.

5.Kalambura, Sanja; Jovičić, Nives; Kalambura, Dejan: Implementacija Zakona o održivom gospodarenju otpadom s osvrtom na uvođenje povjerenika za otpad i izobrazn-informativne aktivnosti. // TehnoEko. 4 (2014.), 52; 20-24.

6. Kalambura, Sanja; Voća, Neven; Krička, Tajana; Šindrak, Zoran; Špehar, Ana; Kalambura, Dejan: High-risk biodegradable waste processing by alkaline hydrolysis. // Arhiv za higijenu rada i toksikologiju. 62 (2011), 3; 249-254.

7. Černi, Srđan; Jovičić, Nives; Kalambura, Sanja; Auguštin, Saša; Mihelić, Damir: Preporuke za zadovoljavanje okolišnih zakonskih okvira rh i standarda eu u intenzivnom tovu životinja. // Krmiva : časopis o hranidbi životinja, proizvodnji i tehnologiji krme. 56 (2015) ; 179-186.

8. Kalambura, Sanja; Jovičić, Nives; Čemerin, Vedrana; Martina Mihalinčić: Energy Security and Renewable Sources of Energy. // Collegium antropologicum. Supplement. 38 (2014) , I; 229-236.

9.Šiljeg, Mario; Anić Vučinić, Aleksandra; Tucak Zorić, Sandra; Kalambura, Sanja; Jovičić, Nives; Čemerin, Vedrana.



Green Technologies-Assumption of Economic Recovery. // Collegium antropologicum. 38 (2014) , 1; 357-361.

10. Jovičić, Nives; Racz, Aleksandar; Kalambura, Sanja: Istraživanje problematike mijenjanja ili usvajanja navika i spoznaja o odvojenom prikupljanju otpada // Sažeci predavanja 14. Lošinjski dani bioetike / Ante Čović (ur.). Zagreb : Hrvatsko filozofsko društvo, 2015. 59-60.

11. Kalambura, Sanja; Krička, Tajana; Kiš, Darko; Guberac, Sunčica; Kozak, Dražan; Stoić, Antun: High-risk bio waste processing by alkaline hydrolysis and isolation of amino acids. // Tehnički vjesnik : znanstveno-stručni časopis tehničkih fakulteta Sveučilišta u Osijeku. (2016.).

12. Kalambura, Sanja; Krička, Tajana; Kiš, Darko; Marić, Sonja, Guberac, Sunčica; Kozak Dražan; Stoić, Antun; Racz, Aleksandar: Anaerobic digestion of specific biodegradable waste and final disposal. // Tehnički vjesnik : znanstveno-stručni časopis tehničkih fakulteta Sveučilišta u Osijeku. (2016.) (prihvaćen za objavljivanje).

13. Černi, Srđan; Kalambura, Sanja; Grozdek, Miro; Kreč, Miroslav: Energy recovery of hazarodus wooden railway sleepers - experimental investigation in croatia // Sardinia\_2015 15 th International waste manageemnt and landfill symposium, Symposium proceedings / Raffaell Cossu, Pinjing He, Peter Kjeldsen, Yasushi Matsufuji, Debra Reinhart, Reiner Stegman (ur.).Padova : Sveučilište u Padovi, 2015. 1-9.

14. Kalambura, Dejan; Kalambura, Sanja: Cost versus benefit on the resource recovery from solid waste in the developing countries // Proceedings of the Waste Safe 2015 4th International Conference on Solid Waste Management in Developing Countries / Muhammed Alamgir, Kazi ABM Mohiuddin, S.M.Tariqul Islam, Md. Hasibul Hasan (ur.). Khulna, Bangladeš : Khulna University of Engineering and Technology, Bangladesh, 2015. Pl 154 -1-Pl 154-7.

15. Kalambura, Sanja; Černi, Srđan; Jovičić, Nives: Edukacija kao pokretač razvoja ekološke svijesti i spremnost na komunikaciju // Zbornik radova Međunarodno znanstveno-stručnog skupa Uloga komunikacije u gospodarenju otpadom / Aleksandra Anić Vučinić, Sanja Kalambura (ur.)., Zagreb : Geotehnički fakultet Sveučilišta u Zagrebu, Varaždin, 2015. 263-272.

16. Kalambura, Sanja; Kalambura, Dejan; Černi, Srđan: The Role of Education in Successful Waste Management Concepts // Proceedings book 2015 Schanghai IWWG-ARB / Prof. Pin Jing He (ur.). Schanghai, Kina : Tongji University, 2015. 521-529.

17. Kalambura, Sanja; Racz, Aleksandar; Jovičić, Nives; Černi, Srđan: Impelmentation of the educational project "EDU ZADAR" for county waste management centre // Sardinia\_2015 15th International waste management and landfill symposium, Symposium proceedings / Raffaell Cossu, Pinjing He, Peter Kjeldsen, Yasushi Matsufuji, Debra Reinhart, Reiner Stegman (ur.).Padova : Sveučilište u Padovi, 2015. 1-14.

18. Kalambura, Sanja: Racz, Aleksandar: Kalambura, Dejan: Education in waste management // Proceedings of the Waste Safe 2015, 4th International Conference on Solid Waste Management in Developing Countries / Muhammed Alamgir, Kazi ABM Mohiuddin, S.M.Tariqul Islam, Md. Hasibul Hasan (ur.)., Khulna, Bangladeš : Khulna University of Engineering and Technology, Bangladesh, 2015. PI 153 -1-PI 153-9.

19. Kalambura, Sanja; Jovičić, Nives; Kalambura, Dejan: Implementacija Zakona o održivom gospodarenju otpadom s osvrtom na uvođenje povjerenika za otpad i izobrazno- informativne aktivnosti // Zbornik radova Zaštita okoliša i održivo gospodarenje resursima / Nenad Žunec (ur.).Zagreb : Business Media d.o.o., 2014. 165-171.

20. Kalambura, Sanja; Racz, Aleksandar; Jovičić, Nives; Kalambura, Dejan: Use of Slaughter House Waste in Energy Production and Fertilization. // International Journalof Agriculture Innovations & Research. 3 (2015.) , 6; 1767-1771.

PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



21. Kalambura, Sanja: Alkalna hidroliza kao predtretman u proizvodnji bioplina. // Plin : stručni časopis za plinsko gospodarstvo i energetiku. 4 (2012) ; 38-42.

#### LIST OF PUBLISHED WORK IN THE LAST FIVE YEARS

1.Obradović, Mario; Kalambura, Sanja; Smolec, Danijel; Jovičić, Nives: Odlaganje i ilegalna trgovina opasnog otpada, opanost za moderno društvo. // Collegium antropologicum. 38 (2014) , 2; 793-803.

2. Matešić, Mirjana; Kalambura, Sanja; Bačun, Dubravka: Development of the Competitive Business in the Context of Environmental Legislation in Croatia. // Collegium antropologicum. 38 (2014) , 1; 349-356.

3. Kalambura, Sanja; Černi, Srđan; Jovičić, Nives: Važnost i obveze republike hrvatske u uspostavi mjera sprječavanja i smanjenja nastanka otpada od hrane. // Krmiva : časopis o hranidbi životinja, proizvodnji i tehnologiji krme. 56 (2015), 3; 138-149.

4.Kalambura, Sanja; Jovičić, Nives; Funda, Dragutin; Kalambura, Dejan: Uloga zelenih tehnologija u krizama – primjer hrvatske. // Tranzicija. 17 (2015.) , 35; 77-86.

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6. Kalambura, Sanja; Voća, Neven; Krička, Tajana; Šindrak, Zoran; Špehar, Ana; Kalambura, Dejan: High-risk biodegradable waste processing by alkaline hydrolysis. // Arhiv za higijenu rada i toksikologiju. 62 (2011), 3; 249-254.

7. Černi, Srđan; Jovičić, Nives; Kalambura, Sanja; Auguštin, Saša; Mihelić, Damir: Preporuke za zadovoljavanje okolišnih zakonskih okvira rh i standarda eu u intenzivnom tovu životinja. // Krmiva : časopis o hranidbi životinja, proizvodnji i tehnologiji krme. 56 (2015) ; 179-186.

8. Kalambura, Sanja; Jovičić, Nives; Čemerin, Vedrana; Martina Mihalinčić: Energy Security and Renewable Sources of Energy. // Collegium antropologicum. Supplement. 38 (2014) , I; 229-236.

9.Šiljeg, Mario; Anić Vučinić, Aleksandra; Tucak Zorić, Sandra; Kalambura, Sanja; Jovičić, Nives; Čemerin, Vedrana.

Green Technologies-Assumption of Economic Recovery. // Collegium antropologicum. 38 (2014) , 1; 357-361.

10. Jovičić, Nives; Racz, Aleksandar; Kalambura, Sanja: Istraživanje problematike mijenjanja ili usvajanja navika i spoznaja o odvojenom prikupljanju otpada // Sažeci predavanja 14. Lošinjski dani bioetike / Ante Čović (ur.). Zagreb : Hrvatsko filozofsko društvo, 2015. 59-60.

11. Kalambura, Sanja; Krička, Tajana; Kiš, Darko; Guberac, Sunčica; Kozak, Dražan; Stoić, Antun: High-risk bio waste processing by alkaline hydrolysis and isolation of amino acids. // Tehnički vjesnik : znanstveno-stručni časopis tehničkih fakulteta Sveučilišta u Osijeku. (2016.).

12. Kalambura, Sanja; Krička, Tajana; Kiš, Darko; Marić, Sonja, Guberac, Sunčica; Kozak Dražan; Stoić, Antun; Racz, Aleksandar: Anaerobic digestion of specific biodegradable waste and final disposal. // Tehnički vjesnik : znanstveno-stručni časopis tehničkih fakulteta Sveučilišta u Osijeku. (2016.) (prihvaćen za objavljivanje).

13. Černi, Srđan; Kalambura, Sanja; Grozdek, Miro; Kreč, Miroslav: Energy recovery of hazarodus wooden railway sleepers - experimental investigation in croatia // Sardinia\_2015 15 th International waste manageemnt and landfill symposium, Symposium proceedings / Raffaell Cossu, Pinjing He, Peter Kjeldsen, Yasushi Matsufuji, Debra Reinhart, Reiner Stegman (ur.).Padova : Sveučilište u Padovi, 2015. 1-9.
PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



14. Kalambura, Dejan; Kalambura, Sanja: Cost versus benefit on the resource recovery from solid waste in the developing countries // Proceedings of the Waste Safe 2015 4th International Conference on Solid Waste Management in Developing Countries / Muhammed Alamgir, Kazi ABM Mohiuddin, S.M.Tariqul Islam, Md. Hasibul Hasan (ur.). Khulna, Bangladeš : Khulna University of Engineering and Technology, Bangladesh, 2015. Pl 154 -1-Pl 154-7.

15. Kalambura, Sanja; Černi, Srđan; Jovičić, Nives: Edukacija kao pokretač razvoja ekološke svijesti i spremnost na komunikaciju // Zbornik radova Međunarodno znanstveno-stručnog skupa Uloga komunikacije u gospodarenju otpadom / Aleksandra Anić Vučinić, Sanja Kalambura (ur.)., Zagreb : Geotehnički fakultet Sveučilišta u Zagrebu, Varaždin, 2015. 263-272.

16. Kalambura, Sanja; Kalambura, Dejan; Černi, Srđan: The Role of Education in Successful Waste Management Concepts // Proceedings book 2015 Schanghai IWWG-ARB / Prof. Pin Jing He (ur.). Schanghai, Kina : Tongji University, 2015. 521-529.

17. Kalambura, Sanja; Racz, Aleksandar; Jovičić, Nives; Černi, Srđan: Impelmentation of the educational project "EDU ZADAR" for county waste management centre // Sardinia\_2015 15th International waste management and landfill symposium, Symposium proceedings / Raffaell Cossu, Pinjing He, Peter Kjeldsen, Yasushi Matsufuji, Debra Reinhart, Reiner Stegman (ur.).Padova : Sveučilište u Padovi, 2015. 1-14.

18. Kalambura, Sanja: Racz, Aleksandar: Kalambura, Dejan: Education in waste management // Proceedings of the Waste Safe 2015, 4th International Conference on Solid Waste Management in Developing Countries / Muhammed Alamgir, Kazi ABM Mohiuddin, S.M.Tariqul Islam, Md. Hasibul Hasan (ur.)., Khulna, Bangladeš : Khulna University of Engineering and Technology, Bangladesh, 2015. PI 153 -1-PI 153-9.

19. Kalambura, Sanja; Jovičić, Nives; Kalambura, Dejan: Implementacija Zakona o održivom gospodarenju otpadom s osvrtom na uvođenje povjerenika za otpad i izobrazno- informativne aktivnosti // Zbornik radova Zaštita okoliša i održivo gospodarenje resursima / Nenad Žunec (ur.).Zagreb : Business Media d.o.o., 2014. 165-171.

20. Kalambura, Sanja; Racz, Aleksandar; Jovičić, Nives; Kalambura, Dejan: Use of Slaughter House Waste in Energy Production and Fertilization. // International Journalof Agriculture Innovations & Research. 3 (2015.) , 6; 1767-1771.

21. Kalambura, Sanja: Alkalna hidroliza kao predtretman u proizvodnji bioplina. // Plin : stručni časopis za plinsko gospodarstvo i energetiku. 4 (2012) ; 38-42.

# LIST OF SCIENTIFIC AND ARTISTIC PROJECTS IN WHICH HE OR SHE PARTICIPATED AND WHICH ARE RELEVANT FOR THE FIELD OF THE DOCTORAL PROGRAMME

March 2015. to Novebe r 2015.	City Velika Gorica	Velika Gorica	Marko Ružić	expert	Project IMBY, www.imby.hr				
			098 475 807		Comunication	St	rategy	for o	city
			marko.ruzic@ zg.htnet.hr		velika Golca and City velenje.				
					Preparation conference ar	of nd wo	SWOT orkshops	anali: 5.	sis,

PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



January to May 2015.	Eko d.o.o. gospodare nje otpadom Zadar	Zadarska county and City Zadar	Dino Perović dino.perovic@ eko-zadar.hr	Project leader	EDU ZADAR is educational project in waste management sector for local authoorities representatives.			
					It was a work group for 56 participants.			
January 2012- open	Croatian Academy of Science and Art	Zagreb	Akademik Franjo Tomić ftomic@agr.hr	Project leader	Project of establishing the special tematic section in group for protection of national natural heratage.			

#### LIST OF SCIENTIFIC AND ARTISTIC PROJECTS IN WHICH HE OR SHE PARTICIPATED IN THE LAST FIVE YEARS

March 2015. to Novebe r 2015.	City Velika Gorica	Velika Gorica	Marko Ružić	expert	Project IMBY, www.imby.hr			
			098 475 807		Comunication Strategy for city			
			marko.ruzic@ zg.htnet.hr					
					conference and workshops.			
January to May 2015.	Eko d.o.o. gospodare nje otpadom Zadar	Zadarska county and City Zadar	Dino Perović	Project	EDU ZADAR is educational project in			
			dino.perovic@ eko-zadar.hr	leader	waste management sector for local authoorities representatives.			
					It was a work group for 56 participants.			
January 2012- open	Croatian Academy of Science	Zagreb	Akademik Franjo Tomić ftomic@agr.hr	Project leader	Project of establishing the special tematic section in group for protection of national natural			
	and Art				heratage.			

PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



#### **ORDINAL NUMBER:** 13

FIRST NAME, LAST NAME, AND TITLE OF THE TEACHER: Renato Šarc, Dipl.-Ing. Dr.mont.

**NAME OF INSTITUTION OF EMPLOYMENT OF THE TEACHER:** Montanuniversitaet Leoben, Chair of Waste Processing Technology and Waste Management (AVAW)

BIOGRAPHY

2015	present	Deputy of the AVAW at Montanuniversitaet Leoben (Austria)
2013	present	Leader of the Working Group "Waste Fuel", Montanuniversitaet Leoben, AVAW
2013	2016	Special Advisor to the Minister in the field of "Waste Management", Ministry of Environmental and Nature Protection, Croatia
2010	present	University and Scientific Assistant, Montanuniversitaet Leoben, AVAW
2010	2015	Montanuniversitaet Leoben, Doctoral Programme in Mining and Metallurgical Sciences at Montanuniversitaet Leoben. Dr.mont. – Waste Management and Landfill Technology, Environmental Technology. PhD. Thesis: Design, Quality and Quality Assurance of Solid Recovered Fuel (SRF) for Achieving 100% Thermal Substitution in Cement Industry
2013		Qualification to "Waste Manager" acc. to § 26 of Waste Management Law 2002. ÖWAV and VÖEB
2010		Qualification to "Waste Management Officer" acc. to § 11 of Waste Management Law 2002, Austrian Federal Ministry of Agriculture, Forestry, Environment and Water Management, Institute for Sustainable Waste Management and Landfill Technology of the Montanuniversitaet Leoben
2010	2010	Saubermacher Dienstleistungs AG, A-8141 Unterpremstätten (Project: Material Flow Analysis of a Splitting Plant for Hazardous Waste)
2009	2010	Montanuniversitaet Leoben, Master Study on Industrial Environmental Protection, Waste Disposal Technology and Recycling (DiplIng.)
2008	2008	Komptech GmbH, A-8770 St. Michael (Project: Study on residual waste treatment in Styria and Holland)
2007	2007	Nehlsen GmbH & Co KG, 28237 Bremen, Germany (Project: Treatment of hazardous wastes)
2005	2009	Montanuniversitaet Leoben, Bachelor Study on Industrial Environmental Protection, Waste Disposal Technology and Recycling (BSc.)

Lecturer and supervisor of baccalaureate and master theses at the Montanuniversitaet Leoben and Technical University of Applied Sciences Vienna.

Organiser and co-organiser of scientific conferences on waste management (e.g. Recy & DepoTech http://www.recydepotech.at/en/), reviewer for scientific journals (Waste Management, and Waste Management & Research), member of Austrian expert working groups (e.g. Waste Fuel – VÖEB), member of scientific-technical committee of world congress ISWA (International Solid Waste Association), member of international waste working group (IWWG), member of international ISWA-Working group – ISWA Working Group of Energy Recovery, member of various committes at international conferences.

**DATE OF LAST APPOINTMENT TO A RESEARCH-AND-TEACHING OR ART-AND-TEACHING RANK:** To be organised by the institution in case of positive evaluation as such a procedure is not in practice at Austrian Universities.

# LIST OF PUBLISHED WORK WHICH QUALIFY HIM/HER FOR IMPLEMENTATION OF THE PROGRAMME, THAT IS, WHICH ARE RELEVANT FOR THE FIELD OF THE DOCTORAL PROGRAMME

Aldrian, A, Sarc, R, Pomberger, R, Lorber, K & Sipple, E-M 2016, 'Solid recovered fuels in the cement industry - semi-automated sample preparation unit as a means for facilitated practical application' Waste management & research: Waste management and research, Bd 34, Nr. 3, S. 254-264.

PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



Wolfsberger, T, Pinkel, M, Polansek, S, Sarc, R, Hermann, R & Pomberger, R 2015, 'Landfill Mining -Development of a cost simulation model' Waste management & research: Waste management and research.

Sarc, R, Lorber, K & Pomberger, R 2015, 'Production of Solid Recovered Fuels (SRF) in the ThermoTeam Plant in Retznei, Austria - Experience, Quality and Quality Assurance of SRF'. in Waste Management . Bd. 5, TK Verlag Karl Thomé-Kozmiensky, S. 399-412

Sarc, R, Lorber, K, Pomberger, R, Rogetzer, M & Sipple, E-M 2014, 'Design, quality and quality assurance of solid recovered fuels for the substitution of fossil feedstock in the cement industry' Waste management & research : Waste management and research, Bd 32, S. 565-585., 10.1177/0734242X14536462

Pomberger, R & Sarc, R 2014, 'Solid Alternative Fuels - legal, technological and economical developments in Austria' Zement, Kalk, Gips international (ZKG international), Bd 4, S. 56-64.

Sarc, R & Lorber, K 2013, 'Production, quality and quality assurance of Refuse Derived Fuels (RDFs)' Waste management, Bd 33, S. 1825-1834.

Lorber, K, Sarc, R & Aldrian, A 2012, 'Design and quality assurance for solid recovered fuel' Waste management & research: Waste management and research, Bd 30, S. 370-380.

## LIST OF PUBLISHED WORK IN THE LAST FIVE YEARS

Aldrian, A, Sarc, R, Pomberger, R, Lorber, K & Sipple, E-M 2016, 'Solid recovered fuels in the cement industry - semi-automated sample preparation unit as a means for facilitated practical application' Waste management & research: Waste management and research, Bd 34, Nr. 3, S. 254-264.

Wolfsberger, T, Pinkel, M, Polansek, S, Sarc, R, Hermann, R & Pomberger, R 2015, 'Landfill Mining -Development of a cost simulation model' Waste management & research: Waste management and research.

Sarc, R, Lorber, K & Pomberger, R 2015, 'Production of Solid Recovered Fuels (SRF) in the ThermoTeam Plant in Retznei, Austria - Experience, Quality and Quality Assurance of SRF'. in Waste Management . Bd. 5, TK Verlag Karl Thomé-Kozmiensky, S. 399-412

Sarc, R, Lorber, K, Pomberger, R, Rogetzer, M & Sipple, E-M 2014, 'Design, quality and quality assurance of solid recovered fuels for the substitution of fossil feedstock in the cement industry' Waste management & research : Waste management and research, Bd 32, S. 565-585., 10.1177/0734242X14536462

Pomberger, R & Sarc, R 2014, 'Solid Alternative Fuels - legal, technological and economical developments in Austria' Zement, Kalk, Gips international (ZKG international), Bd 4, S. 56-64.

Sarc, R & Lorber, K 2013, 'Production, quality and quality assurance of Refuse Derived Fuels (RDFs)' Waste management, Bd 33, S. 1825-1834.

Lorber, K, Sarc, R & Aldrian, A 2012, 'Design and quality assurance for solid recovered fuel' Waste management & research: Waste management and research, Bd 30, S. 370-380.

# LIST OF SCIENTIFIC AND ARTISTIC PROJECTS IN WHICH HE OR SHE PARTICIPATED AND WHICH ARE RELEVANT FOR THE FIELD OF THE DOCTORAL PROGRAMME

2016-2017; SFG-funded project (number: 1.000.038.410); Title of the project: Separation of valuable materials in the production of Solid Recovered Fuels.

2015-present; Client: Land Government; Title of the project: Expert Opinion for the issue Waste Management – Environmental Impact Assessment for capacity increase of the clinker production and energy recovery of waste fuels.

PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



2015; Client: Association; Title of the project: REUQ-Benchmark for SRF - Development of a benchmark for resource, energy, environment and quality (REUQ) for Solid Recovered Fuels (SRF).

2015; Client: Private company; Title of the project: Market availability, logistics and storage of SRF for secondary firing system and other RDF in one specific cement plant.

2015; Client: Private company; Title of the project: External monitoring of the SRF production plants according to the Waste Incineration Directive.

2015; Client: Municipality; Title of the project: Technical and scientific investigations for Up-grading of the MSW-treatment plant.

2014; Client: Municipality; Title of the project: Plant specific opportunities and feasibility in SRF production, recovery and marketability.

2013-2015; FFG-funded project (number: 838524); Title of the project: LAMIS- Landfill Mining Austria – Pilot Region Styria.

2013-2015; EU-funded project (number: 319893); Title of the project: COOLSWEEP; (www.coolsweep.org).

#### LIST OF SCIENTIFIC AND ARTISTIC PROJECTS IN WHICH HE OR SHE PARTICIPATED IN THE LAST FIVE YEARS

2016-2017; SFG-funded project (number: 1.000.038.410); Title of the project: Separation of valuable materials in the production of Solid Recovered Fuels.

2015-present; Client: Land Government; Title of the project: Expert Opinion for the issue Waste Management – Environmental Impact Assessment for capacity increase of the clinker production and energy recovery of waste fuels.

2015; Client: Association; Title of the project: REUQ-Benchmark for SRF - Development of a benchmark for resource, energy, environment and quality (REUQ) for Solid Recovered Fuels (SRF).

2015; Client: Private company; Title of the project: Market availability, logistics and storage of SRF for secondary firing system and other RDF in one specific cement plant.

2015; Client: Private company; Title of the project: External monitoring of the SRF production plants according to the Waste Incineration Directive.

2015; Client: Municipality; Title of the project: Technical and scientific investigations for Up-grading of the MSW-treatment plant.

2014; Client: Municipality; Title of the project: Plant specific opportunities and feasibility in SRF production, recovery and marketability.

2013-2015; FFG-funded project (number: 838524); Title of the project: LAMIS- Landfill Mining Austria – Pilot Region Styria.

2013-2015; EU-funded project (number: 319893); Title of the project: COOLSWEEP; (www.coolsweep.org).

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#### **ORDINAL NUMBER:** 14

FIRST NAME, LAST NAME, AND TITLE OF THE TEACHER: Anita Ptiček Siročić, Assistant Professor

**NAME OF INSTITUTION OF EMPLOYMENT OF THE TEACHER:** Faculty of Geotechnical Engineering, University of Zagreb

#### BIOGRAPHY

Personal information:

First name and surname: Anita Ptiček Siročić

Date of birth: 29. 10. 1976.

Place of birth: Varaždin

Nationality: Croatian

Marital status: Married, daughter Lana

Address: Beletinec, S. Radića 3, 42214 Sv. Ilija

Tel: 091 1791 079

E-mail: anitaps@gfv.hr

Education:

2002-2006. Postgraduate study, Faculty of Chemical Engineering and Technology University of Zagreb

1995-2001. Graduate study, Faculty of Chemical Engineering and Technology University of Zagreb

1991-1995. Chemical school, Varaždin

Work experience:

10.05. 2002. – 01.10.2013. Faculty of Chemical Engineering and Technology University of Zagreb 01.10.2013. – Faculty of Geotechnical Engineering, University of Zagreb

Language: English B1

Research activities: https://bib.irb.hr/lista-radova?autor=252285

DATE OF LAST APPOINTMENT TO A RESEARCH-AND-TEACHING OR ART-AND-TEACHING RANK: 08. 07.2013

# LIST OF PUBLISHED WORK WHICH QUALIFY HIM/HER FOR IMPLEMENTATION OF THE PROGRAMME, THAT IS, WHICH ARE RELEVANT FOR THE FIELD OF THE DOCTORAL PROGRAMME

Book

1. Hrnjak-Murgić, Zlata; Rešček, Ana; Ptiček Siročić, Anita; Kratofil Krehula, Ljerka; Katančić, Zvonimir. "Nanoparticles in Active Polymer Food Packaging", Surrey : Smithers Pira, 2015.

1.4. Scientific papers published in journals cited in tertiary publications

1. D. Vrsaljko, S. Lučić Blagojević, M. Leskovac, Lj. Kratofil Krehula, Anita Ptiček Siročić, Z. Katančić, V. Kovačević, J. Jelenčić, "Effect of Preparation on Morphology-Properties Relationships in SAN/EPDM/PCC Composites", Journal of Composite Materials, 45(13) (2011) 1381-1393. [CC] [SCI EX]; IF=1.068

2. Lj. Kratofil Krehula, Anita Ptiček Siročić, Z. Katančić, J. Jelenčić, V. Kovačević, Z.Hrnjak-Murgić, "Influence of Calcium Carbonate Filler and Mixing Type Process on Structure and Properties of Styrene-

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Acrylonitrile/Ethylene-Propylene-Diene Polymer Blends", Journal of Applied Polymer Science, 126(4) (2012) 1257-1266 [CC] [SCI EX] Citiranost rada prema WoS - 0; Scopus – 1; IF=1.289

Lj. Kratofil Krehula, Anita Ptiček Siročić, M. Dukić, Z. Hrnjak-Murgić, "Cleaning efficiency of poly(ethylene terephthalate) washing procedure in recycling process", Journal of Elastomers & Plastics, 45 (5) (2013) 429–444. [CC] [SCI EX] IF= 0.639

4. Dimitrov N., Lj. Kratofil Krehula, Anita Ptiček Siročić, Z. Hrnjak-Murgić, Analysis of recycled PET bottles products by pyrolysis-gas chromatography, Polymer Degradation & Stability, 98 (5) (2013) 972-979. [CC] [SCI EX] IF= 2.770

5. Anita Ptiček Siročić, A. Fijačko, Z. Hrnjak-Murgić, "Chemical recycling of postconsumer poly(ethyleneterephthalate) bottles-depolymerization study", Chemical and Biochemical Engineering Quarterly, 27 (1) (2013) 65-72. [CC] [SCI EX] IF= 0.689

6. Anita Ptiček Siročić, Z. Hrnjak-Murgić, J. Jelenčić, "Evaluation of compatibility in SAN/EPDM blends by determination of the adhesion parameters", Journal of Adhesion Science and Technology, 27 (15) (2013) 1652-1665.

7. Anita Ptiček Siročić, Z. Hrnjak-Murgić, J. Jelenčić, "The surface energy as an indicator of miscibility of SAN/EPDM polymer blends", Journal of Adhesion Science and Technology, 27 (24) (2013) 2615-2628.

8. M. Ščetar, Anita Ptiček Siročić, Z. Hrnjak-Murgić, K. Galić, "Preparation and properties of low density polyethylene film modified by zeolite and nanoclay", Polymer-Plastics Technology and Engineering, 52 (15) (2013) 1611-1620. [CC] [SCI EX] IF= 1.481

9. Anita Ptiček Siročić, Lj. Kratofil Krehula, Z. Katančić, Z. Hrnjak-Murgić, "Kinetic analysis of thermal and thermal-oxidative degradation of polyethylene (nano)composites", Composite Interfaces, 21 (3) (2014) 179-189.

10. Lj. Kratofil Krehula, Z. Katančić, Anita Ptiček Siročić, Z. Hrnjak-Murgić, "Weathering of high density polyethylene-wood plastic composites", Journal of Wood Chemistry and Technology, 34, (2014) 39-54. [CC] [SCI EX] IF= 1.667

11. Katančić Z., Kratofil Krehula Lj., Ptiček Siročić Anita, Grozdanić V., Hrnjak-Murgić Z., "Effect of Modified Nanofillers on Fire Retarded HDPE/Wood Composites", Journal of composite materials, 48 (30) (2014) 3771-3783.

12. Anita Ptiček Siročić, A. Rešček, M. Ščetar, Lj. Kratofil Krehula, Z. Hrnjak-Murgić, "Development of Low Density Polyethylene Nanocomposites Films for Packaging", Polymer Bulletin, 71 (2014) 705-717.

13. Anita Ptiček Siročić, A. Rešček, Z. Hrnjak-Murgić, "Polyethylene nanocomposites filled with modified nanoparticles", Polymer-Plastics Technology and Engineering, [CC] [SCI EX] 53 (8) (2014) 811-817. IF= 1.481

1.5. Scientific papers published in journals cited in secondary publications

 1.5.1. Anita Ptiček Siročić, Lj. Kratofil Krehula, Z. Katančić, A. Rešček, Z. Hrnjak-Murgić, J. Jelenčić, "Karakterizacija otpadnog poli(etilen-tereftalata) nakon alkalne obrade" Kemija u industriji, 60 (7-8) (2011)
379–385.

1.5.2. I. Peternel, Anita Ptiček Siročić, N. Koprivanac, "Peroksodisulfatne soli kao novo fotooksidacijsko sredstvo za obradu obojenih otpadnih voda", Tekstil, 61 (1-6) (2012) 107-115. [SCI EX] IF= 0.086

1.5.3. Anita Ptiček Siročić, M. Omazić, Z. Hrnjak-Murgić, "Utjecaj bioaditiva na svojstva ambalažnog materijala", Inženjerstvo okoliša, 1 (2014) 19-23.



1.5.4. Z. Hrnjak-Murgić, A. Rešček, Ptiček Siročić, Anita, Kratofil Krehula, Lj., Katančić, Z., "Polietilenski nanokompozitni filmovi za pakiranje hrane", Ambalaža 4 (2014), 20-24.

1.5.5. A. Rešček, Z. Hrnjak-Murgić, Kratofil Krehula, Lj., Ptiček Siročić, Anita, "Aktivna višeslojna polimerna ambalaža za pakiranje hrane", Ambalaža 4 (2014),37-39.

# 1.6. Scientific paper, peer-reviewed, published in the Proceedings of the International Conference

1.6.5. Z. Katančić, Anita Ptiček Siročić, G. Marić, Z. Hrnjak-Murgić, "Mechanical Properties of Elastomer Modified Wood Plastic Composites", Matrib 2011, Vela Luka, June 2011., (CD str. 187-193.)

1.6.6. Anita Ptiček Siročić, A. Rešček, Z. Hrnjak-Murgić, J. Jelenčić, Polyethylene/Nanoclays/Zeolite Nanocomposites in Food Packaging Application", Matrib 2011, Vela Luka, June 2011., (CD str. 394-400.)

1.6.7. Anita Ptiček Siročić, Z. Hrnjak-Murgić, J. Jelenčić, "Chemical Recycling of Postconsumer Poly(ethyleneterephthalate) Bottles", 3rd International Symposium on Environmental Management, SEM 2011, Zagreb, Croatia, October 2011. (CD str. 249-253.)

1.6.8. Z. Katančić, Z Hrnjak-Murgić, Anita Ptiček Siročić, Lj. Kratofil Krehula, J. Jelenčić, "Utjecaj dispergiranosti punila na toplinska svojstva HIPS/EVA polimernih kompozita", 5. Međunarodno znanstveno-stručno savjetovanje Tekstilna znanost i gospodarstvo, 5. TZG 2012, Zagreb, siječnja 2012., str.135-138

## LIST OF PUBLISHED WORK IN THE LAST FIVE YEARS

Book

1. Hrnjak-Murgić, Zlata; Rešček, Ana; Ptiček Siročić, Anita; Kratofil Krehula, Ljerka; Katančić, Zvonimir. "Nanoparticles in Active Polymer Food Packaging", Surrey : Smithers Pira, 2015.

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1. D. Vrsaljko, S. Lučić Blagojević, M. Leskovac, Lj. Kratofil Krehula, Anita Ptiček Siročić, Z. Katančić, V. Kovačević, J. Jelenčić, "Effect of Preparation on Morphology-Properties Relationships in SAN/EPDM/PCC Composites", Journal of Composite Materials, 45(13) (2011) 1381-1393. [CC] [SCI EX]; IF=1.068

 Lj. Kratofil Krehula, Anita Ptiček Siročić, Z. Katančić, J. Jelenčić, V. Kovačević, Z.Hrnjak-Murgić, "Influence of Calcium Carbonate Filler and Mixing Type Process on Structure and Properties of Styrene-Acrylonitrile/Ethylene-Propylene-Diene Polymer Blends", Journal of Applied Polymer Science, 126(4) (2012) 1257-1266 [CC] [SCI EX] Citiranost rada prema WoS - 0; Scopus – 1; IF=1.289

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5. Anita Ptiček Siročić, A. Fijačko, Z. Hrnjak-Murgić, "Chemical recycling of postconsumer poly(ethyleneterephthalate) bottles-depolymerization study", Chemical and Biochemical Engineering Quarterly, 27 (1) (2013) 65-72. [CC] [SCI EX] IF= 0.689

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7. Anita Ptiček Siročić, Z. Hrnjak-Murgić, J. Jelenčić, "The surface energy as an indicator of miscibility of SAN/EPDM polymer blends", Journal of Adhesion Science and Technology, 27 (24) (2013) 2615-2628.

8. M. Ščetar, Anita Ptiček Siročić, Z. Hrnjak-Murgić, K. Galić, "Preparation and properties of low density polyethylene film modified by zeolite and nanoclay", Polymer-Plastics Technology and Engineering, 52 (15) (2013) 1611-1620. [CC] [SCI EX] IF= 1.481

9. Anita Ptiček Siročić, Lj. Kratofil Krehula, Z. Katančić, Z. Hrnjak-Murgić, "Kinetic analysis of thermal and thermal-oxidative degradation of polyethylene (nano)composites", Composite Interfaces, 21 (3) (2014) 179-189.

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1.5.2. I. Peternel, Anita Ptiček Siročić, N. Koprivanac, "Peroksodisulfatne soli kao novo fotooksidacijsko sredstvo za obradu obojenih otpadnih voda", Tekstil, 61 (1-6) (2012) 107-115. [SCI EX] IF= 0.086

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1.6.6. Anita Ptiček Siročić, A. Rešček, Z. Hrnjak-Murgić, J. Jelenčić, Polyethylene/Nanoclays/Zeolite Nanocomposites in Food Packaging Application", Matrib 2011, Vela Luka, June 2011., (CD str. 394-400.)

1.6.7. Anita Ptiček Siročić, Z. Hrnjak-Murgić, J. Jelenčić, "Chemical Recycling of Postconsumer Poly(ethyleneterephthalate) Bottles", 3rd International Symposium on Environmental Management, SEM 2011, Zagreb, Croatia, October 2011. (CD str. 249-253.)

PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



1.6.8. Z. Katančić, Z Hrnjak-Murgić, Anita Ptiček Siročić, Lj. Kratofil Krehula, J. Jelenčić, "Utjecaj dispergiranosti punila na toplinska svojstva HIPS/EVA polimernih kompozita", 5. Međunarodno znanstveno-stručno savjetovanje Tekstilna znanost i gospodarstvo, 5. TZG 2012, Zagreb, siječnja 2012., str.135-138

# LIST OF SCIENTIFIC AND ARTISTIC PROJECTS IN WHICH HE OR SHE PARTICIPATED AND WHICH ARE RELEVANT FOR THE FIELD OF THE DOCTORAL PROGRAMME

1. Project: "Barrier properties of double layered polyethylene packaging films / polycaprolactonemodified nanoparticles", University of Zagreb, 2013.

2. Project: "Development of Photocatalytic Polymer Nanocomposites for Wastewater Treatment", 2014-2018, Faculty of Chemical Engineering and Technology University of Zagreb

# LIST OF SCIENTIFIC AND ARTISTIC PROJECTS IN WHICH HE OR SHE PARTICIPATED IN THE LAST FIVE YEARS

1. Project: "Barrier properties of double layered polyethylene packaging films / polycaprolactonemodified nanoparticles", University of Zagreb, 2013.

Project: "Development of Photocatalytic Polymer Nanocomposites for Wastewater Treatment",
2014-2018, Faculty of Chemical Engineering and Technology University of Zagreb

3. Project: "The development of the Croatian approach examining the vulnerability of karst aquifers Dinarids ", Faculty of Geotechnical Engineering, University of Zagreb 2013/2014

Project: "Verification of customer-specific vulnerability of karst groundwater geochemical modeling - example catchment sources Sails ", Faculty of Geotechnical Engineering, University of Zagreb, 2014.

5. Project: ", Verification of the model using the example of the natural vulnerability of karst aquifers Dinarids ", Faculty of Geotechnical Engineering, University of Zagreb, 2015. PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



#### **ORDINAL NUMBER:** 15

#### FIRST NAME, LAST NAME, AND TITLE OF THE TEACHER: Zvjezdana Stančić, Associated Professor

# NAME OF INSTITUTION OF EMPLOYMENT OF THE TEACHER: Faculty of Geotechnical Engineering, University of Zagreb

#### BIOGRAPHY

I was born on 30/12/1967 in Zabok (Croatia). I attended elementary school in Bedekovčina for the first four years, and in Konjščina for the other four. I completed my schooling at the pedagogical secondary school in Zabok. Then, from 1987 to 1992, I studied biology at the Faculty of Science in Zagreb and acquired the qualification of graduate engineer of biology, specializing in ecology. After that, I enrolled in postgraduate study at the Faculty of Science in Zagreb. I defended my master's thesis in 1996 and my doctoral thesis in 2000. My first job was at the Croatian Natural History Museum in Zagreb (1992); then I was employed in the Department of Botany at the Faculty of Science in Zagreb (1993-2004) and now at the Faculty of Geotechnical Engineering in Varaždin (2010-present). The topics of my scientific interest are: non-forest vegetation, vegetation ecology, vascular plants, invasive alien plant species, nature protection, phytoremediation and entomology. So far, I have dealt mostly with research of marshland and grassland vegetation in Croatia. For the purpose of professional improvement I have spent time abroad on three occasions: once in Berlin (2000) and twice in Vienna (2001 and 2002-2003). I collaborate with several scientists from Croatia and the rest of Europe. As author and co-author I have published 35 scientific papers, 53 communications at conferences, 6 book chapters, 3 professional papers and 3 ecological studies. Among published works, I have been the first author on 21 scientific papers and have 15 papers in journals cited in Current Contents, of which 6 papers are in journals with above-average impact factor. As a leader and collaborator I have participated in 27 scientific and professional projects. Of my professional activities, the most important is the creation of a database entitled *Phytosociological Database of* Non-Forest Vegetation in Croatia, which is registered in the Global Index of Vegetation-Plot Databases (GIVD), and which is part of the European database called European Vegetation Archive (EVA). Within the framework of the International Association for Vegetation Science (IAVS), I am a member of the Working Group for Phytosociological Nomenclature (WGPN). Among my teaching activities, at the Faculty of Science, as an assistant, I participated in exercises and field work of the botanical group of courses, and at the Faculty of Geotechnical Engineering I am the principal of five courses: General ecology, Nature protection, Protection and soil remediation, Protection of abiotic resources, and Environmental microbiology. In 2008 I was elected to the research rank of scientific associate and in 2009 to the academic title of assistant professor, to which I was re-elected in 2015, in 2017 I was elected to the academic title of associate professor. At the Faculty of Geotechnical Engineering, I carried out the duties of ECTS coordinator from 2011 to 2013, and in 2015 I was elected Head of the Department for General Sciences. I use English and German

**DATE OF LAST APPOINTMENT TO A RESEARCH-AND-TEACHING OR ART-AND-TEACHING RANK:** 25/04/2017 – election to the academic title of Associate Professor

# LIST OF PUBLISHED WORK WHICH QUALIFY HIM/HER FOR IMPLEMENTATION OF THE PROGRAMME, THAT IS, WHICH ARE RELEVANT FOR THE FIELD OF THE DOCTORAL PROGRAMME

1. Ilijanić, Lj.; Stančić, Z.; Topić, J.; Šegulja, N. 1998: Distribution and phytosociological relationship of snake's-head (Fritillaria meleagris L.). Acta Bot. Croat. 57: 65-88.

2. Pandža, M.; Franjić, J.; Trinajstić, I.; Škvorc, Z.; Stančić, Z. 2001: The most recent state of affairs in the distribution of some neophytes in Croatia. Nat. Croat., Vol. 10 (4): 259-275.

3. Topić, J. & Stančić, Z. 2006: Extinction of fen and bog plants and their habitats in Croatia. Biodiversity and Conservation 15: 3371-3381.

4. Stančić, Z. 2007: Marshland vegetation of the class Phragmito-Magnocaricetea in Croatia. Biologia, Bratislava 62 (3): 297-314.

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5. Stančić, Z.; Brigić, A.; Liber, Z.; Rusak, G.; Franjić, J.; Škvorc, Ž. 2008: Adriatic coastal plant taxa and communities of Croatia and their conservation status. Acta Botanica Gallica 155 (2): 179-199.

6. Stančić, Z.; Škvorc. Ž.; Franjić, J.; Kamenjarin, J. 2008: Vegetation of trampled habitats in the Plitvice Lakes National Park in Croatia. Plant Biosystems 142 (2): 264-274.

7. Stančić, Z. 2008: Classification of mesic and wet grasslands in northwest Croatia. Biologia, Bratislava 63 (6): 1085-1099.

8. Stančić, Z. 2009: The species Carex randalpina B. Walln. and association Filipendulo ulmariae-Caricetum randalpinae ass. nov. hoc loco in Croatia. Nat. Croat. 18 (2): 353-366.

# LIST OF PUBLISHED WORK IN THE LAST FIVE YEARS

1. Stančić, Z. 2011: Nove biljne zajednice na području Nacionalnog parka Plitvička jezera [New plant communities in the Plitvice Lakes National Park]. In: Šutić, B.; Mataija, I.; Šikić, Z.; Dujmović, A.; Ružić, V.; Brozinčević, A. Zbornik radova Znanstveno-stručnog skupa Nacionalnog parka Plitvička jezera povodom 60 godina od osnivanja i 30 godina od upisa na UNESCO-vu listu svjetske i kulturne baštine. Javna ustanova Nacionalni park Plitvička Jezera, Plitvička Jezera, 229-238.

Stančić, Z. 2012: Phytosociological Database of Non-Forest Vegetation in Croatia. Short Database Report.
In: Dengler, J.; Oldeland, J.; Jansen, F.; Chytrý, M.; Ewald, J.; Finckh, M.; Glöckler, F.; Lopez-Gonzalez, G.;
Peet, R.K.; Schaminée, J.H.J. (eds.): Vegetation databases for the 21st century. Biodiversity & Ecology 4: 391–391.

3. Brigić, A.; Vujčić-Karlo, S.; Matoničkin Kepčija, R.; Stančić, Z.; Alegro, A.; Ternjej, I. 2014: Taxon specific response of carabids (Coleoptera, Carabidae) and other soil invertebrate taxa on invasive plant Amorpha fruticosa in wetlands. Biol. Invasions 16: 1497-1514.

4. Stančić, Z. 2014: Vulpia myuros community in Croatia. Nat. Croat. 23 (2): 287-296.

5. Stančić, Z.; Vujević, D.; Dogančić, D.; Zavrtnik, S.; Dobrotić, I.; Bajsić, Z.; Dukši, I.; Vincek, D. 2015: Sposobnost akumulacije teških metala kod različitih samoniklih biljnih vrsta [Accumulation of heavy metals in different wild plant species]. Inženjerstvo okoliša 2(1): 7-18

Landucci, F.; Řezníčková, M.; Šumberová, K.; Chytrý, M.; Aunina, L.; Biţă-Nicolae, C.; Bobrov, A.;
Borsukevych, L.; Brisse, H.; Čarni, A.; Csiky, J.; Cvijanović, D.; De Bie, E.; De Ruffray, P.; Dubyna, D.;
Dimopoulos, P.; Dziuba, T.; FitzPatrick, Ú.; Font, X.; Gigante, D.; Golub, V.; Hennekens, S. M.; Hrivnák, R.;
Iemelianova, S.; Jandt, U.; Jenačković, D.; Jansen, F.; Kącki, Z.; Lájer, K.; Matulevičiutė, D.; Mesterházy, A.;
Michalcová, D.; Paal, J.; Papastergiadou, E.; Properzi, A.; Radulović, S.; Rodwell, J. S.; Schaminée, J. H. J.; Šilc,
U.; Sinkevičienė, Z.; Stančić, Z.; Stepanovich, J.; Teteryuk, B.; Tzonev, R.; Venanzoni, R.; Weekes, L.; Willner,
W. 2015; WetVegEurope: a database of aquatic and wetland vegetation of Europe. Phytocoenologia. 45(1-2): 187-194.

7. Chytrý, M.; Hennekens, S. M.; Jiménez-Alfaro, B.; Knollová, I.; Dengler, J.; Jansen, F.; Landucci, F.; Schaminée, J.H.J.; Aćić, S.; Agrillo, E.; Ambarlı, D.; Angelini, P.; Apostolova, I.; Attorre, F.; Berg, C.; Bergmeier, E.; Biurrun, I.; Botta-Dukát, Z.; Brisse, H.; Campos, J. A.; Carlón, L.; Čarni, A.; Casella, L.; Csiky, J.; Ćušterevska, R.; Dajić Stevanović, Z.; Danihelka, J.; De Bie, E.; de Ruffray, P.; De Sanctis, M.; Dickoré, W. B.; Dimopoulos, P.; Dubyna, D.; Dziuba, T.; Ejrnæs, R.; Ermakov, N.; Ewald, J.; Fanelli, G.; Fernández-González, F.; FitzPatrick, Ú.; Font, X.; García-Mijangos, I.; Gavilán, R. G.; Golub, V.; Guarino, R.; Haveman, R.; Indreica, A.; Işık Gürsoy, D.; Jandt, U.; Janssen, J.A.M.; Jiroušek, M.; Kącki, Z.; Kavgacı, A.; Kleikamp, M.; Kolomiychuk, V.; Krstivojević Ćuk, M.; Krstonošić, D.; Kuzemko, A.; Lenoir, J.; Lysenko, T.; Marcenò, C.; Martynenko, V.; Michalcová, D.; Moeslund, J.E.; Onyshchenko, V.; Pedashenko, H.; Pérez-Haase, A.; Peterka, T.; Prokhorov, V.; Rašomavičius, V.; Pilar Rodríguez-Rojo, M.; Rodwell, J.S.; Rogova, T.; Ruprecht, E.; Rūsiņa, S.; Seidler, G.;

PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



Šibík, J.; Šilc, U.; Škvorc, Ž.; Sopotlieva, D.; Stančić, Z.; Svenning, J.-C.; Swacha, G.; Tsiripidis, I.; Turtureanu, P.D.; Uğurlu, E.; Uogintas, D.; Valachovič, M.; Vashenyak, Y.; Vassilev, K.; Venanzoni, R.; Virtanen, R.; Weekes, L.; Willner, W.; Wohlgemuth, T.; Yamalov, S. 2016: European Vegetation Archive (EVA): an integrated database of European vegetation plots. Applied Vegetation Science 19 (1): 173-180.

 Willner, W.; Kuzemko, A.; Dengler, J.; Chytry, M.; Bauer, N.; Becker, T.; Bita-Nicolae, C.; Botta-Dukát, Z.; Čarni, A.; Csiky, J.; Igić, R.; Kącki, Z.; Korotchenko, I.; Kropf, M.; Ćuk, M.; Krstonošić, D.; Rédei, T.; Ruprecht, E.; Schratt-Ehrendorfer, L.; Semenishchenkov, Y.; Stančić, Z.; Vashenyak, Y.; Vynokurov, D.; Janišová, M. 2016: A higher-level classification of the Pannonian and western Pontic steppe grasslands (Central and Eastern Europe). Applied Vegetation Science. Published online. DOI: 10.1111/avsc.12265

9. Peterka, T.; Hájek, M.; Jiroušek, M.; Jiménez-Alfaro, B.; Aunina, L.; Bergamini, A.; Dítě, D.; Felbaba-Klushyna, Lj.; Graf, U.; Hájková, P.; Hettenbergerová, E.; Ivchenko, T.; Jansen, F.; Koroleva, N.; Lapshina, E.; Lazarević, P.; Moen, A.; Napreenko, M.; Pawlikowski, P.; Plesková, Z.; Sekulová, L.; Smagin, V.; Tahvanainen, T.; Thiele, A.; Bita-Nicolae, C.; Biurrun, I.; Brisse, H.; Ćušterevska, R.; De Bie, E.; Ewald, J.; FitzPatrick, Ú.; Jandt, U.; Kącki, Z.; Kuzemko, A.; Moeslund, J.; Pérez-Haase, A.; Rašomavičius, V.; Rodwell, J.; Schaminée, J.; Šilc, U.; Stančić, Z.; Chytry, M. 2016: Formalized classification of European fen vegetation at the alliance level. Applied Vegetation Science. DOI: 10.1111/avsc.12271

10. Stančić, Z.; Baić, L.; Kraš, V. 2016: Samonikle vodene i močvarne biljne vrste u biljnim uređajima za pročišćavanje otpadnih voda [Potential for using wild aquatic and marshland plant species in constructed wetlands for wastewater treatment]. Inženjerstvo okoliša 3(1): 47-62.

# LIST OF SCIENTIFIC AND ARTISTIC PROJECTS IN WHICH HE OR SHE PARTICIPATED AND WHICH ARE RELEVANT FOR THE FIELD OF THE DOCTORAL PROGRAMME

## PROJECT LEADER

"Class Molinio-Arrhenatheretea in northwestern Croatia"; funding source: Ministry of Science and Technology of the Republic of Croatia; project duration: 1997-2002

"Database of grassland vegetation in Croatia"; funding source: State Institute for Nature Protection of the Republic of Croatia, Ministry of Culture; project duration: 2004-2005

"Halophilic flora and vegetation of Croatia"; funding source: State Institute for Nature Protection of the Republic of Croatia, Ministry of Culture; project duration: 2005

"Neophyte species of Croatian vascular flora"; funding source: State Institute for Nature Protection of the Republic of Croatia, Ministry of Culture; project duration: 2006

"The habitat of neophyte species of vascular flora in Croatia"; funding source: State Institute for Nature Protection of the Republic of Croatia, Ministry of Culture; project duration: 2006-2007

"Inventory of marshland vegetation of the class Phragmito-Magnocaricetea in the area of Krapina-Zagorje County"; funding source: Public Institution for management of protected natural values of Krapina-Zagorje County; project duration: 2010

## PROJECT COLLABORATOR

"The study of grassland and ruderal flora and vegetation in Croatia"; project leader: Prof. Ljerka Marković; funding source: Ministry of Science and Technology; project duration: 1993-1996

"The study of grassland, weed and ruderal flora and vegetation in Croatia"; project leader: Dr. Jasenka Topić; funding source: Ministry of Science and Technology; project duration: 1996-2002

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"Ecological relationships of vegetation and habitats in Croatia"; project leader: Dr. Vladimir Hršak; funding source: Ministry of Science, Education and Sport; project duration: 2002-2005

"The project of karst ecosystem conservation – inventory of vascular plants"; project coordinator: Dr. Toni Nikolić; funding source: the Global Environment Facility, the World Bank; project duration: 2004-2006

"The succession on the habitats of endemic and rare plants"; project leader: Dr. Marija Pandža, programme leader: Prof. Jozo Franjić; funding source: Ministry of Science, Education and Sport; project duration: 02/01/2007-28/03/2009

"The importance of succession for the preservation of biodiversity in the Mediterranean vegetation region", project leader: Dr. Juraj Kamenjarin, programme leader: Prof. Jozo Franjić; funding source: Ministry of Science, Education and Sport; project duration: 01/03/2008-28/03/2009

# LIST OF SCIENTIFIC AND ARTISTIC PROJECTS IN WHICH HE OR SHE PARTICIPATED IN THE LAST FIVE YEARS

## PROJECT LEADER

"Removing heavy metals by phytoremediation in the area of Varaždin and its surroundings"; funding source: Varaždin County; project duration: 2013; co-leader: Dr. Dinko Vujević

"Determination of heavy metals in vegetables"; funding source: Varaždin County; project duration: 2013-2014; co-leader: Dr. Dinko Vujević

"Determination of heavy metals in soil and plant samples along the Varaždin-Zagreb railway line"; funding source: Faculty of Geotechnical Engineering; project duration: 2014

"Determination of heavy metals in soil and plant samples along the railway lines in Varaždin County"; funding source: Varaždin County; project duration: 2014-2015

"The potential for removal of heavy metals using the method of phytoremediation along railway lines in northwestern Croatia", funding source: grants from the University of Zagreb; project duration: 2014

"Determination of heavy metals in the soil and cultivated plants (maize and cabbage) in Varaždin County"; funding source: Varaždin County; project duration: 2015-2016

"Ecological studies of the management impact in crops of maize and cabbage on the composition of weeds in northwestern Croatia"; funding source: grants from the University of Zagreb; project duration: 2016

## PROJECT COLLABORATOR

"The remediation of soil contaminated by flood river silt using plants"; project leader: Dr. Dinko Vujević; funding source: grants from the University of Zagreb; project duration: 2013-2014

"Braun-Blanquet project", a project carried out within the framework of the IAVS Working Group of the European Vegetation Survey; project leader: Borja Jimenez-Alfaro; project duration: 2013 to date

"Project WetVegEurope – formalized classification of European aquatic and marsh vegetation", a project carried out within the framework of the IAVS Working Group of the European Vegetation Survey; project leaders: Flavia Landucci, Kateřina Šumberová; project duration: 2013 to date

"European Vegetation Archive (EVA)", a project carried out within the framework of the IAVS Working Group of the European Vegetation Survey; coordinators: Dr. M. Chytrý, Dr. J. Dengler, Dr. S. Hennekens, Dr. F. Jansen, Dr. F. Landucci, Dr. J. Schaminee; involvement in the project: 2014 to date (http://euroveg.org/eva-database)

"Experimental testing of granular stiffness of MBT waste"; project leader: Dr. Igor Petrović; funding source: grants from the University of Zagreb; project duration: 2015

PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



#### **ORDINAL NUMBER:** 16

FIRST NAME, LAST NAME, AND TITLE OF THE TEACHER: Goran Kniewald, Full Professor

NAME OF INSTITUTION OF EMPLOYMENT OF THE TEACHER: Rudjer Bošković Institute, Zagreb

#### BIOGRAPHY

Dr. Goran Kniewald was born in 1955 in Zagreb, Croatia. He obtained his BSc, MSc and PhD degrees from the Department of Geology, Faculty of Science of the University of Zagreb. He is a full titular professor in this department. He spent several years doing research as a post-doc and guest researcher at institutes and universities in Germany, France and USA. He is currently employed as a senior scientist at the Rudjer Bošković Institute in Zagreb, in its Division of Marine and Environmental Research. He is the founder and head of the Laboratory for inorganic environmental geochemistry and chemodynamics of nanoparticles. His research interests include biogeochemical cycles of elements in nature, toxic heavy metals in particular. He is an experienced court expert in the area of environmental protection, environmental impact assessment and ecological accidents. He is an expert and member of the Environmental Crime section of Interpol. He is the current President of the Geochemistry Council of the Croatian Academy of Sciences and Arts. He has authored more than hundred scientific and professional papers published in scientific journals and presented at international conferences and congresses.

## DATE OF LAST APPOINTMENT TO A RESEARCH-AND-TEACHING OR ART-AND-TEACHING RANK: 2009

# LIST OF PUBLISHED WORK WHICH QUALIFY HIM/HER FOR IMPLEMENTATION OF THE PROGRAMME, THAT IS, WHICH ARE RELEVANT FOR THE FIELD OF THE DOCTORAL PROGRAMME

1. Furdek, M., Vahčič, M., Ščančar, J., Milačič, R., Kniewald, G. and Mikac, N. (2012): Organotin compounds in seawater and mussels Mytilus galloprovincialis along the Croatian Adriatic coast. Marine Pollution Bulletin 64/2, 189-199.

2. Žvab-Rožič, P., Dolenec, T., Lojen, S., Kniewald, G. and Dolenec, M. (2014): Using stable nitrogen isotopes in Patella sp. To trace sewage-derived material in coastal ecosystems. Ecological Indicators 36, 224-230.

3. Fiket, Ž., Medunić, G. and Kniewald, G. (2016): Rare earth distribution in soil nearby thermal power plant. Environmental Earth Sciences 75, 7, 1-9.

4. Bermanec, V., Vidaković-Cifrek, Ž., Fiket, Ž., Tkalec, M., Kampić, Š. and Kniewald, G. (2016): Influence of digested wastewater sludge on early growth of the perennial ryegrass (Lolium perenne L.). Environmental Earth Sciences 75, 1, 1-12.

Prof. Kniewald is one of the authors of the handbook Pollution Crime Forensic Investigation Manual – Vol. I and II. Interpol, Lyon, 2014.

## LIST OF PUBLISHED WORK IN THE LAST FIVE YEARS

1. Furdek, M., Vahčič, M., Ščančar, J., Milačič, R., Kniewald, G. and Mikac, N. (2012): Organotin compounds in seawater and mussels Mytilus galloprovincialis along the Croatian Adriatic coast. Marine Pollution Bulletin 64/2, 189-199.

2. Žvab-Rožič, P., Dolenec, T., Lojen, S., Kniewald, G. and Dolenec, M. (2014): Using stable nitrogen isotopes in Patella sp. To trace sewage-derived material in coastal ecosystems. Ecological Indicators 36, 224-230.

3. Fiket, Ž., Medunić, G. and Kniewald, G. (2016): Rare earth distribution in soil nearby thermal power plant. Environmental Earth Sciences 75, 7, 1-9.

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4. Bermanec, V., Vidaković-Cifrek, Ž., Fiket, Ž., Tkalec, M., Kampić, Š. and Kniewald, G. (2016): Influence of digested wastewater sludge on early growth of the perennial ryegrass (Lolium perenne L.). Environmental Earth Sciences 75, 1, 1-12.

# LIST OF SCIENTIFIC AND ARTISTIC PROJECTS IN WHICH HE OR SHE PARTICIPATED AND WHICH ARE RELEVANT FOR THE FIELD OF THE DOCTORAL PROGRAMME

Prof. Kniewald was principal investigator (PI) of the following projects:

1. Transport and chemodynamics of trace elements in freshwater and coastal sedimentary systems – TRACESS. Project funded by the Croatian research foundation (2014-2017).

2. Biogeochemistry of trace metals in sedimentary environments and soils in Croatia. Project funded by the Croatian Ministry of Science, Education and Sports (2006-2012)

3. Geochemistry of recent and antient sedimentary systems of the Adriatic platform. Project funded by the Croatian Ministry of Science and Technology (2002-2006)

LIST OF SCIENTIFIC AND ARTISTIC PROJECTS IN WHICH HE OR SHE PARTICIPATED IN THE LAST FIVE YEARS

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#### **ORDINAL NUMBER:** 17

FIRST NAME, LAST NAME, AND TITLE OF THE TEACHER: Ivan Kovač, Assistant Professor

NAME OF INSTITUTION OF EMPLOYMENT OF THE TEACHER: Faculty of Geotechnical Engineering, University of Zagreb

#### BIOGRAPHY

Ivan Kovač was born in Varaždin in 1963. He graduated in 1988. on Faculty of Mining, Geology and Petroleum. For the next two years he was employed in dolomite quarry in Pregrada. Since 1990. he has been employed by Faculty of Geotechnical Engineering and is mostly engaged in application of statistical and geostatistical methods, especially in survey and analyses of groundwater quality. He obtained his Master degree in 1995. on Faculty of Natural Sciences and Technology in Ljubljana, and his Ph.D. in 2004. on Faculty of Mining, Geology and Petroleum in Zagreb. He was elected as an Assistant Professor in 2005. He has authored eighteen scientific and professional papers published in scientific journals and presented at conferences and congresses.

#### DATE OF LAST APPOINTMENT TO A RESEARCH-AND-TEACHING OR ART-AND-TEACHING RANK: 2016

# LIST OF PUBLISHED WORK WHICH QUALIFY HIM/HER FOR IMPLEMENTATION OF THE PROGRAMME, THAT IS, WHICH ARE RELEVANT FOR THE FIELD OF THE DOCTORAL PROGRAMME

1. Kovač, I.(2000): "Pollutant Concentration Analysis in Varaždin Region Groundwater". Croatian Gotechnical Journal, Varaždin. Vol. 8, No. 15-16, pp.5-16.

2. Grdjan, D., Kovač, I., Kovačev-Marinčić, B. (2006): "Impact of Polluters on Groundwater quality in Varaždin County". Conference: Technology of Waste Management (proceedings), Croatian Academy of Technical Science, Varaždin, pp. 87-93.

Novotni-Horčička, N., Šrajbek, M., Kovač, I. (2010): "Nitrates in regional water supply system Varaždin".
XIV Conference: Water and Public Water supply (proceedings), Croatian Institute of Public Helth, Baška, pp. 123-132.

4. Franolić, I., Lilek, H., Kovač, I. (2012): "Impact of selective gathering of communal waste on groundwater quality", Conference: Waste management (proceedings), Faculty of Geotechnical Engineering and Waste Management Society, Varaždin

5. Kovač, I., Sitar, S., Vincek, D. (2013): "Research of Pig Farm Impact on Groundwater Quality", Agronomy Journal, Zagreb, 1/2013, pp 23-30

Dobša, J., Kovač, I. (2017): "Nonlinear Growth Models for Modelling Time Series of Groundwater Nitrate Concentrations", Environmental Modeling & Assesment, DOI: 10.1007/s10666-017-9565-3

## LIST OF PUBLISHED WORK IN THE LAST FIVE YEARS

1. Franolić, I., Lilek, H., Kovač, I. (2012): "Impact of selective gathering of communal waste on groundwater quality", Conference: Waste management (proceedings), Faculty of Geotechnical Engineering and Waste Management Society, Varaždin

2. Kovač, I., Sitar, S., Vincek, D. (2013): "Research of Pig Farm Impact on Groundwater Quality", Agronomy Journal, Zagreb, 1/2013, pp 23-30

Dobša, J., Kovač, I. (2017): "Nonlinear Growth Models for Modelling Time Series of Groundwater Nitrate Concentrations", Environmental Modeling & Assesment, DOI: 10.1007/s10666-017-9565-3



## LIST OF SCIENTIFIC AND ARTISTIC PROJECTS IN WHICH HE OR SHE PARTICIPATED AND WHICH ARE RELEVANT FOR THE FIELD OF THE DOCTORAL PROGRAMME

1. "Research of sustainable water supply and ecological sanitation in rural settlements in Dinara karst" (principal investigator: prof.dr.sc. Maden Zelenika, 160153), Project funded by the Croatian Ministry of Science, Education and Sports

2. "Research of polluters impact on groundwater quality in Varaždin and Međimurska County" (principal investigator: doc.dr.sc. Dragutin Grđan, 0160170) Project funded by the Croatian Ministry of Science, Education and Sports

3. "Sustainable exploitation and protection of water resources in NP Plitvička jezera" (principal investigator: prof. dr. sc. Božidar Biondić), Project funded by the Croatian Ministry of Science, Education and Sports

4. "Sensitivity of karstic hydrogeological systems" (principal investigator: doc. dr. sc. Sanja Kapelj) Project funded by the Croatian Ministry of Science, Education and Sports

## LIST OF SCIENTIFIC AND ARTISTIC PROJECTS IN WHICH HE OR SHE PARTICIPATED IN THE LAST FIVE YEARS

1. "Sensitivity of karstic hydrogeological systems" (principal investigator: doc. dr. sc. Sanja Kapelj) Project funded by the Croatian Ministry of Science, Education and Sports

PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



#### **ORDINAL NUMBER:** 18

FIRST NAME, LAST NAME, AND TITLE OF THE TEACHER: Nikola Sakač, Assistant Professor

NAME OF INSTITUTION OF EMPLOYMENT OF THE TEACHER: Faculty of Geotechnical Engineering, University of Zagreb

#### BIOGRAPHY

From 2006 Nikola Sakač is employed at the Sub department for Analytical, Organic and Applied Chemistry, Department of Chemistry, J.J. Strossmayer University of Osijek, Osijek, Croatia. In 2011 he made his PhD at the Faculty of Chemical Engineering and Technology, University of Zagreb, Croatia. In 2012 he started to work as a assistant professor, and in 2013 he got a research scientist appointment. His fields of scientific interest are: chemical sensors and biosensors for environmental monitoring and protection, for industry and medical applications. The transducers used are electrochemical, optical and mass transducers. Analytes of interests: Surface active agents, enzymes (amylase), starch, and sensors for human stress monitoring. In co-authorship, he presented his scientific work as invited lectures at 5 international conferences and 4 homeland institutions. He was a fellow at several scientific and R&D projects, two bilateral international projects, and one scientific papers citated in other bases. He was a mentor of more than 20 Bacchalareous and Master Thesis. He made several research cooperation and trainings at several European universities (TU Graz, Austria; Federico II, Italy, etc.).

DATE OF LAST APPOINTMENT TO A RESEARCH-AND-TEACHING OR ART-AND-TEACHING RANK: 29.11.2012.

LIST OF PUBLISHED WORK WHICH QUALIFY HIM/HER FOR IMPLEMENTATION OF THE PROGRAMME, THAT IS, WHICH ARE RELEVANT FOR THE FIELD OF THE DOCTORAL PROGRAMME

Web of Science citated papers:

1. JOZANOVIĆ, MARIJA; HAJDUKOVIĆ, MATEJA; GALOVIĆ, OLIVERA; KRALIK, GORDANA; KRALIK, ZLATA; SAKAČ, NIKOLA; MEDVIDOVIĆ-KOSANOVIĆ, MARTINA; SAK-BOSNAR, MILAN. DETERMINATION OF ANTI-OXIDATIVE HISTIDINE DIPEPTIDES IN POULTRY BY MICROCHIP CAPILLARY ELECTROPHORESIS WITH CONTACTLESS CONDUCTIVITY DETECTION. // FOOD CHEMISTRY. 221 (2017) ; 1658-1665

2. Sakač, Nikola; Karnaš, Maja; Grčić, Magdalena. Direct Potentiometric Method for Human Stress Determination. // Chemical and Biochemical Engineering Quarterly. 29 (2015) ; 315-321

3. Sakač, Nikola; Regušić, Lidija; Sak-Bosnar, Milan; Jozanović, Marija; Breslauer, Nevenka. Direct Potentiometric Determination of Ptyalin in Saliva. // International Journal of Electrochemical Science. 9 (2014), 12; 7097-7109

4. Kovač-Andrić, Elvira; Radanović, Tatjana; Topalović, Iva; Marković, Berislav; Sakač, Nikola. Temporal Variations in Concentrations of Ozone, Nitrogen Dioxide, and Carbon Monoxide at Osijek, Croatia. // Advances in mateorology. (2013) ; 469786-1-469786-7 (članak, znanstveni).

5. Sakač, Nikola; Sak-Bosnar, Milan; Horvat, Marija. Direct potentiometric determination of starch using a platinum redox sensor. // Food chemistry. 138 (2013) , 1; 9-12

6. Sakač, Nikola; Sak-Bosnar, Milan. A rapid method for the determination of honey diastase activity. // Talanta. 93 (2012) ; 135-138

7. Sakač, Nikola; Sak-Bosnar, Milan. Potentiometric Study of  $\alpha$ -Amylase Kinetics Using a Platinum Redox Sensor. // International Journal of Electrochemical Science. 7 (2012) , 4; 3008-3017



8. Sakač, Nikola; Sak-Bosnar, Milan; Horvat, Marija; Madunić-Čačić, Dubravka; Szechenyi, Aleksandar; Kovacs, Barna. A new potentiometric sensor for the determination of  $\alpha$ -amylase activity. // Talanta. 83 (2011) , 5; 1606-1612

9. Sak-Bosnar, Milan; Madunić-Čačić, Dubravka; Sakač, Nikola; Samardžić, Mirela; Kurtanjek, Želimir. Estimation and optimization of potentiometric sensor response parameters from surfactant titration data using Microsoft Excel Solver and Mathematica. // Sensor letters. 9 (2011) , 2; 491-498

# SCIENTIFIC PAPERS WITH INTERNATIONAL REVIEW:

1. HABSCHIED, KRISTINA; ŠARKANJ, BOJAN; ZEC ZRINUŠIĆ, SANJA; KRSTANOVIĆ, VINKO; RUPČIĆ, ŽELJKA; SAKAČ, NIKOLA. LC-MS/MS METODE ZA SIMULTANO ODREĐIVANJE VIŠE FUSARIUM TOKSINA // PROCEEDINGS & ABSTRACT OF THE 6TH INTERNATIONAL SCIENTIFIC/PROFESSIONAL CONFERENCE AGRICULTURE IN NATURE AND ENVIRONMENT PROTECTION / JUG, IRENA ; ĐUREVIĆ, BORIS (UR.). OSIJEK : GLAS SLAVONIJE D.D., 2013. 258-263.

2. ŠARKANJ, BOJAN; VARGA, ELIZABETH; HABSCHIED, KRISTINA; KRSTANOVIĆ VINKO; SAKAČ NIKOLA. PRELIMINARNO PRAĆENJE POJAVNOSTI MIKOTOKSINA U KUKURUZU NA PODRUČJU KONTINENTALNE HRVATSKE // PROCEEDINGS & ABSTRACTS OF 5TH INTERNATIONAL SCIENTIFIC/PROFESSIONAL CONFERENCE AGRICULTURE IN NATURE AND ENVIRONMENT PROTECTION / STIPEŠEVIĆ, BOJAN ; SORIĆ, ROBERTA (UR.). OSIJEK : GLAS SLAVONIJE D.D., OSIJEK, 2012. 264-269.

## LIST OF PUBLISHED WORK IN THE LAST FIVE YEARS

Web of Science citated papers:

1. Jozanović, Marija; Sakač, Nikola; Jakobović, Danijela; Sak-Bosnar, Milan. Analytical Characterization and Quantification of Histidine Dipeptides, Carnosine and Anserine by Modeling of Potentiometric Titration Data. // International Journal of Electrochemical Science. 10 (2015) 5787-5799

2. Sakač, Nikola; Karnaš, Maja; Grčić, Magdalena. Direct Potentiometric Method for Human Stress Determination. // Chemical and Biochemical Engineering Quarterly. 29 (2015) ; 315-321

3. Sakač, Nikola; Regušić, Lidija; Sak-Bosnar, Milan; Jozanović, Marija; Breslauer, Nevenka. Direct Potentiometric Determination of Ptyalin in Saliva. // International Journal of Electrochemical Science. 9 (2014), 12; 7097-7109

4. Šubarić, Drago; Ačkar, Đurđica; Babić, Jurislav; Sakač, Nikola; Jozinović, Antun. Modification of wheat starch with succinic acid/acetic anhydride and azelaic acid/acetic anhydride mixtures I. Thermophysical and pasting properties.. // Journal of food science and technology. 51 (2014) , 10; 2616-2623

5. Kovač-Andrić, Elvira; Radanović, Tatjana; Topalović, Iva; Marković, Berislav; Sakač, Nikola. Temporal Variations in Concentrations of Ozone, Nitrogen Dioxide, and Carbon Monoxide at Osijek, Croatia. // Advances in mateorology. (2013) ; 469786-1-469786-7 (članak, znanstveni).

6. Sakač, Nikola; Sak-Bosnar, Milan; Horvat, Marija. Direct potentiometric determination of starch using a platinum redox sensor. // Food chemistry. 138 (2013) , 1; 9-12

7. Sakač, Nikola; Gvozdić, Vlatka; Sak-Bosnar, Milan. Determination of the botanical origin of starch using direct potentiometry and PCA. // Carbohydrate polymers. 87 (2012) , 4; 2619-2623

8. Sakač, Nikola; Sak-Bosnar, Milan. A rapid method for the determination of honey diastase activity. // Talanta. 93 (2012) ; 135-138

9. Sakač, Nikola; Sak-Bosnar, Milan. Potentiometric Study of  $\alpha$ -Amylase Kinetics Using a Platinum Redox Sensor. // International Journal of Electrochemical Science. 7 (2012) , 4; 3008-3017

PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



10. Sak-Bosnar, Milan; Sakač, Nikola. Direct potentiometric determination of diastase activity in honey. // Food chemistry. 135 (2012) , 2; 827-831

11. Sakač, Nikola; Sak-Bosnar, Milan; Horvat, Marija; Madunić-Čačić, Dubravka; Szechenyi, Aleksandar; Kovacs, Barna. A new potentiometric sensor for the determination of  $\alpha$ -amylase activity. // Talanta. 83 (2011) , 5; 1606-1612

12. Sak-Bosnar, Milan; Madunić-Čačić, Dubravka; Sakač, Nikola; Samardžić, Mirela; Kurtanjek, Želimir. Estimation and optimization of potentiometric sensor response parameters from surfactant titration data using Microsoft Excel Solver and Mathematica. // Sensor letters. 9 (2011) , 2; 491-498

More info at: https://bib.irb.hr/lista-radova?autor=289955

# LIST OF SCIENTIFIC AND ARTISTIC PROJECTS IN WHICH HE OR SHE PARTICIPATED AND WHICH ARE RELEVANT FOR THE FIELD OF THE DOCTORAL PROGRAMME

1. Project leader, "Development of chemical sensor for human stress", J. J. Strossmayer University of Osijek (2013-14)

2. Fellow at NanoSens project – development of surfactant sensor (2014-17), Croatian science foundation.

3. Fellow, Development of a model and algorithm for environmental water quality monitoring, University of Zagreb, 2014

4. Fellow, "New microfluidic tenzide sensor" J. J. Strossmayer University of Osijek (2013-14).

5. Fellow at croatian technology transfer project, Department of Chemistra and Saponia, chemical, food stuff and pharmaceutical company, Development of a portable surfactant analyzer (2010-2011).

6. Fellow at Croatian-Hungarian bilateral cooperation project - Sensors for environmental and medical applications, J.J. Strossmayer University, Department of Chemistry and Department of General and Physical Chemistry / South-Transdanubian Cooperative Research Center, University of Pécs (2007- 20011).

7. Fellow at Project No. 291-0580000-0169 (2006 - 2013), Sensor development for environmental and medical applications, Croatian Ministry of Science.

## LIST OF SCIENTIFIC AND ARTISTIC PROJECTS IN WHICH HE OR SHE PARTICIPATED IN THE LAST FIVE YEARS

1. Project leader, "Development of chemical sensor for human stress", J. J. Strossmayer University of Osijek (2013-14)

2. Fellow at NanoSens project – development of surfactant sensor (2014-17), Croatian science foundation.

3. Fellow, Development of a model and algorithm for environmental water quality monitoring, University of Zagreb, 2014

4. Fellow, "New microfluidic tenzide sensor" J. J. Strossmayer University of Osijek (2013-14).

5. Fellow at croatian technology transfer project, Department of Chemistra and Saponia, chemical, food stuff and pharmaceutical company, Development of a portable surfactant analyzer (2010-2011).

6. Fellow at Project No. 291-0580000-0169 (2006 - 2013), Sensor development for environmental and medical applications, Croatian Ministry of Science.

PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



#### **ORDINAL NUMBER:** 19

FIRST NAME, LAST NAME, AND TITLE OF THE TEACHER: Aleksandra Lobnik, Full Professor

**NAME OF INSTITUTION OF EMPLOYMENT OF THE TEACHER:** Faculty of mechanical engineering, University of Maribor, Slovenia

#### BIOGRAPHY

Aleksandra Lobnik is a full professor at the Faculty of mechanical engineering, University of Maribor, Slovenia. She is a head of the Centre for sensor technology and Laboratory for chemistry and environmental protection at the Faculty of mechanical engineering, University of Maribor, she is a leader of R&D at the Institute for environment protection and sensors, she is a vice president of the Slovenian academy of science and engineering, a technical leader of the RESYNTEX project within a Horison 2020, a head of the organising committee of the conference NANOAPP – nanomaterials. She is a co-author for more than 100 scientific papers with over 700 citations. She organised many conferences and workshops. 1998 she defended her PhD thesis – Optical characterization of sol-gels and their application to chemical sensors"under supervision of prof. Otto Wolfbeis at the Karl Frances University in Graz, Austria. She was a leader of many homeland and international projects, like: EUREKA projects, EU projects, Bilateral projects with France, Chech republic, Ukraine, TIA SRRP project, TIA TP MIR project, ARRS CRP MIR project, ARS project with Perutnina Ptuj company, international projects with University of Regensbourg, Germany, University of Southampton, England, Technical University of Budapest, Hungary and Georgia Technological Institute, Atlanta, USA.

#### DATE OF LAST APPOINTMENT TO A RESEARCH-AND-TEACHING OR ART-AND-TEACHING RANK: 02.02.2015.

LIST OF PUBLISHED WORK WHICH QUALIFY HIM/HER FOR IMPLEMENTATION OF THE PROGRAMME, THAT IS, WHICH ARE RELEVANT FOR THE FIELD OF THE DOCTORAL PROGRAMME

1. LOBNIK, Aleksandra, KORENT UREK, Špela. Sol-gel based opto-chemical sensor for detection of diethyl chlorophosphate and method for its preparation : EP 2 678 673 (B1), 2016-06-08. Berlin, Germany: European Patent Office, 2016. 8 str. [COBISS.SI-ID 19608854]

2. NEDELJKO, Polonca, TUREL, Matejka, LOBNIK, Aleksandra. Postopek priprave in sestava senzorskega medija za optično zaznavanje agmatina : SI 24330 (A), 2014-09-30. Ljubljana: Urad RS za intelektualno lastnino, 2014. [4] str. [COBISS.SI-ID 18267158]

3. NEDELJKO, Polonca, TUREL, Matejka, KOŠAK, Aljoša, LOBNIK, Aleksandra. Synthesis of hybrid thiolfunctionalized SiO[sub]2 particles used for agmatine determination. Journal of sol-gel science and technology, ISSN 0928-0707, [COBISS.SI-ID 19489046],

4. FRANČIČ, Nina, LYAGIN, Ilya V., EFREMENKO, Elena N., LOBNIK, Aleksandra. Hybrid sol-gel bio-films: influence of synthetic parameters on behaviour and performance of entrapped His[sub]6-tagged organophosphorus hydrolase. Journal of sol-gel science and technology, ISSN 0928-0707, [COBISS.SI-ID 18373654],

5. NEDELJKO, Polonca, TUREL, Matejka, LOBNIK, Aleksandra. Fluorescence-based determination of agmatine in dietary supplements. Analytical letters, ISSN 0003-2719. [Print ed.], 2015, vol. 48, iss. 10, str. 1619-1628, doi: 10.1080/00032719.2014.991962. [COBISS.SI-ID 18551062],

 FRANČIČ, Nina, KOŠAK, Aljoša, LOBNIK, Aleksandra. Immobilisation of organophosphate hydrolase on mesoporous and Stöber particles. Journal of sol-gel science and technology, ISSN 0928-0707, Sep. 2016, vol. 79, iss. 3, str. 497-509. [COBISS.SI-ID 19635734],

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7. FRANČIČ, Nina, BELLINO, Martin G., SOLER ILLIA, Galo, LOBNIK, Aleksandra. Mesoporous titania thin films as efficient enzyme carriers for paraoxon determination/detoxification: effects of enzyme binding and pore hierarchy in biocatalyst activity and reusability. Analyst, ISSN 0003-2654, 2014, vol. 139, iss. 12, str. 3127-3136.[COBISS.SI-ID 17536790],

8. WIDMER, Susanne, DORRESTIJN, Marko, CAMERLO, Agathe, KORENT UREK, Špela, LOBNIK, Aleksandra, HOUSECROFT, Catherine E., CONSTABLE, Edwin C., SCHERER, Lukas J. Coumarin meets fluorescein: a Förster resonance energy transfer enhanced optical ammonia gas sensor. Analyst, ISSN 0003-2654, 28 Jul. 2014, vol. 139, iss. 17, str. 4335-4342. [COBISS.SI-ID 18048278],

9. FRANČIČ, Nina, KOŠAK, Aljoša, LYAGINI, Ilya V., EFREMENKO, Elena N., LOBNIK, Aleksandra. His[sub]6-OPH enzyme-based bio-hybrid material for organophosphate detection. Analytical and bioanalytical chemistry, ISSN 1618-2642, 2011, vol. 401, no. 8, str. 2631-2638, doi: 10.1007/s00216-011-5336-1. [COBISS.SI-ID 15269398],

10. KORENT UREK, Špela, LOBNIK, Aleksandra, MOHR, G. J. Sol-gel-based optical sensor for the detection of aqueous amines. Analytical and bioanalytical chemistry, ISSN 1618-2642, Apr. 2007, vol. 387, no. 8, str. 2863-2870. http://dx.doi.org/10.1007/s00216-007-1146-x. [COBISS.SI-ID 11135254]

## LIST OF PUBLISHED WORK IN THE LAST FIVE YEARS

1. NEDELJKO, Polonca, TUREL, Matejka, KOŠAK, Aljoša, LOBNIK, Aleksandra. Synthesis of hybrid thiolfunctionalized SiO[sub]2 particles used for agmatine determination. Journal of sol-gel science and technology, ISSN 0928-0707, [COBISS.SI-ID 19489046],

2. FRANČIČ, Nina, LYAGIN, Ilya V., EFREMENKO, Elena N., LOBNIK, Aleksandra. Hybrid sol-gel bio-films: influence of synthetic parameters on behaviour and performance of entrapped His[sub]6-tagged organophosphorus hydrolase. Journal of sol-gel science and technology, ISSN 0928-0707, [COBISS.SI-ID 18373654],

3. NEDELJKO, Polonca, TUREL, Matejka, LOBNIK, Aleksandra. Fluorescence-based determination of agmatine in dietary supplements. Analytical letters, ISSN 0003-2719. [Print ed.], 2015, vol. 48, iss. 10, str. 1619-1628, doi: 10.1080/00032719.2014.991962. [COBISS.SI-ID 18551062],

4. FRANČIČ, Nina, KOŠAK, Aljoša, LOBNIK, Aleksandra. Immobilisation of organophosphate hydrolase on mesoporous and Stöber particles. Journal of sol-gel science and technology, ISSN 0928-0707, Sep. 2016, vol. 79, iss. 3, str. 497-509. [COBISS.SI-ID 19635734],

5. FRANČIČ, Nina, BELLINO, Martin G., SOLER ILLIA, Galo, LOBNIK, Aleksandra. Mesoporous titania thin films as efficient enzyme carriers for paraoxon determination/detoxification: effects of enzyme binding and pore hierarchy in biocatalyst activity and reusability. Analyst, ISSN 0003-2654, 2014, vol. 139, iss. 12, str. 3127-3136.[COBISS.SI-ID 17536790],

6. WIDMER, Susanne, DORRESTIJN, Marko, CAMERLO, Agathe, KORENT UREK, Špela, LOBNIK, Aleksandra, HOUSECROFT, Catherine E., CONSTABLE, Edwin C., SCHERER, Lukas J. Coumarin meets fluorescein: a Förster resonance energy transfer enhanced optical ammonia gas sensor. Analyst, ISSN 0003-2654, 28 Jul. 2014, vol. 139, iss. 17, str. 4335-4342. [COBISS.SI-ID 18048278],

7. FRANČIČ, Nina, KOŠAK, Aljoša, LYAGINI, Ilya V., EFREMENKO, Elena N., LOBNIK, Aleksandra. His[sub]6-OPH enzyme-based bio-hybrid material for organophosphate detection. Analytical and bioanalytical chemistry, ISSN 1618-2642, 2011, vol. 401, no. 8, str. 2631-2638, doi: 10.1007/s00216-011-5336-1. [COBISS.SI-ID 15269398]

PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



## LIST OF SCIENTIFIC AND ARTISTIC PROJECTS IN WHICH HE OR SHE PARTICIPATED AND WHICH ARE RELEVANT FOR THE FIELD OF THE DOCTORAL PROGRAMME

She was a leader of many homeland and international projects, like: EUREKA projects, EU projects, Bilateral projects with France, Chech republic, Ukraine, TIA SRRP project, TIA TP MIR project, ARRS CRP MIR project, ARS project with Perutnina Ptuj company, international projects with University of Regensbourg, Germany, University of Southampton, England, Technical University of Budapest, Hungary and Georgia Technological Institute, Atlanta, USA.

## LIST OF SCIENTIFIC AND ARTISTIC PROJECTS IN WHICH HE OR SHE PARTICIPATED IN THE LAST FIVE YEARS

She was a leader of many homeland and international projects, like: EUREKA projects, EU projects, Bilateral projects with France, Chech republic, Ukraine, TIA SRRP project, TIA TP MIR project, ARRS CRP MIR project, ARS project with Perutnina Ptuj company, international projects with University of Regensbourg, Germany, University of Southampton, England, Technical University of Budapest, Hungary and Georgia Technological Institute, Atlanta, USA.

PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



#### **ORDINAL NUMBER: 20**

FIRST NAME, LAST NAME, AND TITLE OF THE TEACHER: Ivica Kisić, Full Professor NAME OF INSTITUTION OF EMPLOYMENT OF THE TEACHER: Faculty of Agriculture, University of Zagreb BIOGRAPHY PERSONAL INFORMATION

Surname and name: Kisić, Ivica Registration number of researcher: 174323

#### EDUCATION

1998 - Ph.D. Faculty of Agriculture, University of Zagreb, Zagreb Influence of different tillage systems on water erosion on Stagnic Luvisols in Midle Croatia

1992 - M.Sc.

Faculty of Agriculture, University of Zagreb, Zagreb Characteristics of Soil Combinations and their capability in the Central Podravina Region

1987 - B.Sc. Faculty of Agriculture, University of Zagreb, Zagreb Irigation area on the Republic of Croatia

SCIENTIFIC TRAINING

2004 University of Hohenheim, Germany

2003 Agro-Environmental Summer School, Szent Istvan University, Godollo, Mađarska.

1999 On-Farm Research Methodology and Research Management. Agricultural Research Council, Ministry of Agriculture and Forestry of Republic of Croatia

1998 Tools for Improved Research Planning and Management, Agricultural Research Council, Ministry of Agriculture and Forestry of Republic of Croatia

EMPLOYMENT

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#### 1987 – 1994

Institution: Agricultural Institute of Križevci

Since 1994

Institution: Faculty of Agriculture, University of Zagreb

1994 – 1998 assistant

1998 – 1999 senior assistant

1999 – 2003 assistant professor (docent)

2003 - 2008 associate professor

2008 - 2013 professor

Since 2013 full professor

SCHOLARSHIPS AND AWARDS

2012 – Recognition (Eco Academy Award) for achievements in environmental protection on the occasion of World Environment Day, Ministry of Environment and Nature Protection

- Annual Award for Science, Ministry of Science, Education and Sports

2007 – Honorary Advisor of the Faculty of Agricultural and Environmental Sciences, Faculty of Agricultural and Environmental Sciences of Gödölló, Hungary

2006 – Hrvatske vode: Annual award for the best scientific work published in 2006

1998 – Hrvatske vode: Annual award for the best dissertation in 1998

TEACHING ACTIVITIES

Institution: Faculty of Agriculture, University of Zagreb

Undergraduate study programme (BSc): Introduction to Organic Agriculture (Leader), Basis of Plant Cultivation (partner)

Graduate study programme (MSc): Remediation and restoration of damaged soils (Leader), Organic olive growing (partner), Management in ecologically protected areas (partner), Global ecology (partner)

Postgraduate doctoral study programme (PhD): Agriculture and Environment (partner)

Postgraduate specialist study programme:

- University of Zagreb: Urban Agriculture (Leader, City Management)

- Faculty of Chemical Engineering and Technology: Soil Protection (Leader, Study of Ecoengineering)

Research interests:



- Pollution and degradation of soil
- Soil tillage
- -Water and wind erosion
- Organic Agriculture

#### **OBLIGATIONS IN THE INSTITUTION**

- Member of the Faculty Council, Faculty of Agriculture, University of Zagreb
- Founder of Undergraduate study programme Organic Agriculture
- Head of the Graduate study programme Organic Agriculture with Agrotourism

#### **OBLIGATIONS IN RELATED INSTITUTIONS**

A long-time member of the Council of interdisciplinary university postgraduate professional studies:
Environmental Engineering and City Management (at the Centre for Postgraduate Studies of the University of Zagreb)

- Course teacher (Leader): City Agriculture and Soil Protection (at the Centre for Postgraduate Studies of the University of Zagreb)

#### MEMBERSHIP

2008 Member of the Expert Commission for drafting the Agricultural Land Act

Since 2006 Member of the Editorial Board of Agriculture Conspectus Scientificus

2004 – 2008 Member of the Working Group for creating the National program to mitigate the consequences of drought and for combating land degradation in the Republic of Croatia (NAP)

2004 – 2008 Production Coordinator for the National program to mitigate the consequences of drought and for combating land degradation in the Republic of Croatia (NAP)

2002 – 2006 Member and President of the Croatian Society of Soil Science in the Mandate Period

Since 1999 Member of the Committee on Organic production of agricultural and food products, participated in the making of most of Acts and Regulations related to Organic production in the mentioned period

Member of the Croatian Society for the Protection of water and sea

Member of the Croatian Society for Drainage and Irrigation

Member of the International Association of Soil Science

Member of the European Association for Soil Protection

Member of the International Association for Tillage

Member of the working sub-groups for preparation of negotiations on EU membership for Chapter 11 - Agriculture and rural development

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#### Croatian Scientific Conference on Agriculture - Member of the Scientific Committee 2005-2008

EUROSOIL: Soil Society Environment. 3td Congress of European Confederation of Soil Science Societies. Vienna, Austria - Member of the Scientific Committee 2008.

International Scientific/professional Conference, Agriculture in Nature and Environment Protection, Vukovar - Member of the Scientific Committee 2010-2016

#### MAJOR SCIENTIFIC COLLABORATIONS

Professor Ivica Kisić published professional and scientific papers with 186 scientists from Austria, Bosnia and Herzegovina, Brazil, Montenegro, Czech Republic, Finland, Croatia, Japan, China, Hungary, Macedonia, Germany, Slovakia, Slovenia, Serbia, Spain, the USA and Great Britain.

#### INTERNATIONAL PROJECTS:

#### 2009 - 2014

The coordinator for bilateral project of Republic of Croatia (University of Zagreb, University of Rijeka and University of Split): Risk identification and land use planning for mitigation of landslides, escarpment and floods in Croatia.

The project leaders were International Cooperation Agency of the Kingdom of Japan, Science and Research Agency of the Kingdom of Japan and the Ministry of Science, Education and Sports of the Republic of Croatia.

Leader: Prof. Ognjen Bonacci, University of Split, Split

#### 2005 - 2008

Development of Croatian soil monitoring program with a pilot project (EU LIFE05 TCY/CRO/000105)

#### 2004 - 2007

Reintegration of disposal sites for ashes and mitigation of the effects of environmental pollution of ashes in the Western Balkan countries (INCO-WBC-1-509173), EU FP6

LANGUAGES

Croatian

English

## DATE OF LAST APPOINTMENT TO A RESEARCH-AND-TEACHING OR ART-AND-TEACHING RANK: 11 July 2013

# LIST OF PUBLISHED WORK WHICH QUALIFY HIM/HER FOR IMPLEMENTATION OF THE PROGRAMME, THAT IS, WHICH ARE RELEVANT FOR THE FIELD OF THE DOCTORAL PROGRAMME

List of books and numerous scientific and professional papers: http://bib.irb.hr/lista-radova?autor=174323

1. Kisic, I., Bogunovic, I., Birkas, M., Jurisic, A., Spalevic, V (2016). The role of tillage and crops on a soil loss of an arable Stagnic Luvisol. Archives of Agronomy and Soil Science, http://dx.doi.org/10.1080/03650340.2016.1213815

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2. Bilandzija, D., Zgorelec, Z., Kisic, I. (2016). Influence of Tillage Practices and Crop Type on Soil CO2 Emissions. Sustainability, 8/90; doi:10.3390/su8010090

3. Bogunovic, I., Kisic, I., Jurisic, A. 2015: Influence of wildfire and fire suppression by seawater on soil properties. Applied Ecology and Environmental Research, DOI: http://dx.doi.org/10.15666/aeer/1304\_11571169

4. Kalmar T., Bottlik L., Kisić I., Gyuricza C., Birkas M. (2013). Soil protecting effect on the surface cover in extreme summer periods. Plant, Soil and Environment, 59/9: 404-409. Citiranost rada (ISI WoS – 2; Scopus:3)

5. Jurišić A., Kisić I., Zgorelec Ž., Kvaternjak I. (2012). Influence of water erosion on copper and sulphur distribution in vineyard soils. Journal of Environmental Protection and Ecology, 13/2A: 880-889. Citiranost rada (ISI WoS – 1; Scopus:3)

6. Zgorelec Ž., Pehnec G., Bašić F., Kisić I., Mesić M., Žužul S., Jurišić A., Šestak I., Vađić V., Čačković M. (2012). Sulphur Cycling Between Terrestrial Agroecosystem and Atmosphere. Arhiv za higijenu rada i toksikologiju. 63/3: 301-310. Citiranost rada (ISI WoS – 1; Scopus: 2)

7. Špoljar A., Kisić I., Birkas M., Gunjača J., Kvaternjak I. (2011). Influence of crop rotation, liming and green manuring on soil properties and yields. Journal of Environmental Protection and Ecology, vol. 12/1: 54-69. Citiranost rada (ISI WoS – 2; Scopus:4)

8. Kisić I., Jurišić A., Mesić H., Mesić S. (2011). Heavy Metals Uptake by Aerial Biomass and Grain of Soybean. Soybean – Biochemistry, Chemistry and Physiology, part II, chapter 24, 425-434. Editor: Tzi Bun Ng. Publisher: InTech open acces publisher. Rijeka Croatia. Navedeno poglavlje je do ožujka 2016. godine imalo više od 4550 pregleda.

## LIST OF PUBLISHED WORK IN THE LAST FIVE YEARS

1. Kisic, I., Bogunovic, I., Birkas, M., Jurisic, A., Spalevic, V (2016). The role of tillage and crops on a soil loss of an arable Stagnic Luvisol. Archives of Agronomy and Soil Science, http://dx.doi.org/10.1080/03650340.2016.1213815

2. Bilandzija, D., Zgorelec, Z., Kisic, I. (2016). Influence of Tillage Practices and Crop Type on Soil CO2 Emissions. Sustainability, 8/90; doi:10.3390/su8010090

3. Bogunovic, I., Kisic, I., Jurisic, A. 2015: Influence of wildfire and fire suppression by seawater on soil properties. Applied Ecology and Environmental Research, DOI: http://dx.doi.org/10.15666/aeer/1304\_11571169

4. Kalmar T., Bottlik L., Kisić I., Gyuricza C., Birkas M. (2013). Soil protecting effect on the surface cover in extreme summer periods. Plant, Soil and Environment, 59/9: 404-409. Citiranost rada (ISI WoS – 2; Scopus:3)

5. Jurišić A., Kisić I., Zgorelec Ž., Kvaternjak I. (2012). Influence of water erosion on copper and sulphur distribution in vineyard soils. Journal of Environmental Protection and Ecology, 13/2A: 880-889. Citiranost rada (ISI WoS – 1; Scopus:3)

 Zgorelec Ž., Pehnec G., Bašić F., Kisić I., Mesić M., Žužul S., Jurišić A., Šestak I., Vađić V., Čačković M. (2012). Sulphur Cycling Between Terrestrial Agroecosystem and Atmosphere. Arhiv za higijenu rada i toksikologiju. 63/3: 301-310. Citiranost rada (ISI WoS – 1; Scopus: 2)

7. Špoljar A., Kisić I., Birkas M., Gunjača J., Kvaternjak I. (2011). Influence of crop rotation, liming and green manuring on soil properties and yields. Journal of Environmental Protection and Ecology, vol. 12/1: 54-69. Citiranost rada (ISI WoS – 2; Scopus:4)

PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



8. Kisić I., Jurišić A., Mesić H., Mesić S. (2011). Heavy Metals Uptake by Aerial Biomass and Grain of Soybean. Soybean – Biochemistry, Chemistry and Physiology, part II, chapter 24, 425-434. Editor: Tzi Bun Ng. Publisher: InTech open acces publisher. Rijeka Croatia. Navedeno poglavlje je do ožujka 2016. godine imalo više od 4550 pregleda.

9. Kisic I. (2012). Remediation of contaminated soil. University textbook, Faculty of Agriculture, University of Zagreb

10. Kisic I. (2014). Introduction to Organic Agriculture. University textbook, Faculty of Agriculture, University of Zagreb

11. Kisic I. (2016). Anthropogenic soil erosion. University textbook, Faculty of Agriculture, University of Zagreb

12. Jug, D., Birkas, M., Kisić, I. (2015). Tillage in agro-ecological framework. Agricultural University J.J. Strossmayer. Textbooks of University of Osijek

13. Birkas M., Kalmar T., Kisić I., Jug D., Smutny V., Szemok A. (2012). The effect of rainfall event in 2010 on the physical soil conditions. Novenytermeles, 61/1: 7-36.

14. Bašić F., Kisić I., Mesić M. 2012. Framework of climate change- and soil type-oriented tillage and land management in Croatia. Chapter in book: Impact of tillage and fertilization on probable climate threats in Hungary and Croatia, soil vulnerability and protection (Birkas M., Mesić M. – eds.). Szent Istvan University Press, Godollo, p. 55-72.

15. Birkas M., Kisić I., Mesić M., Barnabas P. 2012. Soil compaction consequences in the Hungarian and Croatian fields. Chapter in book: Impact of tillage and fertilization on probable climate threats in Hungary and Croatia, soil vulnerability and protection (Birkas M., Mesić M. – eds.). Szent Istvan University Press, Godollo, p. 73-88.

16. Birkas M., Mesić M., Kisić I., Zgorelec Z., Percze A., Šestak I., Jurišić A., Nagy L., Bilandžija D., Jolankai M. 2012. Experiences in the field assesment in the S&T project. Chapter in book: Impact of tillage and fertilization on probable climate threats in Hungary and Croatia, soil vulnerability and protection (Birkas M., Mesić M. – eds.). Szent Istvan University Press, Godollo, p. 139-186.

17. Kisić I., Husnjak S., Gajić-Čapka M., Cindrić K., Bilandžija D., Prekalj B. (2013). Soil erosion by wind in Cepic field - causes, consequences and mitigation measures. Hrvatske vode, 21/83: 25-38.

18. Bilandžija D., Zgorelec Ž., Kisić I., Mesić M., Jurišić A., Šestak I. (2013). Seasonal changes of CO2 emissions in tillage induced agroecosystem. 1st Regional Symposium on Landslides in the Adriatic-Balkan Region. 3td Workshop of the Croatian-Japanese Project "Risk Identification and Land-use Planning for Disaster Mitigation of Landslides and Floods in Croatia". March 6-9, 2013. Zagreb, Croatia

19. Mesic M., Birkas M., Zgorelec Z., Kisic I., Sestak I., Jurisic A., Husnjak S. 2014. Soil Carbon Variability in some Hungarian and Croatian Soils. Chapter in book: Soil Carbon (Hartemink A.E., McSweeney K. - eds.). Springer International Publishing, Switzerland, p. 419-426.

20. Kisić I., 2014. Effects of Soil Contamination on the Selection of Remediation Method. Chapter in book: Handbook of Research on Advancements in Environmental Engineering. IGI Global – Disseminator of Knowledge, USA, p. 605.

21. Bašić F., Mesić M., Kisić I. (2015). In service to Croatian Agriculture - 60 years of teaching, research and professional activities of the Department of General Agronomy. Faculty of Agriculture

LIST OF SCIENTIFIC AND ARTISTIC PROJECTS IN WHICH HE OR SHE PARTICIPATED AND WHICH ARE RELEVANT FOR THE FIELD OF THE DOCTORAL PROGRAMME PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



#### 2009 - 2014

The coordinator for bilateral project of Republic of Croatia (University of Zagreb, University of Rijeka and University of Split): Risk identification and land use planning for mitigation of landslides, escarpment and floods in Croatia.

The project leaders were International Cooperation Agency of the Kingdom of Japan, Science and Research Agency of the Kingdom of Japan and the Ministry of Science, Education and Sports of the Republic of Croatia.

Leader: Prof. Ognjen Bonacci, University of Split, Split

## 2009 - 2011

Scientific advisor to the international project: Data Flow System and Indicators to Enchance Integrated Management of Global Environmental Issues in Croatia

#### 2004 - 2007

Participation in the EU FP6 project: Reintegration of Coal Ash Disposal Sites and Mitigation of Pollution in the West Balkan Area

#### 2005 - 2008

Head of the EU LIFE project: Development of the Croatian Soil Monitoring Programme with a Pilot project

- Lead researcher on the development of monitoring of contaminated soil

Since 1991 Permanent monitoring of environmental ecosystem CPS Molve. Client: Department of Public Health of Koprivničko–križevačka County, Project Leaders: Dr.sc. Ferdo Bašić, professor emeritus and Ivica Kisić, professor

#### LIST OF SCIENTIFIC AND ARTISTIC PROJECTS IN WHICH HE OR SHE PARTICIPATED IN THE LAST FIVE YEARS

#### 2009 - 2012

Strengthening the flow of data and indicators related to environmental issues in Republic of Croatia, LETA d.o.o. and Environmental Protection Agency

## 2009 - 2014

The coordinator for bilateral project of Republic of Croatia (University of Zagreb, University of Rijeka and University of Split): Risk identification and land use planning for mitigation of landslides, escarpment and floods in Croatia.

The project leaders were International Cooperation Agency of the Kingdom of Japan, Science and Research Agency of the Kingdom of Japan and the Ministry of Science, Education and Sports of the Republic of Croatia. Leader: Prof. Ognjen Bonacci, University of Split, Split

Since 1991 Permanent monitoring of environmental ecosystem CPS Molve. Client: Department of Public Health of Koprivničko–križevačka County, Project Leaders: Dr.sc. Ferdo Bašić, professor emeritus and Ivica Kisić, professor

PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



#### **ORDINAL NUMBER: 21**

FIRST NAME, LAST NAME, AND TITLE OF THE TEACHER: Željka Zgorelec, Assistant Professor NAME OF INSTITUTION OF EMPLOYMENT OF THE TEACHER: Faculty of Agriculture, University of Zagreb BIOGRAPHY PERSONAL INFORMATION

Surname and name: Zgorelec, Željka Registration number of researcher: 270772

#### EDUCATION

2009 - Ph.D.

University of Zagreb Faculty of Agriculture in cooperation with University of Natural Resources and Applied Life Sciences (BOKU), Vienna, Austria.

Phytoaccumulation of Metals and Metalloids from Soil Polluted by Coal Ash

2006 - M.Sc.

University of Zagreb Faculty of Chemical Engineering and Technology (FKIT) in cooperation with University of Zagreb Faculty of Agriculture

Influence of Plant Cover and Fertilization on Nitrogen Losses from Soil through drainpipe water

2001 - B.Sc.

University of Zagreb Faculty of Chemical Engineering and Technology (FKIT) in cooperation with Institute for Medical Research and Occupational Health (IMI).

Seasonal variation of polycyclic aromatic hydrocarbons (PAH) measured in different size particulate matter in air

#### SCIENTIFIC TRAINING

2010 and 2011 Institute of Crop Production Science of Szent Istvan University, Godollo & Research Institute of Debrecen University in Karcag, Hungary

2005, 2006 and 2015 University of Natural Resources and Applied Life Sciences (BOKU), Vienna, Austria

2004 - 2005 Univerzität Hohenheim, Stuttgart, Germany

EMPLOYMENT

Since 2002

Institution: Faculty of Agriculture, University of Zagreb

PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



2002 – 2006 assistant (project MZOŠ 0178055) – B.Sc. 2006 – 2009 assistant (project MZOŠ 0178055) – M.Sc. 2009 – 2011 senior assistant – Ph.D. Since 2011 assistant professor (docent)

#### SCHOLARSHIPS AND AWARDS

2006 Croatian Soil-Science Society of Science Michael Gračanin Award

2009 Award for scientific excellence of the Faculty of Agriculture, University of Zagreb

#### **TEACHING ACTIVITIES**

Institution: Faculty of Agriculture, University of Zagreb

Undergraduate study programme (BSc): Agroclimatology (partner), Agriculture and Environment (partner)

Graduate study programme (MSc): Global Ecology (Leader), Global Ecology – Erasmus, in English (Leader), Recultivation and Remediation of Polluted Soils (partner), Soil Chemistry (partner), Agroclimatology and Climate Change (partner)

Postgraduate doctoral study programme (PhD): Agriculture and Environment (partner), Scientific and research system (partner)

Institution: Faculty of Chemical Engineering and Technology, University of Zagreb Specialist Studies in Environmental engineering: Sustainable soil management (partner)

#### Research interests:

Scientific interest and activity in the area of agroecology, soil degradation, soil protection, analytical chemistry of the environment: soil and water chemistry, instrumental analytical methods, validation methods, Phytoaccumulation of the trace elements from contaminated and natural soils; study of nitrogen in the water and soil, and of carbon in the soil related to climate change.

#### MEMBERSHIP

Member of Croatian Soil-Science Society of Science (Hrvatsko tloznanstveno društva - HTD)

Member of Association of Graduated Chemical Engineers (Društvo diplomiranih kemijskih inženjera - AMACIZ)

PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



Member of Presidency of Croatian Air Pollution Protection Association (Hrvatsko udruženje za zaštitu zraka - HUZZ)

Member of Association of Croatian laboratories (CROLAB) where she is serving as Vice President of the Environment Section (SEO)

Member of Mountaineering Association "Novi Zagreb" (PDNZ)

## MAJOR SCIENTIFIC COLLABORATIONS

In the framework of inter-university cooperation and exchange of teachers and teaching experience in the organization of the Fraunhofer IAO and WIFI (The Institute for Business Improvement), she participated in the development of the module Sustainable Land Use and Principles of Ecology (Agribusiness Top-Up Degree modules) at Bs study Animal Management, and as a lecturer in 2011 held 30 lectures at Malta College of Arts, Science and Technology (MCAST), Malta.

2016 – 2020 Member of the editorial board of the scientific journal ACS - Agriculturae Conspectus Scientificus.

Since 2015 member of the editorial board of the scientific journal Environmental Engineering.

#### LANGUAGES

Croatian

English

**DATE OF LAST APPOINTMENT TO A RESEARCH-AND-TEACHING OR ART-AND-TEACHING RANK:** 12 June 2011/ election to the position of associate professor in process

# LIST OF PUBLISHED WORK WHICH QUALIFY HIM/HER FOR IMPLEMENTATION OF THE PROGRAMME, THAT IS, WHICH ARE RELEVANT FOR THE FIELD OF THE DOCTORAL PROGRAMME

To date, author or co-author of 240 scientific and professional papers.

http://bib.irb.hr/lista-radova?autor=270772

 Prevendar Crnić Andreja, Zgorelec Željka, Šuran Jelena, Jurasović Jasna, Špirić Zdravko, Levak Stefani, Bašić Ferdo, Kisić Ivica & Srebočan Emil (2016): Mercury in Eisenia fetida and soil in the vicinity of a natural gas treatment plant in northern Croatia, Journal of Environmental Science and Health, Part A: Toxic/Hazardous Substances and Environmental Engineering. Vol. 51, Issue 2, 114-120

2. Bogunović, Igor; Mesić, Milan; Zgorelec, Željka; Jurišić, Aleksandra; Bilandžija, Darija (2014). Spatial variation of soil nutrients on sandy-loam soil. Soil & tillage research. 144; 174-183

3. Šestak, Ivana; Mesić, Milan; Zgorelec, Željka; Kisić, Ivica; Bašić, Ferdo (2014). Winter wheat agronomic traits and nitrate leaching under variable nitrogen fertilization. Plant, Soil and Environment. 60, 9; 394-400

4. Zgorelec, Željka; Mesić, Milan; Jurišić, Aleksandra; Šestak, Ivana (2013). Leached Phosphorus Measured in Drainage Water Through a Field Experiment With Varying Nitrogen Rates. Journal of Environmental Protection and Ecology. 14, 2; 463-467

PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



5. Jurišić, Aleksandra; Kisić, Ivica; Zgorelec, Željka; Kvaternjak, Ivka (2012). Influence of water erosion on copper and sulphur distribution in vineyard soils. Journal of Environmental Protection and Ecology. 13, 2A; 880-889

6. Zgorelec, Željka; Pehnec, Gordana; Bašić, Ferdo; Kisić, Ivica; Mesić, Milan; Žužul, Silva; Jurišić, Aleksandra; Šestak, Ivana; Vađić, Vladimira; Čačković, Mirjana (2012). Sulphur Cycling Between Terrestrial Agroecosystem and Atmosphere. Arhiv za higijenu rada i toksikologiju. 63, 3; 301-310

7. Žužul, Silva; Zgorelec, Željka; Bašić, Ferdo; Kisić, Ivica; Mesić, Milan; Vađić, Vladimira; Orct, Tatjana (2011). Arsenic in Air and Soil in the Vicinity of the Central Gas Station Molve, Croatia. Bulletin of environmental contamination and toxicology. 86, 5; 501-505

## LIST OF PUBLISHED WORK IN THE LAST FIVE YEARS

 Prevendar Crnić Andreja, Zgorelec Željka, Šuran Jelena, Jurasović Jasna, Špirić Zdravko, Levak Stefani, Bašić Ferdo, Kisić Ivica & Srebočan Emil (2016): Mercury in Eisenia fetida and soil in the vicinity of a natural gas treatment plant in northern Croatia, Journal of Environmental Science and Health, Part A: Toxic/Hazardous Substances and Environmental Engineering. Vol. 51, Issue 2, 114-120

2. Bogunović, Igor; Mesić, Milan; Zgorelec, Željka; Jurišić, Aleksandra; Bilandžija, Darija (2014). Spatial variation of soil nutrients on sandy-loam soil. Soil & tillage research. 144; 174-183

3. Šestak, Ivana; Mesić, Milan; Zgorelec, Željka; Kisić, Ivica; Bašić, Ferdo (2014). Winter wheat agronomic traits and nitrate leaching under variable nitrogen fertilization. Plant, Soil and Environment. 60, 9; 394-400

4. Zgorelec, Željka; Mesić, Milan; Jurišić, Aleksandra; Šestak, Ivana (2013). Leached Phosphorus Measured in Drainage Water Through a Field Experiment With Varying Nitrogen Rates. Journal of Environmental Protection and Ecology. 14, 2; 463-467

5. Jurišić, Aleksandra; Kisić, Ivica; Zgorelec, Željka; Kvaternjak, Ivka (2012). Influence of water erosion on copper and sulphur distribution in vineyard soils. Journal of Environmental Protection and Ecology. 13, 2A; 880-889

6. Zgorelec, Željka; Pehnec, Gordana; Bašić, Ferdo; Kisić, Ivica; Mesić, Milan; Žužul, Silva; Jurišić, Aleksandra; Šestak, Ivana; Vađić, Vladimira; Čačković, Mirjana (2012). Sulphur Cycling Between Terrestrial Agroecosystem and Atmosphere. Archives for Work Hygiene and Toxicology. 63, 3; 301-310

7. Žužul, Silva; Zgorelec, Željka; Bašić, Ferdo; Kisić, Ivica; Mesić, Milan; Vađić, Vladimira; Orct, Tatjana (2011). Arsenic in Air and Soil in the Vicinity of the Central Gas Station Molve, Croatia. Bulletin of environmental contamination and toxicology. 86, 5; 501-505

# LIST OF SCIENTIFIC AND ARTISTIC PROJECTS IN WHICH HE OR SHE PARTICIPATED AND WHICH ARE RELEVANT FOR THE FIELD OF THE DOCTORAL PROGRAMME

Since 1991 Permanent monitoring of environmental ecosystem CPS Molve. Client: Department of Public Health of Koprivničko–križevačka County, Project Leaders: Dr.sc. Ferdo Bašić, professor emeritus/Ivica Kisić, professor (associate)

2005 – 2008 Reintegration of Coal Ash Disposal Sites and Mitigation of Pollution in the West Balkan Area. # 509173-CORDIS-EU-FP6-Specific Targeted Research. Koordinator: BOKU, Department of Forest and Soil Sciences (associate)

2006 – 2009 Development of the Croatian Soil Monitoring Programme With a Pilot Project. LIFE III: LIFE05 TCY/CRO/000105. Koordinator: Croatian Environment Agency (associate)

PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



2011 – 2014 Influence of different ways of using soil on climate change (Leader: Željka Zgorelec; Fund for Environmental Protection and Energy Efficiency)

2014 – 2018 CLIMMANI "Climate Change Manipulation Experiments in Terrestrial Ecosystems: Networking and Outreach", COST - European Cooperation in the field of Scientific and Technical Research, Domain Committee: Earth System Science and Environmental Management (oc-2013-1-15272 new Action) (member of the working group and substitute for the steering committee)

2015 – 2017 Soil management and climate change (Leader: Željka Zgorelec; Fund for Environmental Protection and Energy Efficiency)

2016 – 2018 Teaching project IMPULSE – Internationalizing CASEE Network by Introducing Innovative Mobility Activities And Defining Quality Criteria. OEAD – Austrian Agency for International Cooperation, The New Cooperation Programme for Higher Education (associate)

2016 – 2019 "New Phytotechnology for Cleaning Contaminated Military Sites". NATO - Science for peace and security (SPS Programme); No. : #G4687. Coordinator: Kansas State University, USA (associate)

# LIST OF SCIENTIFIC AND ARTISTIC PROJECTS IN WHICH HE OR SHE PARTICIPATED IN THE LAST FIVE YEARS

2011 – 2014 Influence of different ways of using soil on climate change (Leader: Željka Zgorelec; Fund for Environmental Protection and Energy Efficiency)

2014 – 2018 CLIMMANI "Climate Change Manipulation Experiments in Terrestrial Ecosystems: Networking and Outreach", COST - European Cooperation in the field of Scientific and Technical Research, Domain Committee: Earth System Science and Environmental Management (oc-2013-1-15272 new Action) (member of the working group and substitute for the steering committee)

2015 – 2017 Soil management and climate change (Leader: Željka Zgorelec; Fund for Environmental Protection and Energy Efficiency)

2016 – 2018 Teaching project IMPULSE – Internationalizing CASEE Network by Introducing Innovative Mobility Activities And Defining Quality Criteria. OEAD – Austrian Agency for International Cooperation, The New Cooperation Programme for Higher Education (associate)

2016 – 2019 "New Phytotechnology for Cleaning Contaminated Military Sites". NATO - Science for peace and security (SPS Programme); No. : #G4687. Coordinator: Kansas State University, USA (associate)
PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



#### **ORDINAL NUMBER: 22**

FIRST NAME, LAST NAME, AND TITLE OF THE TEACHER: Leo Klasinc, Academician

#### NAME OF INSTITUTION OF EMPLOYMENT OF THE TEACHER: Retired

#### BIOGRAPHY

Academician Leo Klasinc was born on 20.5.1937 in Zagreb where he attended high school (1955), graduated chemistry at Faculty of Technology (1960) and made his doctorate at Faculty of Pharmacy and Biochemistry, FBF (1963). Since 1961 at Ruder Bošković Institute, in 1968 he became Head of Laboratory for chemical kinetics and atmospheric chemistry of Physical chemistry department. At the same time he also did teaching : at FBF (1970) and PMF (1971-2002) in Zagreb and in Ljubljana at the FNT and Jožef Stefan Institute (IJS) with whom he had long time cooperation in mass spectrometry . He stayed often at Nuclear Research Centre in Karlsruhe between 1972 to 1984 within several bilateral projects with Germany in the fields of spectroscopy, theoretical and atmospheric chemistry. At the Department of chemistry of Louisiana State University (LSU) in Baton Rouge he is a visiting professor since 1984. He did research in the fields of spectroscopy, physical-organic, theoretical and atmospheric chemistry and was first to organize and develop it in Croatia, particularly of tropospheric ozone. He became co-worker of HAZU in 1990, and full member in 2004. He received the Ruđer Bošković prize (1987), HAZU prize (1996), City of Zagreb prize (2002) and Life Achievement in Science prize (2007). For his contributions to science and contribution to education he was elected in 2005 to Emeritus Scientist of Ruder Bošković Institute. He lead a number of national and international research projects, Ph.D. dissertations (14), M.Sc. theses (14) as well as student diploma works, organizer and leader of conferences and published more than 270 scientific papers, and a great number of other relevant publication activities.

**DATE OF LAST APPOINTMENT TO A RESEARCH-AND-TEACHING OR ART-AND-TEACHING RANK:** Since 1999 the permanent title Full Professor

# LIST OF PUBLISHED WORK WHICH QUALIFY HIM/HER FOR IMPLEMENTATION OF THE PROGRAMME, THAT IS, WHICH ARE RELEVANT FOR THE FIELD OF THE DOCTORAL PROGRAMME

1. Li, Jinfeng; Zhang, Yuanhang; Herjavić, Glenda; Wine, Paul H.; Klasinc, Leo. Bibliometric analysis of research on secondary organic aerosols: Update. // Pure and applied chemistry. 86 (2014), 7; 1169-1175.

2. Matasović, Brunislav; Herjavić, Glenda; Klasinc, Leo; Cvitaš, Tomislav. Analysis of ozone data from the Puntijarka station for the period between 1989 and 2009. // Journal of atmospheric chemistry. 71 (2014), 4; 269-282.

3. Novak, Igor; Klasinc, Leo; Šket, Boris; Chong, Delano P.; McGlynn, Sean P. UV photoelectron spectroscopy and outer valence electronic structure of dihalobenzenes. // Croatica chemica acta. 87 (2014), 4; 495-499.

4. Li, Jinfeng; Zhang, Yuanhang; Veber, Marjan; Wine, Paul H.; Klasinc, Leo. Bibliometric analysis of research on secondary organic aerosols: A science citation index expanded-based analysis (IUPAC technical report). // Pure and applied chemistry. 85 (2013), 6; 1241-1255.

5. Matasović, Brunislav; Klasinc, Leo; Cvitaš, Tomislav. Growth Season Photochemical Pollution over the UK Based on 1990-2006 Ozone Data. // Croatica chemica acta. 86 (2013), 1; 57-64.

6. Matasović, Brunislav; Klasinc, Leo; McGlynn, Sean P. Analysis of Ozone Data by Photochemical Pollution Indicators in Colorado. // Croatica chemica acta. 86 (2013), 3; 325-329.

7. Novak, Igor; Klasinc, Leo; Chong, Delanopun; McGlynn, Séan P. Photoelectron spectroscopy of nonsteroidal anti-inflammatory drugs. // Spectrochimica acta. Part A, Molecular and biomolecular spectroscopy. 112 (2013); 110-115.



8. Kovač, Branka; Kazazić, Snježana; Biliškov, Nikola; Klasinc, Leo; Novak, Igor. Photoelectron spectroscopy of natural products: Hydroxy-flavones and naringenin. // Journal of electron spectroscopy and related phenomena. 185 (2012), 3/4; 71-76.

9. Matasović, Brunislav; Cvitaš, Tomislav; Klasinc Leo. On Photochemical Air Pollution Potential in Southern California Derived from Ozone Data from 16 Monitoring Stations. // Croatica chemica acta. 85 (2012), 1; 71-76.

10. Arh, Gregor; Klasinc, Leo; Veber, Marjan; Pompe, Matevz. Calibration of mass selective detector in nontarget analysis of volatile organic compounds in the air. // Journal of chromatography. A. 1218 (2011), 11; 1538-1543.

11. Klasinc, Leo; Cvitaš, Tomislav; McGlynn, Sean P.; Hu, Min; Tang, Xiaoyan; Zhang, Yuanhang. Photochemical pollution indicators in the Subtropics. // Croatica chemica acta. 84 (2011), 1; 11-16.

Klasinc, Leo; Cvitaš, Tomislav; De Marco, Alessandra; Kezele, Nenad; Paoletti, Elena; Pompe, Matevz.
Rating of Mediterranean photochemical air pollution monitoring sites. // Fresenius environmental bulletin.
(2010), 9-B; 1982-1988.

13. Kovač-Andrić, Elvira; Šorgo, Glenda; Kezele, Nenad; Cvitaš, Tomislav; Klasinc, Leo. Photochemical pollution indicators— an analysis of 12 European monitoring stations. // Environmental monitoring and assessment. 165 (2010), 1-4; 577-583.

14. Pehnec, Gordana; Klasinc, Leo; Cvitaš, Tomislav; Vađić, Vladimira; Šorgo, Glenda. Modeling of ozone and hydrogen peroxide in air. // Croatica chemica acta. 83 (2010), 4; 433-438.

15. Pehnec, Gordana; Klasinc, Leo; Šorgo, Glenda; Vađić, Vladimira. Analysis of summer 2006 ozone pollution in Zagreb. // Croatica Chemica Acta. 82 (2009), 1; 329-335.

16. Pehnec, Gordana; Klasinc, Leo; Vađić, Vladimira; Šorgo, Glenda. Estimation of ozone and peroxide levels in the air of Croatia. // Croatica Chemica Acta. 82 (2009), 2; 543-551.

17. Acker, Karin; Kezele, Nenad; Klasinc, Leo; Möller, Detlev; Pehnec, Gordana; Šorgo, Glenda; Wieprecht, Wolfgang; Žužul, Silva. Atmospheric H2O2 measurement and modeling campaign during summer 2004 in Zagreb, Croatia. // Atmospheric Environment. 42 (2008), 10; 2530-2542.

18. Klasinc, Leo; Kezele, Nenad; Pompe, Matevž; McGlynn, Sean P. Trends, distribution and frequency analysis of ozone data from three monitoring stations in Baton Rouge, Louisiana for the years 1995 to 2005. // Croatica Chemica Acta. 81 (2008), 2; 311-318.

19. Alebić-Juretić, Ana; Cvitaš, Tomislav; Kezele, Nenad; Klasinc, Leo; Pehnec, Gordana; Šorgo, Glenda. Atmospheric particulate matter and ozone under heat-wave conditions: do they cause an increase of mortality in Croatia?. // Bulletin of Environmental Contamination and Toxicology. 79 (2007), 4; 468-471.

20. Cvitaš, Tomislav; Klasinc, Leo; Kezele, Nenad; McGlynn, Sean P.; Pryor, William A. New directions: How dangerous is ozone?. // Atmospheric Environment. 39 (2005), 25; 4607-4608.

21. Cvitaš, Tomislav; Furger, Markus; Girgzdiene, Rasa; Haszpra, Laslo; Kezele, Nenad; Klasinc, Leo; Planinšek, Anton; Pompe, Matevž; Prevot, Andre; Scheel, Hans; Schuepbach, Evi. Spectral Analysis of Boundary Layer Ozone Data from the EUROTRAC TOR Network. // Journal of Geophysical Research. 109 (2004); D02302, doi:10.1029/2003JD003727.

22. Alebić-Juretić, Ana; Cvitaš, Tomislav; Klasinc, Leo. Kinetics of the heterogeneous ozone reactions. // Chemosphere. 41 (2000), 5; 667-670.

PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



23. Cvitaš, Tomislav; Kezele, Nenad; Klasinc, Leo. Boundary Layer Ozone in Croatia. // Journal of atmospheric chemistry. 28 (1997), 1-3; 125-134.

24. Scheel, H.E.; Areskoug, H.; Geiss, H.; Gomišček, B.; Granby, K.; Haszpra, L.; Klasinc, Leo; Kley, D.; Laurila, T.; Lindskog, A.; Roemer, M.; Schmitt, R.; Simmonds, P.; Solberg, S.; Toupance, G. On the Spatial Distribution and Seasonal Variation of Lower-Troposphere Ozone over Europe.

25. Klasinc, Leo; Cvitaš, Tomislav. The photosmog problem in the Mediterranean region. // Marine chemistry. 53 (1996), 1-2; 111-119.

26. Alebić-Juretić, Ana; Cvitaš, Tomislav; Klasinc, Leo. Heterogeneous Polycyclic Aromatic Hydrocarbon Degradation with Ozone on Silica Gel Carrier. // Environmental Science & Technology. 24 (1990); 62-66.

# LIST OF PUBLISHED WORK IN THE LAST FIVE YEARS

1. Li, Jinfeng; Zhang, Yuanhang; Herjavić, Glenda; Wine, Paul H.,; Klasinc, Leo. Bibliometric analysis of research on secondary organic aerosols: Update. // Pure and applied chemistry. 86 (2014), 7; 1169-1175.

 Matasović, Brunislav; Herjavić, Glenda; Klasinc, Leo; Cvitaš, Tomislav. Analysis of ozone data from the Puntijarka station for the period between 1989 and 2009. // Journal of atmospheric chemistry. 71 (2014) , 4; 269-282.

3. Novak, Igor; Klasinc, Leo; Šket, Boris; Chong, Delano P.; McGlynn, Sean P. UV photoelectron spectroscopy and outer valence electronic structure of dihalobenzenes. // Croatica chemica acta. 87 (2014) , 4; 495-499.

4. Li, Jinfeng; Zhang, Yuanhang; Veber, Marjan; Wine, Paul H.; Klasinc, Leo. Bibliometric analysis of research on secondary organic aerosols: A science citation index expanded-based analysis (IUPAC technical report). // Pure and applied chemistry. 85 (2013) , 6; 1241-1255.

5. Matasović, Brunislav; Klasinc, Leo; Cvitaš, Tomislav. Growth Season Photochemical Pollution over the UK Based on 1990-2006 Ozone Data. // Croatica chemica acta. 86 (2013) , 1; 57-64.

6. Matasović, Brunislav; Klasinc, Leo; McGlynn, Sean P. Analysis of Ozone Data by Photochemical Pollution Indicators in Colorado. // Croatica chemica acta. 86 (2013) , 3; 325-329.

7. Novak, Igor; Klasinc, Leo; Chong, Delanopun; McGlynn, Séan P. Photoelectron spectroscopy of nonsteroidal anti-inflammatory drugs. // Spectrochimica acta. Part A, Molecular and biomolecular spectroscopy. 112 (2013) ; 110-115.

8. Kovač, Branka; Kazazić, Snježana; Biliškov, Nikola; Klasinc, Leo; Novak, Igor. Photoelectron spectroscopy of natural products: Hydroxy-flavones and naringenin. // Journal of electron spectroscopy and related phenomena. 185 (2012), 3/4; 71-76.

9. Matasović, Brunislav; Cvitaš, Tomislav; Klasinc Leo. On Photochemical Air Pollution Potential in Southern California Derived from Ozone Data from 16 Monitoring Stations. // Croatica chemica acta. 85 (2012) , 1; 71-76.

# LIST OF SCIENTIFIC AND ARTISTIC PROJECTS IN WHICH HE OR SHE PARTICIPATED AND WHICH ARE RELEVANT FOR THE FIELD OF THE DOCTORAL PROGRAMME

2015-2016 participates in drafting of the new program UNEP GEO-6 (Global Environment Outlook)

2013-2015 Associate researcher on the bilateral project with China "Secondary organic aerosol and photochemical pollution"

2007-2010 Head of the bilateral project with China "Ozone pollution index and National air quality standards"

2007 -2014 Head of the Ministry of Science project "Measuring and effect of atmospheric oxidants"

PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



2002 -2006 Associate researcher on Ministry of Science project "Properties and behaviour of atmospheric trace gases"

2000 - 2003 Head of the international project for Croatia EUROTRAC – TOR2 (Tropospheric ozone research)

1991-1996 Head of the Ministry of Science project "Structure, properties and reactivity of the chemical system"

1991 – 1999 Head of the international project for Croatia EUROTRAC – TOR (Tropospheric ozone research)

1989 -1991 Head for Yugoslavia in the international project EUROTRAC (EUropean Experiment on Transport and Transformation of Environmentally Relevant Trace Constituents in the Troposphere over Europe)

### LIST OF SCIENTIFIC AND ARTISTIC PROJECTS IN WHICH HE OR SHE PARTICIPATED IN THE LAST FIVE YEARS

2015-2016 participates in drafting of the new program UNEP GEO-6 (Global Environment Outlook)

2013-2015 Associate researcher on the bilateral project with China "Secondary organic aerosol and photochemical pollution"

PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



#### **ORDINAL NUMBER: 23**

#### FIRST NAME, LAST NAME, AND TITLE OF THE TEACHER: Glenda Herjavić, PhD

#### NAME OF INSTITUTION OF EMPLOYMENT OF THE TEACHER:

#### BIOGRAPHY

Glenda Herjavić (maiden name Šorgo) was born on 3rd March 1977 in Koper, Slovenia. After completing the natural sciences orientation of high school "Vladimir Gortan" Buje (1995) entered the Faculty of Chemical Engineering and Technology, University of Zagreb. She graduated in 2003 with the theme "A biocompatible titanium implants: an in-vitro studies of corrosion stability". In July 2003 working at Ruđer Bošković Institute at the Laboratory for chemical kinetics and atmospheric chemistry. She received her PhD in 2012 at the Faculty of Science, University of Zagreb with the theme "Components of photochemical pollution in the atmospheric boundary layer above Croatia". During his work she dealt with the chemical characterization of particulate matter by HPLC (ESI) -MS technique, development of methods for separation and identification of organic compounds in complex environmental samples, monitoring the concentration of organosulfur compounds in atmospheric airborne particles, monitoring and pollution issue with ozone and Volatile Organic Compounds (VOC) in the boundary layer of the atmosphere, modeling changes in composition of pollution in the atmosphere, manage of air quality monitoring stations, processing and analysing environmental data - method of principal component analysis (PCA), method of trend analysis and Fourier transform frequency analysis. She was the leader of one and associate at 5 projects. She has participated in 14 scientific and professional conferences in Croatia and abroad and held 2 invited lectures. She has received several awards (Scholarship from Croatian Academy of Sciences and Arts Foundation, French Embassy & Ruder Bošković Institute fellowship, Young Scientist Travel Award scholarships, MENESR scholarship- program ACCESS). She is co-author of 17 scientific papers, of which 14 cited in Web of Science Core Collection database.

**DATE OF LAST APPOINTMENT TO A RESEARCH-AND-TEACHING OR ART-AND-TEACHING RANK:** Research Associate (Natural Sciences / Interdisciplinary natural science / environmental science) from April 9th 2014.

# LIST OF PUBLISHED WORK WHICH QUALIFY HIM/HER FOR IMPLEMENTATION OF THE PROGRAMME, THAT IS, WHICH ARE RELEVANT FOR THE FIELD OF THE DOCTORAL PROGRAMME

1. Li, Jinfeng; Zhang, Yuanhang; Herjavić, Glenda; Wine, Paul H.,; Klasinc, Leo. Bibliometric analysis of research on secondary organic aerosols: Update, Pure and applied chemistry (2014) 86 (7), 1169-1175.

2. Matasović, Brunislav; Herjavić, Glenda; Klasinc, Leo; Cvitaš, Tomislav. Analysis of ozone data from the Puntijarka station for the period between 1989 and 2009, Journal of atmospheric chemistry. (2014) 71 (4), 269-282.

3. Kovač-Andrić, Elvira; Gvozdić, Vlatka; Herjavić, Glenda; Muharemović, Hasan. Assessment of ozone variations and meteorological influences in a tourist and health resort area on the island of Mali Lošinj (Croatia), Environmental Science and Pollution Research (2013) 20 (8), 5106-5113.

4. Kovač-Andrić, Elvira; Šorgo, Glenda; Kezele, Nenad; Cvitaš, Tomislav; Klasinc, Leo. Photochemical pollution indicators— an analysis of 12 European monitoring stations, Environmental Monitoring and Assessment (2010) 165 (1-4), 577-583.

5. Pehnec, Gordana; Klasinc, Leo; Cvitaš, Tomislav; Vađić, Vladimira; Šorgo, Glenda. Modeling of Ozone and Hydrogen Peroxide in Air, Croatica Chemica Acta (2010) 83 (4), 433-438.

6. Pehnec, Gordana; Klasinc, Leo; Šorgo, Glenda; Vađić, Vladimira. Analysis of summer 2006 ozone pollution in Zagreb, Croatica Chemica Acta (2009) 82 (1), 329-335.



7. Pehnec, Gordana; Klasinc, Leo; Vađić, Vladimira; Šorgo, Glenda. Estimation of ozone and peroxide levels in the air of Croatia, Croatica Chemica Acta (2009) 82 (2), 543-551.

8. Pehnec, Gordana; Klasinc, Leo; Šorgo, Glenda. Estimation of biologically effective UV radiation in Croatia, Periodicum Biologorum (2009) 111 (1), 65-71.

9. Acker, Karin; Kezele, Nenad; Klasinc, Leo; Möller, Detlev; Pehnec, Gordana; Šorgo, Glenda; Wieprecht, Wolfgang; Žužul, Silva. Atmospheric H2O2 measurement and modeling campaign during summer 2004 in Zagreb, Croatia, Atmospheric Environmnet (2008) 42 (10), 2530–2542.

10. Alebić-Juretić, Ana; Cvitaš, Tomislav; Kezele, Nenad; Klasinc, Leo; Pehnec, Gordana; Šorgo, Glenda. Atmospheric particulate matter and ozone under heat-wave conditions: Do they cause an increase of mortality in Croatia?, Bulletin of Environmental Contamination and Toxicology (2007) 79 (4), 468-471

11. Cvitaš, Tomislav; Kezele, Nenad; Klasinc, Leo; Šorgo, Glenda. Ozone measurements at the mountain station Zavižan (Croatia) for 1997– 2000, Geofizika (2007) 24 (2), 109-116.

12. Cvitaš, Tomislav; Kezele, Nenad; Klasinc, Leo; Šorgo, Glenda. AOT40 as preliminary indicator for ozone induced forest injury on mountain Medvednica near Zagreb, Periodicum Biologorum (2006) 108 (6), 639-641.

13. Kovač-Andrić, Elvira, Šorgo, Glenda, Kezele, Nenad, Pompe, Matevž. VOC measurements at Kopački rit nature reserve, (2006) Periodicum Biologorum 108 (6), 707-709.

14. Cvitaš, Tomislav; Kezele, Nenad; Klasinc, Leo; Šorgo, Glenda. Ozone measurement on mount Srđ near Dubrovnik, Croatia, Geofizika (2006) 23 (2), 165-171.

15. Kovač-Andrić, Elvira; Herjavić, Glenda; Muharemović, Hasan. Hlapljivi ugljikovodici u graničnom sloju u Tikvešu, Park prirode Kopački rit, Kemija u industriji : časopis kemičara i tehnologa Hrvatske (2013) 62, 235-239.

16. Pehnec, Gordana; Kezele, Nened, Šorgo, Glenda. Estimation of UV exposure in Croatia over the summer using a simple approximate formula, Arhiv za Higijenu Rada i Toksikologiju (2007) 58 (4), 387-397.

17. Butković, Vjera; Cvitaš, Tomislav; Kezele, Nenad; Klasinc, Leo; Šorgo, Glenda; Žegarac, Robert. Zagreb photosmog episode in August 2003, Hrvatski Meteorološki Časopis (2004) 39, 139-140.

18. Klasinc, Leo; Cvitaš, Tomislav; Herjavić, Glenda; Dejanović, Branka; Potočić, Nenad; Seletković, Ivan; Muharemović, Hasan. Exposure of forest in the Nature Park Medvednica to atmospheric pollution, 2009. (Commissioned by Public Institution Nature Park Medvednica, expert report).

19. Klasinc, Leo; Potočić, Nenad; Seletković, Ivan; Šorgo, Glenda; Cvitaš, Tomislav. Exposure of forest in the Nature Park Medvednica to atmospheric pollution, 2009. (Commissioned by Public Institution Nature Park Medvednica, expert report).

# LIST OF PUBLISHED WORK IN THE LAST FIVE YEARS

1. Li, Jinfeng; Zhang, Yuanhang; Herjavić, Glenda; Wine, Paul H.,; Klasinc, Leo. Bibliometric analysis of research on secondary organic aerosols: Update, Pure and applied chemistry (2014) 86 (7), 1169-1175.

2. Matasović, Brunislav; Herjavić, Glenda; Klasinc, Leo; Cvitaš, Tomislav. Analysis of ozone data from the Puntijarka station for the period between 1989 and 2009, Journal of atmospheric chemistry. (2014) 71 (4), 269-282.

3. Kovač-Andrić, Elvira; Gvozdić, Vlatka; Herjavić, Glenda; Muharemović, Hasan. Assessment of ozone variations and meteorological influences in a tourist and health resort area on the island of Mali Lošinj (Croatia), Environmental Science and Pollution Research (2013) 20 (8), 5106-5113.



# LIST OF SCIENTIFIC AND ARTISTIC PROJECTS IN WHICH HE OR SHE PARTICIPATED AND WHICH ARE RELEVANT FOR THE FIELD OF THE DOCTORAL PROGRAMME

2014 - onwards SPHERE - " The Sulphur and Carbon dynamics in the Sea- and Fresh-water EnviRonmEnt" HRZZ research project, associate

2014- 2015 Croatian-Chinese bilateral project "Secondary organic aerosols and photochemical pollution", leader

2007 - 2013 "Measurement and effects of atmospheric oxidants", Ministry of science research project, associate

2008 - 2009 "Exposure of forest to atmospheric pollution in the Nature Park Medvednica", Commissioned by Public Institution Nature Park Medvednica

2004 - 2005 " Formation, transport and degradation of photooxidants in the Mediterranean ", Croatian-Slovenian bilateral project, associate

2003 - 2006 " Properties and behavior of atmospheric microconstituents," Ministry of science research project, associate

#### LIST OF SCIENTIFIC AND ARTISTIC PROJECTS IN WHICH HE OR SHE PARTICIPATED IN THE LAST FIVE YEARS

2014 - onwards SPHERE - " The Sulphur and Carbon dynamics in the Sea- and Fresh-water EnviRonmEnt" HRZZ research project, associate

2014- 2015 Croatian-Chinese bilateral project "Secondary organic aerosols and photochemical pollution", leader

2007 - 2013 " Measurement and effects of atmospheric oxidants", Ministry of science research project, associate

PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



#### **ORDINAL NUMBER: 24**

FIRST NAME, LAST NAME, AND TITLE OF THE TEACHER: Bojan Šarkanj, Assistant Professor

**NAME OF INSTITUTION OF EMPLOYMENT OF THE TEACHER:** Faculty of Food Technology, Josip Juraj Strossmayer Univesity of Osijek

#### BIOGRAPHY

Born on October 11, 1984 in Čakovec, Croatia. He graduated in high school in Prelog as a food technician in 2003 and then enrolled in the Faculty of Food Technology in Osijek, where he finished Master thesis in 2007. On same faculty, he finished his PhD in 2014 titled: "Influence of Glutathione S-transferase inhibitors on the production of aflatoxin by Aspergillus flavus". He was employed in the Bakery "Supetar" from June to August 2003. Since 2007, he was employed as a research fellow at the Faculty of Food Technology in Osijek on the project "Synergistic mixtures in antifungal and antimotoxicogenic food protection". As an assistant professor, he is participating in the following courses: General and Analytical Chemistry, Organic Chemistry and Food Toxicology at the Undergraduate Study "Food technology". At the graduate study "Food science and nutrition", and "Food engineering" he is teaching at following courses: Physiology of Digestion, Nutritional Biochemistry, Foodborne Hazards, Nutritional aspects of Food Preparation and Occupational Toxicology. Also at Postgraduate specialist studies, he teaches on following subjects: Nutrition aspects of Food Preparation, Foodborne Hazards and Food Toxicology. On a number of occasions (2011, 2012, 2014, 2015, 2016, 2017) he has been scientifically trained in Austria (mycotoxin analysis, BOKU, IFA Tulln), quality assurance in analytical measurements (2015), and subsequently (2015) became the official TrainMiC® lecturer (JRC-IRMM, Geel, Belgium), and cooperates in lectures with the Croatian Metrology Society. He has participated in the EFSA Scientific Colloquium "Low dose effects in toxicology and risk assessment" (2012, EFSA, Parma, Italy) and completed pedagogical-psychological and didactic-methodological education (2012, UFOS, Osijek, Croatia). Scientifically he works on analytical and molecular mycotoxicology. He has published fifteen scientific papers of the A1 group, four A2 and twelve A3 groups, and has more than 40 participations on conferences. He was the Principal investigator of three scientific projects, and was an project collaborator of nine other projects. He is a member of the Croatian Toxicology Society and the Croatian Microbiological Society.

#### DATE OF LAST APPOINTMENT TO A RESEARCH-AND-TEACHING OR ART-AND-TEACHING RANK: 2429.01.2015.

# LIST OF PUBLISHED WORK WHICH QUALIFY HIM/HER FOR IMPLEMENTATION OF THE PROGRAMME, THAT IS, WHICH ARE RELEVANT FOR THE FIELD OF THE DOCTORAL PROGRAMME

1. Warth, Benedikt; Del Favero, Giorgia; Wiesenberger, Gerlinde; Puntscher, Hannes; Woelflingseder, Lydia; Fruhmann, Philipp; **Šarkanj, Bojan**; Krska, Rudolf; Schuhmacher, Rainer; Adam, Gerhard; Marko, Doris. Identification of a novel human deoxynivalenol metabolite enhancing proliferation of intestinal and urinary bladder cells. // Scientific Reports. 6 (2016); 33854.

2. Warth, Benedikt; Fruhmann, Philipp; Wiesenberger, Gerlinde; Kluger, Bernhard; **Šarkanj, Bojan;** Lemmens, Marc; Hametner, Christian; Fröhlich, Johannes; Adam, Gerhard; Krska, Rudolf; Schuhmacher, Rainer. Deoxynivalenol-sulfates : identification and quantification of novel conjugated (masked) mycotoxins in wheat. // Analytical and bioanalytical chemistry. 407 (2015), 4; 1033-1039.

3. Perić, Magdalena; Bošnjak, Zinka; **Šarkanj, Bojan**; Barbić, Jerko; Antolović-Požgain, Arlen; Ružman, Nataša; Roksandić-Križan, Ivana; Vuković, Dubravka. Polymorphisms of Toll-like receptors 2 and 4 in chronically infected hepatitis C patients from north-east Croatia. // Archives of virology. 160 (2015); 297-304.

**4. Šarkanj, Bojan**; Warth, Benedikt; Uhlig, Silvio; Abiab, Wilfred A.; Sulyok, Michael; Klapec, Tomislav; Krska, Rudolf; Banjari, Ines. Urinary analysis reveals high deoxynivalenol exposure in pregnant women from Croatia. // Food and chemical toxicology. 62 (2013); 231-237.

**5. Šarkanj, Bojan**; Molnar, Maja; Čačić, Milan; Gille, Lars. 4-Methyl-7-hydroxycoumarin antifungal and antioxidant activity enhancement by substitution with thiosemicarbazide and thiazolidinone moieties. // Food chemistry. 139 (2013); 488-495.

#### LIST OF PUBLISHED WORK IN THE LAST FIVE YEARS



1. Abia, Wilfred A.; Warth, Benedikt; Ezekiel, Chibundu N.; **Šarkanj, Bojan**; Turner, Paul C.; Marko, Doris; Krska, Rudolf; Sulyok, Michael. Uncommon toxic microbial metabolite patterns in traditionally home-processed maize dish (fufu) consumed in rural Cameroon. // Food and chemical toxicology. 107 (2017); 10-19.

 Generotti, Silvia; Cirlini, Martina; Šarkanj, Bojan; Sulyok, Michael; Berthiller, Franz; Dall'Asta, Chiara; Suman, Michele. Formulation and processing factors affecting trichothecene mycotoxins within industrial biscuit-making. // Food chemistry. 229 (2017); 597-603.

3. Kovač, Tihomir; **Šarkanj, Bojan**; Klapec, Tomislav; Borišev, Ivana; Kovač, Marija; Nevistić, Ante; Strelec, Ivica. Fullerol C60(OH)24 nanoparticles and mycotoxigenic fungi: A preliminary investigation into modulation of mycotoxin production. // Environmental science and pollution research international. 24 (2017); 16673-16681.

4. Molnar, Maja; Pavić, Valentina; **Šarkanj, Bojan**; Čačić, Milan; Vuković, D.; Klenkar, Jelena. Mono- and bis-dipicolinic acid heterocyclic derivatives – thiosemicarbazides, triazoles, oxadiazoles and thiazolidinones as antifungal and antioxidant agents. // Heterocyclic communications. 23 (2017); 35-42.

5. Warth, Benedikt; Del Favero, Giorgia; Wiesenberger, Gerlinde; Puntscher, Hannes; Woelflingseder, Lydia; Fruhmann, Philipp; **Šarkanj, Bojan**; Krska, Rudolf; Schuhmacher, Rainer; Adam, Gerhard; Marko, Doris. Identification of a novel human deoxynivalenol metabolite enhancing proliferation of intestinal and urinary bladder cells. // Scientific Reports. 6 (2016); 33854.

6. Perić, Magdalena; Bošnjak, Zinka; **Šarkanj, Bojan**; Barbić, Jerko; Antolović-Požgain, Arlen; Ružman, Nataša; Roksandić-Križan, Ivana; Vuković, Dubravka. Polymorphisms of Toll-like receptors 2 and 4 in chronically infected hepatitis C patients from north-east Croatia. // Archives of virology. 160 (2015); 297-304.

7. Warth, Benedikt; Fruhmann, Philipp; Wiesenberger, Gerlinde; Kluger, Bernhard; **Šarkanj, Bojan**; Lemmens, Marc; Hametner, Christian; Fröhlich, Johannes; Adam, Gerhard; Krska, Rudolf; Schuhmacher, Rainer. Deoxynivalenol-sulfates : identification and quantification of novel conjugated (masked) mycotoxins in wheat. // Analytical and bioanalytical chemistry. 407 (2015); 1033-1039.

8. Čačić, Milan; Pavić, Valentina; Molnar, Maja; **Šarkanj, Bojan**; Has-Schön, Elizabeta. Design and Synthesis of Some New 1, 3, 4- Thiadiazines with Coumarin Moieties and Their Antioxidative and Antifungal Activity. // Molecules. 19 (2014); 1163-1177.

9. Strelec, Ivica; **Šarkanj, Bojan**; Mrša, Vladimir; Ugarčić-Hardi, Žaneta. Chemical Composition, Quality Parameters, Exopeptidase and Oxidoreductase Activity Changes During Temporal Development of Wheat Grain Infestation by Sitophilus granarius. // Journal of food biochemistry. 38 (2014); 175-183.

10. Bošnjak, Zinka; Perić, Magdalena; Roksandić Križan, Ivana; Džijan, Snježana; Ružman, Nataša; Pastuović, Tajana; **Šarkanj, Bojan**; Bertić, Vedran; Burian, Sven; Vuković, Dubravka. Prevalence and Genotype Distribution of High-risk Human Papillomavirus (HR HPV) in Male Genital Samples of Osijek-Baranja County. // Collegium antropologicum. 37 (2013); 1203-1208.

11. Šarkanj, Bojan; Molnar, Maja; Čačić, Milan; Gille, Lars. 4-Methyl-7-hydroxycoumarin antifungal and antioxidant activity enhancement by substitution with thiosemicarbazide and thiazolidinone moieties. // Food chemistry. 139 (2013); 488-495.

12. Šarkanj, Bojan; Warth, Benedikt; Uhlig, Silvio; Abiab, Wilfred A.; Sulyok, Michael; Klapec, Tomislav; Krska, Rudolf; Banjari, Ines. Urinary analysis reveals high deoxynivalenol exposure in pregnant women from Croatia. // Food and chemical toxicology. 62 (2013); 231-237.

# LIST OF SCIENTIFIC AND ARTISTIC PROJECTS IN WHICH HE OR SHE PARTICIPATED AND WHICH ARE RELEVANT FOR THE FIELD OF THE DOCTORAL PROGRAMME

She was a leader of many homeland and international projects, like: EUREKA projects, EU projects, Bilateral projects with France, Chech republic, Ukraine, TIA SRRP project, TIA TP MIR project, ARRS CRP MIR project, ARS project with Perutnina Ptuj company, international projects with University of Regensbourg, Germany,

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University of Southampton, England, Technical University of Budapest, Hungary and Georgia Technological Institute, Atlanta, USA.

LIST OF SCIENTIFIC AND ARTISTIC PROJECTS IN WHICH HE OR SHE PARTICIPATED IN THE LAST FIVE YEARS

1. Principal investigator:

a. Occurrence of mycotoxins in Croatian cereals (CroMycoScreen), (European Structural & Investment Funds, European Social Fund, Human Resources Development 2007.-2013.), (2015.-2016.)

b. Antiaflatoxigenic effect of flavonoid quercetin (2015.-2016.)

c. Determination of acetylated and masked forms of deoxynivalenol in cereals and cereal products(2015.)

2. Project collaborator:

a. Wheat breeding for resistance to Fusarium head blight combined with mycotoxin analysis and antioxidant pathways (2015.-2017.)

b. MycoMarker: Quantifying food-borne mycotoxin intake by advanced biomarker based exposure assessment to improve food safety (2015.-2016.)

c. Health in in III (2014.-2015.)

d. Exposure of Croatian population to free and masked forms of deoxynivalenol (2014.-2016.)

e. Health is in II (2013.-2014.)

f. Inhibitory effect of fullerenes on aflatoxin synthesis (2013.-2014.)

g. Economic analysis of ochratoxin A in wine (2012.-2013.)

h. Determining mycotoxins and metabolites in the urine of pregnant women (2012.)

i. Synergistic mixtures in antifungal and antimycotoxigenic food protection (2007.-2013.)

PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



#### **ORDINAL NUMBER:** 25

FIRST NAME, LAST NAME, AND TITLE OF THE TEACHER: Göran Klobučar, Full Professor

NAME OF INSTITUTION OF EMPLOYMENT OF THE TEACHER: Division of Biology, Faculty of Science, University of Zagreb

# BIOGRAPHY

Göran Klobučar, Professor, born 1967. Graduated Biology (major Ecology) at the Faculty of Science, University of Zagreb in 1992. Same year he was employed at the same faculty, Division of Zoology, as a research assistant. He received his Masters diploma in 1995 and Ph.D. ("Haemocytes of freshwater molluscs as indicators of metabolic stress") in Natural Sciences, field of Biology, in 2001. In 2004 he was elected assistant professor, in 2009 associate professor and in 2014 full professor. From 1996 he specialized in the field of ecotoxicology at different institutions (University of Bordeaux, France; University of Trieste, Italy).

Since 1992 he actively participates in the laboratory and field work of the following courses: General Zoology, Introduction to Zoology, and Bioassays. In 2002, he was entrusted to lecture Bioassays. For undergraduate and graduate study he teaches: General Zoology, Bioassays, Ecotoxicology, Biomonitoring, and Evolution of Organ Systems in Animals, and at postgraduate studies he lectures Biomarkers in Biomonitoring of Environmental Pollution. He was a mentor or co-mentor for more than 30 graduate theses and mentor of 3 master and 4 doctoral dissertations.

His scientific work is mainly related to the biomonitoring and biomarkers of pollution of inland waters and the sea, and to the study of phylogeny, biology and distribution of freshwater crayfish (family Astacidae, Crustacea) and their epibionts (Branchiobdellida, Annelida) in Croatia and Europe. As a researcher he participated in several research projects and has lead seven domestic and three international projects. He has published more than 60 scientific papers that have been cited more than 700 times (h-index 15). He has co-authored two university textbooks (General Zoology, Environmental Analytics), 2 book chapters and 3 high school textbooks.

He was head of the Environmental Sciences study (2010-2012), Assistant Head for Science (2014-2015) and Head of the Department of Biology, Faculty of Science (2012-2014). He is a member of several professional societies, and was the president of the Croatian Biological Society (2012-2016). He was a member of the State Commission for the implementation of competition in Biology (2002-2015) and was elected President of the Commission (2015). He won the award for the preservation of natural and cultural heritage in 2003 awarded by the Ford Motor Company.

http://www.pmf.unizg.hr/biol/en/goran.klobucar

http://bib.irb.hr/lista-radova?autor=196814&lang=EN

https://www.researchgate.net/profile/Goeran\_Klobucar2

# DATE OF LAST APPOINTMENT TO A RESEARCH-AND-TEACHING OR ART-AND-TEACHING RANK: 31-01-2014

# LIST OF PUBLISHED WORK WHICH QUALIFY HIM/HER FOR IMPLEMENTATION OF THE PROGRAMME, THAT IS, WHICH ARE RELEVANT FOR THE FIELD OF THE DOCTORAL PROGRAMME

1. Topić Popović, N., Strunjak-Perović, I., Barišić, J., Kepec, S., Jadan, M., Beer-Ljubić, B., Matijatko, V., Palić, D., Klobučar, G., Babić, S., Gajdoš Kljusurić, J., Čož-Rakovac, R. (2016) Native Prussian carp (Carassius gibelio) health status, biochemical and histological responses to treated wastewaters. Environ Poll 218: 689-701



2. Babić S, Barišić J, Malev O, Klobučar G, Topić Popović N, Strunjak-Perović I, Krasnići N, Čož-Rakovac R, Sauerborn Klobučar R (2016) Sewage sludge toxicity assessment using earthworm Eisenia fetida: Can biochemical and histopathological analysis provide fast and accurate insight?. Environ Sci Poll Res 23: 12150-12163

3. Carić H, Klobučar G, Štambuk A (2016) Ecotoxicological risk assessment of antifouling emissions in a cruise ship port. J Cleaner Prod 121: 159-168

4. Šrut M, Bourdineaud J-P, Štambuk A, Klobučar GIV (2015) Genomic and gene expression responses to genotoxic stress in PAC2 zebrafish embryonic cell line. J Applied Toxicol 35: 1381-1389

5. Topić Popović, N., Strunjak-Perović, I., Klobučar, R.S., Barišić, J., Babić, S., Jadan, M., Kepec, S., Kazazić, S.P., Matijatko, V., Beer Ljubić, B., Car, I., Repec, S., Stipaničev, D., Klobučar, G.I.V., Čož-Rakovac, R. (2015) Impact of treated wastewater on organismic biosensors at various levels of biological organization. Sci Tot Enviro 538: 23-37

6. Šrut M, Štambuk A, Bourdineaud J-P, Klobučar GIV (2015) Zebrafish genome instability after exposure to model genotoxicant. Ecotoxicology 24: 887-902

7. Štambuk A, Šrut M, Šatović Z, Tkalec M, Klobučar GIV (2013) Gene flow vs. pollution pressure: Genetic diversity of Mytilus galloprovincialis in eastern Adriatic. Aquatic Toxicol 136-137: 22-31

8. Šrut M, Štambuk A, Klobučar GIV (2013) What is Comet assay not telling us: AFLP reveals wider aspects of genotoxicity. Toxicol in vitro 27: 1226-1232

9. Tkalec M, Štambuk A, Šrut M, Malarić K, Klobučar GIV (2013) Oxidative and genotoxic effects of 900 MHz electromagnetic fields in the earthworm Eisenia fetida. Ecotox Environ Safe 90: 7-12

10. Klobučar GIV, Malev O, Šrut M, Štambuk A, Lorenzon S, Cvetković Z, Ferrero EA, Maguire I (2012) Genotoxicity monitoring of freshwater environments using caged crayfish (Astacus leptodactylus). Chemosphere 87: 62-67

11. Šrut M, Traven L, Štambuk A, Kralj S, Žaja R, Mićović V, Klobučar GIV (2011) Genotoxicity of marine sediments in the fish hepatoma cell line PLHC-1 as assessed by the Comet assay. Toxicol In Vitro 25: 308-314

12. Holth TF, Beylich BA, Camus L, Klobučar GIV, Hylland K (2011) Repeated sampling of Atlantic cod (Gadus morhua) for monitoring of nondestructive parameters during exposure to a synthetic produced water. J Toxicol Environ Health, Part A 74: 555-568

13. Klobučar GIV, Štambuk A, Šrut M, Husnjak I, Merkaš M, Traven L, Cvetković Ž (2011) Aporrectodea caliginosa, a suitable earthworm species for field based genotoxicity assessment? Environ Poll 159: 841-849

14. Pavlica M, Štambuk A, Malović L, Mladinić M, Klobučar GIV (2011) DNA integrity of chub erythrocytes (Squalius cephalus L.) as an indicator of pollution-related genotoxicity in the River Sava. Environ Monitor Assess 177: 85-94

15. Klobučar GIV, Štambuk A, Pavlica M, Sertić Perić M, Kutuzović Hackenberger B, Hylland K (2010) Genotoxicity monitoring of freshwater environments using caged carp (Cyprinus carpio). Ecotoxicology 19: 77-84

16. Ivanković D, Pavičić J, Beatović V, Sauerborn Klobučar R, Klobučar GIV (2010) Inducibility of metallothionein biosynthesis in the whole soft tissue of zebra mussels Dreissena polymorpha exposed to cadmium, copper and pentachlorophenol. Environ Toxicol 25: 198-211

PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



17. Štambuk A, Pavlica M, Vignjević G, Bolarić B, Klobučar GIV (2009) Assessment of genotoxicity in polluted freshwaters using caged painter's mussel, Unio pictorum. Ecotoxicology 18: 430-439

18. Klobučar GIV, Štambuk A, Hylland K, Pavlica M (2008) Detection of DNA damage in haemocytes of Mytilus galloprovincialis in the coastal ecosystems of Kaštela and Trogir bays, Croatia. Sci Tot Environ 405: 330-337

19. Pavlica M, Podrug M, Štambuk A, Cvjetko P, Klobučar GIV (2008) Seasonal variability in micronuclei induction in haemocytes of mussels along the eastern adriatic coast. Polish J Environ Stud 17, 5: 765-771

20. Štambuk A, Pavlica M, Malović L, Klobučar GIV (2008) Persistence of DNA damage in freshwater mussel Unio pictorum upon exposure to ethyl methanesulphonate and hydrogen peroxide. Environ Mol Mutagen 49, 3: 217-225

21. Žaja R, Klobučar GIV, Sauerborn Klobučar R, Smital T (2006) Haemolymph as compartment for efficient and non-destructive determination of Pgp mediated MXR activity in bivalves. Comp Biochem Physiol C 143: 103-112

22. Klobučar GIV, Pavlica M, Erben R, Papeš D (2003) Application of the micronucleus and comet assays to mussel Dreissena polymorpha haemocytes for genotoxicity monitoring of freshwater environments. Aquat Toxicol 64:15-23

23. Klobučar GIV, Lajtner J, Erben R (2001) Increase in number and size of kidney concretions as a result of PCP exposure in freshwater snail Planorbarius corneus L. (Gastropoda, Pulmonata). Dis Aquat Organ 44:149-154

24. Pavlica M, Klobučar GIV, Mojaš N, Erben R, Papeš D (2001) Detection of DNA damage in haemocytes of zebra mussel using comet assay. Mutat Res 490:209-214

25. Pavlica M, Klobučar GIV, Vetma N, Erben R, Papeš D (2000) Detection of micronuclei in haemocytes of zebra mussel and great ramshorn snail exposed to pentachlorophenol. Mutat Res 465:145-150

26. Klobučar GIV, Lajtner J, Erben R (1997) Lipid peroxidation and histopathological changes in the digestive gland of a freshwater snail Planorbarius corneus L. (Gastropoda, Pulmonata) exposed to chronic and subchronic concentrations of PCP. Bull Environ Contam Toxicol 58:128-134

27. Lajtner J, Erben R, Klobučar GIV (1996) Histopathological effects of phenol on the digestive gland of Amphimelania holandri Fér. (Gastropoda, Prosobranchia). Bull Environ Contam Toxicol 57:458-464

# LIST OF PUBLISHED WORK IN THE LAST FIVE YEARS

1. Babić S, Barišić J, Malev O, Klobučar G, Topić Popović N, Strunjak-Perović I, Krasnići N, Čož-Rakovac R, Sauerborn Klobučar R (2016) Sewage sludge toxicity assessment using earthworm Eisenia fetida: Can biochemical and histopathological analysis provide fast and accurate insight?. Environ Sci Poll Res 23: 12150-12163

2. Topić Popović, N., Strunjak-Perović, I., Klobučar, R.S., Barišić, J., Babić, S., Jadan, M., Kepec, S., Kazazić, S.P., Matijatko, V., Beer Ljubić, B., Car, I., Repec, S., Stipaničev, D., Klobučar, G.I.V., Čož-Rakovac, R. (2015) Impact of treated wastewater on organismic biosensors at various levels of biological organization. Sci Tot Enviro 538: 23-37

3. Carić H, Klobučar G, Štambuk A (2016) Ecotoxicological risk assessment of antifouling emissions in a cruise ship port. J Cleaner Prod 121: 159-168



4. Jelić, M., Klobučar, G.I.V., Grandjean, F., Puillandre, N., Franjević, D., Futo, M., Amouret, J., Maguire, I. (2016) Insights into the molecular phylogeny and historical biogeography of the white-clawed crayfish (Decapoda, Astacidae). Mol Phyl Evol 103: 26-40.

5. Hudina, S., Hock, K., Radović, A., Klobučar, G., Petković, J., Jelić, M., Maguire, I. (2016) Species-specific differences in dynamics of agonistic interactions may contribute to the competitive advantage of the invasive signal crayfish (Pacifastacus leniusculus) over the native narrow-clawed crayfish (Astacus leptodactylus). Mar Fresh Behav Physiol 49: 147-157.

6. Maguire, I., Jelić, M., Klobučar, G., Delpy, M., Delaunay, C., Grandjean, F. (2016) Prevalence of the pathogen Aphanomyces astaci in freshwater crayfish populations in Croatia. Dis Aquat Organ 118: 45-53.

7. Mlinarec, J., Porupski, I., Maguire, I., Klobučar, G. (2016) Comparative karyotype investigations in the white-clawed crayfish Austropotamobius pallipes (Lereboullet, 1858) species complex and stone crayfish A. torrentium (Schrank, 1803) (Decapoda: Astacidae). J Crust Biol 36: 87-93.

8. Topić Popović, N., Strunjak-Perović, I., Barišić, J., Kepec, S., Jadan, M., Beer-Ljubić, B., Matijatko, V., Palić, D., Klobučar, G., Babić, S., Gajdoš Kljusurić, J., Čož-Rakovac, R. (2016) Native Prussian carp (Carassius gibelio) health status, biochemical and histological responses to treated wastewaters. Environ Poll 218: 689-701

9. Šrut M, Bourdineaud J-P, Štambuk A, Klobučar GIV (2015) Genomic and gene expression responses to genotoxic stress in PAC2 zebrafish embryonic cell line. J Applied Toxicol 35: 1381-1389

10. Šrut M, Štambuk A, Bourdineaud J-P, Klobučar GIV (2015) Zebrafish genome instability after exposure to model genotoxicant. Ecotoxicology 24: 887-902

11. Maguire, I., Podnar, M., Jelić, M., Štambuk, A., Schrimpf, A., Schulz, H., Klobučar, G. (2014) Two distinct evolutionary lineages of the Astacus leptodactylus species-complex (Decapoda: Astacidae) inferred by phylogenetic analyses. Inv Syst 28: 117-123.

12. Topić Popović, N., Sauerborn Klobučar, R., Maguire, I., Strunjak-Perović, I., Kazazić, S., Barišić, J., Jadan, M., Klobučar, G., Čož Rakovac, R. (2014) High-throughput discrimination of bacteria isolated from Astacus astacus and A. leptodactylus. Knowl Manag Aquat Ecosyst 413: 4.

13. Cvjetko, P., Balen, B., Peharec Štefanić, P., Debogović, L., Pavlica, M., Klobučar, G.I.V. (2014) Dynamics of heat-shock induced DNA damage and repair in senescent tobacco plants. Biol. Plant. 58: 71-79.

14. Klobučar GIV, Podnar M, Jelić M, Franjević D, Faller M, Štambuk A, Gottstein S, Simić V, Maguire I (2013) Role of the Dinaric Karst (western Balkans) in shaping the phylogeographic structure of the threatened crayfish Austropotamobius torrentium. Freshwater Biol 58: 1089-1105

15. Štambuk A, Šrut M, Šatović Z, Tkalec M, Klobučar GIV (2013) Gene flow vs. pollution pressure: Genetic diversity of Mytilus galloprovincialis in eastern Adriatic. Aquatic Toxicol 136-137: 22-31

16. Šrut M, Štambuk A, Klobučar GIV (2013) What is Comet assay not telling us: AFLP reveals wider aspects of genotoxicity. Toxicol in vitro 27: 1226-1232

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27. Maguire I, Jelić M, Klobučar G (2011) Update on the distribution of freshwater crayfish in Croatia. Knowl Manag Aquat Ec 401: 31-40

28. Maguire I, Klobučar G (2011) Size structure, maturity size, growth and condition index of stone crayfish (Austropotamobius torrentium) in North-West Croatia. Knowl Manag Aquat Ec 401: 12p1-12p19

# LIST OF SCIENTIFIC AND ARTISTIC PROJECTS IN WHICH HE OR SHE PARTICIPATED AND WHICH ARE RELEVANT FOR THE FIELD OF THE DOCTORAL PROGRAMME

a) Leader of the international project

- co-leader of the international project financed by Unity through Knowledge Fund (UKF) (2013-2015): "The effects of pollution on rapid evolution and ecological change in the Mediterranean mussel (Mytilus galloprovincialis)"

- leader of the bilateral Croatian-Montenegrean project financed by the Ministry of Science, Education and Sports RH "Implementation of pollution biomonitoring in freshwater environments (Basin of Skadar Lake) using biomarkers and bioassays" (2011-2012)

b) Leader of the domestic project

- Leader of the project financed by the Ministry of Science, Education and Sports RH nr. 119-0982934-3110 (2007-2013) "Effects of environmental contamination on genetic structure of aquatic organisms"

Leader of the project financed by the Natural Park Vransko jezero (2011) "Biomonitoring onečišćenja
Vranskog jezera kaveznim izlaganjem školjkaša Unio pictorum"

# LIST OF SCIENTIFIC AND ARTISTIC PROJECTS IN WHICH HE OR SHE PARTICIPATED IN THE LAST FIVE YEARS

PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



#### **ORDINAL NUMBER: 26**

FIRST NAME, LAST NAME, AND TITLE OF THE TEACHER: Stjepan Strelec, Associated Professor

**NAME OF INSTITUTION OF EMPLOYMENT OF THE TEACHER:** Faculty of Geotechnical Engineering, University of Zagreb

#### BIOGRAPHY

Born on 2 September, 1961 in Vinica, County of Varaždin, of Croat nationality. Gained his diploma in 1987 on geotechnical course of the Faculty of Mining, Geology and Petroleum Engineering in Zagreb. He worked on the Geotechnical Faculty in Varaždin since 1987. He got his Bachelor's Degree in 1993 at the Faculty of Mining, Geology and Petroleum Engineering.

His doctorate was defended in 2001 at the same faculty. He was named Senior Assistant in 2002 for the Drilling, Soil Mechanics and Mining course. He became Assistant Professor in 2003 in the field of technical sciences - mining, petroleum and geological engineering. He was active as Assistant at the Geotechnical Faculty in the Exploratory Drilling course. He has also been an assistant in the course Mining and Soil Mechanics at the same faculty.

In the academic title of assistant professor was elected in 2003 in the scientific area of technical science mining, petroleum and geological engineering. He works at the Faculty of Geotechnical Engineering as a Lecturer on courses Drilling, Geotechnical field investigations, Geotechnical Laboratory, Noise, vibration and light pollution and Applied Geophysics.

He has been actively involved in research projects Computer simulations of blasting (no. 2-01-154), Research clay in situ using explosives (no. 2-99-152 and 160152), Optimization of blasting to obtain the desired fragmentation (160145), soil consolidation modeling (160052), and the testing and modeling improved soil and rock (082-0822161-2187). He was head of the research project "Geophysical geotechnical survey of landfills to protect the environment.

He contributed to a number of scientific and research projects in the field of ecology and mining. 1994 -1999, he was the technical editor of the Croatian Geotechnical Journal magazine publishing articles on scientific and technical research in all fields concerned with ground/land, rocks and water, in English and Croatian languages. Member of the Editorial Board of Environmental Engineering Journal since 2014 and editor in chief from 2015 up today. He is the author or co-author of numerous scientific papers in the field of mining, environmental engineering and geotechnics.

In the period from 2006-2009 he is head of Geotechnical Department on the Faculty of Geotechnical Engineering and since 2009, the vice-dean for finance. He is also a member of the following societies: Croatian Geotechnical Society, International Society for Soil Mechanics and Geotechnical Engineering, International Society for Rock Mechanics.

# DATE OF LAST APPOINTMENT TO A RESEARCH-AND-TEACHING OR ART-AND-TEACHING RANK: 26. March 2012.

# LIST OF PUBLISHED WORK WHICH QUALIFY HIM/HER FOR IMPLEMENTATION OF THE PROGRAMME, THAT IS, WHICH ARE RELEVANT FOR THE FIELD OF THE DOCTORAL PROGRAMME

Strelec, Stjepan; Gazdek, Mario; Mesec, Josip. Blasting design for obtaining desired fragmentation. Technical Gazette: Scientific Professional journal of technical faculties of the Josip Juraj Strossmayer University of Osijek. 18 (2011), 1; 79-86.

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Strelec, S. (1994): Evaluation of slope stability of quarries built in carbonate rocks. Croatian Geotechnical Journal, Vol. 2, No. 3-4, pp 61-68.

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Strelec, Stjepan; Jug, Jasmin; Stanko, Davor. Determination of the design values of the maximum earthquake (EUROCODE 8) using multi channel analysis of surface waves (MASW). Mineral, 3/2014 (2014); 24-30.

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Strelec, Stjepan; Gazdek, Mario; Jeđud, Boris. Soil stiffness evaluation based on in situ tests and correlations between vs, NSPT i N10H. Inženjerstvo okoliša, Scientific and professional journal in the area of environmental engineering, 1 (2014), 1; 43-54.

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# LIST OF PUBLISHED WORK IN THE LAST FIVE YEARS

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# LIST OF SCIENTIFIC AND ARTISTIC PROJECTS IN WHICH HE OR SHE PARTICIPATED AND WHICH ARE RELEVANT FOR THE FIELD OF THE DOCTORAL PROGRAMME

Scientific project with the support of Ministry of Science and Education, No. 5.7.1.2. "Geophysical-Geotechnical Landfill Site Investigations for Environmental", Head of project PhD Stjepan Strelec, Geotechnical Faculty, University of Zagreb, 2013-2014.

Scientific project with support of Geotechnical Faulty, "Evaluation of dynamic soil properties by seismic methods", Head of project PhD Stjepa Strelec, 2014-2016.

"Computer blasting simulations", No. 2-01-154, Assistant on project (01.01.1991.-01.01.1997.)

"Blasting design for observation desired fragmentation", No. 160145, Assistant on project (14.03.2001.-14.03.2002.)

"Modelling of soil consolidation", No. 160052, Assistant on project (June 2000.-June 2002.)

# LIST OF SCIENTIFIC AND ARTISTIC PROJECTS IN WHICH HE OR SHE PARTICIPATED IN THE LAST FIVE YEARS

Scientific project with the support of Ministry of Science and Education, No. 5.7.1.2. "Geophysical-Geotechnical Landfill Site Investigations for Environmental", Head of project PhD Stjepan Strelec, Geotechnical Faculty, University of Zagreb, 2013-2014.

PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



Scientific project with support of Geotechnical Faulty, "Evaluation of dynamic soil properties by seismic methods", Head of project PhD Stjepa Strelec, 2014-2016.

PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



#### **ORDINAL NUMBER: 27**

FIRST NAME, LAST NAME, AND TITLE OF THE TEACHER: Mario Gazdek, Assistant Professor

NAME OF INSTITUTION OF EMPLOYMENT OF THE TEACHER: Faculty of Geotechnical Engineering, University of Zagreb

# BIOGRAPHY

Born on June 20th 1968 in Varaždin, County of Varaždin. He graduated from the University of Zagreb, Faculty of Geotechnical Engineering in 1997. During his studies, he received the 1996 Rector's Prize for the student's research work on the contribution to analysis of beams on elastic foundations. Since 1998, he has been employed with the Faculty of Geotechnical Engineering as a scientific novice and his teaching activities include his work as the assistant lecturer at the courses of Geophysics and Applied Geophysics. In 2003, he received his Master of Science Degree at the University of Zagreb, Faculty of Civil Engineering with the master thesis of Applications of Seismic Methods in the Geotechnical Engineering. Since 2004, he has been the coordinator of the geophysical surveying team. In 2006, he was appointed the research assistant. He participated in projects and studies relating to geophysical properties of soils and rocks as geotechnical construction material (geomedia). He is the author and the coauthor of several scientific and professional papers on civil and environmental engineering.

DATE OF LAST APPOINTMENT TO A RESEARCH-AND-TEACHING OR ART-AND-TEACHING RANK: July 23th, 2015.

# LIST OF PUBLISHED WORK WHICH QUALIFY HIM/HER FOR IMPLEMENTATION OF THE PROGRAMME, THAT IS, WHICH ARE RELEVANT FOR THE FIELD OF THE DOCTORAL PROGRAMME

Stanko, Davor; Markušić, Snježana; Strelec, Stjepan; Gazdek, Mario. Seismic response and vulnerability of historical Trakošćan Castle, Croatia using HVSR method. // Environmental Earth Sciences. 75 (2016) , 5; 368-1-368-14 (članak, znanstveni).

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Gazdek, Mario; Bačić, Mario; Kovačević, Meho Saša. Seismic quality index (SQi) of rock mass. // Technical Gazette. 21 (2014), 1; 79-86 (članak, znanstveni).

Strelec, Stjepan; Gazdek, Mario; Jeđud, Boris. Procjena krutosti tla in-situ ispitivanjima i korelacije između vs, NSPT i N10H. // Inženjerstvo okoliša. 1 (2014), 1; 43-54 (prethodno priopćenje, znanstveni).

Kovačević, Meho Saša; Marčić, Danijela; Gazdek, Mario. Application of geophysical investigations in underground engineering. // Tehnički vjesnik: znanstveno-stručni časopis tehničkih fakulteta Sveučilišta u Osijeku. 20 (2013), 6; 1111-1117 (pregledni rad, znanstveni).

Gazdek, Mario; Strelec, Stjepan; Rezo, Milan. Estimation of vibro replacement by compression seismic waves. // Tehnički vjesnik: znanstveno-stručni časopis tehničkih fakulteta Sveučilišta u Osijeku. 18 (2011), 2; 243-252 (prethodno priopćenje, znanstveni).

Strelec, Stjepan; Gazdek, Mario; Mesec, Josip. Blasting design for obtaining desired fragmentation. // Tehnički vjesnik: znanstveno-stručni časopis tehničkih fakulteta Sveučilišta u Osijeku. 18 (2011) , 1; 79-86 (prethodno priopćenje, znanstveni).

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Gazdek, Mario; Strelec, Stjepan; Grabar, Kristijan. Preliminarni geofizički pokazatelji stanja zemljanih nasipa i barijera // Drugi međunarodni naučni skup: stanje i pravci razvoja građevinarstva- GTZ i drugo savjetovanje GEO-EXPO 2012 / Ibrahimović, Adnan; Zenunović, Damir (ur.). Tuzla: Rudarsko-geološkograđevinski fakultet Tuzla i In scan d.o.o. Tuzla, 2012. 651-658 (predavanje, međunarodna recenzija, objavljeni rad, stručni).

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Strelec, Stjepan; Gazdek, Mario; Grabar, Kristijan; Špiranec, Miljenko; Stanko, Davor; Jug, Jasmin. Geofizičko-geotehničko istraživanje odlagališta otpada // XIII. Međunarodni simpozij gospodarenja otpadom Zagreb 2014 / Aleksandra Anić Vučinić (ur.). Zagreb.

# LIST OF SCIENTIFIC AND ARTISTIC PROJECTS IN WHICH HE OR SHE PARTICIPATED AND WHICH ARE RELEVANT FOR THE FIELD OF THE DOCTORAL PROGRAMME

Scientific project with the support of Ministry of Science and Education, No. 5.7.1.2. "Geophysical-Geotechnical Landfill Site Investigations for Environmental", Head of project PhD Stjepan Strelec, Geotechnical Faculty, University of Zagreb, 2013-2014.

Scientific project with support of Geotechnical Faulty, "Evaluation of dynamic soil properties by seismic methods", Head of project PhD Stjepa Strelec, 2014-2016.

# LIST OF SCIENTIFIC AND ARTISTIC PROJECTS IN WHICH HE OR SHE PARTICIPATED IN THE LAST FIVE YEARS

Scientific project with the support of Ministry of Science and Education, No. 5.7.1.2. "Geophysical-Geotechnical Landfill Site Investigations for Environmental", Head of project PhD Stjepan Strelec, Geotechnical Faculty, University of Zagreb, 2013-2014.

Scientific project with support of Geotechnical Faulty, "Evaluation of dynamic soil properties by seismic methods", Head of project PhD Stjepa Strelec, 2014-2016.

PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



#### **ORDINAL NUMBER: 28**

FIRST NAME, LAST NAME, AND TITLE OF THE TEACHER: Boris Kavur, Assistant Professor

NAME OF INSTITUTION OF EMPLOYMENT OF THE TEACHER: Faculty of Geotechnical Engineering, University of Zagreb

#### BIOGRAPHY

Boris Kavur was born in 1965 in Zagreb. He graduated in 1989 at the University of Zagreb, Faculty of Mining, Geology and Petroleum Engineering (MGPE Faculty) and gained professional title mining engineer (geotechnical course). As the best student in the acad. year 1987/88. he won the prise of the Rector of the University. In January 1990 he started his professional career at Geotehnika Co. in Zagreb. From 1991 to 1994 he was engaged in Iran in three large hydro-electric projects that involved the investigation works for design and construction of dams and power houses on the Karun river (Karun 3, Karun 1 and Godar-e-Landar). In the period from 1994 to 1996 he participated in several geotechnical projects in Croatia, where the most important one was the remediation project of the Peruča Dam. From 1996 to 1998 he was employed at the Bauer Spezialfiefbau GmbH in the project of the Karkheh Storage Dam construction in Iran. In late 1998, he started working at the Institut IGH from Zagreb. Since then he participated in the implementation of numerous geotechnical projects in Croatia and abroad. He finished postgraduate studies in 2001 at the MGPE Faculty in Zagreb. The doctoral thesis "The impact of drying on the behavior of swelling rocks" he defended in 2009 under the supervision of prof. Biljana Kovačević Zelić and prof. Ivan Vrkljan at the MGPE Faculty. From 2002 to 2014 he participated in several scientific projects. From acad. year 2009/10 he started teaching at the MGPE Faculty where he was elected as assistant professor in 2012. From acad. year 2014/15 he is employed at the Faculty of Geotechnical Engineering in Varaždin and has participated in teaching of five courses at the undergraduate and graduate studies of Environmental Engineering. As the co-author he published around thirty articles so far, mainly in the field of rock and soil mechanics and geotechnical-geoenvironmental engineering. He participated in numerous scientific and professional conferences in the country and the world. He is a member of the Croatian Geotechnical Society (CGS), the International Society for Rock Mechanics (ISRM) and the International Society for Soil Mechanics and Geotechnical Engineering (ISSMGE).

DATE OF LAST APPOINTMENT TO A RESEARCH-AND-TEACHING OR ART-AND-TEACHING RANK: 27. October 2014.

LIST OF PUBLISHED WORK WHICH QUALIFY HIM/HER FOR IMPLEMENTATION OF THE PROGRAMME, THAT IS, WHICH ARE RELEVANT FOR THE FIELD OF THE DOCTORAL PROGRAMME

KAVUR, BORIS; ŠTAMBUK CVITANOVIĆ, NATAŠA; HRŽENJAK, PETAR. COMPARISON BETWEEN PLATE JACKING AND LARGE FLAT JACK TEST RESULTS OF ROCK MASS DEFORMATION MODULUS. // INTERNATIONAL JOURNAL OF ROCK MECHANICS AND MINING SCIENCES. 73 (2015); 102-114.

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MATKOVIĆ, IVAN; KAVUR, BORIS; JELAVIĆ, TOMISLAV; GALIĆ KOTARSKI, MARIJA; STANIĆ, ANDREAS. RECOVERY OF LANDFILL TREBEŽ BY CUT-OFF WALL // SABOR HRVATSKIH GRADITELJA 2016, EU I HRVATSKO GRADITELJSTVO / STJEPAN LAKUŠIĆ (UR.). ZAGREB : HRVATSKI SAVEZ GRAĐEVINSKIH INŽENJERA, 2016. 783-795.

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KAVUR, BORIS; ŠTAMBUK CVITANOVIĆ, NATAŠA; VRKLJAN, IVAN. A CASE STUDY ON IN SITU TESTING OF ROCK MASS DEFORMABILITY. // PROCEEDINGS OF THE 12TH ISRM INTERNATIONAL CONGRESS ON ROCK MECHANICS, HARMONISING ROCK ENGINEERING AND THE ENVIROMENT / QIHU QIAN AND YINGXI (UR.). LONDON, UK : TAYLOR AND FRANCIS GROUP, LONDON, UK, 2011. 1027-1032.

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KVASNIČKA, PREDRAG; KOVAČEVIĆ ZELIĆ, BILJANA; ZNIDARČIĆ, DOBROSLAV; MATEŠIĆ, LEO; KAVUR, BORIS. A CASE HISTORY OF LARGE STRAIN CONSOLIDATION // GEOTECHNICAL PROBLEMS WITH MAN-MADE AND MAN INFLUENCED GROUNDS / VANIČEK, IVAN ET AL. (UR.). PRAGUE : ČGTS, 2003. 777-782.

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# LIST OF PUBLISHED WORK IN THE LAST FIVE YEARS

KAVUR, BORIS; ŠTAMBUK CVITANOVIĆ, NATAŠA; HRŽENJAK, PETAR. COMPARISON BETWEEN PLATE JACKING AND LARGE FLAT JACK TEST RESULTS OF ROCK MASS DEFORMATION MODULUS. // INTERNATIONAL JOURNAL OF ROCK MECHANICS AND MINING SCIENCES. 73 (2015); 102-114.

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MATKOVIĆ, IVAN; KAVUR, BORIS; JELAVIĆ, TOMISLAV; GALIĆ KOTARSKI, MARIJA; STANIĆ, ANDREAS. RECOVERY OF LANDFILL TREBEŽ BY CUT-OFF WALL // SABOR HRVATSKIH GRADITELJA 2016, EU I HRVATSKO GRADITELJSTVO / STJEPAN LAKUŠIĆ (UR.). ZAGREB : HRVATSKI SAVEZ GRAĐEVINSKIH INŽENJERA, 2016. 783-795.

# LIST OF SCIENTIFIC AND ARTISTIC PROJECTS IN WHICH HE OR SHE PARTICIPATED AND WHICH ARE RELEVANT FOR THE FIELD OF THE DOCTORAL PROGRAMME

"Behaviour of swelling rocks in geotechnical structures", a project funded by Croatian Ministry of Science, Education and Sports, under leadership of prof. I. Vrkljan at Institut IGH from 2002. to 2006.

PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



"Mechanical properties of geosyntetic clay liners", a project funded by Croatian Ministry of Science, Education and Sports, under leadership of prof. I. Vrkljan at Institut IGH from 2006. to 2013.

"Durability of mineral liners" a project funded by Croatian Ministry of Science, Education and Sports, under leadership of prof. B. Kovačević Zelić at RGN faculty from 2006. to 2013.

"Improving teaching and research of unsaturated soils", a project funded by University of Zagreb, under leadership of prof. Biljana Kovačević Zelić, 2012.

# LIST OF SCIENTIFIC AND ARTISTIC PROJECTS IN WHICH HE OR SHE PARTICIPATED IN THE LAST FIVE YEARS

"Mechanical properties of geosyntetic clay liners", a project funded by Croatian Ministry of Science, Education and Sports, under leadership of prof. I. Vrkljan at Institut IGH from 2006. to 2013.

"Durability of mineral liners" a project funded by Croatian Ministry of Science, Education and Sports, under leadership of prof. B. Kovačević Zelić at RGN faculty from 2006. to 2013.

"Improving teaching and research of unsaturated soils", a project funded by University of Zagreb, under leadership of prof. Biljana Kovačević Zelić, 2012.

PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



#### **ORDINAL NUMBER: 29**

FIRST NAME, LAST NAME, AND TITLE OF THE TEACHER: Biljana Kovačević Zelić, Full Professor

**NAME OF INSTITUTION OF EMPLOYMENT OF THE TEACHER:** Faculty of Mining, Geology and Petroleum, University of Zagreb

#### BIOGRAPHY

Biljana Kovacevic Zelic was born in 1964 in Vinkovci, Croatia. She graduated in 1988 at the University of Zagreb, Faculty of Mining, Geology and Petroleum Engineering (MGPE faculty). During the study she won the Dean's Award several times, Rector's Prize in 1986 and the May Day Award in 1988 for the best written student work. At the same university she obtained the master's degree in 1994 and defended the doctoral thesis in 2000. She stayed and continued her studies abroad several times in the following institutions: Technical University of Delft, The Netherlands; Technical University of Gdansk, Poland; University of Colorado at Boulder, the University of Texas at Austin, the University of Wisconsin, Madison, Drexel University, Philadelphia, USA; IRSN, Tournemire, France; University of Ljubljana, Slovenia. Since 1989 she has worked at the MGPE faculty, where she now works as a full professor with tenure. She has participated in teaching at more than ten courses at MGPE faculty. From acad. year 2008/2009 until 2014/2015 she was the bearer of the course Waste management at the graduate study of Civil Engineering at the University of Rijeka. At the University of Zagreb she participated in the development of new study programs: Military Engineering, Undergraduate Study Programme in Engineering, united doctoral studies: Geo-Engineering and Water Management, the university interdisciplinary postgraduate specialist study: the Crisis management. As the co-author she published more than sixty articles so far, mainly in the field of soil and rock mechanics and geotechnical-geoenvironmental engineering. She was a contributor to six research projects, two of which were international and four international educational projects. She was the leader on two research projects founded by MZOS and a project of the Fund for the Development of the University of Zagreb. She is a member of the following scientific and professional associations: Society of Mining Professors, International Society for Rock Mechanics, the International Society for Soil Mechanics and Geotechnical Engineering, International Geosynthetics Society, Croatian geotechnical society, Croatian Geological Society - Croatian group for clay and Croatian Hydrologic Society. She is a member of the Croatian Academy of Engineering and an associate member of the International Committee. She was the editor of Mining, Geology and Petroleum Codes from 2002 to 2005, and the member of the editorial board of the same magazine from 2005 to 2007. At the MGPE-faculty in the period from 2002 to 2009 she was in charge of the organization and equipping of a new laboratory for soil mechanics, which she led from 2009 until today.

# **DATE OF LAST APPOINTMENT TO A RESEARCH-AND-TEACHING OR ART-AND-TEACHING RANK:** 18. November 2014.

# LIST OF PUBLISHED WORK WHICH QUALIFY HIM/HER FOR IMPLEMENTATION OF THE PROGRAMME, THAT IS, WHICH ARE RELEVANT FOR THE FIELD OF THE DOCTORAL PROGRAMME

Kosić, D., Kovačević Zelić, B., Domitrović, D., Barać, D. (2015): Long-term efficiency of clay geosynthetic barriers. Proceedings of the XVI ECSMGE Geotechnical Engineering for Infrastructure and Development, 2015., Edinburgh, 2723-2728.

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Kovačević Zelić, B., Vrkljan, I. (2008): Laboratory Testing of GCLs. Proceedings of the 1st Middle European Conference on Landfill Technology, (Telekes, G., Imre, E., Witt, K-J., Ramke, H-G., Eds.), February 6-8, 2008, Budapest, Hungary, 95-102.

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Kvasnička, P., Kovačević Zelić, B., Znidarčić, D., Matešić, L., Kavur, B. (2003): A case history of large strain consolidation. Proceed. XIIIth European Conference on Soil Mechanics and Geotechnical Engineering: Geotechnical problems with man-made and man influenced grounds (Vaniček et al., Eds.), Prague, Czeck Republic, 25-28 August 2003, Vol. 1, pp. 777-782.

Kovačević Zelić, B., Kovačić, D., Znidarčić, D. (2002): Shear Strength Testing on a GCL. Proceed. 7th Intern. Conf. on Geosynthetics 7 ICG-Nice 2002: Geosynthetics – State of the Art Recent Developments (Ph. Delmas, J.P. Gourc & H. Girard, Eds.), Nice, France, 22-27 September, 2002, Vol. 4, 1329-1334, A.A. Balkema Publishers, Lisse, 2002.

Kovačević Zelić, B., Kovačić, D., Znidarčić, D. (2002): Determination of internal shear strength parameters of geocomposite clay liners. Geologica Carpathica, 53, 2, 127-132, Bratislava.

Kovačević Zelić, B., Znidarčić, D., Kovačić, D. (2002): Osobine bentonitnih tepiha iskazane u nekim laboratorijskim pokusima. Priopćenja 3. Savjetovanja HUMTGI: Geotehnika kroz Eurocode 7 (M. Mulabdić, ur.), Hvar, 2-5. listopada 2002., 441-449.

Kovačević Zelić, B., Kvasnička, P., Domitrović, D. (2002): Stability analysis for the landfill Jakusevec. Proceed. of the 12th Danube-European Conf. Geotechnical Engineering (W. Wittke, Ed.), Passau, 27-28 May, 2002, 503-506, Essen, VGE-Verlag Gluckauf GmbH.

Kovačević Zelić, B., Šumanovac, F., Dominković, S. (2001): Numerical modelling of geological phenomena in karst regions. Proceed. ISRM Regional Symposium EUROCK 2001: Rock Mechanics - A Challange for Society (P. Sarkka & P. Eloranta, Eds.), Espoo, Finland, 4-7 June, 2001. A.A. Balkema Publishers, Lisse, 2001, 505-510.

Kovačević Zelić, B., Kovačić, D., Znidarčić, D., Sesar, S. (2000): Laboratorijsko ispitivanje posmične čvrstoće bentonitnih tepiha. Zbornik radova VI. Međunarodni simpozij Gospodarenje otpadom Zagreb 2000 (Z. Milanović, ur.), Zagreb, 15-17.11.2000., 315-322.

Kovačević Zelić, B., Kovačić, D., Znidarčić, D. (1998): Ispitivanje posmične čvrstoće bentonitnih tepiha. Zbornik radova V. Međunarodni simpozij Gospodarenje otpadom Zagreb'98 (Z. Milanović, ur.), Zagreb, 25-27.11.1998, 231-242.

Kovačević Zelić, B., Petzel, M. (1995): Numerical modelling of the direct shear test. Rudarsko-metalurški zbornik, Vol. 42, No. 3-4, pp. 309-314, Ljubljana.

Kovačević Zelić, B., Kovačić, D., Vujec, S. (1995): Numeričko modeliranje diskontinuiranog stijenskog materijala u elastičnom području. Rudarsko-geološko-naftni zbornik, 7 (1995), 37-43, RGNF, Zagreb.

Kovačević Zelić, B., Kovačić, D., Vujec, S. (1995): Numeričko modeliranje diskontinuiranog stijenskog materijala u području plastičnosti. Rudarsko-geološko-naftni zbornik, 7 (1995), 45-52, RGNF, Zagreb.

# LIST OF PUBLISHED WORK IN THE LAST FIVE YEARS

Veinović, Ž., Kovačević Zelić, B., Domitrović, D. (2015): Deep Geological Disposal of Spent Nuclear Fuel and High Level Waste – Current State and Future Chalenges, Chapter 14 in Handbook of Research on Advancements in Environmental Engineering (N. Gaurina-Medjimurec, Ed.), IGI Global, pp. 367-399.

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Kosić, D., Kovačević Zelić, B., Domitrović, D., Barać, D. (2015): Long-term efficiency of clay geosynthetic barriers. Proceedings of the XVI ECSMGE Geotechnical Engineering for Infrastructure and Development, 2015., Edinburgh, 2723-2728Kavur, B., Vrkljan, I., Kovačević Zelić, B. (2011): Procjena hidrauličkih značajki nezasićenog ekspanzivnog tla. Građevinar 3 (2011), 245-253.

Domitrović, D., Kovačević Zelić, B. (2013): The relationship between swelling and shear strength properties of bentonites. Proceedings of the 18th International Conference on Soil Mechanics and Geotechnical Engineering (Delage, P.; Desrues, J.; Frank, R.; Puech, A.; Schlosser, F., Eds.), Paris, France, September 2-6, 2013. Presses des ponts, Paris, 219-222.

Domitrović, D., Vučenović, H., Kovačević Zelić, B. (2012): Ispitivanje svojstava bentonita kao inženjerske barijere u odlagalištima radioaktivnog otpada. Rudarsko-geološki-naftni zbornik, 24 (2012), 19-27, RGNF, Zagreb.

Veinović, Ž., Kovačević Zelić, B., Končić, A. (2012): The Role of Underground Research Laboratories within National Repository Development Programmes. UNDER CITY - Proceedings of Colloquium on Using Underground Space in Urban Areas in South-East Europe (Kolić, D., Ed.), Dubrovnik, Croatia, April 12-14, 2012. ITA Croatia, 473-481.

# LIST OF SCIENTIFIC AND ARTISTIC PROJECTS IN WHICH HE OR SHE PARTICIPATED AND WHICH ARE RELEVANT FOR THE FIELD OF THE DOCTORAL PROGRAMME

IAEA RER/9/103 Training in Radioactive Waste Disposal Technologies using Underground Research Facilities, 2009 - 2014. – the national coordinator.

Durability of mineral liners (MZOŠ project No. 195-0831529-1847), leader of project: Biljana Kovačević Zelić, MGPE faculty, Zagreb, 2008-2014.

Improving teaching and research of unsaturated soils, a project funded by the University of Zagreb, the project leader: Biljana Kovačević Zelić, MGPE faculty, 2012.

Possibilities for production and use of geosynthetic clay liners in Croatia (MZOŠ project No. 0195033), the project leader: Biljana Kovačević Zelić, MGPE faculty, Zagreb, 2003-2007.

U.S. - Croatian Science and Technology Programme: "Applicability of the Materials from Flysch Deposits in the Coastal Regions of Croatia for the Construction of Impervious Barriers in Sanitary Landfills", principal investigator: dr. sc. D. Kovačić, 1995–1998., (researcher).

# LIST OF SCIENTIFIC AND ARTISTIC PROJECTS IN WHICH HE OR SHE PARTICIPATED IN THE LAST FIVE YEARS

IAEA RER/9/103 Training in Radioactive Waste Disposal Technologies using Underground Research Facilities, 2009 - 2014. – the national coordinator.

Durability of mineral liners (MZOŠ project No. 195-0831529-1847), leader of project: Biljana Kovačević Zelić, MGPE faculty, Zagreb, 2008-2014.

Improving teaching and research of unsaturated soils, a project funded by the University of Zagreb, the project leader: Biljana Kovačević Zelić, MGPE faculty, 2012.



#### **ORDINAL NUMBER: 30**

FIRST NAME, LAST NAME, AND TITLE OF THE TEACHER: Josip Mesec, Full Professor

NAME OF INSTITUTION OF EMPLOYMENT OF THE TEACHER: Faculty of Geotechnical Engineering, University of Zagreb

#### BIOGRAPHY

PERSONAL INFORMATIONS

Surname and name: Mesec, Josip

Identification number of researchers: 123530

EDUCATION

1968–1972, Secondary School for Mechanical Engineering and Electrical Engineering

1972nd-1977th years, University of Zagreb, Faculty of Mining, Geology and Petroleum Engineering - Mining engineer

1982nd-1987th years, University of Zagreb, Faculty of Mining, Geology and Petroleum Engineering - Master of Science in the field of mining

2000-2005 years, University of Zagreb, Faculty of Mining, Geology and Petroleum Engineering - Doctor of Science in the field of mining

#### EMPLOYMENT

20.03.1978.- 29.03.1982. GEOTEHNIKA, Zagreb - Operating engineer; Manager of several work sites

01.04.1982.- today - University of Zagreb, Faculty of Geotechnical Engineering - From an assistant, lecturer, senior lecturer, assistant professor to full professor

#### SCHOLARSHIPS AND AWARDS

The award for the inclusion of students in scientific work in 2015 at the Faculty of Geotechnical Engineering of the University of Zagreb (Publication 3 scientific research papers co-authored with students).

#### **TEACHING ACTIVITIES**

Since 1991 in the field of technical sciences, field mining, petroleum and geological engineering, mining branch - Slope Stability, Exploitation of mineral resources, Underground structures, Designing in mining, Mining exploration. Institution: University of Zagreb, Faculty of Geotechnical Engineering

**ORGANIZATION OF SCIENTIFIC MEETINGS / SYMPOSIUM** 

International Mining Symposium, Dubrovnik, Croatia 8-10 October, 2006.

Scientific symposium "Waste management - Varaždin 2012", Varaždin 2012

Scientific Conference: Sustainable use and protection of water in northwestern Croatia, Varaždin, November 5 2015

#### **OBLIGATIONS IN INSTITUTION**

In the academic year 2009/10. and 2010/11. Vice dean for Education and Quality Management Geotechnical Faculty in Varaždin, University of Zagreb.

From the start of the academic 2009/10. the president of the Committee for Education and Quality Management Geotechnical Faculty in Varaždin, University of Zagreb.

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From the beginning of the academic 2009/10. The president of the Commission for final works and graduation exams Geotechnical Faculty in Varaždin, University of Zagreb.

From the start of the academic 2009/10. The president of the Commission for scientific and artistic work of students Geotechnical Faculty in Varaždin, University of Zagreb.

A member of the Commission to produce a study program Geoengineering the new studying programme at the Geotechnical Faculty in Varaždin, University of Zagreb, Varaždin 2005.

A member of the Commission for making the undergraduate program of study Environmental Engineering at the Faculty of Geotechnical Engineering Varaždin, University of Zagreb, Varaždin 2009.

From the academic year 2011 to 2015 and dean of the odd. 2015./16 year. the acting dean at the Faculty of Geotechnical Engineering in Varaždin, Zagreb University. In the same period a member of the University Senate.

The President of the Commission for the development of the graduate study program Environmental Engineering of studying at the Faculty of Geotechnical Engineering Varaždin, University of Zagreb, Varaždin 2012th to 2013th year.

The Chairman of the Commission for making post-graduate study program Environmental Engineering at the Faculty of Geotechnical Engineering Varaždin, University of Zagreb, Varaždin 2015.

### MEMBERSHIP

Association of Croatian Mining Engineers

Association of International Institute for Development Croatian

Croatian geotechnical society

SOCIAL AND ORGANIZATIONAL SKILLS

Leadership and management higher education institutions and private companies and a company assembly, good communication skills gained through work in places dean, vice dean for Education, the President of the Commission for graduate and doctoral degree program, the President of the Administrative Council of the Student Centre, director of private companies, manager of more work sites, President and Secretary of the professional associations in the field of mining, professional examination for the executive positions in the mining industry, chief designer at several mining projects, studies and surveys, expert in mining.

# LANGUAGES

Croatian; German; English

**DATE OF LAST APPOINTMENT TO A RESEARCH-AND-TEACHING OR ART-AND-TEACHING RANK:** 13. September 2016.

# LIST OF PUBLISHED WORK WHICH QUALIFY HIM/HER FOR IMPLEMENTATION OF THE PROGRAMME, THAT IS, WHICH ARE RELEVANT FOR THE FIELD OF THE DOCTORAL PROGRAMME

Mesec, J., Kovač, I., Soldo B. (2010): Estimation particle velocity on the basis of the blast event measurements at the different rock units. Journal: Soil Dynamics and Earthquake Engineering. Vol. 30, pp. 1004-1009.

Strelec, S., Gazdek, M., Mesec, J. (2011): Blasting Design for Obtaining Desired Fragmentation, Journal: Technical Gazette, Article No. 1802-06, Vol. 18, No.1, pp 78-86.

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Mesec, J. (2005): Dopuštene količine eksplozivnog punjenja ovisno o relativnoj seizmičkoj osjetljivosti stijenskih masa, Rudarsko-geološko-naftni zbornik, Vol. 17, pp 61-72.

Mesec, J., Vrkljan, D., Ester Z. (2009): Allowed quantity of explosive charge depending on the distance from the blast. Journal: Geotechnical and Geological Engineering. Vol. 3, pp 431-438.

Mesec, J., Kovač, I., Žganec S. (2015): In-hole velocity of detonation (VOD) measurements as a framework for the selection type of explosive: International Journal of Mining Science and Technology. Volume 25, Issue 4, Pages 675-680.

# LIST OF PUBLISHED WORK IN THE LAST FIVE YEARS

Mesec, J., Kovač, I., Soldo B. (2010): Estimation particle velocity on the basis of the blast event measurements at the different rock units. Journal: Soil Dynamics and Earthquake Engineering. Vol. 30, pp. 1004-1009.

Strelec, S., Gazdek, M., Mesec, J. (2011): Blasting Design for Obtaining Desired Fragmentation, Journal: Technical Gazette, Article No. 1802-06, Vol. 18, No.1, pp 78-86.

Mesec, J., Kovač, I., Žganec S. (2015): In-hole velocity of detonation (VOD) measurements as a framework for the selection type of explosive: International Journal of Mining Science and Technology. Volume 25, Issue 4, Pages 675-680.

# LIST OF SCIENTIFIC AND ARTISTIC PROJECTS IN WHICH HE OR SHE PARTICIPATED AND WHICH ARE RELEVANT FOR THE FIELD OF THE DOCTORAL PROGRAMME

"Environmental protection in the exploitation of non-metallic mineral resources in karst"; Code: 195-1951825-1831; Project leader: Ph.D. Darko Vrkljan, Assoc. Professor; Purpose: Some non-metallic mineral raw materials can be evaluated differently depending on which final product is installed. Therefore, it is strategically important to assess where a particular product nonmetallic mineral resource achieves optimal evaluation to the implementation of appropriate environmental protection measures.; Financing: Ministry of Science, Education and Sports

"Emulsion explosives, initial funding and operation of mining on the environment"; Code: 195-1951825-1819; Project leader: Ph.D. Zvonimir Ester, Professor; The purpose of the project: laboratory and in situ tests to investigate its composition of emulsion explosives to have optimum performance in karst carbonate rocks at the same time has minimal environmental impact.; Financing: Ministry of Science, Education and Sports.

"Improving clay soil using explosives"; According to the agreement on the financing in 2013-South 24 University of Zagreb and the Geotechnical Faculty Varazdin, Project / support: PhD Josip Mesec , Assoc. Professor; Type of research: development, research duration: 2013 to 2016; Purpose: Expanding our knowledge on the possibilities of using explosives in geotechnical practice. This is especially true for tube blasting in soft rock which at different depths below the surface of the ground by activating a type and weight of explosive forming spherical or other forms of similar cavities. These cavities are commonly used for the incorporation of structural elements for anchoring the fundamental and retaining walls, and anchoring underground structures in the less hard and soft rocks.

# LIST OF SCIENTIFIC AND ARTISTIC PROJECTS IN WHICH HE OR SHE PARTICIPATED IN THE LAST FIVE YEARS

"Improving clay soil using explosives"; According to the agreement on the financing in 2013-South 24 University of Zagreb and the Geotechnical Faculty Varazdin, Project / support: PhD Josip Mesec, Assoc. Professor; Type of research: development, research duration: 2013 to 2016; Purpose: Expanding our knowledge on the possibilities of using explosives in geotechnical practice. This is especially true for tube blasting in soft rock which at different depths below the surface of the ground by activating a type and

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weight of explosive forming spherical or other forms of similar cavities. These cavities are commonly used for the incorporation of structural elements for anchoring the fundamental and retaining walls, and anchoring underground structures in the less hard and soft rocks.
PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



#### **ORDINAL NUMBER: 31**

FIRST NAME, LAST NAME, AND TITLE OF THE TEACHER: Željko Hećimović, Associated Professor

**NAME OF INSTITUTION OF EMPLOYMENT OF THE TEACHER:** Faculty of Civil Engineering, Architecture and Geodesy, University of Split

#### BIOGRAPHY

Željko Hećimović was born on July 21, 1962 in Zagreb, Croatia. He completed primary school in Zagreb in 1977, and secondary school of Geodesy also in Zagreb in 1981, maturing with great success. The Faculty of Geodesy of the University of Zagreb enrolled in 1982 and graduated with excellent success on October 9, 1987. In 1988, as an assistant, he was employed at the Faculty of Geodesy of the University of Zagreb and enrolled in postgraduate studies at the same faculty. From 1991 to 1994 he was a DAAD scholar at a specialization at the Institut für Erdmessung University of Hannover, Germany. Although the completion of the PhD dissertation in Germany under the title Untersuchungen zur Höhenbestimung mit dem Global Positioning System (GPS) und Schwerefelddaten was completed (mentor made the first correction of the text), because of the departure to the Homeland War he stopped to work on it. After the end of the Homeland War, deadlines for finishing and defending of dissertation in Germany expired. In 2000 he enrolled in postgraduate doctoral studies at the Faculty of Geodesy of the University of Zagreb. His Ph.D. thesis entitled "Modelling the reference system of the height systems" was defended on February 20, 2001 at the Faculty of Geodesy of the University of Zagreb, under the mentorship of prof. Dr. Sc. Tomislav Bašić.

He was hired at Oikon d.o.o. Institute for Applied Ecology, and in parallel he conducts teaching at the Faculty of Geodesy of the University of Zagreb as an external associate. In 2001 he is employed at the Croatian Geodetic Institute (CGI) in Zagreb. He is working on preparing the gravimetric measurements of the state gravimetric network. He was also working on the creation of the standardization system of the geographic names of Croatia. During his work at the CGI, he was chairman of the Eastern Central and South East Europe Division (ECSEED) of the United Nations Group of Experts on Geographical Names (UNGEGN). Through EuroGeoNames, the pan-European project with goal to establish a European geographic names system in line with the INSPIRE directive, he included Croatia in the EuroGeoNames system. In that time, fourteen countries were involved in EuroGeoNames system, and Croatia was the only non-EU country involved in the system. He was also a national representative in the pan-European organization EuroSDR. It organizes several international conferences, workshops and visits. He made national grid system for official cartography for the new Croatian mapping projection. He is editor of the Proceedings of the Croatian Geodetic Institute 2006 - 2010. He was continuously teaching at the Faculty of Geodesy of the University of Zagreb as an external associate. With the introduction of the Bologna process at the Universities, he introduced a new course Global Geodesy at the Graduate Study of the Faculty of Geodesy of the University of Zagreb.

In 2010, the Croatian Geodetic Institute was assigned to the State Geodetic Administration (SGA). The SGA is working on the establishment and development of the National Spatial Data Infrastructure (NDSI). He was working on the drafting of the NSDI Act (NN 56/2013). He was working on the other legislative NSDI documents in accordance with the requirements of the EU INSPIRE Directive (e.g. Specification of NSDI metadata). He is working on the development of the NSDI's website http://www.nipp.hr, and further on the NSDI's geo-portal http://geoportal.nipp.hr/. Linking Croatian NSDI to the EU's INSPIRE geoportal http://inspire-geoportal.ec .europa.eu. Croatia have to link the national NSDI with Europe INSPIRE SDI to fulfil its international obligations as a candidate country for accession to the European Union. He continuously lectures at the Faculty of Geodesy of the University of Zagreb and publishes papers. He was elected in to the scientific level of a scientific consultant at the April 4, 2014. He was elected to an academic

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level of university professor on the September 13, 2016. He has published more than 100 papers. He was mentor of three student work received award of the Rector of the University of Zagreb.

He is an independent expert, evaluator of the FP7 and Horizon 2000 projects for the European Commission and some national scientific agencies. He is a member of several professional associations, commissions and working groups. Authorized engineer of the Croatian Chamber of Certified Engineers of Geodesy.

Since 2014 he has been employed at the Faculty of Civil Engineering, Architecture and Geodesy in Split. Speaks English and German. He is married and has one child.

DATE OF LAST APPOINTMENT TO A RESEARCH-AND-TEACHING OR ART-AND-TEACHING RANK: 14. July 2016.

# LIST OF PUBLISHED WORK WHICH QUALIFY HIM/HER FOR IMPLEMENTATION OF THE PROGRAMME, THAT IS, WHICH ARE RELEVANT FOR THE FIELD OF THE DOCTORAL PROGRAMME

Hećimović, Ž. (2013): Relativistic effects on satellite navigation. Tehnički vjesnik/Technical Gazette, Vol. 20, No. 1, 195-203.

Barišić, A., A. Crnković, Ž. Hećimović (2011): Satellite orbits optimized for satellite supported services on the territory of Croatia. Tehnički vjesnik/Technical Gazette, Vol. 18, No. 2, 179-186.

Bilajbegović, A., M. Solarić, Ž. Bačić, Ž. Hećimović (1989): Globalno pozicijsko određivanje osnova i primjena. Geodetski list, 7-9, str. 231-254, Zagreb 1989.

Hećimović, Ž. (2001): Parametri definiranja performansi navigacijskih sustava. Geodetski list, 55(78), str. 33 – 48, Zagreb 2001.

Hećimović, Ž., T. Bašić (2003): Globalni geopotencijalni modeli na teritoriju Hrvatske. Geodetski list, 57(80), 2, 73-89, Zagreb.

Brkić, M., Ž. Hećimović, T. Bašić (2003): Geomagnetska deklinacija na prostoru Hrvatske na temelju globalnih geomagnetskih modela. Geodetski list, 57(80), 1, 1-15, Zagreb.

Hećimović, Ž., T. Bašić (2005): Satelitska misija CHAllenging Minisatellite Payload (CHAMP). Geodetski list, 59(82), 2, 129-147, Zagreb.

Hećimović, Ž., T. Bašić (2005): Satelitska misija Gravity Recovery and Climate Experiment (GRACE). Geodetski list, 59(82), 3, 181-197, Zagreb.

Hećimović, Ž., T. Bašić (2005): Satelitska misija Gravity Field and Steady-State Ocean Circulation Explorer (GOCE). Geodetski list, 59(82), 4, 253-265, Zagreb.

Hećimović, Ž., M. Pavasović (2010): CROPOS kao osnova za Hrvatski terestrički referentni sustav (HTRSYY). Excentar, br. 12, str. 40 – 47, ožujak 2010, Zagreb.

Bilajbegović, A., Ž. Bačić, Ž. Hećimović (1990): Gravity base of New Height Systems in Yugoslavia. Proceedings of the International Symposium on the Gravity Field Determination and GPS – Positioning in the Alps-Adria Area, Dubrovnik-Hvar, October 2–7, 1989, Mitteilungen der geodätischen Institute der Technischen Universität Graz, Folge 67, pp. 171-188, Graz 1990.

Hećimović, Ž., N. Rožić, T. Bašić, D. Markovinović (2003): Status of the Croatian First Order Gravity Network. In: J. A. Torres and H. Hornik (Eds.): Proceedings of the Symposium of the IAG Section I (Positioning), Commission X (Global and Regional Geodetic Networks), Sub-commission for Europe (EUREF), Publication No. 13, Toledo, Spain, June 4-7, 2003. Mitteilungen des Bundesamtes für Kartographie und Geodäsie, Band 33, 306-310, Frankfurt am Main 2004.



Hećimović, Ž.; Marasović, S.; Crompvoets, J. (2014): Development of Local Spatial Data Infrastructure in Croatia. Journal of Spatial Science. http://dx.doi.org/10.1080/14498596.2014.908424, Taylor & Francis, V59, Nr. 2, September 2014. pp 221-234.

Hećimović, Ž., B. Barišić, I. Grgić (2004): European Vertical Reference Network (EUVN) Considering CHAMP and GRACE Gravity Models. Report on the Symposium of the IAG Subcommission for Europe (EUREF) held in Bratislava, 2 - 5 June 2004. Volume 14. International Association of Geodesy / Section I – Positioning, Subcommission for Europe (EUREF). Publication No. 14.

Bašić, T., Hećimović, Ž. (2005): Latest Geoid Determination for the Republic of Croatia. IAG International Symposium Gravity, Geoid and Space Missions GGSM2004, Session 3: Regional geoid modeling, Porto, Portugal, 30.8.-3.9.2004, Faculty of Science, University of Porto, CD-Proceedings, Porto.

Hećimović, Ž., Bašić, T. (2005): Modeling of Terrain Effect on Gravity Field Parameters in Croatia. IAG International Symposium Gravity, Geoid and Space Missions GGSM2004, Session 5: Topographic data bases and gravity modeling, Porto, Portugal, 30.8.-3.9.2004, Faculty of Science, University of Porto, CD-Proceedings, Porto 2005.

Hećimović, Ž. (2006): Spectral behavior of global gravitational models considering EUVN network. Report on the Symposium of the IAG Subcommission for Europe (EUREF) held in Vienna, Austria, 1 - 4 June 2005. Report on the Symposium of the IAG Subcommission for Europe (EUREF) held in Vienna, Austria, 1 - 4 June 2005.

Grgić, I., B. Barišić, Ž. Hećimović (2006): Realization of EUVN densification project in the Republic of Croatia. Report on the Symposium of the IAG Subcommission for Europe (EUREF) held in Riga, Latvia, 14 - 17 June 2006. Report on the Symposium of the IAG Subcommission for Europe (EUREF) held in Riga, Latvia, 14 - 17 June 2006.

Hećimović, Željko; Igor, Matišić; Peroš, Josip. Pseudolites as UAV Navigation Support. Proceedings of the International Symposium on Engineering Geodesy / Paar, Rinaldo ; Marendić, Ante ; Zrinski, Mladen (ur.). Varaždinske toplice : Tonimir Ltd., 2016. 427-437.

Hećimović, Željko; Marasović, Slaven; Lukić Andrea. Copernicus Programme as Challenge for Geodesy and Geoinformatics // SIG 2016, Proceedings of tghe International Symposium on Engineering Geodesy / Paar, Rinaldo ; Marendić, Ante ; Zrinski, Mladen (ur.). Varaždinske toplice : Tonimir Ltd., 2016. 503-513.

Hećimović, Ž., M. Grgić, M. Pejaković (2013): Referentni sustavi s obzirom na usluge prostornih podataka. 3. CROPOS konferencija, 24.-25.10.2013. Opatija. Zbornik radova 3. CROPOS konferencija, ISBN 978-953-55915-3-5, CIP 857710, str. 133-140. Opatija 2013.

Željko Hećimović, Matjaž Štanfel, Gordan Horvat (2015): Analiza kontinuiranih mjerenje na odabranim EPN stanicama. Str. 114-124. Pregledni znanstveni rad. Ur.: Bašić T.; Pavasović M.; Marjanović M. (2015): Zbornik radova 4. CROPOS konferencije, Zagreb, 22.05.2015. Izdavači: Geodetski fakultet Sveučilišta u Zagrebu i Državna geodetska uprava. ISBN: 978-953-293-655-1. Tisak: Intergrafika TTŽ d.o.o.

Željko Hećimović, Igor Matišić, Filip Mudronja (2016): Program opažanja Zemlje Kopernik i bespilotne letjelice. 9. SIMPOZIJ OVLAŠTENIH INŽENJERA GEODEZIJE: "Geodezija kao profesija – Doing Business in Croatia", 21.–23. listopad 2016., Opatija, Hrvatska.

Bilajbegović, A., Ž. Bačić, Ž. Hećimović (1990): The New Yugoslav Vertical Datum. Presented on the International Symposium "The Workshop on Precise Vertical Positioning", Hannover, October 8-12, 1990.

PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



Bilajbegović, A., N. Bratuljević, Ž. Bačić, Ž. Hećimović (1990): The 2nd Yugoslav High Precision Levelling Network. Presented on the International Symposium "The Workshop on Precise Vertical Positioning", Hannover, October 8-12, 1990.

Željko Hećimović, Lucijo Martinić(2015): Utjecaj Copernicus program opažanja Zemlje na geoinformacijske proizvode i usluge. Zbornik radova 8. simpozij ovlaštenih inženjera geodezije "Geodetska politika za budućnost". Str. 134-140, 23. do 25. listopada 2015., Opatija.

Filip Kovačić, Željko Hećimović (2015): Geoprostorni proizvodi i usluge na temelju obrade Landsat 8 podataka. Zbornik radova 8. simpozij ovlaštenih inženjera geodezije "Geodetska politika za budućnost". Str. 150-157, 23. do 25. listopada 2015., Opatija.

Hećimović, Ž. (2011): Geographical names as part of the global, regional and national spatial data infrastructures. International NSDI Conference. CD-Zbornik radova. September 19-20, 2011. Skopje, Macedonia.

Hećimović, Ž., Bašić, T. (2004): Comparison of Champ and GRACE geoid models with Croatian HRG2000 geoid. ISSN: 1029-7006. European Geosciences Union (EGU) (ur.). European Geosciences Union (EGU), Nice 2004.

Hećimović, Ž. (2014): Globalna geodezija - Što ona pruža novim generacijama? Stručno-znanstveni skup Profil dionika u geodeziji 2: poslovne prakse u geodeziji, Organizatori: Geodetski fakultet Sveučilišta u Zagrebu i Hrvatska komora ovlaštenih inženjera geodezije. Znanstveno-stručni skup. Geodetski fakultet, 29. 09. 2014., Zagreb.

# LIST OF PUBLISHED WORK IN THE LAST FIVE YEARS

Hećimović, Ž. (2013): Relativistic effects on satellite navigation. Tehnički vjesnik/Technical Gazette, Vol. 20, No. 1, 195-203.

Hećimović, Ž.; Marasović, S.; Crompvoets, J. (2014): Development of Local Spatial Data Infrastructure in Croatia. Journal of Spatial Science. http://dx.doi.org/10.1080/14498596.2014.908424, Taylor & Francis, V59, Nr. 2, September 2014. pp 221-234.

Barišić, A., A. Crnković, Ž. Hećimović (2011): Satellite orbits optimized for satellite supported services on the territory of Croatia. Tehnički vjesnik/Technical Gazette, Vol. 18, No. 2, 179-186.

Hećimović, Ž.; Župan, R.; Duplančić-Leder, T. (2014): Unique Grid Cell Identification of Croatian Official Map Grids. Journal of Maps, 6/25, June 2014. DOI:10.1080/17445647.2014.935500. http://dx.doi.org/10.1080/17445647.2014.935500

Željko Hećimović, Igor Matišić, Filip Mudronja (2016): Program opažanja Zemlje Kopernik i bespilotne letjelice. 9. Simpozij ovlaštenih inženjera geodezije: "Geodezija kao profesija – Doing Business in Croatia", 21.–23. listopad 2016., Opatija, Hrvatska.

Hećimović, Ž. (2013): Spatial intelligence, spatial reasoning and SDI. In: Hećimović, Ž.; V. Cetl (Eds): Proceedings SDI Days 2013, p.p. 31-35. SDI Days 2013. 26th - 27th September, Šibenik. State Geodetic Administration, ISBN 978-953-519-6 (printed), CIP 855396, ISBN 978-953-293-520-2 (digital), 2013, Zagreb.

Hećimović, Ž., Lj. Rašić, T. Ciceli (2013): Status of Croatian NSDI. In: Hećimović, Ž.; V. Cetl (Eds): Proceedings SDI Days 2013, p.p. 127-132. SDI Days 2013. 26th - 27th September, 2013. Šibenik. State Geodetic Administration, ISBN 978-953-519-6 (printed), CIP 855396, ISBN 978-953-293-520-2 (digital), 2013, Zagreb

Željko Hećimović (2014): Spatial Reasoning as Market Value. Global Environment, Stakeholders' Profile and Corporate Governance in Geodesy. 1st International Interdisciplinary Scientific Conference. October 3-5, 2014, Faculty of Geodesy, University of Zagreb.

PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



Ciceli, T., Lj. Rašić, Ž. Hećimović (2012): On the Road to Spatially Enabled Government: Case Study Croatia. Global Geospatial Conference 2012. Spatially Enabling Government, Industry and Citizens. Québec City, Canada, 14-17 May 2012.

# LIST OF SCIENTIFIC AND ARTISTIC PROJECTS IN WHICH HE OR SHE PARTICIPATED AND WHICH ARE RELEVANT FOR THE FIELD OF THE DOCTORAL PROGRAMME

Osnovni geodetski radovi na prostornom informacijskim sistemima Republike Hrvatske. Projekt Ministarstva znanosti i tehnologije RH. 1988.

Istraživanje osnovnih geodetskih radova i astronomskih parametara. Projekt Ministarstva znanosti i tehnologije RH. 1988.-1991.

Obrada mareografskih podataka za potrebe određivanja visinskog datuma bivše Jugoslavije. 1988.-1989.

Obrada podataka i izjednačenje nivelmana visoke točnosti (NVT) za područje bivše Jugoslavije. 1988.-1989.

TYRGEONET međunarodna geodinamička GPS kampanja. 1990.

Studija stanja i prijedlog nove Osnovne gravimetrijska mreža Republike Hrvatske. 2001.

Osnovna mreža geomagnetske deklinacije Republike Hrvatske. 2002.

Geomatica Croatica, znanstveni projekt za Ministarstvo znanosti i tehnologije Republike Hrvatske, Geodetski fakultet, Sveučilište u Zagrebu, 2002.-2005.

EuroGeoNames (EGN) (2009). Pan-Europski projekt uspostave europske infrastrukture geografskih imena u skladu s INSPIRE direktivom. Nacionalni voditelj projekta.

Geopotential and Geodynamics of the Adriatic (Geo++Adria), znanstveni projekt za Ministarstvo znanosti obrazovanja i športa Republike Hrvatske. Geodetski fakultet, Sveučilište u Zagrebu, 2006.–2010.

# LIST OF SCIENTIFIC AND ARTISTIC PROJECTS IN WHICH HE OR SHE PARTICIPATED IN THE LAST FIVE YEARS

MedTrends Project. Organization: World Wide Fund for Nature (WWF), European Regional Development Fund. Waters under national jurisdiction of the 8 EU Mediterranean countries: Croatia, Cyprus, France, Italy, Greece, Malta, Slovenia, Spain.Advisory Board Member.

PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



#### **ORDINAL NUMBER: 32**

FIRST NAME, LAST NAME, AND TITLE OF THE TEACHER: Milan Rezo, Assistant Professor

**NAME OF INSTITUTION OF EMPLOYMENT OF THE TEACHER:** Faculty of Geotechnical Engineering, University of Zagreb

#### BIOGRAPHY

Place, country, date of birth: Rakitno, Bosnia and Herzegovina, 30th May 1967

Primary school: Primary school "Poklečani" (1974-1982)

Secondary school: Secondary School of Civil Engineering- field of study: Geodesy (1982 - 1986), Mostar

Undergraduate study: Faculty of Geodesy, University of Zagreb (1997 – 1994); graduated on 6th May 1994; geodetic engineer

Postgraduate study: Faculty of Geodesy, University of Zagreb (1997 – 2002); field of study: Satellite, Physical and Maritime Geodesy; Master of Technical Sciences; the title of the master thesis theme: "Analysis of the positioning network status and application of transformed GPS data serving the needs of geoinformation systems in the Republic of Croatia"; mentor: Tomislav Bašić, Ph.D., Full Professor; Date of the defence: 11th July 2002

Doctoral study: Faculty of Geodesy, University of Zagreb, Doctor of Science (PhD) in the area of Technical Sciences; field: Geodesy; branch: Satellite, Physical and Maritime Geodesy; the title of a doctoral dissertation theme: "The importance and application of physical parameters in a modern approach to geodetic works of state measuring"; mentor: Tomislav Bašić, Ph.D., Full Professor; Date of the defence: 7th October 2010

Professional career:

May 1994 – December 1996, Geoservis (LLC), Pula

October 1997 – July 1998, Vektra (LLC), Varaždin

August 1998 – 29th February 2012, University of Zagreb, Faculty of Geodesy

1st March 2012 - University of Zagreb, Faculty of Geotechnical Engineering

Appointments to scientific-teaching ranks:

University of Zagreb, Faculty of Geodesy; area: Technical sciences; field: Geodesy

28th October 2010, Senior Instructor, University of Zagreb, Faculty of Geodesy

1st September 2002, Instructor, University of Zagreb, Faculty of Geodesy

1st July 1998, Assistant Instructor, University of Zagreb, Faculty of Geodesy

The University of Applied Sciences in Varaždin- the study programme of Civil Engineering

13th November 2008 – nominal rank: Senior Instructor; area: Technical sciences; field: Geodesy; branch: Satellite, Physical and Maritime Geodesy

25th November 2011 – scientific rank: Research Associate; area: Technical sciences; field: Geodesy; branch: Satellite, Physical and Maritime Geodesy

13th February 2012 – scientific-teaching rank: Associate Professor; area: Technical sciences; field: Geodesy; branch: Satellite, Physical and Maritime Geodesy

#### DATE OF LAST APPOINTMENT TO A RESEARCH-AND-TEACHING OR ART-AND-TEACHING RANK: 13th February 2012



# LIST OF PUBLISHED WORK WHICH QUALIFY HIM/HER FOR IMPLEMENTATION OF THE PROGRAMME, THAT IS, WHICH ARE RELEVANT FOR THE FIELD OF THE DOCTORAL PROGRAMME

### BOOKS AND MONOGRAPHS

Rezo M: Analysis of the Positioning Network Status and Application of Transformed GPS Data Serving the Needs of Geoinformation Systems in the Republic of Croatia", Master thesis, University of Zagreb, Faculty of Geodesy, 2002

Rezo M: The Importance and Application of Physical Parameters in a Modern Approach to Geodetic Works of State Measuring, Doctoral dissertation, University of Zagreb, Faculty of Geodesy, 2010

Rezo M: Planar Geodesy, University Workbook. Publisher: University of Zagreb, Faculty of Geotechnical Engineering, Varaždin, 2013

SCIENTIFIC PAPERS published in journals indexed in Current Contents ( CC ), Science Citation Index ( SCI ) and Science Citation Expanded ( SCIE ) databases - A PAPERS:

Rezo, M., Špoljarić, D., Šljivarić, M: The Changes of Sea Level and Variations of Moon Declinations in Nutation Period at Four Tide Gauges in Croatia, Geodetski list 64 ( 87 ), 4, pages 263-278, Zagreb, 2010

Gazdek, M., Strelec, S., Rezo, M: Estimation of vibro replacement by compression seismic waves, Tehnički vjesnik, Volume 18, pages 243-252, Slavonski Brod, 2011

Rezo, M., Markovinović, D., Šljivarić, M.: Influence of the Earth`s topographic masses on vertical deflection, Tehnički vjesnik, Volume 21, pages 697-705, Slavonski Brod, 2014

SCIENTIFIC PAPERS published in journals indexed in some other important bibliographic databases ( such as Bibliographia Cartographica; Geobase; GEOPHOKA; Georef; Scopus; Social Sciences Citation Index; TRIS; Referentivnyj Žurnale GEografija; Inspec; COMPENDEX ) - B PAPERS:

Šugar, D., Zrinjski, M., Rezo, M.: Basic Geodetic Works during Establishment and Distance Determination of Pula Base Line, Geodetski list, 69 (2015), 2, pages 115-138, Zagreb, 2015

Brkić, M., Šugar, D., Rezo, M., Markovinović, D., Bašić, T.: Croatian Geomagnetic Repeat Stations Network, Geodetski list, 59 ( 82 ), 2, pages 113-127, Zagreb, 2005

Bašić, T., Markovinović, D., Rezo, M.: Basic Gravimetric Network of the Republic of Croatia, Geodetski list, 60 (83), 2, pages 73-91, Zagreb, 2006

Rezo, M., Šljivarić, M., Pavasović, M.: Vertical Crustal Movement in Area of Istra and Kvarner at the Territory of the Republic of Croatia. Electronic Journal of Geotechnical Engineering. Volume 15 (2010), Bund. Q (2010), Ppr10.132ar.pdf: 1835-1847

Šugar, D., Jungwirth, E., Rezo, M.: Geomagnetic Elements Determination on the Selected Locations with the Red Soil, Geodetski list, 65 (88), 3, pages 221-240, Zagreb, 2011

Rezo, M., Pavasović, M., Šljivarić, M.: The Analysis of Adriatic Sea Tide Gauge Data from Year 1953 to 2006, Geodetski list, 68 ( 2014 ), 4, pages 269-290, Zagreb, 2014

Rezo, M., Markovinović, D., Šljivarić, M.: Analysis, Processing and Integral Adjustment of Precise Levelling Network (NVT), Geodetski list, 69 (2015), 1, pages -, Zagreb, 2015

Peer-reviewed SCIENTIFIC PAPAERS published in proceedings of international scientific conferences –D: PAPERS

PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



Bašić, T., Rezo, M., Markovinović, D.: Homo Homogenisation of GPS fields in cities referring to the new positional datum of the Republic of Croatia, Mitteilungen des Bundesamtes fuer Kartographie und Geodaesie, Frankfurt am Main, 2006, Bd. 38. - pp. 400-407, 2006

Rezo, M., Kranjec, M., Rezo, A.: Adujstment of terestric and GPS measurements when monitoring deformation on hydroelectric power plants. Proceedings of a Symposium on engineering geodesy with international participation: SEG 2007. Novaković, Gorana (ed.) Vinkovci: Croatian Geodetic Society, pages 137-150, 2007

Rezo, M., Kranjec, M., Rezo, A.: Adujstment of levelling measurements when monitoring deformation on hydroelectric power plants. Proceedings of a Symposium on engineering geodesy with international participation: SEG 2007. Novaković, Gorana (ed.) Vinkovci: Croatian Geodetic Society, pages 165-173, 2007

Rezo, M., Šugar, D., Težak, I., Zidar, M.: Determination of horizontal movements, rotations and acclivities by methods of alining and clinometry at hydroelectric power plants. Proceedings of a Symposium on engineering geodesy with international participation: SEG 2007. Novaković, Gorana (ed.) Vinkovci: Croatian Geodetic Society, pages 151-164, 2007

Šljivarić, M., Markovinović, D., Rezo, M., Kranjec, M.: Application of encoded survey by RTK GPS/GLONASS method in real estate cadastre). Proceedings of the First cadaster congress in Bosnia and Herzegovina with international participation. Editor in chief I. Lesko. Mostar: Geodetic society of Herzeg-Bosnia, pages 93-102, 2007

Pavasović M., Rezo M., Bašić T.: The aplication of GNSS VRS service in industrial survey. 5th international Conference on Engineering Surveying INGEO 2011, Brijuni, Croatia, September 22-24, 2011, Editors: Kopačik, A., Kyrinovič, P. and Roić, M., ISBN 978-953-6082-15-5, 279-286, Faculty of Geodesy, Zagreb, 2011

ABSTARCTS AND POSTERS at international conferences

Markovinović, D., Rezo, M. (2002): Basic Gravimetric Network of the Republic of Croatia. I. Ph. D. Civilexpo. International Ph. D. Conference od Civil Engineering, November 21. - 22. 2002., Budapest, Hungary, 2002

Bašić, T., Markovinović, D., Rezo M. 2004: Basic Gravimetric Network of the Republic of Croatia // IAG Proceedings of the GGSM2004 Symposium, Porto, Portugal, Aug. 30 - Sep. 3, 2004. Springer Verlag, 2004

Markovinović, D., Rezo, M., Bašić, T.: Zero series of measurements in Basic gravimetric network of the Republic of Croatia. Geophysical Research Abstracts, Vol. 6, 02706, 2004, ISSN: 029-7006. European Geosciences Union (EGU) (ur.). Nice: European Geosciences Union (EGU), 2004

Brkić M., Šugar D., Rezo M., Markovinović D., Bašić T. 2005: Croatian Geomagnetic Repeat Stations Network – A National Report, Poster, 2nd Workshop on European Geomagnetic Repeat Station Survey 2004 – 2005, Institute of Geodesy and Cartography, Warsaw 6-8 April 2005

Brkić M., Šugar D., Rezo M., Markovinović D., Bašić T.: Croatian Geomagnetic Repeat Stations Network, NATO Programme Security through Science Advanced Research Workshop "New data for the magnetic field in the Republic of Macedonia for enhanced flying and airport safety", Ohrid, Republic of Macedonia, 17-21 May 2005

Brkić M., Šugar D., Pavasović M, Rezo M., Vujić E.: Croatian geomagnetic surveys 2007 – 2008 – A National Report, abstract and poster, 4th MagNetE Workshop on European Geomagnetic Repeat Station Survey, Helsinki, 8-10 June 2009

# LIST OF PUBLISHED WORK IN THE LAST FIVE YEARS

Rezo M: Planar Geodesy, University Workbook. Publisher: University of Zagreb, Faculty of Geotechnical Engineering, Varaždin, 2013

PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



Rezo, M., Markovinović, D., Šljivarić, M.: Influence of the Earth`s topographic masses on vertical deflection, Tehnički vjesnik, Volume 21, pages 697-705, Slavonski Brod, 2014

Šugar, D., Zrinjski, M., Rezo, M.: Basic Geodetic Works during Establishment and Distance Determination of Pula Base Line, Geodetski list, 69 (2015), 2, pages 115-138, Zagreb, 2015

Pavasović M., Rezo M., Bašić T.: The aplication of GNSS VRS service in industrial survey. 5th international Conference on Engineering Surveying INGEO 2011, Brijuni, Croatia, September 22-24, 2011, Editors: Kopačik, A., Kyrinovič, P. and Roić, M., ISBN 978-953-6082-15-5, 279-286, Faculty of Geodesy, Zagreb, 2011

Rezo, M., Pavasović, M., Šljivarić, M.: The Analysis of Adriatic Sea Tide Gauge Data from Year 1953 to 2006, Geodetski list, 68 ( 2014 ), 4, pages 269-290, Zagreb, 2014

Rezo, M., Markovinović, D., Šljivarić, M.: Analysis, Processing and Integral Adjustment of Precise Levelling Network (NVT), Geodetski list, 69 (2015), 1, pages -, Zagreb, 2015

# LIST OF SCIENTIFIC AND ARTISTIC PROJECTS IN WHICH HE OR SHE PARTICIPATED AND WHICH ARE RELEVANT FOR THE FIELD OF THE DOCTORAL PROGRAMME

Geomatica Croatia, Ministry of Science and Education of the Republic of Croatia, Faculty of Geodesy, University of Zagreb, 2002-2006. The code of the project: 0007012 (associate)

Geopotential and Geodynamics of the Adriatic Sea, Ministry of Science and Education of the Republic of Croatia, Faculty of Geodesy, University of Zagreb, 2006-2010. The code of the project: 007-0072284-2287 ( associate )

Homogeneous field of basic geodetic points of the Republic of Croatia. Scientific-research project for the State Geodetic Directorate, Zagreb, 1997

Proposal of official geodetic dates of the Republic of Croatia. Scientific-research project for the State Geodetic Directorate, 1-93, Zagreb, 2000

Study of the condition and proposal of a new Basic Gravimetric Network of the Republic of Croatia.

Scientific-research project for the State Geodetic Directorate, 1-221, Zagreb, 2001

A detailed model of geoids of the Republic of Croatia HRG2000. Scientific-research project for the State Geodetic Directorate,1-60, Zagreb, 2001

Basic geomagnetic declination network of the Republic of Croatia. Previous study for the Ministry of Defence of the Republic of Croatia, Institute for defence studies, research and development, 1-446, Zagreb, 2002

Geomatica Croatia (0007012). A three-year scientific project for the Ministry of Science and Education of the Republic of Croatia, Faculty of Geodesy, University of Zagreb, 2002-2006.

Homogenisation of a 10 km GPS network of the Republic of Croatia. Scientific-research project for the State Geodetic Directorate,1-126, Zagreb, 2002

Creating utility programmes for using data of the official Croatian geoid and coordinate transformation between Croatian National Coordinate System (CNCS) and European Terrestrial Reference System (ETRS). Scientific-research project for the State Geodetic Directorate, 1-35, Visual Basic Packages, Zagreb, 2002

Production of documents necessary for the adoption of the official positional and gravimetric date proposal in the Republic of Croatia. Scientific-research project for the State Geodetic Directorate, 1-62, Zagreb, 2003

PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



Basic Gravimetric Network of the Republic of Croatia. Scientific-research project for the State Geodetic Directorate,1-154, Zagreb, 2003

Basic Gravimetric Network of the Republic of Croatia- serving the needs of official cartography – 1st phase. Scientific-research project for the State Geodetic Directorate, Zagreb, 2004

Project and stabilisation of points in micro gravimetric networks at five absolute gravimetric points- 1st phase. Scientific-research project for the State Geodetic Directorate (ongoing), Zagreb, 2004

IHRG200 and Dat\_ABMO software package maintenance services. Scientific-research project for the State Geodetic Directorate, Zagreb, 2004

Homogenisation of GPS fields in cities referring to the reference system of the Republic of Croatia. Scientific-research project for the State Geodetic Directorate, Zagreb, 2004

Geopotential and Geodynamics of the Adriatic Sea (GEO++ADRIA), scientific project of the Ministry of Science and Education of the Republic of Croatia, 2006

Restoration of geomagnetic information- 1st phase, scientific-research project of the Ministry of Defence, Institute for research and development of defense systems, Zagreb, 2007

Restoration of geomagnetic information-2nd phase, scientific-research project of the Ministry of Defence, Institute for research and development of defense systems, Zagreb, 2008

Restoration of geomagnetic information- 3rd phase, scientific-research project of the Ministry of Defence, Institute for research and development of defense systems, Zagreb, 2009

Basic Geomagnetic Network of the Republic of Croatia – serving the needs of official cartography, 1st phase, Scientific-research project for the State Geodetic Directorate, Zagreb, 2003

Basic Geomagnetic Network of the Republic of Croatia – serving the needs of official cartography, 2nd phase, Scientific-research project for the State Geodetic Directorate, Zagreb, 2007

Basic Geomagnetic Network of the Republic of Croatia – serving the needs of official cartography, 3rd phase, Scientific-research project for the State Geodetic Directorate, Zagreb, 2008

Basic Geomagnetic Network of the Republic of Croatia – serving the needs of official cartography, 4th phase, Scientific-research project for the State Geodetic Directorate, Zagreb, 2009

Basic Geomagnetic Network of the Republic of Croatia – serving the needs of official cartography, 5th phase, Scientific-research project for the State Geodetic Directorate, Zagreb, 2010

Restoration of geomagnetic information- 4th phase, scientific-research project of the Ministry of Defence, Institute for research and development of defense systems, Zagreb, 2010

# LIST OF SCIENTIFIC AND ARTISTIC PROJECTS IN WHICH HE OR SHE PARTICIPATED IN THE LAST FIVE YEARS

"The risk matrix of earthquake activities in north-western Croatia"; source of funding: financial support of the University of Zagreb; project duration: 2016; project manager: Josip Mesec, PhD, Full Professor

"Ecological research on the influence of corn and cabbage management on the weeds composition in north-western Croatia" source of funding: financial support of the University of Zagreb; project duration: 2016; project manager (Z. Stančić, Ph.D, Associate Professor)

PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



#### **ORDINAL NUMBER:** 33

FIRST NAME, LAST NAME, AND TITLE OF THE TEACHER: Krešo Ivandić, Associated Professor

NAME OF INSTITUTION OF EMPLOYMENT OF THE TEACHER: Faculty of Geotechnical Engineering, University of Zagreb

BIOGRAPHY

PERSONAL INFORMATIONS

Family name, First name: Ivandić, Krešo

Identification number of the scientist: 217470

URL for web site: http://tkojetko.irb.hr/en/znanstvenikDetalji.php?sifznan=9828

EDUCATION

2001 PhD, University of Zagreb, Faculty of Civil Engineering (FCE)

1997 Master of Science, University of Zagreb, Faculty of Civil Engineering (FCE)

1993 BSc of Civil Engineering, University of Zagreb, Faculty of Civil Engineering (FCE)

CURRENT POSITION(S)

since 2012 - Associate Professor, University of Zagreb, FGE

PREVIOUS POSITIONS

1993 – 2004 Teaching and Research Assistant, University of Zagreb, FCE

FELLOWSHIPS AND AWARDS

1990 - University of Zagreb - Dean's award

TEACHING ACTIVITIES

since 2006 – Civil Engineering (Foundation Engineering I and II, Numerical Methods, Earth and Retaining Structures, Soil and Rock Injections), University of Zagreb, FGE

MEMBERSHIPS

since 1994 – member of International Society for Soil Mechanics and Geotechnical Engineering

since 1994 – member of Croatian Geotechnical Society

SCIENTIFIC PROJECTS

Assistant

"Laterally loaded piles deflection", under the supervision of Professor Franjo Verić, PhD, Faculty of Geotechnical Engineering, University of Zagreb, project number 160052, project funded by Croatian Ministry of Science, Education and Sports, 20201-2004

"Geotechnical anchors", under the supervision of Professor Antun Szavits-Nosan, PhD, Faculty of Geotechnical Engineering, University of Zagreb, project number 0082224, project funded by Croatian Ministry of Science, Education and Sports, 2001 - 2004

# TECHNICAL SKILLS

Developed own algorithms for lateral and longitudinal loaded piles, geotechnical anchors and tension loade footings. Computer-aided simulation: Plaxis, GeoStudio, GGU, Mathematica.

SOCIAL AND ORGANIZATIONAL SKILLS

PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



Ability to work in teams or as an individual: Communicative, opened, motivated, and always full of creative ideas. Encourage the development of harmonic relationships among other people with a good team spirit.

# LANGUAGES

Croatian; English; German.

# DATE OF LAST APPOINTMENT TO A RESEARCH-AND-TEACHING OR ART-AND-TEACHING RANK: December 2012.

# LIST OF PUBLISHED WORK WHICH QUALIFY HIM/HER FOR IMPLEMENTATION OF THE PROGRAMME, THAT IS, WHICH ARE RELEVANT FOR THE FIELD OF THE DOCTORAL PROGRAMME

Kvasnička, P.; Matešić, L.; Ivandić, K.: Geotechnical site classification and Croatian National Annex for Eurocode 8, Geofizika, 28 (2011) 83-97.

Kovačević, M.S.; Ivandić, K.; Marčić, D.: Testing the load-bearing capacity of harbour no. 5 in the Ploče port, Technical Gazette. 18 (2011) 3; 417-422.

Cerić, A.; Marčić, D.; Ivandić, K.: A risk-assessment methodology in tunnelling, Technical Gazette. 18 (2011) 4; 529-536.

Bandić, M., Ivandić, K.: Reliability evaluation of Eurocod 7 design approaches for anchored embedded walls, UNDER CITY Colloquium on Using Ubderground Space in Urban Areas in South East Europe, Dubrovnik, Croatia, 12-14 April, 2012.

Tehničko praćenje i održavanje sidrene armiranobetonske "Moj Dvor" u Zagrebu, 6. savjetovanje Hrvatskog geotehničkog društva, Sanacija, tehničko praćenje i održavanje u geotehnici, Zadar/Peruča, 17.-19. listopada 2013.

# LIST OF PUBLISHED WORK IN THE LAST FIVE YEARS

Bandić, M., Ivandić, K.: Reliability evaluation of Eurocod 7 design approaches for anchored embedded walls, UNDER CITY Colloquium on Using Ubderground Space in Urban Areas in South East Europe, Dubrovnik, Croatia, 12-14 April, 2012.

Tehničko praćenje i održavanje sidrene armiranobetonske "Moj Dvor" u Zagrebu, 6. savjetovanje Hrvatskog geotehničkog društva, Sanacija, tehničko praćenje i održavanje u geotehnici, Zadar/Peruča, 17.-19. listopada 2013.

# LIST OF SCIENTIFIC AND ARTISTIC PROJECTS IN WHICH HE OR SHE PARTICIPATED AND WHICH ARE RELEVANT FOR THE FIELD OF THE DOCTORAL PROGRAMME

"Laterally loaded piles deflection", under the supervision of Professor Franjo Verić, PhD, Faculty of Geotechnical Engineering, University of Zagreb, project number 160052, project funded by Croatian Ministry of Science, Education and Sports, 20201-2004

"Geotechnical anchors", under the supervision of Professor Antun Szavits-Nosan, PhD, Faculty of Geotechnical Engineering, University of Zagreb, project number 0082224, project funded by Croatian Ministry of Science, Education and Sports, 2001 - 2004

# LIST OF SCIENTIFIC AND ARTISTIC PROJECTS IN WHICH HE OR SHE PARTICIPATED IN THE LAST FIVE YEARS

PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



#### **ORDINAL NUMBER: 34**

FIRST NAME, LAST NAME, AND TITLE OF THE TEACHER: Jože Kortnik, Assistant Professor

**NAME OF INSTITUTION OF EMPLOYMENT OF THE TEACHER:** Faculty of Natural Sciences and Engineering, University of Ljubljana

#### BIOGRAPHY

He is a Assistant Professor at the UNIVERSITY OF LJUBLJANA, Faculty of Natural Sciences and Engineering. In 1992, he graduated from that Faculty in the Department of Geotechnology and Mining, in 1996 he completed his postgraduate studies in mining and geotechnology (MSc) "Use of particle flow modeling methods for idea planning of underground waste depositing" and in 2001 PhD (mining and geotechnology) "Composites of Waste Materials for Backfill in Mines".

During his studies in 1990 he participated in an 8-weeks work-experience programme in gold mines (Gold Fields SA) in the Republic of South Africa. From 1992-1995 he was employed at the Velenje Lignite Mine (today Velenje Coal Mine), in the Study Department of the Research and Development Sector. Since 1995 he have been employed at the University of Ljubljana, Faculty of Natural Sciences and Engineering, Department of Geotechnology, Mining and Environment, Chair of Mining and Geotechnics as a Researcher, from 1999 as Assistant and from 2004 as Assistant Professor. From 2008 till 2016 he was the Head on the Chair of Mineral Processing, Ore Dressing and Waste Recycling at Department of Geotechnology, Mining and Environment.

In 1995 he passed a professional examination that qualified him as a foreman of mines with a methane hazard and as an independent mining project planner under the Slovenian Mining Law. In 1997 he passed a professional examination under the Slovenian Law on the Construction of Buildings and Facilities.

He held several lectures at the TH Georg Agricola, Bochum, Germany (2011, 2013, 2014, 2015, 2016), Silesian University of Technology Gliwice, Faculty of Mining and Geology, Poland (2012, 2014, 2015, 2016).

He is highly considered as an Mining, Geotechological and Environmental expert who conceives mineral, waste and recycling (urban mining) issues going beyond technical details. 20 years Experience in planning underground dimension stone extraction (Hotavlje I quarry, Lipica II quarry, Lipica I quarry, Doline quarry and Debela griza quarry), MSW management, designing and upgrading of LFG-wells collection systems (old Bukovzlak landfill) and chairing multi-linguistic, multi-tasking working groups or projects.

He has presented his research results at numerous domestic and international journals and congresses (IMWA'97 Bled, APCOM'98 Bled, ASSMR'98 London, APCOM'03 Cape Town, ECRBM'04 Sarajevo, ISEG'04 Helsinki, WMC'05 Tehran, ISEG'05 Charlotte, ICIDEN'06 Abuja, ICWMEGGSD'07 Ljubljana, ISEG'09 Bochum, ISEE'11 San Diego, WMC'11 Istanbul, KoSSGE'14 Seoul, ADKOM'15 Ohrid, PODEKS-POVEKS'16 Strumica, etc.). From 2005 he is the president of organizing and scientific committee of Slovene Waste Management Conference with international participation (GzO) and the Slovene Mining and Geotechnology conference with international participation (jump over the leather skin).

From 2004-2008 he was the president and he is currently the vice-president of the Slovenian Society of Mining Engineers and Technicians (SRDIT). He is member of Slovene Engineering Association (IZS), International Society of Environmental Geotechnology (ISEG), IOC World Mining Congress (WMC) and International Society of Explosives Engineers (ISEE).

# DATE OF LAST APPOINTMENT TO A RESEARCH-AND-TEACHING OR ART-AND-TEACHING RANK: April 2014. LIST OF PUBLISHED WORK WHICH QUALIFY HIM/HER FOR IMPLEMENTATION OF THE PROGRAMME, THAT IS, WHICH ARE RELEVANT FOR THE FIELD OF THE DOCTORAL PROGRAMME



KORTNIK, J., ŠUŠTERŠIČ, F., Modelling of the stability of a very large cave room; case study: Brezno pri Medvedovi konti. Acta carsol., ISSN 0583-6050 (Online ed.), vol. 29, no. 2, pp. 149-160, ilustr., December 2000.

KORTNIK, J., Stability appraisal of the Medvedova konta pothole. International journal of speleology. ISSN 0392-6672, vol. 31, no. 1/4, pp. 129-135, 2002.

KORTNIK, J. Backfilling waste material composites environmental impact assessment, Journal of the South African Institute of Mining and Metallurgy, ISSN 0038-223X, vol. 103, no. 6, pp. 391-396, July/Avgust 2003, [JCR, WoS].

KORTNIK, J, ČERNEC, F., HRAST, K., Paper sludge layer as low permeability barrier on waste landfills. Soil sediment contam. ISSN 1532-0383, vol. 17, no. 4, pp. 381-392, 2008, [JCR, SNIP, WoS].

KORTNIK, J., Optimization of the high safety pillars for the underground excavation of natural stone blocks. Acta geotechnica Slovenica. ISSN 1854-0171, vol. 6, no. 1, pp. 34-48, 2009, [JCR, SNIP, WoS].

KORTNIK, J., NWAUBANI, S.O., KOS, A., High safety pillars stability control using EL beam displacement sensors in Lipica II quarry. Acta geotechnica Slovenica. ISSN 1854-0171, vol. 11, no. 1, pp. 40-48, 2014, [JCR, SNIP, WoS].

HANN, D., KORTNIK, J., Analysis of process of removing impurities from calcium carbonate. Physicochemical Problems of Mineral Processing. ISSN 1643-1049, vol. 51, no. 2, pp. 611-619, 2015, [JCR].

KORTNIK, J., MARKOLI, B., Dry-cutting options with a chainsaw at the Hotavlje I natural-stone quarry. Materials and technologies journal. ISSN 1580-2949, vol. 49, no. 1, pp. 103-110, 2015, [JCR, SNIP].

# LIST OF PUBLISHED WORK IN THE LAST FIVE YEARS

KORTNIK, J., Possibilities for energy exploitation of landfill gas from old manucipal solid waste landfills in Slovenia. Journal of energy technology, ISSN 1855-5748, Vol. 6, No. 3, pp. 59-69, 2013.

KORTNIK, J., LESKOVAR, J., Mixed municipal solid waste (MSW) treatment in Waste centre Spodnji Stari Grad, Krško. RMZ-mater. geoinviron., ISSN 1408-7073, Vol. 60, No. 2, pp. 143-152, 2013.

HANN, D., KORTNIK, J., Analysis of process of removing impurities from calcium carbonate. Physicochemical Problems of Mineral Processing. ISSN 1643-1049, vol. 51, no. 2, pp. 611-619, 2015, [JCR].

# LIST OF SCIENTIFIC AND ARTISTIC PROJECTS IN WHICH HE OR SHE PARTICIPATED AND WHICH ARE RELEVANT FOR THE FIELD OF THE DOCTORAL PROGRAMME

Dense flay ash mixtures preparations for mining roads coating, University of Ljubljana, Faculty of Natural Sciences and Engineering, Oktober 2007. Industrial research project (contract no. 21/06), Cooperation with company Premogovnik Velenje d.d. = Velenje Coal Mine, Slovenia.

Research of metallurgical waste sludge MPI composite and environmental impact, University of Ljubljana, Faculty of Natural Sciences and Engineering, September 2011. Industrial research project (contract no. 04/11), Cooperation with company MPI reciklaža d.d., Slovenia.

Research of waste-water boric concentrate stabilization with purposal of depositing it on non-hazardous waste landfill Barje, University of Ljubljana, Faculty of Natural Sciences and Engineering, September 2013. Industrial research project (order no. 4500068856/2013), Cooperation with company SNAGA d.o.o., Ljubljana, Slovenia.

# LIST OF SCIENTIFIC AND ARTISTIC PROJECTS IN WHICH HE OR SHE PARTICIPATED IN THE LAST FIVE YEARS

Restoration of landfill-gas wells on Bukovžlak old non-hazardous waste landfill. 2013-2016. Cooperation with company SIMBIO d.o.o., Celje, Slovenia.

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Early fire detection in bio-waste management by measuring the concentrations of carbon monoxide. 2015-2016. Cooperation with company SIMBIO d.o.o., Celje, Slovenia.

PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



#### **ORDINAL NUMBER: 35**

FIRST NAME, LAST NAME, AND TITLE OF THE TEACHER: Božidar Biondić, Professor Emeritus

NAME OF INSTITUTION OF EMPLOYMENT OF THE TEACHER: Faculty of Geotechnical Engineering, University of Zagreb, retired

#### BIOGRAPHY

Born on November 16, 1940 in Zagreb, where he finished elementary and high school. Faculty of Technology - Minig department of the University of Zagreb (today RGN) graduated in May 1964, postgraduate study at the Department of Geology, Faculty of Science, University of Zagreb in 1974, and a doctoral thesis entitled "Hydrogeology of Lika region and the southern part of the Croatian Littoral" under the mentorship of prof. dr. Stjepan Bahun and Academics Milan Herak in 1982 at the University of Zagreb.

Upon completion of his studies was employed in the Croatian Geological Institute in Zagreb, where stayed constantly until 2002 in various positions and functions. From 1988 he was elected to the position of director of the Department of Hydrogeology and Engineering Geology and in 1996 to the four year term general director of Institute. At the University of Zagreb has been actively involved in teaching from the time of getting scientific titles, firstly in the postgraduate studies at the RGN and PMF faculty in Zagreb, and from establishment of university study at the Faculty of Geotechnical Engineering in Varaždin as a permanent visiting professor to the transition to permanent employment in 2003 with the status of full professor. He was promote in the title of full professor with permanent status in 2008, and finally after retirement in 2012 received the status of professor emeritus of the University of Zagreb.

Scientific activities as an independent researcher began already in 1971, and in his scientific and research activity published 110 scientific and technical papers, and led about 300 research projects for various commercial users. At the Faculty of Geotechnical Engineering, University of Zagreb he worked as head of the Department of Hydrotechnic, and in two mandates as vice dean responsible for the finance and international cooperation. During this period he stimulated the establishment of international doctoral programme "Geoengineering and Water Management".

He has more than 40 years of leading research projects funded from different sources, first by former state, and after by independence Republic of Croatia by Ministry of science, education and sport. The results were firstly complete views on karst water resources of Lika region and Croatian Littoral, than the first differentiation of Dinaric karst catchments with water balances. He was project manager of Basic hydrogeological map of Croatia, and of guide for water protection and sustainable management of karst aquifers in Croatia, than of the STIRP project "Drinking water - export product", the project for the protection of water resources in the National Park Plitvice Lakes and others.

From the international cooperation should be mentioned the participation in projects of EU "Cooperation in the field of Science and Technology", where in 1989 was the proposer and chair person of COST 65 project involving scientists from 17 European countries, the first proposer outside the borders of EU. This project thematically related to the issues karst water protection generated two new projects (COST 620 and 621), where as the head of the original project was a promoter and deputy head of the project COST 621 (Management of coastal karst aquifers) and participant in the project COST 620 (Vulnerability and risk mapping). According to the many years of activity in EU COST projects he was in 1998 nominated by the Croatian Ministry of sciences, technology and sport as the EU COST National Coordinator and member of the COST Senior Official Board (CSO), which manages the all projects and makes the final decisions about the activities and the development of the COST. This function served until his retirement in 2011. As Croatian National coordinator participated in the organization of the Ministerial Conference of COST countries (35) in Dubrovnik, where was created the basis of the cooperation between COST and ESF. Except





COST projects, which resulted with the publication of books and recommendation on the protection of karst aquifers in the European Union, he participated with team of researchers from Croatia in INTERREG C project together with researchers from Austria, Slovenia and Italy with the theme about standardizing information systems for water resources in central Europe (1999-2002). Particularly important was his participation in the project "Competence Waterpool" funded by the government of the Republic of Austria and co-financed by Croatian Ministry of science and stakeholder National Park Plitvice Lakes. During his international scientific activities, except projects, participated on numerous international and domestic conferences with invited lectures, and as a member of the scientific committees of the conferences, especially the last 20 years after the affirmation of the COST projects. Since 1999, after the international review was called to become a professional member of the American Institute of Hydrology, only one from the Republic of Croatia.

In professional activity can be noted the projects of new water capturing structures for the water-supply of the city of Rijeka, where was on the few sources tapped more than 1.500 l/s of additional quantities of drinking water. He was the author of the Guidelines and Regulations for the protection of sources of drinking water in Dinaric karst areas. A number of technical hydrogeological projects of water protection were made by research team under his leadership or direct personal research activities. In two occasions he worked on projects abroad, in 1975 as supervising engineer on the investigations for two dams in Iran, and in 1981 as a supervising engineer of investigations of raw material for the cement industry in Mexico. As director of the Department of Hydrogeology and Engineering Geology or a researcher was involved in geological investigations of the new highways in Croatia (Zagreb - Rijeka and Zagreb - Split), including the forecasting cross sections of the longest tunnels in Croatia, St. Rock and Mala Kapela.

From social activities can be pointed Croatian Geological Association, in which was in the period 1993-1996 president, and than other numerous associations, whose active member is for many years. In the organization of the First and Second Croatian Geological Congresses was the president of the scientific and organizing committees. For almost 40 years is a member of the International Association of Hydrogeologists (IAH), and from 1995 to 2006 was a member of Karst Commission IAH. At the proposal of the Ministry of Science, technology and sport in 1990 was the head of the official delegation of Yugoslavia to the Global Conference on Water in New Delhy, India, where he worked in the group for the protection of drinking water in the world. After the conference he was invited to participate as UN expert on the Workshop in Gran Canaria, Spain with representatives from 30 developing countries. Since 2004 to 2011 was a member of UNESCO Commission at the Ministry of Culture, and the member and chairman of the Commission for the annual award for the protection of nature. From 2000 to 2011 was a member of the Governing Council of National Park Plitvice Lakes, and from 2006 to 2010 the president of the Governing Council of the Centre for karst in Gospić.

# DATE OF LAST APPOINTMENT TO A RESEARCH-AND-TEACHING OR ART-AND-TEACHING RANK: 15.6.2012 LIST OF PUBLISHED WORK WHICH QUALIFY HIM/HER FOR IMPLEMENTATION OF THE PROGRAMME, THAT IS, WHICH ARE RELEVANT FOR THE FIELD OF THE DOCTORAL PROGRAMME

#### LIST OF PUBLISHED WORK IN THE LAST FIVE YEARS

1. Biondić, B., Biondić, R. (2014):Hidrogeologija dinarskog krša u Hrvatskoj . Sveučilišni udžbenik, Geotehnički fakultet, Varaždin

2. Biondić, R., Meaški, H., Biondić, B, (2016): Hydrogeology of the sinking zone of the Korana River downstream of the Plitvice Lakes, Croatia. Acta carsologica. Prihvaćeno za tisak.

PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



3. Meaški, H., Biondić, B., Biondić, R. (2016): Delineation of the Plitvice Lakes karst catchment area, Croatia.
In: Stevanović, Zoran ; Krešić, Neven ; Kukurić, Neno (eds.): Karst without Boundaries. International
Association of Hydrogeologists - Selected papers. Nizozemska : CRC Press/Balkema; 269-284.

4. Biondić, R., Meaški, H., Biondić, B. (2014): Vulnerability mapping of Novljanska Žrnovnica karstic spring catchment area (Croatia) – In: Kukurć, N., Stevanović, Z., Krešić, N. (eds): Proceedings of International Conference and Field Seminar "Karst Without Boundaries". Trebinje (BiH), 11-15.6.2014; 357-363

5. Biondić, B., Biondić, R. (2013): Hidrogeologija Gorskog kotara. U: Pavić, A. (ur.): Vode razvijaju Gorski kotar. Udruga za očuvanje hrvatskih voda i mora - Slap, Zagreb, 21-24.

6. Biondić, R., Biondić, B., Rubinić, J., Meaški, H. (2012): Quality and quantity status and risk assessment of groundwater bodies in the karst area of Croatia. In: Maloszewski, P., Witczak, S., Malina, G. (eds): Groundwater Quality Sustainability. International Association of Hydrogeologists - Selected papers. London: CRC Press Balkema; 163-172.

7. Biondić, R., Biondić, B, Meaški, H. (2012): Water supply spring zone Novljanska Žrnovnica (Croatia) – new quantities of drinking water in the conditions of salt water intrusion. Acta carsologica. 41 (2-3); 253-264.

8. Biondić, B., Biondić, R., Meaški, H. (2011): Zaštita vodnih resursa u Nacionalnom parku Plitvička jezera. U: Šutić, B., Mataija, I., Šikić, Z., Dujmović, A., Ružić, V., Brozinčević, A. (ur.): Znanstveno-stručni skup Nacionalnog parka Plitvička jezera povodom 60 godina od osnivanja i 30 godina od upisa na UNESCO-vu Listu svjetske kulturne i prirodne baštine. JUNP Plitvička jezera, Hrvatska, 82-102.

9. Biondić, R., Biondić, B., Rubinić, J., Meaški, H. (2011): Ocjena stanja i rizika cjelina podzemnih voda na krškom području Republike Hrvatske. U: Biondić, D., Holjević, D., Tropan, Lj. (ur.): Hrvatske vode pred izazovom klimatskih promjena. Opatija, Hrvatska, 479-489.

10. Biondić, B., Biondić, R. (2011): Zaštita vodnih resursa u Dubrovačko-neretvanskoj županiji. U: Biondić, R. (ur.): Voda - značajan prirodni resurs u razvoju Dubrovačko - neretvanske županije. Zbornik radova s konferencije, ZZJZ Dubrovačko-neretvanske županije, Dubrovnik, 22-24.

LIST OF SCIENTIFIC AND ARTISTIC PROJECTS IN WHICH HE OR SHE PARTICIPATED AND WHICH ARE RELEVANT FOR THE FIELD OF THE DOCTORAL PROGRAMME

# LIST OF SCIENTIFIC AND ARTISTIC PROJECTS IN WHICH HE OR SHE PARTICIPATED IN THE LAST FIVE YEARS

1. Karst Aquifers Vulnerability Assessment (KAVA) method applied to the Bakar Bay catchment area in Croatia - UNESCO MedPartnership projekt (2015.-2016.)

2. Zajednički sustav održivog upravljanja vodnim resursima nacionalnih parkova Škocjanske jame i Risnjak i njihovih priljevnih područja - projekt Europske teritorijalne suradnje (bivši IPA projekti) (2014-2015.)

3. Vulnerability mapping of Novljanska Žrnovnica karstic spring catchment area in Croatia – UNESCO MedPartnership projekt (2013.-2014.)

PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



#### **ORDINAL NUMBER: 36**

FIRST NAME, LAST NAME, AND TITLE OF THE TEACHER: Krešo Pandžić, Assistant Professor

NAME OF INSTITUTION OF EMPLOYMENT OF THE TEACHER: Meteorological and Hydrological Service

#### BIOGRAPHY

Graduated geophysics in 1979, obtained master,s degree in 1982 and doctorate degree in 1989 at the Faculty of Science, University of Zagreb. Since 1979 he has been employed at the Croatian Meteorological and Hydrological Service, from 1994 to 2000 was the Assistant Director of the Service of research and development, and from 2000 to 2014 Assistant Director of the Servis for observation of weather and climate. Since mid of 2014 has been the Deputy Director of Croatian Meteorological and Hydrological Service. At the same time he is Assistant Professor at Faculty of Science, University of Zagreb, teaching topic Synoptic Meteorology (modified title: Analyses and Forecasting I and II), the topic Agro-climatology at the Croatian University in Mostar (B&H), and topic General meteorology on doc study at Faculty of Mining, Geology and Petroleum Engineering at University of Zagreb. Since 2013 is the lecturer at the doctoral study at Faculty of Science, University of Zagreb at the topic "Atmospheric predictability and modelling of the climate system".

He is the leader person of the range of scientific and development projects financed by the Ministry of Sciences, Education and Sport as project aimed at long-term weather forecasting and climate monitoring, and monitoring of climate, weather and assimilation of meteorological data. He is the leader of the EU IPA project "Centre to monitor droughts in southeast Europe" (component for Croatia). He participated in the projects of World bank dedicated to the analyses of climate trends and scenarios for the catchment of Sava river and pilot projects of UNEP to mitigate the effects of climate changes in the Mediterranean area. He participated in the visiting project of British Meteorological Service dedicated to the long-term weather prognosis, working two weeks in Britain in 1994.

He was editor of three books (50 years of the State Hydrological Institute, 150 years of meteorological observations in Croatia, Instructions for work on major meteorological stations), and author of University textbook "Analyses of Meteorological Fields and Systems". He published over 20 scientific papers in international journals, and numerous scientific papers and publications in the country. He was a rewiever of numerous books and scientific papers, including three papers published in the International Journal of Climatology. He was awarded from the World Meteorological Organization for young scientists in 1989.

He is active internationally as Croatian representative in the Commission for the basic systems of the World Meteorological Organization, since 1994 is a chairman of the INTAD-RA VI network of regional advisors permanent representatives of the World Meteorological Organization for Europe, the Croatian representative in the Intergovernmental Panel on Climate Change (IPCC), contact person of SEECOF,s (Climate panel on seasonal weather forecasting in south eastern Europe). He participated in numerous international meetings, workshops, and scientific and technical conferences, is a member of the American Meteorological Society as well as the Croatian Meteorological Society for more than 30 years. He was the organizer of a series of international meetings, of which the most important was 14th session of the Commission on the basic systems of the World Meteorological Organization held in Dubrovnik in 2009 with over 200 participants from 90 countries and 42 sessions of the Intergovernmental Panel Climate Change held in 2015 with participation od more than 400 participants all over the world.

#### DATE OF LAST APPOINTMENT TO A RESEARCH-AND-TEACHING OR ART-AND-TEACHING RANK:

LIST OF PUBLISHED WORK WHICH QUALIFY HIM/HER FOR IMPLEMENTATION OF THE PROGRAMME, THAT IS, WHICH ARE RELEVANT FOR THE FIELD OF THE DOCTORAL PROGRAMME

PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



#### LIST OF PUBLISHED WORK IN THE LAST FIVE YEARS

1. Pandžić, K., Trninić, D., Likso, D. and T. Bošnjak, 2008: Long-term variations in water balance components for Croatia. Theoretical and Applied Climatology, 95, 39-51.

2. Pandžić, K. and T. Likso, 2010: Homogeneity of air temperature annual average time series for Croatia. Int. J. Climatol. 30, 1215-1225.

3. Likso, T. and K. Pandžić, 2012: Determination of surface layer parameters at the edge of a suburban area. Theoretical and Applied Climatology, 108, 373-384.

4. Pandžić, K. i Z. Žibrat (urednici), 2014: 160 godina meteoroloških motrenja i njihova primjena u Republici Hratskoj. Državni hidrometeorološki zavod, Zagreb.

LIST OF SCIENTIFIC AND ARTISTIC PROJECTS IN WHICH HE OR SHE PARTICIPATED AND WHICH ARE RELEVANT FOR THE FIELD OF THE DOCTORAL PROGRAMME

#### LIST OF SCIENTIFIC AND ARTISTIC PROJECTS IN WHICH HE OR SHE PARTICIPATED IN THE LAST FIVE YEARS

1. Metode motrenja i asimilacije meteoroloških podataka, br. 004-1193086-3065, Ministarstvo znanosti obrazovanja i sporta.

- 2. Praćenje suše u jugoistočnoj Europi, IPA.
- 3. Uključivanje znanja o klimi u kreiranju strateških planova, IPA

PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



#### **ORDINAL NUMBER: 37**

FIRST NAME, LAST NAME, AND TITLE OF THE TEACHER: Robert Pašičko, Assistant Professor

# NAME OF INSTITUTION OF EMPLOYMENT OF THE TEACHER: Faculty of Geotehnical Engineering, University of Zagreb

#### BIOGRAPHY

Robert Pašičko defended his doctoral dissertation about the competitiveness of low carbon technologies under emission trading scheme and climate change, as a part of PhD program "Sustainable Energy and Environment in Western Balkans", coordinated by the Norwegian University of Science and Technology (NTNU), at the University of Zagreb (Faculty of Electrical Engineering and Computing). He graduated in 2003 (Faculty of Electrical Engineering and Computing, Master Thesis: "Assessment of wind generator`s characteristics") and graduated in Management in 2008 (Diploma Study in Management, DSM), both at the University of Zagreb.

For the last seven years he worked in UNDP Croatia as a team leader for Low Emission Development Team, where he led a team of 6-14 people. He participated in drafting numerous national strategic and legislative documents in the field of energy and climate change (Energy Development Strategy, Act on Renewable Energy Sources, Regulations on solar power plants installers, etc.) He was a coordinator for development of the Framework for Low Emission Development Strategy for Croatia in cooperation with the Ministry for Environmental Protection, and he was a part of team for preparation of a competition for development of the Strategy. He coordinated partner activities (UNDP) in several EU funded project which focused on energy sustainable development that contributes to local jobs development and economy funded by Intelligent Energy Europe program and two project funded by research program FP7 (Framework Package 7). He coordinates several national projects focused on green energy in Croatia, Tajikistan and Kyrgyzstan.

In the period from 2005-2009, he worked as a project manager at the Department for Power and Energy Systems, Faculty of Electrical Engineering and Computing in Zagreb, where he worked and coordinated on the project regarding sustainable energy sources, energy efficiency, emission trading and sustainable development (funded by programs FP6, FP7, collaboration with industry and national projects). During that time, he worked actively with students (mentoring in writing final and master's thesis), and participated in class for courses (energy, environment, energy). Previously, he worked two years in the EXOR on a regulation and protection power system projects.

### DATE OF LAST APPOINTMENT TO A RESEARCH-AND-TEACHING OR ART-AND-TEACHING RANK: 2th May 2016-Assistant professor

# LIST OF PUBLISHED WORK WHICH QUALIFY HIM/HER FOR IMPLEMENTATION OF THE PROGRAMME, THAT IS, WHICH ARE RELEVANT FOR THE FIELD OF THE DOCTORAL PROGRAMME

Dissertation Pašičko, Robert: Optimization of power system operation and development under emission trading

scheme, doctoral dissertation. University of Zagreb, 2014.

#### Papers in CC and SCI-E cited journals

Pašičko, Robert; Branković, Čedo; Šimić, Zdenko: Assessment of climate change impacts on energy generation from renewable sources in Croatia. Renewable Energy, Vol. 46, pp. 224-231, 2012

Protic, Sonja Maria, Pasicko, Robert: Croatia's Rural Areas – Renewable Energy Based Electricity Generation for Isolated Regions. Thermal Science, Vol. 18, No. 3, pp. 733-744, 2014

Pašičko, Robert; Robić, Slavica; Tomšić, Željko: Modelling CO2 Emissions Impacts on Croatian Power System. Thermal Science, Vol. 14, No. 3, pp. 657-673, 2010

#### **Books and chapters**

Pašičko Robert, Ana Pavičić Kaselj, "Energy as Low Hanging Fruit in Croatia)", HBS, Zagreb, 2014

Mak Djukan, Robert Pasicko, et al, "Manual for Setting up Energy cooperatives in Croatia", HBS, 2013



#### **Invited presentations**

Robert Pašičko, Čedo Branković, Ivan RajšI. Use of Energy Models in Assessment of Climate Change Impact on Renewable Energy Generation, 2nd International Conference Energy and Meteorology, Toulouse, France, 25.-28. June 2013

Šimić, Zdenko; Pašičko, Robert; Branković, Čedo: Climate change impacts on renewable energy sources, Scientificprofessional conference with international participation "Challenges in Meteorology 2", 6. -7. March 2012, Zagreb, Croatia

#### **Conference papers**

Zoran Kordić, Lin Herencic, Robert Pašičko, Daniela Carrington. Renewable Energy Cooperation Potential between Member States and West Balkan Countries. 7th Dubrovnik Conference on Sustainable Development of Energy Water and Environment Systems" Dubrovnik, Croatia, 22-26. September 2013

Lin Herencic, Zoran Kordic, Robert Pašičko, Daniela Carrington. Modeling impacts of low-carbon technologies in the context of sustainable development in Croatia. 7th Dubrovnik Conference on Sustainable Development of Energy Water and Environment Systems" Dubrovnik, Croatia, 22-26. September 2013

Sonja Maria Protic, Robert Pašičko, Daniela Carrington. Electrification of remote regions in Croatia – The potential of welfare improvement by isolated grids. 7th Dubrovnik Conference on Sustainable Development of Energy Water and Environment Systems" Dubrovnik, Croatia, 22-26. September 2013

### LIST OF PUBLISHED WORK IN THE LAST FIVE YEARS

1.Pašičko, Robert: OPTIMIZATION OF POWER SYSTEM OPERATION AND DEVELOPMENT UNDER EMISSION TRADING SCHEME, doktorska disertacija. Sveučilište u Zagrebu, srpanj 2014.

2.Pašičko, Robert; Branković, Čedo; Šimić, Zdenko: Assessment of climate change impacts on energy generation from renewable sources in Croatia. Renewable Energy, Vol. 46, pp. 224-231, 2012

3.Protic, Sonja Maria, Pasicko, Robert: Croatia's Rural Areas – Renewable Energy Based Electricity Generation for Isolated Regions. Thermal Science, Vol. 18, No. 3, pp. 733-744, 2014

4. Pašičko Robert, Ana Pavičić Kaselj, "Energy as Low Hanging Fruit in Croatia)", HBS, Zagreb, 2014

5.Mak Djukan, Robert Pasicko, et al, "Manual for Setting up Energy cooperatives in Croatia", HBS, 2013

6.Robert Pašičko, Čedo Branković, Ivan Rajšl. Use of Energy Models in Assessment of Climate Change Impact on Renewable Energy Generation, 2nd International Conference Energy and Meteorology, Toulouse, France, 25.-28. June 2013

7.Šimić, Zdenko; Pašičko, Robert; Branković, Čedo: Climate change impacts on renewable energy sources, Scientific-professional conference with international participation "Challenges in Meteorology 2", 6. -7. March 2012, Zagreb, Croatia

8.Zoran Kordić, Lin Herencic, Robert Pašičko, Daniela Carrington. Renewable Energy Cooperation Potential between Member States and West Balkan Countries. 7th Dubrovnik Conference on Sustainable Development of Energy Water and Environment Systems" Dubrovnik, Croatia, 22-26. September 2013

9.Lin Herencic, Zoran Kordic, Robert Pašičko, Daniela Carrington. Modeling impacts of low-carbon technologies in the context of sustainable development in Croatia. 7th Dubrovnik Conference on Sustainable Development of Energy Water and Environment Systems" Dubrovnik, Croatia, 22-26. September 2013

LIST OF SCIENTIFIC AND ARTISTIC PROJECTS IN WHICH HE OR SHE PARTICIPATED AND WHICH ARE RELEVANT FOR THE FIELD OF THE DOCTORAL PROGRAMME

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Coordinating partners activities (UNDP) in following projects funded from EU: - four projects funded by Intelligent Energy Europe program (BETTER, CROSKILLS, CITIZENERGY, WISE POWER);

-two research FP7, framework package 7 (CLIMRUN and POCACITO)

- development of project proposals for Global Environmental Fund

- team leader on technical support for green economy development in Tajikistan and Kyrgyzstan

-team leader for rural electrification in Croatia (within which 30-40 households will be supplied with the autonomous solar power plants and the registar of non-electrified households will be made)

- development of energy cooperatives in Croatia- coordinator of project that during which 10 energy cooperatives was established and supported the development of energy cooperative entrepreneurship.

#### LIST OF SCIENTIFIC AND ARTISTIC PROJECTS IN WHICH HE OR SHE PARTICIPATED IN THE LAST FIVE YEARS

Coordinating partners activities (UNDP) in following projects funded from EU: - four projects funded by Intelligent Energy Europe program (BETTER, CROSKILLS, CITIZENERGY, WISE POWER);

-two research FP7, framework package 7 (CLIMRUN and POCACITO)

- development of project proposals for Global Environmental Fund

- team leader on technical support for green economy development in Tajikistan and Kyrgyzstan

-team leader for rural electrification in Croatia (within which 30-40 households will be supplied with the autonomous solar power plants and the registar of non-electrified households will be made)

- development of energy cooperatives in Croatia- coordinator of project that during which 10 energy cooperatives was established and supported the development of energy cooperative entrepreneurship.

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#### **ORDINAL NUMBER: 38**

FIRST NAME, LAST NAME, AND TITLE OF THE TEACHER: Ranko Biondić, Full Professor

NAME OF INSTITUTION OF EMPLOYMENT OF THE TEACHER: Faculty of Geotechnical Engineering, University of Zagreb

#### BIOGRAPHY

He was born on August 30 1967 in Zagreb, where he finished elementary and high school. He graduated on 20 February 1996 at the Faculty of Mining, Geology and Petroleum Engineering, University of Zagreb, on the study program in engineering geology and hydrogeology with the diploma thesis: The influence of the sea on water-supply springs in the Bakar Bay in the example of the spring Perilo (Mentor: Prof. D. Mayer). At the same university, he finished the master study on 16 November 2001 with master thesis: Groundwater management and protection of coastal karst aquifers in the case of the springs of the northern part of the Croatian coast (Mentor: Prof. D. Mayer and Prof. R. Žugaj). Of the same faculty he finished doctoral study on 23 December 2005 in the field: mining, geology and petroleum engineering; branch: Geological Engineering with dissertation thesis: Water Protection on the Upper part of the Kupa catchments area (Mentor: Prof. D. Mayer and Dr. S. Kapelj). From 1993 to 2006 he was employed in the Croatian Geological Survey, where he worked on the scientific project of the Ministry of science, education and sport "Basic hydrogeological map of the Republic of Croatia" as head of the topics "Gorski kotar". As a member of the Management Committee, he participated in the COST 621 project of the European Union "Management of coastal karstic aquifers". In 2006, he was employed at the Faculty of Geotechnical Engineering, University of Zagreb in the position of assistant professor. In the period 2008-2016, he was the head of the International Relations Office of the Faculty of Geotechnical Engineering, and in the mandate 2009-2011 he was the vice dean for scientific work and international cooperation. In July 2011, he was elected to the academic title of associate professor. In October 2011, he was elected on the position of the head of the Department of Hydrotechnics at the Faculty of Geotechnical Engineering. From the academic year 2016/2017 he is the dean of the Faculty of Geotechnical Engineering. He is a member of the Council of the technical areas of the University of Zagreb since 2009, and the member of the Senate of the University of Zagreb from 2016.

At the Faculty of Geotechnical Engineering he has been actively involved as a researcher in scientific projects of the Ministry of Science, Education and Sport of the Republic of Croatia "Water resources and sustainable development" (2003-2007) and "Sustainable use and protection of water resources in the Plitvice Lakes National Park" (2007-2010). He has participated as a researcher in the international project: "Mountainous lakes: Sustainable utilization of water in the pilot area Plitvice Lakes" financed by the Government of the Republic of Austria and the Government of the Republic of Croatia. He was the leader of the international research projects "Vulnerability mapping of Novljanska Žrnovnica karstic spring catchment area" (MedPartnership UNESCO-IHP, 2013-2015) and "Karst aquifers Vulnerability Assessment (KAVA) method applied to the Bakar Bay catchment area in Croatia" (MedPartnership, UNESCO-IHP, 2015-2016). In addition, he was the leader of the Faculty of Geotechnical Engineering research team in the international bilateral project "Common system of sustainable water resources management of national parks Škocjan caves and Risnjak and their recharge areas" under the Operational Programme Slovenia-Croatia 2007-2013 (2014-2015).

With the Decision of the Ministry of Science, Education and Sport in February 2015 he became the member of the Working Group for preparing regulations on joint studies and cross-border cooperation in higher education.

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At the bachelor study program of Environmental engineering at the Faculty of Geotechnical Engineering he is the lecturer at the courses "Hydrogeology" and "Geographic Information System (GIS)", and in the master study program of Environmental engineering at the same faculty he is the lecturer at the courses "Water Management" and "Karst Hydrogeology".

At the international doctoral study program "Geo-Engineering and Water Management" is a member of the International Council study (Study Council) as a representative of the Faculty of Geotechnical Engineering and the lecturer on the course "Monitoring systems and GIS". At the postgraduate specialist study program Ecoengineering he is the member of the Study Council and the lecturer at the course "Protection of karst aquifers".

In the field of hydrogeology he was on several specializations. He finished the course "Modeling of flow and pollution in the subsurface," which is led by Prof. Jacob Bear, in Prague in 1995. "The introductory training course on ILWIS" he finished in 1998 at the ITC Institute in Enschede (Netherlands). During 2003, as part of the short term scientific mission of the project COST 621 "Groundwater management of coastal karstic aquifers" he was on the specialization at the Technical University of Bari (Politecnico di Bari) in Italy. At 2003 he passed the professional exam for independent geological research in the Ministry of Science, Education and Sport of the Republic of Croatia. In February 2015, he was one of the organizers and a lecturer at the "Regional workshop on aquifer vulnerability mapping and spatial applications to groundwater management", held at the Faculty of Geotechnical Engineering, organized by the International hydrological program of UNESCO, Faculty of Geotechnical Engineering, European Space Agency, TU Delft and ITC.

He is member of the Croatian Geological Society, IAH (International Association of Hydrogeologists), IAEG (International association of engineering geology) and the Croatian Society for Water Protection. He is a member of the Scientific Council for Remote Sensing of the Croatian Academy of Sciences and Arts.

As expert has worked on numerous professional projects related to the protection and management of groundwater. As author or co-author he published more than 50 scientific and professional papers and led or participated in numerous professional projects.

# DATE OF LAST APPOINTMENT TO A RESEARCH-AND-TEACHING OR ART-AND-TEACHING RANK: 14. 02. 2017

# LIST OF PUBLISHED WORK WHICH QUALIFY HIM/HER FOR IMPLEMENTATION OF THE PROGRAMME, THAT IS, WHICH ARE RELEVANT FOR THE FIELD OF THE DOCTORAL PROGRAMME

1. Biondić, R., Meaški, H. & Biondić, B. (2016): Hydrogeology of the sinking zone of the Korana River deownstream of the Plitvice Lakes, Croatia. – ACTA CARSOLOGICA (prihvaćeno za tisak), 1-18, Postojna. (Science Citation Index Expanded (Web of Science))

2. Biondić, R., Biondić, B. & Meaški, H. (2012): Water supply spring zone Novljanska Žrnovnica (Croatia) – new quantities of drinking water in the conditions of salt water intrusion.– ACTA CARSOLOGICA. 41, 2-3; 253-264, Postojna. (Science Citation Index Expanded (Web of Science))

3. Biondić, B., Biondić, R., Meaški, H. (2010): The conceptual hydrogeological model of the Plitvice Lakes.– In: Bonacci, O. & Juračić, M. (eds.): Geologia Croatica. 63, 2; pp 195-206, Croatian Geological Survey and Croatian Geological Society, Zagreb. (Geo Abstracts, GeoRef, GeoArchive, Geotitles, Geobase, Scopus, MINABS Online, BIOSIS, Zoological Abstracts, PASCAL, Petroleum Abstracts, Chemical Abstracts, Current Geographical Abstracts, EBSCO Academic Search Complete, and Science Citation Index Expanded (Web of Science))



4. Biondić, B., Biondić, R. & Kapelj, S. (2006): Karst groundwater protection of the Kupa River catchment area and sustainable development.– Environmental Geology, Vol. 49, Number 6, March 2006, pp 828-839, Springer-Verlag, Heidelberg. (Current Contents, Applied Science & Technology Abstracts)

5. Biondić, B., Biondić, R. & Dukarić, F. (1998): Protection of Karst Aquifers in the Dinarides in Croatia.– Environmental Geology, Vol. 34, Number 4, June 1998, pp 309-319, Springer-Verlag, Heidelberg. (Current Contents, Applied Science & Technology Abstracts)

6. Biondić, B. & Biondić, R. (2014): Hidrogeologija Dinarskog krša u Hrvatskoj.- Geotehnički fakultet, Sveučilište u Zagrebu, Sveučilišni udžbenik, 325 str.

7. Biondić, B., Biondić, R. & Kapelj, S. (2003): Protection of the Karst Aquifers in the River Kupa Catchment Area and Sustainable Development.– U: Pezdič, J. (ur.): RMZ - Materials and Geoenvironment. 50 (2003), 1, pp. 33-36, Ljubljana, Slovenija. (CA Search – Chemical Abstracts, METADEX, GeoRef, Energy Science and Technology, PASCAL)

8. Biondić, B., Prestor, J., Biondić, R., Lapanje, A., Kapelj, S., Janža, M., Rikanović, R., Urbanc, J. & Singer, D. (2002): Obmejni vodonosniki med Slovenijo in Hrvaško - Območje med Kvarnerskim in Tržaškim zalivom.– Geologija 45/2, 311-318, Ljubljana, Slovenija. (GeoRef, Chemical Abstracts, PASCAL, Zoological Record)

9. Biondić, B., Dukarić, F., Kuhta, M. & Biondić, R. (1997): Hydrogeological Exploration of the Rječina River Spring in the Dinaric Karst.– Geologia Croatica, Journal of the Institute of Geology Zagreb and the Croatian Geological Society. 50 (1997), 2; 279-288. (Geo Abstracts, GeoRef, GeoArchives, Mineralogical Abstracts, BIOSIS, PASCAL, Petroleum Abstracts, Chemical Abstracts, Current Geographical Abstracts, CA Search (Chemical Abstracts), Current Geographical Abstracts)

10. Biondić, R., Meaški, H. & Biondić, B. (2014): Vulnerability mapping of the Novljanska Žrnovnica karstic spring catchment area in Croatia.- International conference and field seminar "Karst without boundaries", Proceedings, 11.-15.06.2014., Trebinje (BiH) – Dubrovnik, 357 – 363. (organized by: GEF, UNDP, UNESCO-IHP, International association of hydrogeologists, Global water partnership, Igrac)

11. Meaški, H., Biondić, B. & Biondić, R. (2014): Delineation of karst catchment area using several methods – an example of Plitvice Lakes catchment.- International conference and field seminar "Karst without boundaries", Proceedings, 11.-15.06.2014., Trebinje (BiH) – Dubrovnik, 118 – 123. (organized by: GEF, UNDP, UNESCO-IHP, International association of hydrogeologists, Global water partnership, Igrac)

12. Meaški, H., Biondić, B. & Biondić, R. (2016): Delineation of the Plitvice Lakes karst catchment area, Croatia. U: Stevanović, Z., Krešić, N., & Kukurić, N. (ur.). Karst without Boundaries, IAH Selected Papers edition, Vol. 23, CRC Press, 269-284.

13. Biondić, R., Biondić, B., Rubinić, J. & Meaški, H. (2012): Quality and quantity status and risk assessment of groundwater bodies in the karst area of Croatia.– U: Maloszewski, P., Witczak, S. & Malina, G. (ur.): Groundwater Quality Sustainability. International Association of hydrogeologists selected papers. London. CRC Press. Balkema, 163-172 (ISBN 978-0-415-69841-2).

14. Biondić, R., Petrič, M. & Rubinić, J. (2015): II. Study area: Northern Istria: Overview of hydrogeology.- U: Zupan Hajna, N., Ravbar, N., Rubinić, J. & Petrič, M. (ur.): Life and water in karst. Monitoring of transboundary water resources of Northern Istria.60-74. Karst Research Institute ZRC SAZU, Postojna, Slovenija, (ISBN 978-961-254-819-3).

15. Petrič, M., Ravbar, N., Brun, C., Biondić, R. & Kogovšek, J. (2015): III. Karst water resources monitoring: Assessment of flow dynamics and solute transport based on the monitoring of a flood pulse.- U: Zupan Hajna, N., Ravbar, N., Rubinić, J. & Petrič, M. (ur.): Life and water in karst. Monitoring of transboundary

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water resources of Northern Istria.124-134. Karst Research Institute ZRC SAZU, Postojna, Slovenija, (ISBN 978-961-254-819-3).

### LIST OF PUBLISHED WORK IN THE LAST FIVE YEARS

1. Biondić, R., Meaški, H. & Biondić, B. (2016): Hydrogeology of the sinking zone of the Korana River deownstream of the Plitvice Lakes, Croatia. – ACTA CARSOLOGICA (prihvaćeno za tisak), 1-18, Postojna. (Science Citation Index Expanded (Web of Science))

2. Biondić, R., Biondić, B. & Meaški, H. (2012): Water supply spring zone Novljanska Žrnovnica (Croatia) – new quantities of drinking water in the conditions of salt water intrusion. – ACTA CARSOLOGICA. 41, 2-3; 253-264, Postojna. (Science Citation Index Expanded (Web of Science))

3. Biondić, B. & Biondić, R. (2014): Hidrogeologija Dinarskog krša u Hrvatskoj.- Geotehnički fakultet, Sveučilište u Zagrebu, Sveučilišni udžbenik, 325 str.

4. Biondić, R., Meaški, H. & Biondić, B. (2014): Vulnerability mapping of the Novljanska Žrnovnica karstic spring catchment area in Croatia.- International conference and field seminar "Karst without boundaries", Proceedings, 11.-15.06.2014., Trebinje (BiH) – Dubrovnik, 357 – 363. (organized by: GEF, UNDP, UNESCO-IHP, International association of hydrogeologists, Global water partnership, Igrac)

5. Meaški, H., Biondić, B. & Biondić, R. (2014): Delineation of karst catchment area using several methods – an example of Plitvice Lakes catchment.- International conference and field seminar "Karst without boundaries", Proceedings, 11.-15.06.2014., Trebinje (BiH) – Dubrovnik, 118 – 123. (organized by: GEF, UNDP, UNESCO-IHP, International association of hydrogeologists, Global water partnership, Igrac)

6. Meaški, H., Biondić, B. & Biondić, R. (2016): Delineation of the Plitvice Lakes karst catchment area, Croatia. U: Stevanović, Z., Krešić, N., & Kukurić, N. (ur.). Karst without Boundaries, IAH Selected Papers edition, Vol. 23, CRC Press, 269-284.

7. Biondić, R., Biondić, B., Rubinić, J. & Meaški, H. (2012): Quality and quantity status and risk assessment of groundwater bodies in the karst area of Croatia.– U: Maloszewski, P., Witczak, S. & Malina, G. (ur.): Groundwater Quality Sustainability. International Association of hydrogeologists selected papers. London. CRC Press. Balkema, 163-172 (ISBN 978-0-415-69841-2).

8. Biondić, R., Petrič, M. & Rubinić, J. (2015): II. Study area: Northern Istria: Overview of hydrogeology.- U: Zupan Hajna, N., Ravbar, N., Rubinić, J. & Petrič, M. (ur.): Life and water in karst. Monitoring of transboundary water resources of Northern Istria.60-74. Karst Research Institute ZRC SAZU, Postojna, Slovenija, (ISBN 978-961-254-819-3).

9. Petrič, M., Ravbar, N., Brun, C., Biondić, R. & Kogovšek, J. (2015): III. Karst water resources monitoring: Assessment of flow dynamics and solute transport based on the monitoring of a flood pulse.- U: Zupan Hajna, N., Ravbar, N., Rubinić, J. & Petrič, M. (ur.): Life and water in karst. Monitoring of transboundary water resources of Northern Istria.124-134. Karst Research Institute ZRC SAZU, Postojna, Slovenija, (ISBN 978-961-254-819-3).

# LIST OF SCIENTIFIC AND ARTISTIC PROJECTS IN WHICH HE OR SHE PARTICIPATED AND WHICH ARE RELEVANT FOR THE FIELD OF THE DOCTORAL PROGRAMME

1. International scientific project of UNESCO "Karst Aquifers Vulnerability Assessment (KAVA) method applied to the Bakar Bay catchment area in Croatia"; project leader; 2015 – 2016

2. International scientific project of UNESCO "Vulnerability mapping of Novljanska Žrnovnica spring catchment area"; project leader; 2013 – 2014

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3. Scientific project of the Faculty of Geotechnical Engineering "Karst aquifers vulnerability mapping on the example of Novljanska Žrnovnica catchment area"; project leader; 2014 – 2016

4. Scientific project of the Ministry of Science, Education and Sport of the Republic of Croatia "Sustainable utilization and protection of water resources in the National Park Plitvice Lakes"; No. 160-0000000-2569; project researcher; 2007 - 2010

5. Scientific project of the Ministry of Science, Education and Sport of the Republic of Croatia "Water resources and sustainable development"; No. 0160006; project researcher; 2003 – 2007

 Scientific project of the Ministry of Science, Education and Sport of the Republic of Croatia "Basic Hydrogeological Map of the Republic of Croatia S 1:100.000"; No. 0181002; researcher on project (1993 – 2006); subtheme Gorski Kotar leader (2003 – 2006)

7. Scientific project of the European Union: COST Action 621 "Groundwater management of coastal karstic aquifers"; member of the Menagement Committee; 1997 – 2004

# LIST OF SCIENTIFIC AND ARTISTIC PROJECTS IN WHICH HE OR SHE PARTICIPATED IN THE LAST FIVE YEARS

1. International scientific project of UNESCO "Karst Aquifers Vulnerability Assessment (KAVA) method applied to the Bakar Bay catchment area in Croatia"; project leader; 2015 – 2016

2. International scientific project of UNESCO "Vulnerability mapping of Novljanska Žrnovnica spring catchment area"; project leader; 2013 – 2014

3. Scientific project of the Faculty of Geotechnical Engineering "Karst aquifers vulnerability mapping on the example of Novljanska Žrnovnica catchment area"; project leader; 2014 – 2016

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#### **ORDINAL NUMBER: 39**

FIRST NAME, LAST NAME, AND TITLE OF THE TEACHER: Hrvoje Meaški, Assistant Professor

NAME OF INSTITUTION OF EMPLOYMENT OF THE TEACHER: Faculty of Geotechnical Engineering, University of Zagreb

#### BIOGRAPHY

Assist. Prof. Hrvoje Meaški was born on August 24, 1977 in Zagreb, where he finished elementary and high school. He graduated on 21 November 2003 at the Faculty of Mining, Geology and Petroleum Engineering University of Zagreb, within the program Hydrogeology and Engineering Geology, with the work: "Hydrogeological parameters of water pumping stations Bartolovec" (mentor: Prof. Kosta Urumović). He doctorate on 11 March 2011, also at the Faculty of Mining, Geology and Petroleum Engineering University of Zagreb; in the field of technical sciences; scientific field: mining, geology and petroleum engineering; branches: Geological Engineering. He doctorate with the work: "Model of the karst water resources protection on the example of the Plitvice Lakes National Park" (mentors: Prof. Božidar Biondić and Prof. Darko Mayer).

During the enrolment of university postgraduate study, he worked as an associate professional on activities related to hydrogeology and engineering geology. From 1 March 2005 to 31 December 2013, he worked at the Faculty of Geotechnical Engineering, University of Zagreb as junior researcher (scientific novice), first as an assistant and since 2011 as a senior assistant. During that time, at the undergraduate study he held exercises from the courses: Hydrogeology (academic year 2005/06-2010/11), Engineering Geology (academic year 2007/08-2011/12). At the graduate study, he held exercises from the courses: Groundwater Protection (academic year 2004/05-2010/11), Water Resources Management (academic year 2009/10-2012/13), Karst Water Resources (academic year 2008/09-2011/12), GIS in Hydrotechnics (academic year 2008/09-2013/14).

Since January 1, 2014 he is employed at the Faculty of Geotechnical Engineering, University of Zagreb as an assistant professor, and since October 2016 he is also Head of the Department of Hydrotechnics. At the Environmental Engineering undergraduate study program, he held lectures and exercises from the course Engineering Geology (academic year 2013/14-2016/17), and at the Environmental Engineering graduate study program he held lectures from the courses Groundwater Protection (academic year 2013/14-2016/17) and GIS in Environmental Engineering (academic year 2016/17). He is also an associate at the course Karst Hydrogeology (academic year 2015/16-2016/17).

Until now, he was a mentor (as assistant professor) at 10 diploma works, and helped in the preparation at 7 diploma works (as assistant/senior assistant). He was also a guest lecturer on international Joint doctoral program Geo-Engineering and Water Management at the course "Hydrogeology", with the theme: "Case study - hydrogeological investigation and the National Park Plitvice Lakes" (January 2013). He was also guest lecturer at Faculty of Mining, Geology and Petroleum Engineering University of Zagreb, as part of the Maymester program of the University of Texas (USA) "Formation and solutions of geosystems engineering problems", with the theme: "Karst aquifers in Croatia with the Plitvice Lakes overview" (May 2016).

In addition to teaching work at the university, he is actively involved as a researcher/associate in scientific research projects within the field of geological engineering:

• Karst Aquifers Vulnerability Assessment (KAVA) method applied to the Bakar Bay catchment area in Croatia (2015-2016) – UNESCO MedPartnership projects

• Verification of natural vulnerability model on the example of karst aquifers Dinarides (2015-2016) – Supporting scientific research program, University of Zagreb



• The common system of sustainable water resources management of national parks Škocjan Caves (Slovenia) and Risnjak (Croatia) and their recharge areas (2014-2015) – the European territorial cooperation project

• Development of Croatian access vulnerability of karst aquifers Dinarides (2013-2014) – Supporting scientific research program, University of Zagreb

• Vulnerability mapping of Novljanska Žrnovnica karstic spring catchment area in Croatia (2013-2014) – UNESCO MedPartnership projects

• Sustainable utilization of water in the pilot area Plitvice Lakes (2005-2008) – The international scientific and professional project, financed by the Croatian Government, the National park Plitvice Lakes and the Government of the Republic of Austria through the Competence Network and Joanneum Research Institute in Graz, Austria

• Water resources and sustainable development (2005-2007) – Scientific project of Ministry of Science

• Sustainable use and protection of water resources in the Plitvice Lakes National Park (2007-2010) – Scientific project of Ministry of Science:

• Drinking water - the export product (2005-2006) – Complex technological project of Ministry of Science

As an active participant, he also works on scientific-professional projects associated with the geological engineering. Some of them are:

- Defining trends and assessment of ground water in karst areas in Croatia (2015-2016),
- Hydrogeology Research of Croatian-Slovenian cross-border aquifers, Phase I research (2012),
- Water research work for identification of influence of artificial infiltration through the Sava Odra on the groundwater level of the Zagreb aquifer (2011-2012),
- Valley of Raša River analysis of previous studies with the proposed interventions (2011),
- Assessment and risk of groundwater water on karst area in the Republic of Croatia (2008-2009),
- Hydrogeological investigations at the site of the device for treatment of waste water for Plitvice Lakes National Park and the municipality of Rakovica (2007),

• Hydrogeology and engineering studies for the realization of multi-purpose reservoirs Bjelolasica (2006).

During his university postgraduate studies he participated in professional training (courses) under the auspices of the International Atomic Energy Agency (IAEA) in Vienna, related to the application of isotope research in hydrology (Application of Isotope Techniques in Hydrology): 2007 in Budva, Montenegro, and 2008 in Budapest, Hungary. In 2012, he passed the Professional exam for independent geological research in front of a commission of the Ministry of Science.

As co-author has participated in several professional and scientific conferences and published several scientific papers in the field of geological engineering. He participated in the development of more professional projects, analyzes and studies related to the hydrogeology and research and protection of water resources in karst areas, and within which is perfected and working with geographic information system (GIS). He is a member of the CGS (Croatian Geological Society), IAH (International Association of Hydrogeologists), IAEG (International Association of Engineering Geology) and HDZV (Croatian Society for the Water Protection).

#### DATE OF LAST APPOINTMENT TO A RESEARCH-AND-TEACHING OR ART-AND-TEACHING RANK: 16.12.2013.

PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



# LIST OF PUBLISHED WORK WHICH QUALIFY HIM/HER FOR IMPLEMENTATION OF THE PROGRAMME, THAT IS, WHICH ARE RELEVANT FOR THE FIELD OF THE DOCTORAL PROGRAMME

1. Biondić, R., Meaški, H., Biondić, B, (2016): Hydrogeology of the sinking zone of the Korana River downstream of the Plitvice Lakes, Croatia. Acta carsologica, 45 (1); 43-56.

 Meaški, H., Biondić, B., Biondić, R. (2016): Delineation of the Plitvice Lakes karst catchment area, Croatia.
 Stevanović, Zoran ; Krešić, Neven ; Kukurić, Neno (eds.): Karst without Boundaries. International Association of Hydrogeologists - Selected papers. Nizozemska : CRC Press/Balkema; 269-284.

3. Biondić, R., Meaški, H., Biondić, B. (2014): Vulnerability mapping of Novljanska Žrnovnica karstic spring catchment area (Croatia) – In: Kukurć, N., Stevanović, Z., Krešić, N. (eds): Proceedings of International Conference and Field Seminar "Karst Without Boundaries". Trebinje (BiH), 11-15.6.2014; 357-363

4. Biondić, R., Biondić, B., Rubinić, J., Meaški, H. (2012): Quality and quantity status and risk assessment of groundwater bodies in the karst area of Croatia. In: Maloszewski, P., Witczak, S., Malina, G. (eds): Groundwater Quality Sustainability. International Association of Hydrogeologists - Selected papers. London: CRC Press Balkema; 163-172.

5. Biondić, R., Biondić, B., Meaški, H. (2012): Water supply spring zone Novljanska Žrnovnica (Croatia) – new quantities of drinking water in the conditions of salt water intrusion. Acta carsologica. 41 (2-3); 253-264.

6. Biondić, B., Biondić, R., Meaški, H. (2011): Zaštita vodnih resursa u Nacionalnom parku Plitvička jezera. U: Šutić, B., Mataija, I., Šikić, Z., Dujmović, A., Ružić, V., Brozinčević, A. (ur.): Znanstveno-stručni skup Nacionalnog parka Plitvička jezera povodom 60 godina od osnivanja i 30 godina od upisa na UNESCO-vu Listu svjetske kulturne i prirodne baštine. JUNP Plitvička jezera, Hrvatska, 82-102.

7. Biondić, R., Biondić, B., Rubinić, J., Meaški, H. (2011): Ocjena stanja i rizika cjelina podzemnih voda na krškom području Republike Hrvatske. U: Biondić, D., Holjević, D., Tropan, Lj. (ur.): Hrvatske vode pred izazovom klimatskih promjena. Opatija, Hrvatska, 479-489.

8. Biondić, B., Biondić, R., Meaški, H. (2010): The conceptual hydrogeological model of the Plitvice Lakes.– In: Bonacci, O. & Juračić, M. (eds.): Geologia Croatica. 63 (2); 195-206

9. Biondić, R., Biondić, B., Rubinić, J. & Meaški, H. (2010): Quality and quantity status and risk assessment of groundwater bodies in karst areas of Croatia.- In: Zuber, A., Kania, J. & Kmiecik, E. (eds) Groundwater Quality Sustainability. XXXVIII IAH Congress. Krakow, Poland, 12-17.9.2010; 801-807

10. Biondić, B., Zojer, H., Biondić, R. & Meaški, H. (2009): Sustainability of the water resources in the National Park Plitvice Lakes.- In: Bonacci, O. (ed): Centre for karst, Sustainability of the karst environment - Dinaric karst and other karst regions. Plitvice Lakes, 23-26.9.2009; 23-24 (ISBN: 978-953-7333-02-7)

11. Biondić, B., Zojer, H., Biondić, R., Beyene, Y., Kapelj, S., Meaški, H. & Zwicker, G. (2008): Mountainous lakes – Sustainable utilization of water in the pilot area Plitvice Lakes.– In: Probst, G., Probst, E., Probst, M., Schafranek, S. & Trubswasser, B. (eds): Wasserressourcen und deren Bewirtschaftung - Die Bedeutung von Netzwerken. Internationale Fachtagung. Kompetenznetzwerk Wasserressourcen GmbH. Graz, Austria, 22-23.9.2008; 109-117

12. Biondić, B., Biondić, R., Meaški, H. (2007): Example of problem solving of the salinity increase of the karst aquifers in Croatia. In: Pulido Bosch, A., Lopez-Geta, J.A., Ramos Gonzalez, G. (eds.): Los acuiferos costeros: Retos y soluciones (Coastal aquifers: challenges and solutions). Madrid : Instituto geologico y minero de Espana (IGME), 927-938.

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13. Biondić, B., Meaški, H. & Biondić, R. (2005): Vodni resursi krških područja u Hrvatskoj.– U: Biondić, B. & Božičević, J. (ur.): Zbornik radova Prvog savjetovanja Hrvatski krš i gospodarski razvoj, Centar za krš. Gospić-Zadar, 10.-11.12.2004.; 73-82

### LIST OF PUBLISHED WORK IN THE LAST FIVE YEARS

1. Biondić, R., Meaški, H., Biondić, B, (2016): Hydrogeology of the sinking zone of the Korana River downstream of the Plitvice Lakes, Croatia. Acta carsologica, 45 (1); 43-56.

 Meaški, H., Biondić, B., Biondić, R. (2016): Delineation of the Plitvice Lakes karst catchment area, Croatia.
 Stevanović, Zoran ; Krešić, Neven ; Kukurić, Neno (eds.): Karst without Boundaries. International Association of Hydrogeologists - Selected papers. Nizozemska : CRC Press/Balkema; 269-284.

3. Biondić, R., Meaški, H., Biondić, B. (2014): Vulnerability mapping of Novljanska Žrnovnica karstic spring catchment area (Croatia) – In: Kukurć, N., Stevanović, Z., Krešić, N. (eds): Proceedings of International Conference and Field Seminar "Karst Without Boundaries". Trebinje (BiH), 11-15.6.2014; 357-363

4. Biondić, R., Biondić, B., Rubinić, J., Meaški, H. (2012): Quality and quantity status and risk assessment of groundwater bodies in the karst area of Croatia. In: Maloszewski, P., Witczak, S., Malina, G. (eds): Groundwater Quality Sustainability. International Association of Hydrogeologists - Selected papers. London: CRC Press Balkema; 163-172.

5. Biondić, R., Biondić, B., Meaški, H. (2012): Water supply spring zone Novljanska Žrnovnica (Croatia) – new quantities of drinking water in the conditions of salt water intrusion. Acta carsologica. 41 (2-3); 253-264.

6. Biondić, B., Biondić, R., Meaški, H. (2011): Zaštita vodnih resursa u Nacionalnom parku Plitvička jezera. U: Šutić, B., Mataija, I., Šikić, Z., Dujmović, A., Ružić, V., Brozinčević, A. (ur.): Znanstveno-stručni skup Nacionalnog parka Plitvička jezera povodom 60 godina od osnivanja i 30 godina od upisa na UNESCO-vu Listu svjetske kulturne i prirodne baštine. JUNP Plitvička jezera, Hrvatska, 82-102.

7. Biondić, R., Biondić, B., Rubinić, J., Meaški, H. (2011): Ocjena stanja i rizika cjelina podzemnih voda na krškom području Republike Hrvatske. U: Biondić, D., Holjević, D., Tropan, Lj. (ur.): Hrvatske vode pred izazovom klimatskih promjena. Opatija, Hrvatska, 479-489.

# LIST OF SCIENTIFIC AND ARTISTIC PROJECTS IN WHICH HE OR SHE PARTICIPATED AND WHICH ARE RELEVANT FOR THE FIELD OF THE DOCTORAL PROGRAMME

1. Karst Aquifers Vulnerability Assessment (KAVA) method applied to the Bakar Bay catchment area in Croatia (2015-2016) – UNESCO MedPartnership project

2. The common system of sustainable water resources management of national parks Škocjan Caves (Slovenia) and Risnjak (Croatia) and their recharge areas (2014-2015) – the European territorial cooperation project (former IPA projects)

3. Vulnerability mapping of Novljanska Žrnovnica karstic spring catchment area in Croatia – UNESCO MedPartnership projekt (2013-2014) – UNESCO MedPartnership project

4. Verification of natural vulnerability model on the example of karst aquifers Dinarides (2015-2016) – Supporting scientific research program, University of Zagreb

5. Development of Croatian access vulnerability of karst aquifers Dinarides (2013-2014) – Supporting scientific research program, University of Zagreb

# LIST OF SCIENTIFIC AND ARTISTIC PROJECTS IN WHICH HE OR SHE PARTICIPATED IN THE LAST FIVE YEARS

1. Karst Aquifers Vulnerability Assessment (KAVA) method applied to the Bakar Bay catchment area in Croatia (2015-2016) – UNESCO MedPartnership project

PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



2. The common system of sustainable water resources management of national parks Škocjan Caves (Slovenia) and Risnjak (Croatia) and their recharge areas (2014-2015) – the European territorial cooperation project (former IPA projects)

3. Vulnerability mapping of Novljanska Žrnovnica karstic spring catchment area in Croatia – UNESCO MedPartnership projekt (2013-2014) – UNESCO MedPartnership project

4. Verification of natural vulnerability model on the example of karst aquifers Dinarides (2015-2016) – Supporting scientific research program, University of Zagreb

5. Development of Croatian access vulnerability of karst aquifers Dinarides (2013-2014) – Supporting scientific research program, University of Zagreb

6. Sustainable utilization of water in the pilot area Plitvice Lakes (2005-2008) – The international scientific and professional project, financed by the Croatian Government, the National park Plitvice Lakes and the Government of the Republic of Austria through the Competence Network and Joanneum Research Institute in Graz, Austria

7. Water resources and sustainable development (2005-2007) – Scientific project of Ministry of Science

8. Sustainable use and protection of water resources in the Plitvice Lakes National Park (2007-2010) – Scientific project of Ministry of Science:

9. Drinking water - the export product (2005-2006) – Complex technological project of Ministry of Science

PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



#### **ORDINAL NUMBER:** 40

FIRST NAME, LAST NAME, AND TITLE OF THE TEACHER: Sanja Kapelj, Full Professor

NAME OF INSTITUTION OF EMPLOYMENT OF THE TEACHER: Faculty of Geotechnical Engineering, University of Zagreb

#### BIOGRAPHY

Personal Data:

Name: SANJA KAPELJ

Academic Degree: Full professor since 13.09.2016.

Nationality: Croatian

Date of Birth: 04.03.1962., Zagreb, Croatia

Profession: Hydrogeologist, Hydrogeochemist

Position: Lecturer, researcher

Key Qualifications: Groundwater study and protection, Geochemistry of natural waters

Academic Education:

1985: Graduated, title: "Determination of Mean Residence Time of Groundwater in the Permeable Area on the Example of Plitvice Lakes by Natural Isotopes", Faculty of Mining, Geology and Petroleum Engineering, University of Zagreb

1985 – 1990: Completed postgraduate study, thesis title: "Influence of agrochemical on heavy metal content in groundwaters and soils of the Eastern Slavonia region", Faculty of Natural Sciences, University of Zagreb

1997: Completed doctoral study, thesis title: "Hydrogeochemical features of the Vrana Lake on Cres Island", Faculty of Mining, Geology and Petroleum Engineering, University of Zagreb

Language Capability: English (good)

Published Papers: bib.irb.hr

Professional Career:

2013 – 2016: 2008 – 2012: 2007 - 2009:	Head of Laboratory of Environmental Geochemistry
	Head of Department of Hydrotechnics Head of Laboratory of Environmental Geochemistry

1992 – 2005: Institute of Geology, Zagreb: Geochemistry of natural waters, regional and local hydrogeological studies of karst and granular aquifers, hydrogeological studies of coastal and island aquifers, protection of groundwater resources, deposition of waste waters in karst areas, geothermal resources etc.

1987 - 1991:Department of Hydrogeology, Engineering Geology and Petroleum and Coal Geology,Faculty of Mining, Geology and Petroleum Engineering, University of Zagreb

1985 - 1986: Institute Rudjer Boskovic, Radiocarbon and Tritium Laboratory

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Professional membership: Croatian Geological Society, International Association of Hydrogeology, Geochemical Committee of the Croatian Academy of Science and Art, National delegate in Technical Committee of Environment of COST projects in Brussels (2 mandates).

DATE OF LAST APPOINTMENT TO A RESEARCH-AND-TEACHING OR ART-AND-TEACHING RANK: 13.09.2016.

LIST OF PUBLISHED WORK WHICH QUALIFY HIM/HER FOR IMPLEMENTATION OF THE PROGRAMME, THAT IS, WHICH ARE RELEVANT FOR THE FIELD OF THE DOCTORAL PROGRAMME

1. Kapelj, S.; Kapelj, J.; Švonja, M. (2012): Hidrogeološka obilježja sliva Jadra i Žrnovnice. Tusculum 5 (1), (2012), 205-516. (in Croatian with English abstract)

2. Prtoljan, B.; Kapelj, S.; Dukarić, F.; Vlahović, I.; Mrinjek, E. (2012). Hydrogeochemical and isotopic evidence for definition of tectonically controled catchmnet areas of the Konavle area speings (SE Dalmatia, Croatia). Journal of Geochemical Exploration, 112, 285-296.

3. Reberski, L.J.; Kapelj, S.; Terzić, J. (2009). An estimation of groundwater type and origin of the complex karst catchment using hydrological and hydrogeochemical parameters: A case study of the Gacka River springs. Geologia Croatica, 62 (3), 157-178.

4. Biondić, B.; Zojer, H.; Biondić, R.; Beyene, Y.; Kapelj, S.; Meaški, H.; Zwicker, G.(2008): Mountainous lakes – Sustainable utilization of water in the pilot area Plitvice Lakes // Wasserressourcen und deren Bewirtschaftung - Die Bedeutung von Netzwerken. Internationale Fachtagung / Probst, G.; Probst, E.; Probst, M; Schafranek, S.; Trubswasser, B. (ur.).Graz: Kompetenznetzwerk Wasserressourcen GmbH, 109-117.

5. Kapelj, S.; Kapelj, J.; Singer, D.; Obelić, B.; Horvatinčić, N.; Babinka, S.; Suckow, A.; Brianso, H. L. (2007): Risk assessment of groundwater in the area of transboundary karst aquifers between the Plitvice Lakes and Una River catchment // Second International Conference on Water in protected Areas / Nakić, Zoran (ur.).Zagreb: Kopriva - graf, 86-90.

6. Horvatinčić, N.; Kapelj, S.; Sironić, A.; Krajcar Bronić, I.; Kapelj, J.; Marković, T. (2007). Investigation of water resources and water protection in the karst area of Croatia using isotopic and geochemical analyses. Proc. Symp. Advances in Isotope Hydrology and its Role in Sustainable Water Resources Management (IHS-2007), Vol. 2, Vienna, Austria, IAEA, 295-304.

7. Biondić, B.; Biondić, R.; Kapelj, S. (2006): Karst groundwater protection of the Kupa River catchment area and sustainable development. Environmental Geology, Vol. 49, 6, 828-839.

8. Marković, T.; Miko, S.; Kapelj, S.; Buljan, R.; Peh, Z.(2006): Behaviour of metals and nutrients in soils and groundwater of the karst polje. Journal of Geochemical Exploration, 88, 124-129.

9. Brkić, Ž.; Kapelj, S.; Larva, O.; Marković, T.; Vlahović, T. (2003): Hydrogeology and hydrogeochemistry in the alluvial aquifer of the Zagreb area // RMZ - Materials and Geoenviroment / Pezdič, Jože (ur.). Ljubljana: RMZ - Materials and Geoenviroment, 75-78.

10. Miko, S.; Kuhta, M.; Kapelj, S. (2002): Environmental baseline geochemistry of sediments and percolating waters in the Modrič Cave, Croatia. // Acta Carsologica. 31, 1; 135-149.

11. Kovačić, M.; Kapelj, S.; Perica, R.; Horvatinčić, N. (1998): Exploration of Geothermal Waters in the Area of Zagreb by Hydrogeochemical Methods // International symposium on water management and hydraulic engineering, Proceedings, vol. 1 / Petraš, Josip (ur.) Dubrovnik: Faculty of civil Engineering-Zagreb, 451-460.

12. Biondić, B., Kapelj, S. & S. Mesić (1997): Natural tracers - Indicators of the origin of the Vrana Lake on Cres Island, Croatia. In: Kranjc, A. eds.: "Tracers Hydrology 97", Proceedings of the 7th International Symposium on Water Tracing, Portorož - Slovenia, (1997), 113-120, 450., Balkema, Rotterdam.



Horvatinčić, N.; Srdoč, D.; Krajcar Bronić, I.; Pezdič, J.; Kapelj, S.; Sliepčević, A. (1996):. A study of geothermal waters in Northwest Croatia and East Slovenia // Isotopes in water resources management, Vol.
 / IAEA (Ur.) Vienna : IAEA, (1996), 470-474.

14. Biondić, B., Šarin, A., Hertelendi, E., Dukarić, F., Hinić, V., Hrvojić, E., Goatti, V., Ivičić, D., Kapelj, S., Korolija, B., Singer, D., Biondić, R., Mesić, S. National Report for Croatia. COST ACTION-65 (1995), 65-87.

### LIST OF PUBLISHED WORK IN THE LAST FIVE YEARS

1. Kapelj, S.; Kapelj, J.; Švonja, M. (2012): Hidrogeološka obilježja sliva Jadra i Žrnovnice. Tusculum 5 (1), 205-516.

2. Prtoljan, B.; Kapelj, S.; Dukarić, F.; Vlahović, I.; Mrinjek, E. (2012). Hydrogeochemical and isotopic evidence for definition of tectonically controled catchmnet areas of the Konavle area speings (SE Dalmatia, Croatia). Journal of Geochemical Exploration, 112, 285-296.

3. Kapelj, S., Loborec, J., Kapelj, J. (2013): Assessment of aquifer intrinsic vulnerability by the SINTACS method. Geologia Croatica, 66 (2), 119-128.

4. Kapelj, S.; Kapelj, J. (2013): Hydrogeological Risk Assessment of the Catchment Area// Croatia: Straval Case Study Plitvica Lakes National Park/ Obelić, Bogomil; Krajcar Bronić, Ines (ur.). Barcelona: Maria-Curie Actions – IRSES Project STRAVAL, 28-33.

5. Loborec, J.; Kapelj, S.; Dogančić, D.; Ptiček Siročić, A. (2014); Assessment of groundwater vulnerability in Croatian karstic aquifer in Jadro and Žrnovnica springs catchment area // Hydrogeological and Environmental Investigation in Karst System / Andrei, Bartolome; Carrasco, Francisco; Duran, Juan Jose; Jimenez, Pablo; LaMoreaux, James W. (ur.). Madrid: Springer Verlag, 397-407.

# LIST OF SCIENTIFIC AND ARTISTIC PROJECTS IN WHICH HE OR SHE PARTICIPATED AND WHICH ARE RELEVANT FOR THE FIELD OF THE DOCTORAL PROGRAMME

1. University of Zagreb: Scientific support for the project "Development of the Croatian approach to evaluate the vulnerability of karst aquifers of the Dinarides". Contract no. 2013-2015, ZUID-24. Project leader: Dr.sc. Sanja Kapelj, associate professor.

2. Ministry of Science, Education and Sport (Croatia): "Sensitivity of the karst groundwater systems" (2007-2009). Project leader: Doc.dr.sc. Sanja Kapelj.

3. Ministry of Science, Education and Sport (Croatia): "Sensitivity of the karst groundwater systems" (2007-2009). Project leader: Doc.dr.sc. Sanja Kapelj.

4. Ministry of Science, Education and Sport (Croatia): "Sustainable utilization and protection of water resources in the National Park Plitvice Lakes" (2007-2009). Project leader: Prof.dr.sc. B. Biondić

5. Mountainous lakes: Sustainable utilisation of water in the pilot area Plitvice Lakes –supported by National Park Plitvice Lake and Austrian Government – Geotehnički fakultet, Varaždin. (2005-2008). Project leader: Prof.dr.sc. B. Biondić

6. Application of isotope techniques in investigation of water resources and water protection in the karst area of Croatia: Gacka River springs (Lika) and Turanjsko jezero (Middle Dalmatia) drainage area – supported by IAEA, Project leader: Dr.sc. Nada Horvatinčić, senior researcher of IRB-a.

7. INCO COPERNICUS FP5 : "The level and hydrogeological fate of some POPs in several Croatian, Bosnian and Herzegovina and Kosovo areas as a consequence of war damage – pilot area of Zadar town" in Assessment of the selected POPs (PCBs, PCDDs&Fs, OCPs ) in the atmosphere and water ecosystems from
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the waste materials generated by warfare in former Yugoslavia. Project leader: dr.sc. M. Picer (Institute Rudjer Bošković, Zagreb).

8. INCO COPERNICUS FP5: "Study of anthropogenic pollution after the war and establishing the measures for protection of Plitvice Lakes National Park and Bihać region at the border area of Croatia and Bosnia-Herzegovina. Project leader: Prof. dr. H.L. Brianso (Univesity of Barcelona, Autonoma, Spain).

9. Kapelj, S. et al. (2006-2012). Management Study of the Jadro and Žrnovnica springs catchment – I to IV phases of study, Croatian Waters – Split.

10. Biondić, R.; Kapelj, S.; Rubinić, J. (2004). Study of the transboundary Croatian and Slovenian aquifers between the Kvarner Bay and Trieste Bay. Croatian Waters. Project leader: Prof.dr.sc. B. Biondić

# LIST OF SCIENTIFIC AND ARTISTIC PROJECTS IN WHICH HE OR SHE PARTICIPATED IN THE LAST FIVE YEARS

1. National Park Plitvice Lake: Hydrodynamic modelling of the Plitvice Lake System (2016 - ): Project leader: Dr.sc. Mirko Orlić, full professor, Faculty of Natural Sciences, University of Zagreb.

2. University of Zagreb: Scientific support for the project "Development of the Croatian approach to evaluate the vulnerability of karst aquifers of the Dinarides". Contract no. 2013-2015, ZUID-24. Project leader: Dr.sc. Sanja Kapelj, associate professor.

PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



## **ORDINAL NUMBER:** 41

FIRST NAME, LAST NAME, AND TITLE OF THE TEACHER: Nada Horvatinčić, PhD, senior scientist

NAME OF INSTITUTION OF EMPLOYMENT OF THE TEACHER: Ruder Bošković Institute

## BIOGRAPHY

Date and place of birth: 30. 11. 1951, Zagreb

## Employment:

1975 – present: Ruđer Bošković Institute, Zagreb, Department of Experimental Physics, Laboratory for lowlevel radioactivity; from 2012. Head of the Laboratory

Present position: Senior scientist

Education:

1975 B.Sc in chemistry, Faculty of Chemical Technology, University of Zagreb

1979 M.Sc. degree in Chemistry, University of Zagreb,

1985 Ph.D. in Chemistry, University of Zagreb

DAAD fellowship (1984, 2000), Niedersächsisches Landesamt für Bodenforschung, Hannover

IAEA fellowship (1999, 2003), Beč, Cambridge, Massachusetts

Scientific visit: University of Houston, Texas (1991), Physikalisches Institut, Universität Bern, Niedersächsisches Landesamt für Bodenforschung, Hannover (2000)

Scientific degree:

1987 Research associated

1998 Senior research associated

2004 Senior scientist

Projects:

Principal investigator of 6 international projects (NSF, IAEA, UNESCO) and i 4 Croatian projects.

Education participation:

Doctoral study in University of Zagreb, PMF: Isotope oceanology and Geochronology

Invited lectures:

3 invited lectures and numerous oral presentations on international conferences; 15 lectures in home and international institutions (invited lectures, seminars); 4 invited lectures on international schools

Organization of conferences:

Chair of European Society of Isotope Research Workshop, ESIR 2015, Zadar; member of organizing committee in 9 international and Croatian conferences

Review:

Reviewer in several international journals and projects

Scientific publications:

Results were published in 61 scientific papers (Current Content list), 22 papers in other reviewed journals, 6 chapters in books.

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Details on web page: http://bib.irb.hr/lista-radova?autor=016101

## DATE OF LAST APPOINTMENT TO A RESEARCH-AND-TEACHING OR ART-AND-TEACHING RANK: 04.06.2009

LIST OF PUBLISHED WORK WHICH QUALIFY HIM/HER FOR IMPLEMENTATION OF THE PROGRAMME, THAT IS, WHICH ARE RELEVANT FOR THE FIELD OF THE DOCTORAL PROGRAMME

1. D.Srdoč, B.Obelić, N.Horvatinčić, A.Sliepčević, W.Stichler, H.Moser, M.Geyh: Isotope Analyses of Groundwaters of the North African Plain; Catena, 9 (1982), p.253-263.

2. I.Krajcar Bronić, N.Horvatinčić, D.Srdoč, B.Obelić: On the Initial 14C Activity in Karst Aquifers with Short Mean Residence Time; Radiocarbon, 28 (1986), p.436-440.

3. N.Horvatinčić, I.Krajcar Bronić, J.Pezdič, D.Srdoč, B.Obelić: The Distribution of Radioactive (3H, 14C) and Stable (2H, 18O) isotopes in Precipitation, Surface and Groundwaters during the Last Decade in Yugoslavia; Nuclear Instrum. Meth. in Physics Research, B17 (1986), p.550-553.

4. N.Horvatinčić, I.Krajcar Bronić, B.Obelić, R.Bistrović: Long-time atmospheric tritium record in Croatia; Acta Geologica Hungarica, 39 (1996), p.81-84.

5. N.Horvatinčić, I.Krajcar Bronić: 14C and 3H as indicators of the environmental contamination; RMZ -Materials and Geoenvironment, 45, No. 1-2 (1998), p.56-60.

6. N.Horvatinčić, I.Krajcar Bronić, B.Obelić: Differences in the 14C age, 13C and 18O of Holocene tufa and speleothem in the Dinaric Karst; Palaeogeography, Palaeoclimatology, Palaeoecology, 193 (2003), p. 139-157

7. N. Horvatinčić, J.L. Briansó, B. Obelić, J. Barešić, I. Krajcar Bronić: Study of pollution of the Plitvice Lakes by water and sediment analyses; Water Air and Soil Pollution: Focus, 6 (2006), p.475-485.

8. N. Horvatinčić, J. Barešić, S. Babinka, B. Obelić, I. Krajcar Bronić, P. Vreča, A. Suckow: Towards a deeper understanding how carbonate isotopes (14C, 13C, 18O) reflect environmental changes: A study with recent 210Pb-dated sediments of the Plitvice Lakes, Croatia. Radiocarbon 50 (2008) , 2; 233-253

9. J. Barešić, N. Horvatinčić, Z. Roller-Lutz: Spatial and seasonal variations in the stable C isotope composition of dissolved inorganic carbon and in physico-chemical water parameters in the Plitvice Lakes system. Isotopes in environmental and health studies. 47 (2011), 3; 316-329.

# LIST OF PUBLISHED WORK IN THE LAST FIVE YEARS

1. J. Barešić, N. Horvatinčić, Z. Roller-Lutz: Spatial and seasonal variations in the stable C isotope composition of dissolved inorganic carbon and in physico-chemical water parameters in the Plitvice Lakes system. Isotopes in environmental and health studies. 47 (2011), 3; 316-329.

2. J. Barešić, N. Horvatinčić, P. Vreča, A. Sironić: Distribution of authigenic and allogenic fractions in recent lake sediment: isotopic and chemical compositions. Acta arsologica 40 (2011), 293-305.

3. Z. Kern, E Széles, N. Horvatinčić, I. Fórizs, N. Bočić, B. Nagy: Glaciochemical investigations of the ice deposit of Vukuąić Ice Cave, Velebit Mountain, Croatia. The Cryosphere. 5 (2011), 485-494.

4. N. Horvatinčić, I. Krajcar Bronić, B. Obelić, J. Barešić: Rudjer Bošković Institute radiocarbon measurements XVII. Radiocarbon 54 (2012), 137-154.

5. A. Sironić, I. Krajcar Bronić, N. Horvatinčić, J. Barešić, B. Obelić, I. Felja: Status report on the Zagreb Radiocarbon Laboratory - AMS and LSC results of VIRI intercomparison samples. Nuclear instruments & methods in physics research section b-beam interactions with materials and atoms. 294 (2013), 185-188.

PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



6. S. Faivre, T. Bakran-Petricioli, N. Horvatinčić, A. Sironić: Distinct phases of relative sea level changes in the central Adriatic during the last 1500 years – influence of climatic variations?. Palaeogeography Palaeoclimatology Palaeoecology. 369 (2013), 163-174.

7. Ricci, M., Bertini, A., Capezzuoli, E., Horvatinčić, N., Andrews, J., Fauquette, S., Fedi, M. 2015. Palynological investigation of a Late Quaternary calcareous tufa and travertine deposit: the case study of Bagnoli in the Valdelsa Basin (Tuscany, central Italy). Review of palaeobotany and palynology, 218, 184-197.

# LIST OF SCIENTIFIC AND ARTISTIC PROJECTS IN WHICH HE OR SHE PARTICIPATED AND WHICH ARE RELEVANT FOR THE FIELD OF THE DOCTORAL PROGRAMME

1. Project of Croatian science foundation (HRZZ-1623): Reconstruction of the Quaternary environment in Croatia using isotope methods, REQUENCRIM (2014-2018), principal investigator.

2. Project with Plitvice National Park: Influence of climate change and environment conditions on biological induced tufa precipitation and sedimentation processes in the Plitvice Lakes (2011 – 2014), principal investigator

3. Project of Ministry of science, education and sport RH: Natural radioactive isotopes in investigation of karst ecosystem and dating (2012 - 2013), principal investigator

4. European Regional Project IAEA-RER/8/016: Assessment of Groundwater Resources Affected by Rivers in Danube Basin (2009-2012), Principal investigator for Croatia

5. FP7 Project People Marie Curie Actions – 2010-IRSES, STRAVAL (2011 – 2015), assistant on the project

# LIST OF SCIENTIFIC AND ARTISTIC PROJECTS IN WHICH HE OR SHE PARTICIPATED IN THE LAST FIVE YEARS

1. Project of Croatian science foundation (HRZZ-1623): Reconstruction of the Quaternary environment in Croatia using isotope methods, REQUENCRIM (2014-2018), principal investigator.

2. Project with Plitvice National Park: Influence of climate change and environment conditions on biological induced tufa precipitation and sedimentation processes in the Plitvice Lakes (2011 – 2014), principal investigator

3. Project of Ministry of science, education and sport RH: Natural radioactive isotopes in investigation of karst ecosystem and dating (2012 - 2013), principal investigator

4. European Regional Project IAEA-RER/8/016: Assessment of Groundwater Resources Affected by Rivers in Danube Basin (2009-2012), Principal investigator for Croatia

PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



## **ORDINAL NUMBER:** 42

FIRST NAME, LAST NAME, AND TITLE OF THE TEACHER: Jelena Loborec, Assistant Professor

NAME OF INSTITUTION OF EMPLOYMENT OF THE TEACHER: Faculty of Geotechnical Engineering, University of Zagreb

## BIOGRAPHY

She was born on August 2nd 1983 in Varaždin where she finished elementary school and Natural -Mathematical Gymnasium. In 2002 she started to study at Faculty of Geotechnical Engineering, University of Zagreb. In the fourth year of studying, she opted for hydrotechnical course, where she graduated in 2007.

After graduating, from December 1st 2007, she is employed at the Faculty of Geotechnical Engineering, University of Zagreb in the Department for Hydrotechnics at the workplace Research Fallower. As an assistant, she is involved in teaching at the undergraduate and graduate levels in study of Geoengineering and Environmental engineering at the Faculty of Geotechnical Engineering performing exercises in the course "Engineering Geology", "Hydrogeology", "Sanitary problems of the environment", "GIS", "GIS in geotechnics", " Water quality management "and "Groundwater risk assessment ". As an immediate leader, she has helped the students in the development of more final and graduate theses. In addition to teaching activities, she is included in the performance of several scientific projects in the field of hydrogeology and groundwater protection.

In the academic year 2008/2009, she enrolled in the PhD program at the Faculty of Mining, Geology and Petroleum Engineering, University of Zagreb, Department of Geological Engineering, which she completed by defending her dissertation on December 13th 2013. As of 1st February 2014, she is a postdoctoral researcher, and since 7th November 2016 assistant professor at the Department for Hydrotechnics at Faculty of Geotechnical Engineering, University of Zagreb.

In her work, up until now, she is qualified to work with GIS tools. Also, she's regularly using MS Office programs and occasionally Surfer (Golden Software) and CorelDraw. She speaks English language fluently.

She is an author or co-author of several scientific and professional papers. She actively participated in several national and international professional and scientific conferences. She is a member of the Croatian Society for the Protection of Water (HDZV) and Croatian society in Geotechnical Engineering (HDIG).

## DATE OF LAST APPOINTMENT TO A RESEARCH-AND-TEACHING OR ART-AND-TEACHING RANK: 7.11.2016.

# LIST OF PUBLISHED WORK WHICH QUALIFY HIM/HER FOR IMPLEMENTATION OF THE PROGRAMME, THAT IS, WHICH ARE RELEVANT FOR THE FIELD OF THE DOCTORAL PROGRAMME

1. Kapelj, S., Loborec, J., Kapelj, J. (2013): Assessment of aquifer intrinsic vulnerability by the SINTACS method. Geologia Croatica, Vol. 66, No. 2.

2. Loborec, J., Kapelj, S., Dogančić, D., Ptiček Siročić, A. (2014): Assessment of groundwater vulnerability in Croatian karstic aquifer in Jadro and Žrnovnica springs catchment area. V. International Symposium on karst, Malaga 2014. In: Andreo, B., Carrasco, F., Duran, J. J., Jimenez, P., LaMoreaux, J.W. (ur.): Hydrogeological and Environmental Investigations in Karst Systems, Madrid, Springer Verlag, Str. 397-407.

3. Loborec, J., Kapelj, S., Novak, H. (2015): Analysis of ground water pollution hazard in karst: a case study of the Jadro and Žrnovnica springs catchment area. Journal CIVIL ENGINEER 67, 11, 1093-1103.

4. Kopić, J., Loborec, J., Nakić, Z. (2016): Hydrogeological and hydrogeochemical characteristics of the wider area of the regional well field Eastern Slavonia - Sikirevci. The Mining-Geology-Petroleum Engineering Bulletin, Vol 31, No. 34, 47-66, DOI: 10.17794/rgn.2016.3.4.

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5. Počekal, N., Loborec, J., Meaški, H. (2016): The landslide risk map preparation using GIS technology – an example of the Bednja municipality. The Journal Inženjerstvo okoliša, Vol. 3, No. 1., 7-20.

6. Mlinarić, M., Loborec, J., Biondić, R. (2016): Assessment of existing groundwater protection using SINTACS method - example of Gradole spring (Croatia). The Journal Inženjerstvo okoliša, Vol. 3, No. 1, 21-31.

7. Loborec, J. & Đurin, B. (2016): Implementation of multi-criterial analysis to selecting the optimal method for intrinsic vulnerability assessment of karst aquifers. The Journal Hrvatske vode, 24/97, 193-202.

# LIST OF PUBLISHED WORK IN THE LAST FIVE YEARS

1. Kapelj, S., Loborec, J., Kapelj, J. (2013): Assessment of aquifer intrinsic vulnerability by the SINTACS method. Geologia Croatica, Vol. 66, No. 2.

2. Loborec, J., Kapelj, S., Dogančić, D., Ptiček Siročić, A. (2014): Assessment of groundwater vulnerability in Croatian karstic aquifer in Jadro and Žrnovnica springs catchment area. V. International Symposium on karst, Malaga 2014. In: Andreo, B., Carrasco, F., Duran, J. J., Jimenez, P., LaMoreaux, J.W. (ur.): Hydrogeological and Environmental Investigations in Karst Systems, Madrid, Springer Verlag, Str. 397-407.

3. Loborec, J., Kapelj, S., Novak, H. (2015): Analysis of ground water pollution hazard in karst: a case study of the Jadro and Žrnovnica springs catchment area. Journal CIVIL ENGINEER 67, 11, 1093-1103.

4. Kopić, J., Loborec, J., Nakić, Z. (2016): Hydrogeological and hydrogeochemical characteristics of the wider area of the regional well field Eastern Slavonia - Sikirevci. The Mining-Geology-Petroleum Engineering Bulletin, Vol 31, No. 34, 47-66, DOI: 10.17794/rgn.2016.3.4.

5. Počekal, N., Loborec, J., Meaški, H. (2016): The landslide risk map preparation using GIS technology – an example of the Bednja municipality. The Journal Inženjerstvo okoliša, Vol. 3, No. 1., 7-20.

6. Mlinarić, M., Loborec, J., Biondić, R. (2016): Assessment of existing groundwater protection using SINTACS method - example of Gradole spring (Croatia). The Journal Inženjerstvo okoliša, Vol. 3, No. 1, 21-31.

7. Loborec, J. & Đurin, B. (2016): Implementation of multi-criterial analysis to selecting the optimal method for intrinsic vulnerability assessment of karst aquifers. The Journal Hrvatske vode, 24/97, 193-202.

# LIST OF SCIENTIFIC AND ARTISTIC PROJECTS IN WHICH HE OR SHE PARTICIPATED AND WHICH ARE RELEVANT FOR THE FIELD OF THE DOCTORAL PROGRAMME

1. RESEARCH PROJECT FUNDED BY UNIVERSITY OF ZAGREB: Verification of the intrinsic vulnerability assessment model example of karst aquifers Dinarides, 2nd phase, 2016. (participant on project).

2. INTERNATIONAL PROJECT: Karst Aquifers Vulnerability Assessment (KAVA) method applied to the Bakar Bay catchment area in Croatia, 2015. – 2016. (participant on project).

3. INTERNATIONAL PROJECT: Vulnerability mapping of Novljanska Žrnovnica karstic spring catchment area in Croatia, 2014. – 2015. (participant on project).

4. RESEARCH PROJECT FUNDED BY UNIVERSITY OF ZAGREB: Verification of the intrinsic vulnerability assessment model example of karst aquifers Dinarides, 2015. (participant on project).

5. RESEARCH PROJECT FUNDED BY UNIVERSITY OF ZAGREB: The development of the Croatian approach to assessing the vulnerability of karst aquifers Dinarides, 2014. (participant on project).

# LIST OF SCIENTIFIC AND ARTISTIC PROJECTS IN WHICH HE OR SHE PARTICIPATED IN THE LAST FIVE YEARS

1. RESEARCH PROJECT FUNDED BY UNIVERSITY OF ZAGREB: Verification of the intrinsic vulnerability assessment model example of karst aquifers Dinarides, 2<sup>nd</sup> phase, 2016. (participant on project).

PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



2. INTERNATIONAL PROJECT: Karst Aquifers Vulnerability Assessment (KAVA) method applied to the Bakar Bay catchment area in Croatia, 2015. – 2016. (participant on project).

3. INTERNATIONAL PROJECT: Vulnerability mapping of Novljanska Žrnovnica karstic spring catchment area in Croatia, 2014. – 2015. (participant on project).

4. RESEARCH PROJECT FUNDED BY UNIVERSITY OF ZAGREB: Verification of the intrinsic vulnerability assessment model example of karst aquifers Dinarides, 2015. (participant on project).

5. RESEARCH PROJECT FUNDED BY UNIVERSITY OF ZAGREB: The development of the Croatian approach to assessing the vulnerability of karst aquifers Dinarides, 2014. (participant on project).

PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



#### **ORDINAL NUMBER:** 43

FIRST NAME, LAST NAME, AND TITLE OF THE TEACHER: Bojan Đurin, Assistant Professor

NAME OF INSTITUTION OF EMPLOYMENT OF THE TEACHER: Faculty of Geotechnical Engineering, University of Zagreb

### BIOGRAPHY

Assistant professor, Ph.D. Bojan Đurin, BSc. ing.geoteh., was born on 30 July 1981 in Varazdin, where he finished elementary and high school. In the academic year 2000/2001., he enrolled in the Faculty of Geotechnical Engineering, University of Zagreb, where he graduated 26 November 2007 and gained professional title Geotechnical engineer. 2005 awarded the Chancellor's Prize for the best student work, and of the same year participates in teaching as an assistant at courses Engineering Mechanics, Theory of Design, Water Supply and Drainage, and Wastewater treatment. It also participates in the writing of three internal scripts for courses Engineering Mechanics, Theory of Structures and Wastewater treatment.

From 1 June 2008, he is employed as a research assistant at the Institute of Hydraulic Engineering Geotechnical Faculty, University of Zagreb. He participates in teaching keeping exercises in the course Design of hydraulic structures at the undergraduate study geotechnical engineering, Fluid Mechanics, Hydraulics, Water Supply and Drainage and Hydrology at the undergraduate level Geoengineering, Applied Hydrology and Hydrology Environment at the graduate level Geoengineering and college Fluid Mechanics at the undergraduate study of Environmental Engineering . It also participates in the development of final and final papers at undergraduate level Geoengineering as a direct leader and mentor.

In the academic year 2008/2009. at the Faculty of Civil Engineering, Architecture and Geodesy, University of Split he enrolled in the postgraduate doctoral studies in the scientific field of technical sciences field Construction, Department of Hydraulic Engineering, which ends by defending a doctoral thesis on 28 August 2014. From 1 October 2014, is employed as postdoctorand (Senior Assistant) at the Department of Hydraulic Engineering Geotechnical Faculty, and from 1st February 2016 as an assistant professor at the same institution. Mentor is of the four undergraduate and two graduate thesis at the Faculty of Geotechnical Engineering, and he is also a member of the Commission for the processing of thesis at the Faculty of Engineering, Ain Shams University, Cairo, Egypt. He holds the construction exercises Course Hydrology and Hydraulic structures Lecturer at the undergraduate study environmental engineering and holder of the contractor exercises Course Water supply and Drainage and Hydrology of River Basins, as well as organizing courses in Hydraulic structures II at the graduate level environmental engineering Geotechnical Faculty. In his career as an author and co-author of a total of 23 scientific and professional papers in journals and proceedings of scientific and professional conferences in the country and abroad, where he has exhibited work in four sets. It is used English language in speaking, reading and writing. He holds the position of member of the technical editorial board of "Environmental Engineering". He is a member of the Scientific and Review editorial in the dozen of international scientific journals and conferences. 2015 was awarded "Hrvoje Pozar" for innovation in the use of solar energy in urban water supply systems, as well as the prize for science Geotechnical Faculty. That same year, his work at the international scientific conference 'World Congress on Sustainable Technologies (WCST-2015)' 'in London, England was named the best work. During that year, he made an academic visit at the University of Architecture, Civil Engineering and Geodesy " in Sofia, Bulgaria for a period of three days. 2016. His innovation titled "The innovative methodology for the sustainable use of water and energy for irrigation " was shown at the International Exhibition of Inventions "ARCA 2016" in Zagreb, Croatia, where it won the bronze medal.

#### DATE OF LAST APPOINTMENT TO A RESEARCH-AND-TEACHING OR ART-AND-TEACHING RANK: 1.2.2016

PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



# LIST OF PUBLISHED WORK WHICH QUALIFY HIM/HER FOR IMPLEMENTATION OF THE PROGRAMME, THAT IS, WHICH ARE RELEVANT FOR THE FIELD OF THE DOCTORAL PROGRAMME

1. Đurin, Bojan. Some Aspects of the Operation Work of Pump Station and Water Reservoir. Periodica Polytechnica Civil Engineering. 60 (2016).

2. Đurin, Bojan; Lucija, Baić; Kuzik, Mirna; Matin, Josip. Hidrauličke, energetske i hidrološke karakteristike održivih sustava navodnjavanja: primjer nogometnog kluba "Obreš", Sveti Ilija, Hrvatska (Hydraulic, energeticandhydrologicalcharacteristicsofsustainableirrigationsystems: anexampleoffootballclub "Obreš", Sveti Ilija, Croatia). Voda za sve (Water for all), Osijek, Croatia, Prehrambeno-tehnološki fakultet Sveučilišta Josipa Jurja Strossmayera, 2016. 11-12

3. Đurin, Bojan.SizingoftheSustainableIrrigation System byUsingoftheCritical Period Method: CaseStudyoftheFootball Club "Obreš", Sveti Ilija, Croatia. International Journal ofSustainable Energy Development (IJSED). 4 (2015), 1; 206-214.

4. Đurin, Bojan; Margeta, Jure; Bojanić, Davor.TheImpactofthe Water ConsumptionRegime on theWorkofReservoirs. // E-WAter. 1 (2015); 1-21.

5. Patrčević, Vladimir; Đurin, Bojan; Kuharić, Ivan. Analyses of Intensity Precipitation for the Dimensioning of Drainage Facility of Rainfall on the Area Town Daruvar. Inženjerstvo okoliša. 2 (2015), 2; 103-110.

6. Đurin, Bojan; Margeta, Jure; Jambrović, Luka. Analysisof the Impact of Pumping Station Operating Regime on Required Water Reservoir Volume. Inženjerstvo okoliša. 2 (2015), 1; 29-36.

7. Đurin, Bojan.Sustainable Water and Energy Use for IrrigationDemands. World Congress on Sustainable Technologies (WCST-2015), London, United Kingdom, InfonomicsSociety, 2015. 116-122.

8. Margeta, Jure; Đurin, Bojan.Mogućnosti primjene obnovljivih izvora energije za crpljenje vode u urbanom vodnom sustavu (Possibilitiesof Use ofRenewable Energy Sources for Water Pumpingin Urban Water System). 6. Hrvatska konferencija o vodama s međunarodnim sudjelovanjem "Hrvatske vode na investicijskom valu" (6th Croatian water conferencewithinternationalparticipation "Croatian Waters on theInvestmentWave), Opatija, Croatia. Zagreb: Hrvatske vode, 2015. 1135-1145.

9. Đurin, Bojan; Margeta, Jure.AnalysisofthePossible Use ofSolarPhotovoltaic Energy in Urban Water Supply Systems. Water. 6 (2014), 6; 1546-1561.

10. Margeta, Jure; Đurin, Bojan.Hydrologicaland Hydro-Energy IndicatorsoftheHybrid Energy System UsingSolarandPumpStorageHydroelectricPlant. International Journal ofSustainable Energy. 33 (2014), 4; 827-841.

11. Patrčević, Vladimir; Kopjar, Ana; Đurin, Bojan.Analiza infiltracije oborina na aluvijalnom tlu (AnalysisofRainfallInfiltration on theAlluvialSoil). Inženjerstvo okoliša. 1 (2014); 7-18.

12. Đurin, Bojan; Zlatarek, Darko.Klasični i integralni način projektiranja i građenja oborinske kanalizacije (Classicand Integral MethodofStormwaterSewers Design andConstruction). Mineral. 99 (2014), 5; 22-25.

13. Đurin, Bojan; Margeta Jure.Rad vodosprema u promijenjenom režimu potrošnje vode (Water ReservoirsOperationintheChanged Water ConsumptionRegime). Aktualna problematika u vodoopskrbi i odvodnji (CurrentIssuesin Water SupplyandSewage), Vodice, Croatia. Ičići: Revelin d.o.o, 2013. 391-400.

14. Đurin, Bojan.Koncept održivosti rada urbanog vodoopskrbnog sustava korištenjem solarne fotonaponske energije (TheConceptofSustainabilityof Urban Water Supply System UsingSolarPhotovoltaic Energy). Prvi skup mladih istraživača iz područja građevinarstva, arhitekture, geodezije i elektrotehnike "Zajednički temelji" (The First Simposiumof Young ResearchersintheFieldof Civil Engineering, Architecture,

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SurveyingandElectricalEngineering "Zajednički temelji"), Split, Croatia. Split: Sveučilište u Splitu, Fakultet građevinarstva, arhitekture i geodezije, 2013. 15-16.

15. Đurin, Bojan; Margeta, Jure.Conceptof Green Energy Supply for Urban Water System. International Conference on Green Technology & Ecosystem for Global Sustainable Development 2012., Tuzla, BosniaandHerzegovina. Pahang: University MalaysiaPahang, 2012. 39-53.

## LIST OF PUBLISHED WORK IN THE LAST FIVE YEARS

1. Đurin, Bojan. Some Aspects of the Operation Work of Pump Station and Water Reservoir. Periodica Polytechnica Civil Engineering. 60 (2016).

2. Đurin, Bojan; Lucija, Baić; Kuzik, Mirna; Matin, Josip.Hidrauličke, energetske i hidrološke karakteristike održivih sustava navodnjavanja: primjer nogometnog kluba "Obreš", Sveti Ilija, Hrvatska (Hydraulic, energeticandhydrologicalcharacteristicsofsustainableirrigationsystems: anexampleoffootballclub "Obreš", Sveti Ilija, Croatia). Voda za sve (Water for all), Osijek, Croatia, Prehrambeno-tehnološki fakultet Sveučilišta Josipa Jurja Strossmayera, 2016. 11-12

3. Đurin, Bojan.SizingoftheSustainableIrrigation System byUsingoftheCritical Period Method: CaseStudyoftheFootball Club "Obreš", Sveti Ilija, Croatia. International Journal ofSustainable Energy Development (IJSED). 4 (2015), 1; 206-214.

4. Đurin, Bojan; Margeta, Jure; Bojanić, Davor.TheImpactofthe Water ConsumptionRegime on theWorkofReservoirs. // E-WAter. 1 (2015); 1-21.

5. Patrčević, Vladimir; Đurin, Bojan; Kuharić, Ivan. Analyses of Intensity Precipitation for the Dimensioning of Drainage Facility of Rainfall on the Area Town Daruvar. Inženjerstvo okoliša. 2 (2015), 2; 103-110.

6. Đurin, Bojan; Margeta, Jure; Jambrović, Luka. Analysisof the Impactof Pumping Station Operating Regime on Required Water Reservoir Volume. Inženjerstvo okoliša. 2 (2015), 1; 29-36.

7. Đurin, Bojan.Sustainable Water and Energy Use for IrrigationDemands. World Congress on Sustainable Technologies (WCST-2015), London, United Kingdom, InfonomicsSociety, 2015. 116-122.

8. Margeta, Jure; Đurin, Bojan.Mogućnosti primjene obnovljivih izvora energije za crpljenje vode u urbanom vodnom sustavu (Possibilitiesof Use ofRenewable Energy Sources for Water Pumpingin Urban Water System). 6. Hrvatska konferencija o vodama s međunarodnim sudjelovanjem "Hrvatske vode na investicijskom valu" (6th Croatian water conferencewithinternationalparticipation "Croatian Waters on theInvestmentWave), Opatija, Croatia. Zagreb: Hrvatske vode, 2015. 1135-1145.

9. Đurin, Bojan; Margeta, Jure.AnalysisofthePossible Use ofSolarPhotovoltaic Energy in Urban Water Supply Systems. Water. 6 (2014), 6; 1546-1561.

10. Margeta, Jure; Đurin, Bojan.Hydrologicaland Hydro-Energy IndicatorsoftheHybrid Energy System UsingSolarandPumpStorageHydroelectricPlant. International Journal ofSustainable Energy. 33 (2014), 4; 827-841.

11. Patrčević, Vladimir; Kopjar, Ana; Đurin, Bojan.Analiza infiltracije oborina na aluvijalnom tlu (AnalysisofRainfallInfiltration on theAlluvialSoil). Inženjerstvo okoliša. 1 (2014); 7-18.

12. Đurin, Bojan; Zlatarek, Darko.Klasični i integralni način projektiranja i građenja oborinske kanalizacije (Classicand Integral MethodofStormwaterSewers Design andConstruction). Mineral. 99 (2014), 5; 22-25.

PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



13. Đurin, Bojan; Margeta Jure.Rad vodosprema u promijenjenom režimu potrošnje vode (Water ReservoirsOperationintheChanged Water ConsumptionRegime). Aktualna problematika u vodoopskrbi i odvodnji (CurrentIssuesin Water SupplyandSewage), Vodice, Croatia. Ičići: Revelin d.o.o, 2013. 391-400.

14. Đurin, Bojan.Koncept održivosti rada urbanog vodoopskrbnog sustava korištenjem solarne fotonaponske energije (TheConceptofSustainabilityof Urban Water Supply System UsingSolarPhotovoltaic Energy). Prvi skup mladih istraživača iz područja građevinarstva, arhitekture, geodezije i elektrotehnike "Zajednički temelji" (The First Simposiumof Young ResearchersintheFieldof Civil Engineering, Architecture, SurveyingandElectricalEngineering "Zajednički temelji"), Split, Croatia. Split: Sveučilište u Splitu, Fakultet građevinarstva, arhitekture i geodezije, 2013. 15-16.

15. Đurin, Bojan; Margeta, Jure.Conceptof Green Energy Supply for Urban Water System. International Conference on Green Technology & Ecosystem for Global Sustainable Development 2012., Tuzla, BosniaandHerzegovina. Pahang: University MalaysiaPahang, 2012. 39-53.

# LIST OF SCIENTIFIC AND ARTISTIC PROJECTS IN WHICH HE OR SHE PARTICIPATED AND WHICH ARE RELEVANT FOR THE FIELD OF THE DOCTORAL PROGRAMME

1. The systematic application of solar photovoltaic energy for achieving of sustainable irrigation systems, 2016.

2. Development of Croatian approach for evaluating of the vulnerability of karst aquifers of Dinarides, 2014-to 2015.

3. Mapping of the natural vulnerability of karst aquifers on the example of the basin Novljanski Žrnovnica, 2014.

# LIST OF SCIENTIFIC AND ARTISTIC PROJECTS IN WHICH HE OR SHE PARTICIPATED IN THE LAST FIVE YEARS

1. The systematic application of solar photovoltaic energy for achieving of sustainable irrigation systems, 2016.

2. Development of Croatian approach for evaluating of the vulnerability of karst aquifers of Dinarides, 2014-to 2015.

3. Mapping of the natural vulnerability of karst aquifers on the example of the basin Novljanski Žrnovnica, 2014.

PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



### **ORDINAL NUMBER:** 44

FIRST NAME, LAST NAME, AND TITLE OF THE TEACHER: Mario Šiljeg, Assistant Professor

NAME OF INSTITUTION OF EMPLOYMENT OF THE TEACHER: Faculty of Geotechnical Engineering, University of Zagreb

## BIOGRAPHY

Mario Šiljeg is assistant professor at the Department for Environmental engineering, Faculty of Geotechnical Engineering, University of Zagreb. Mario Šiljeg, PhD graduated in September 2000 at the Faculty of Chemical Engineering and Technology, University of Zagreb and became a Bachelor of Science of Chemical Technology. Since October 2000, he was working as a researching assistant at the same Faculty, at the Department of Analytical Chemistry, focusing on environmental friendly processes in inorganic industry and water treatment processes within the project "Ionic exchangers in preservation of the waters of chemical industry", sponsored by Croatian Ministry of Science and Technology. 2001, Mario Šiljeg enrolled Postgraduate study at the Faculty of Chemical Engineering and Technology, University of Zagreb, and on the 24th of April, 2006 finished master thesis entitled "Removal of metal-complexes by natural zeolite". In the spring of 2003 he was granted by Slovenian Ministry of Education, Science and Sport a scholarship, so he spent six months at the National Institute of Chemistry, Slovenia. He gained his doctoral degree in 2008 with the thesis entitled "Arsenic sorption to modified natural zeolite". Mario Šiljeg was as well associate within the several research projects dealing with the environmental engineering issues, which were funded by the Ministry of Science, Education and Sports: 2000-2004 - "Natural zeolite in chemical industry wastewater treatment", 2004-2006 - "Ion Exchange and Membrane process in treatment of Chemical industry water". Mario Šiljeg was also associated on one International scientific technological project: EUREKA project "Purewater- Natural Zeolites in Water Quality System". The aim of this project was providing the quality of water through the prevention of contamination of waste and drinking water with toxic metal ions (heavy metals and arsenic) by using low-cost natural zeolitic adsorbents. The side effect of the project was also the development of water quality control and contemporary analytical techniques and mathematical models. In Eureka team, Mario Šiljeg was involved in the technological part of the project. He chose the zeolites with the best adsorption-desorption characteristics and used them in the new water purification systems. The results of his scientific work are represented in eight scientific papers published in current content journals, reaching the sum of impact factors 12,63. He actively participated in more than 20 international conferences. In 2005, he started his career in water industry sector in Vodotehnika Ltd, where he stayed for six years as project manager in drinking water preparation sector. In 2011 with the decision of Croatian Minister for Environmental Protection, he was appointed as Director of Croatian Environmental Agency. Since October 2012, he continued his scientific career at Energy Institute Hrvoje Požar, at the Department for renewable Energy Sources and Energy Efficiency as a Senior researcher. After his appointment at the position of assistant professor at the Faculty of Geotechnical Engineering, University of Zagreb, he is continuing his research in the field of environmental engineering dealing with the issue of industrial wastewater treatment and drinking water preparation and also waste management. According to the Decision of the Board for Technical Sciences from 20th of October 2010, Mario Šiljeg was elected to the scientific title Scientific Associate in the field of Technical sciences -Interdisciplinary technical sciences.

From year 2012 he is a member of the Committee for Environmental and Natural Protection in the Croatian Parliament, where he participates in monitoring the implementation of policies and, in procedures to enact legislation and other regulations in environmental policy sector.

In 2016 he was appointed as Deputy minister of Environmental and nature protection.

PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



# DATE OF LAST APPOINTMENT TO A RESEARCH-AND-TEACHING OR ART-AND-TEACHING RANK: 2013 assistant professor

# LIST OF PUBLISHED WORK WHICH QUALIFY HIM/HER FOR IMPLEMENTATION OF THE PROGRAMME, THAT IS, WHICH ARE RELEVANT FOR THE FIELD OF THE DOCTORAL PROGRAMME

1. Cerjan-Stefanović, Š., Šiljeg, M., Bokić, L., Stefanović, B., Koprivanac, N., Removal of metal-complex dyestuffs by Croatian clinoptilolite, Studies Surface Science and Catalysis, 154, (2004) 1900-1906 IF = 0.489

2. Zabukovec Logar, N., Šiljeg, M., Arčon, I., Meden, A., Novak Tušar N., Cerjan Stefanović, Š., Kovač, J., Kaučič, V., Sorption of Cr3+ on clinoptilolite tuff: a structural investigation, Microporous and mesoporous materials, 93 (2006) 275-284

3. Šiljeg, M., Cerjan Stefanović, Š., Mazaj, M., Novak Tušar, N.; Arčon, I.; Kovač, J.; Margeta, K.; Kaučič, V.; Zabukovec Logar, N., Structure investigation of As(III)- and As(V)-species bound to Fe-modified clinoptilolite tuffs.; Microporous and Mesoporous Materials. 118 (2009), 1-3; 408-415

4. Šiljeg, M., Foglar, L., Kukučka, M., The ground water ammonium sorption onto Croatian and Serbian clinoptilolite, Journal of Hazardous materials, 178 (2010) 572-577

5. Kukučka, M., Kukučka, N., Vojnović-Miloradov, M., Tomić, Ž., Šiljeg, M., Effect of extremely high specific flow rates on the removal of NOM and arsenic from ground water with an ion-exchange resin: A pilot-scale study in northern Serbia, J. Environ. Sci. Health, Part A., 46(9) (2011) 952-959

# LIST OF PUBLISHED WORK IN THE LAST FIVE YEARS

1. Bolanča, T., Šipušić, J., Ukić, Š., Šiljeg, M., Ujević Bošnjak, M., Optimization of arsenic sludge immobilization process in cement – natural zeolite – lime blends using artificial neural networks and multi objective criteria functions, Fresenius environmental bulletin. 21 (2012) , 1; 76-83

2. Šiljeg, M., Foglar, L., Gudelj, I., The removal of arsenic from water with natural and modified clinoptilolite, Chemistry and ecology. 28 (2012) , 1; 75-87

3. Ćurković, Lidija; Bolanča, Tomislav; Šiljeg, Mario; Foglar, Lucija. The kinetic modelling of Fe3+ ion uptake by zeolite from water; Indian journal of chemical technology. 21 (2014) ; 56-62

4. Ukić, Šime; Dimić, Petra; Šiljeg, Mario; Ujević Bošnjak, Magdalena; Šipušić, Juraj; Bolanča, Tomislav, Manganese waste mud immobilization in cement – natural zeolite – lime blend: Process optimization using artificial neural networks and multi-criteria functions. // Materialwissenschaft und Werkstofftechnik. 44 (2013), 4; 273-281

# LIST OF SCIENTIFIC AND ARTISTIC PROJECTS IN WHICH HE OR SHE PARTICIPATED AND WHICH ARE RELEVANT FOR THE FIELD OF THE DOCTORAL PROGRAMME

1. 2000-2004 - "Natural zeolite in chemical industry wastewater treatment"

2. 2004-2006 - "Ion Exchange and Membrane process in treatment of Chemical industry water"

3. 2010: EUREKA project "Purewater- Natural Zeolites in Water Quality System".

# LIST OF SCIENTIFIC AND ARTISTIC PROJECTS IN WHICH HE OR SHE PARTICIPATED IN THE LAST FIVE YEARS

PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



#### **ORDINAL NUMBER:** 45

FIRST NAME, LAST NAME, AND TITLE OF THE TEACHER: Danko Biondić, Assistant Professor

NAME OF INSTITUTION OF EMPLOYMENT OF THE TEACHER: Hrvatske vode (Croatian Waters)

#### BIOGRAPHY

#### PERSONAL DATA

Date and Place of Birth: May 10, 1963, Zagreb

#### EDUCATION

1988 B.Sc., Faculty of Civil Engineering, University of Zagreb

1995. M.Sc., Faculty of Civil Engineering, University of Zagreb

2005. Ph.D., Faculty of Civil Engineering, University of Zagreb

#### WORK EXPERIENCE

2012. - Croatian Waters, Head of the Development Sector

2005 - 2012 Croatian Waters, Development Director

1999 - 2005 Croatian Waters, Chief Engineer and Work Coordinator

1991 - 1999 Institute for Electrical and Power Engineering, d.d., independent project designer and job coordinator

1988 - 1991 Hidroprojekt - ING, d.d., associate designer

#### ACTIVITIES

2005 - 2008 Coordinator of Water Management Strategy Preparation

2006 - 2010 Member of the Working Group for EU Accession Negotiations for the Negotiating Chapter 27. Environment

2007. - Assistant Professor at the Faculty of Geotechnics of the University of Zagreb (Regulatory and Melioration courses)

2007. - Senior lecturer at the Technical Polytechnic of Zagreb (Regulatory and Melioration course)

2008. - President of the Croatian Council for Cooperation with the International Hydrological Program and the Operational Hydrological Program

2009 - 2011 Member of the umbrella committee for the preparation of the draft Law on Water, Water Management Act and their Bylaws

2009 - 2012 Coordinator of regional cooperation of hydrology of Danubian countries within IHP / OHP UNESCO

2009 - 2012 Member of the Croatian delegation at the International Commission for the Protection of the Danube River (ICPDR)

2009 - Member of the Committee for the Professional Development of Croatian Chamber of Civil Engineers

2010 - 2013 Coordinator of the Water Framework Management Plan 2013 - 2015

2011 President of the Scientific and Professional Committee of the 5th Croatian Water Conference

2012. - Deputy Member of the Croatian Group of Permanent Croatian-Slovenian Water Management Commission

PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



2013 - Member of the Strategic Coordination Group of the European Commission for the Joint Implementation of the Water Framework Directive

2013 - Member of the Working Group of the European Commission for the Joint Implementation of the Flood Risk Assessment and Management Directive

2013 - 2016 Coordinator of Water Sector Management Plan 2016 - 2021

2014. - President of the Croat Component of the Black Sea Water Conservation Board of the Water Management Commission of the Republic of Croatia and Bosnia and Herzegovina

2015. President of the Scientific and Professional Committee of the 6th Croatian Water Conference

2016 - A member of the Croatian delegation at the International Commission for the Protection of the Danube River (ICPDR)

2016. - Coordinator of preparation of Water Management Plan 2021-2027

2016. - President of the Croatian section of the Subcommittee on Energy Use of Border Guides of the Permanent Croatian-Slovenian Water Management Commission

## SKILLS

Foreign languages: English language (active, good)

Computer work: active and everyday

Driver: Category B

## HOBBY

Tourist and nature trips.

# DATE OF LAST APPOINTMENT TO A RESEARCH-AND-TEACHING OR ART-AND-TEACHING RANK: February 17, 2014

# LIST OF PUBLISHED WORK WHICH QUALIFY HIM/HER FOR IMPLEMENTATION OF THE PROGRAMME, THAT IS, WHICH ARE RELEVANT FOR THE FIELD OF THE DOCTORAL PROGRAMME

- Biondić, D., Barbalić, D. Petraš, J. (2002): Envelope Curves of Maximum Specific Discharges in the Danube River Catchment Area in Croatia, Proceedings of the 21st Conference of the Danube Countries on Hydrological Forecasting and Hydrological Bases of Water Management (CD-ROM), Bucharest, Romania.
- Biondić, D., Barbalić, D., Petraš, J. (2002): Creager's and Francou-Rodier's Envelopes of Extrem Floods in the Danube River Basin in Croatia, Communications of the Kick-off Workshop of the IAHS Decade on Prediction in Ungauged Basins, 47-54, Brasilia, Brazil.
- Biondić, D., Barbalić, D. (2003): Flood Wave Durations in the Danube River Basin in Croatia, Proceedings of the 8th International Symposium on Water Management and Hydraulic Engineering (CD-ROM), 35-42, Podbanske, Slovakia.
- Barbalić, D., Biondić, D. (2004): Flood Wave Volumes in the Danube River Basin in Croatia, Proceedings of the International Conference on Hydrology: Science & Practice fot the 21st Century (CD-ROM), London, United Kingdom.
- Biondić, D., Barbalić, D. (2004): Relationships between the Modular Values and Variation Coefficients of Maximum Discharges in the Danube River Basin in Croatia, Proceedings of the 22nd Conference of the Danube Countries on Hydrological Forecasting and Hydrological Bases of Water Management (CD-ROM), Brno, Czech Republic.



- Ćosić-Flajsig, G., Biondić, D., Barbalić, D. (2004): Ecosystem Role in Croatian Water Management, Proceedings of the UN/ECE Seminar on the Role of Ecosystems as Water Suppliers (CD-ROM), Geneva, Switzerland.
- Biondić, D, Barbalić, D., Petraš, J. (2007): Creager and Francou-Rodier envelope curves for extreme floods in the Danube River basin in Croatia, Proceedings of the PUB Kick-off meeting held in Brasilia, 20
   - 22 November 2002, IAHS Publ. 309, 221-228.
- Petraš, J., Biondić, D. (2007): Meteorološke i hidrološke podloge značajne za melioracijske mjere u Hrvatskoj, Znanstveni skup Melioracijske mjere u svrhu unapređenja ruralnog prostora s težištem na Nacionalni projekt navodnjavanja, Hrvatska akademija znanosti i umjetnosti, Zbornik radova, 39-57, Zagreb.
- 9. Krmek, Z., Husarić, J., Širac, S., Drmić, R, Biondić, D. (2008): Water Management Strategy, Annual 2008 of Croatian Academy of Engineering, Symposium with International Participation "Water Management in Croatia", Croatian Academy of Engineering, 17-30, Zagreb, Croatia.
- 10. Biondić, D., Holjević, D., Barbalić, S., Grizelj Šimić, V., Barbalić, D. (2012): Suvremeni pristup zaštiti od štetnog djelovanja voda, Okrugli stol "Zaštita od poplava u Hrvatskoj", Zbornik radova, 23-35, Vukovar.
- Biondić, D, Holjević, D., Petraš, J. (2013): Floods in the Danube River Basin in Croatia in 2010, Geomorphological Impacts of Extreme Weather - Case Studies from Central and Eastern Europe, Springer Geography, 141-153, Springer, The Netherlands.
- 12. Biondić, D., Barbalić, S., Grizelj Šimić, V. (2015): Dugoročni planski dokumenti upravljanja vodama, 6. hrvatska konferencija o vodama, Zbornik radova, 67-78, Opatija.
- 13. Babić, M., Barbalić, D., Biondić, D., Holjević, D. (2015): Upravljanje rizicima od poplava u Hrvatskoj, 6. hrvatska konferencija o vodama, Zbornik radova, 535-543, Opatija.
- 14. Biondić, D., Barbalić, S., Barbalić, D., Grizelj Šimić, V. (2016): Plan upravljanja vodnim područjima 2016.
  2021., Sabor hrvatskih graditelja 2016., Zbornik radova, 523-536, Cavtat.
- Biondić, D., Barbalić, S., Barbalić, D., Grizelj Šimić, V, Medić, Đ. (2017): Planiranje upravljanja vodama i hidrotehničke melioracije, Okrugli stol "Hidrotehničke melioracije u Hrvatskoj - stanje i izazovi", Zbornik radova, 25-46, Višnjica kod Slatine.

# LIST OF PUBLISHED WORK IN THE LAST FIVE YEARS

- Biondić, D, Holjević, D., Petraš, J. (2013): Floods in the Danube River Basin in Croatia in 2010, Geomorphological Impacts of Extreme Weather - Case Studies from Central and Eastern Europe, Springer Geography, 141-153, Springer, The Netherlands.
- 2. Biondić, D., Barbalić, S., Grizelj Šimić, V. (2015): Dugoročni planski dokumenti upravljanja vodama, 6. hrvatska konferencija o vodama, Zbornik radova, 67-78, Opatija.
- 3. Babić, M., Barbalić, D., Biondić, D., Holjević, D. (2015): Upravljanje rizicima od poplava u Hrvatskoj, 6. hrvatska konferencija o vodama, Zbornik radova, 535-543, Opatija.
- Biondić, D., Barbalić, S., Barbalić, D., Grizelj Šimić, V. (2016): Plan upravljanja vodnim područjima 2016. -2021., Sabor hrvatskih graditelja 2016., Zbornik radova, 523-536, Cavtat.
- Biondić, D., Barbalić, S., Barbalić, D., Grizelj Šimić, V, Medić, Đ. (2017): Planiranje upravljanja vodama i hidrotehničke melioracije, Okrugli stol "Hidrotehničke melioracije u Hrvatskoj - stanje i izazovi", Zbornik radova, 25-46, Višnjica kod Slatine.

PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



# LIST OF SCIENTIFIC AND ARTISTIC PROJECTS IN WHICH HE OR SHE PARTICIPATED AND WHICH ARE RELEVANT FOR THE FIELD OF THE DOCTORAL PROGRAMME

- Strategija upravljanja vodama (Narodne novine, br. 91/08) http://www.voda.hr/sites/default/files/dokumenti/strategija upravljanja vodama.pdf
- 2. Plan upravljanja vodnim područjima 2013. 2015. (Narodne novine, br. 82/13)

http://www.voda.hr/sites/default/files/dokumenti/plan.pdf

http://www.voda.hr/sites/default/files/dokumenti/dodatak1.pdf

http://www.voda.hr/sites/default/files/dokumenti/dodatak2.pdf

http://www.voda.hr/sites/default/files/dokumenti/dodatak3.pdf

3. Višegodišnji program gradnje regulacijskih i zaštitnih vodnih građevina i građevina za melioracije, (Narodne novine, br. 117/15)

http://www.voda.hr/sites/default/files/nn\_117\_2015\_visegodisnji\_program\_gradnje\_regulacijskih\_i\_z astitnih\_vodnih\_gradevina\_i\_gradevina\_za\_melioracije.pdf,

- Višegodišnji program gradnje komunalnih vodnih građevina (Narodne novine, br. 117/15), http://www.voda.hr/sites/default/files/nn\_117\_2015\_visegodisnji\_program\_gradnje\_komunalnih\_vod nih\_gradevina\_0.pdf,
- 5. Plan upravljanja vodnim područjima 2016. 2021. (Narodne novine, br. 66/16)

http://www.voda.hr/sites/default/files/plan\_upravljanja\_vodnim\_podrucjima\_2016.\_-\_2021\_0.pdf

# LIST OF SCIENTIFIC AND ARTISTIC PROJECTS IN WHICH HE OR SHE PARTICIPATED IN THE LAST FIVE YEARS

1. Plan upravljanja vodnim područjima 2013. - 2015. (Narodne novine, br. 82/13)

http://www.voda.hr/sites/default/files/dokumenti/plan.pdf

http://www.voda.hr/sites/default/files/dokumenti/dodatak1.pdf

http://www.voda.hr/sites/default/files/dokumenti/dodatak2.pdf

http://www.voda.hr/sites/default/files/dokumenti/dodatak3.pdf

 Višegodišnji program gradnje regulacijskih i zaštitnih vodnih građevina i građevina za melioracije, (Narodne novine, br. 117/15)

http://www.voda.hr/sites/default/files/nn\_117\_2015\_visegodisnji\_program\_gradnje\_regulacijskih\_i\_z astitnih\_vodnih\_gradevina\_i\_gradevina\_za\_melioracije.pdf,

- Višegodišnji program gradnje komunalnih vodnih građevina (Narodne novine, br. 117/15), http://www.voda.hr/sites/default/files/nn\_117\_2015\_visegodisnji\_program\_gradnje\_komunalnih\_vod nih\_gradevina\_0.pdf,
- Plan upravljanja vodnim područjima 2016. 2021. (Narodne novine, br. 66/16)
   http://www.voda.hr/sites/default/files/plan\_upravljanja\_vodnim\_podrucjima\_2016.\_-\_2021\_0.pdf

PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



### **ORDINAL NUMBER:** 46

FIRST NAME, LAST NAME, AND TITLE OF THE TEACHER: Miroslav Golub, Full Professor

NAME OF INSTITUTION OF EMPLOYMENT OF THE TEACHER: Faculty of Geotechnical Engineering, University of Zagreb

## BIOGRAPHY

I have graduated in 1974; I hold PhD degrees in Petroleum Engineering from The University of Zagreb, Croatia, at **Faculty of Mining, Geology and Pet. Eng**. Currently I am involved as full professor of Hydrothermal Energy Exploitation, Renewable Energy, Energy and Environment, Machine Design and etc at The Department of Hydrotechnics in the field of Environmental Engineering. During 2002-2004 I was the Head of Petroleum Engineering Department under the responsibility as the Team leader for several scientific projects as well. Twenty years ago I was elected Co-editor in Chief for Science of Croatian Oil and Gas Journal "NAFTA" www.nafta.hr.I am the member of number oil and gas associations and energy committees. For additional information please contact personal web site.

DATE OF LAST APPOINTMENT TO A RESEARCH-AND-TEACHING OR ART-AND-TEACHING RANK: 2009 Tenured prof.

# LIST OF PUBLISHED WORK WHICH QUALIFY HIM/HER FOR IMPLEMENTATION OF THE PROGRAMME, THAT IS, WHICH ARE RELEVANT FOR THE FIELD OF THE DOCTORAL PROGRAMME

Chapter in Scientific and Research Book

1.(2012) Golub M., Kurevija T., Geothermal Energy Development Strategy in Republic of Croatia Due to Promotion of Renewable Energy in European Union, rad u knjizi Geothermal Resource Assessment of The Drava Basin" str. 27-46, Ekonomski fakultet u Osijeku 2012., ISBN: 978-953-253-107-7, CIP University Library of Osijek number 130508080., 372 pp.

2.(2012) Jelić K., Golub M., Kolbah S., Kulenović I., Škrlec M., Croatian Goethermal Resources, rad u knjizi Geothermal Resource Assessment of The Drava Basin" str. 9-26, Ekonomski fakultet u Osijeku 2012., ISBN: 978-953-253-107-7, CIP University Library of Osijek number 130508080., 372 pp.

## Scientific Papers Abroad

1.(2010) Krešimir Jelić, Mroslav Golub, Slobodan Kolbah, Ismet Kulenović, Mladen Škrlec "Croatia Geothermal Resources Updates in the Year 2009", Proceedings World Geothermal Congress, Bali, Indonesia, 25-29 April 2010. p. 1-9.

2.(2015) Kolbah S., Škrlec M., Golub M., Kurevija T.,: Croatia Country Update 2015, Abstract submitted, World Geothermal Congress

3.(2016) Strelec, Golub, Grabar, Marciuš. " Aquifer Parameters for Purposes of Heating Pump System" (Određivanje parametara vodonosnika za potrebe sustava dizalica topline), Internatonal Congress: Energy and The Environment 2016, Opatija, Croatia

Published Scientific Papers in Croatia

1.(2011) Kolbah S., Škrlec M., Golub M.,: The Scientific and Engineering Approach to the Sustainable Development of a Deep Waters and Geothermal Resources Environment Systems in Republic of Croatia 6th Dubrovnik Conference on Sustainable Development of Energy, Water and Environment Systems SDEWES11-0133, Dubrovnik 2011. (e-verzija)

2.(2013) Pavlović D., Golub M., Jerolimov Z., "Prikaz načela bitnih za odabir terminala za uplinjavanje (UPP) u Republici Hrvatskoj temeljem usporednih elemenata UPP terminala u Poljskoj i Litvi", HSUP Znanstveno stručni skup stručnjaka za plin, Opatija 2013., zbornik u e-verziji



Međunarodni projekt vezan je na znanstveni projekt: Razvoj ekološkog plosnatog motora Stilingovog tipa (195014) obzirom na međusobnu suradnju sa Sveučilištem u Rimu "La Sapienza", a što je rezultiralo zajedničkim radovima pod nazivom "Zagreb-Roma Group":NSB

Scientific papers published in coordination with PhD participant:

1.(2008) Kurevija, T.; Vulin D.; Golub, M.: Geothermal Potential Assessment of the Gas Fields in Central Drava Basin in Republic of Croatia Due to Exergy Analysis, World Renewable Energy Congress X, 19-25. July 2008, Glasgow, Scotland.

2.(2008) D. Vulin, T. Kurevija, M. Golub: Enhanced Geothermal Systems-The Usage of CO2 as Heat Transmission Fluid, Zbornik radova: Energy and The Environment, Opatija 2008, Vol. II, p. 247-258.

3.(2007) Golub, M.; Kurevija, T.: Geothermal Energy Development Strategy in Republic of Croatia due to Promotion of Renewable Energy in European Union, The Mining-Geological-Petroleum Bulletin, Zagreb, Croatia, Vol 19, 2007., p. 67-77.

4.(2006) Rajković, D.; Golub, M.; Kurevija, T.: Evaluation of the Low Temperature Geothermal Sources in Croatia, Proceedings of the 15th Mine Planning and Equipment Selection, Torino, Italy, 19-22. September 2006, pp.6.

5.(2005) Golub, M.; Kurevija, T.; Košćak-Kolin S.: Binary Rankine Cycle Optimization, Proceedings of 3rd International Oil and Gas Conference, Zadar, Croatia, 04-07.October 2005. pp.6.

6.(2004) Golub, M.; Kurevija, T.; Košćak-Kolin S.: Influence of the Joule-Thompson Effect on Geothermal Energy Production at the Reservoir Velika Ciglena, International Congress Energy and Environment 2004., Opatija, Croatia, 27-29. October 2004., Vol II, p. 33-38.

7.(2004) Golub, M.; Kurevija, T.; Košćak-Kolin S.: Thermodynamic Cycle Optimization in the Geothermal Energy Production, The Mining-Geological-Petroleum Bulletin, Zagreb, Croatia, Vol 16, 2004., p. 81-86.

8.Košćak-Kolin, S.; Golub, M.; Rajković, D.: "Impact of the heat power on the unit geothermal energy cost", World Renewable Energy Congress VII 2002., Cologne, Germany, 29 June-5 July 2002, Renewable energy (ISSN 0960-1481).

# LIST OF PUBLISHED WORK IN THE LAST FIVE YEARS

Chapter in Scientific and Research Book

1.(2012) Golub M., Kurevija T., Geothermal Energy Development Strategy in Republic of Croatia Due to Promotion of Renewable Energy in European Union, rad u knjizi Geothermal Resource Assessment of The Drava Basin" str. 27-46, Ekonomski fakultet u Osijeku 2012., ISBN: 978-953-253-107-7, CIP University Library of Osijek number 130508080., 372 pp.

2.(2012) Jelić K., Golub M., Kolbah S., Kulenović I., Škrlec M., Croatian Goethermal Resources, rad u knjizi Geothermal Resource Assessment of The Drava Basin" str. 9-26, Ekonomski fakultet u Osijeku 2012., ISBN: 978-953-253-107-7, CIP University Library of Osijek number 130508080., 372 pp.

# Scientific Papers Abroad

1.(2015) Kolbah S., Škrlec M., Golub M., Kurevija T.,: Croatia Country Update 2015, Abstract submitted, World Geothermal Congress

2.(2016) Strelec, Golub, Grabar, Marciuš. " Aquifer Parameters for Purposes of Heating Pump System" (Određivanje parametara vodonosnika za potrebe sustava dizalica topline), Internatonal Congress: Energy and The Environment 2016, Opatija, Croatia

Published Scientific Papers in Croatia

PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



1.(2011) Kolbah S., Škrlec M., Golub M.,: The Scientific and Engineering Approach to the Sustainable Development of a Deep Waters and Geothermal Resources Environment Systems in Republic of Croatia 6th Dubrovnik Conference on Sustainable Development of Energy, Water and Environment Systems SDEWES11-0133, Dubrovnik 2011. (e-verzija)

2.(2013) Pavlović D., Golub M., Jerolimov Z., "Prikaz načela bitnih za odabir terminala za uplinjavanje (UPP) u Republici Hrvatskoj temeljem usporednih elemenata UPP terminala u Poljskoj i Litvi", HSUP Znanstveno stručni skup stručnjaka za plin, Opatija 2013., zbornik u e-verziji

LIST OF SCIENTIFIC AND ARTISTIC PROJECTS IN WHICH HE OR SHE PARTICIPATED AND WHICH ARE RELEVANT FOR THE FIELD OF THE DOCTORAL PROGRAMME

# LIST OF SCIENTIFIC AND ARTISTIC PROJECTS IN WHICH HE OR SHE PARTICIPATED IN THE LAST FIVE YEARS

IPA project

1. (2012) IPA II znanstvenoistraživački projekt "DRAVA-GEO" prekogranični program Mađarska-Hrvatska (2010-2012) br. HUHR/0901/2.1.3/0006 (IPA Cross-border Co-operation Programme-Research on Geothermal Energy Sources-II. Phase Croatian activities) (Dražen Barković, Miroslav Golub) (projekt završen 2012.)

2. (2013) Znanstvenoistraživački projekt MZOS br. 195-1951322-1340 "Zbrinjavanje ugljikovog dioksida iz geotermalnih i ugljikovodičnih ležišta" (voditelj projekta Miroslav Golub, projekt završen 2013.)

• Kriterij znanstvene izvrsnosti (čl. 10a, alineja prva) NN 139/13 od 20.11.2013.

" u zadnjih pet godina ima objavljen najmanje broj i vrstu radova potrebnih za izbor u znanstveno zvanje znanstvenog suradnika u odgovarajućem području i polju znanosti sukladno odredbama pravilnika kojima se reguliraju uvjeti izbora u znanstvena zvanja "

Book

1.(2012) Barković D., Golub M., (eds): Geothermal Resource Assessment of The Drava Basin" (Procjena geotermalnog kapaciteta u bazenu Drave), Hungary-Croatia IPA Cross-border Co-operation Programme, Ekonomski fakultet u Osijeku 2012., ISBN: 978-953-253-107-7, CIP University Library of Osijek number 130508080.,372 pp.

PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



#### **ORDINAL NUMBER: 47**

### FIRST NAME, LAST NAME, AND TITLE OF THE TEACHER: Tomislav Kurevija, Associated Professor

**NAME OF INSTITUTION OF EMPLOYMENT OF THE TEACHER:** Faculty of mining, geology and petroleum engineering, University of Zagreb

### BIOGRAPHY

Tomislav Kurevija was born in Zagreb, 1978. He graduated from high school in 1997, and continued his studying at Faculty of Mining, Geology and Petroleum Engineering in Zagreb. In 2003 he received his Master's degree in petroleum mining. in 2003. After that, he resumed doctoral studies which resulted with Ph.D. title in 2010, with area of research involving shallow geothermal resources. From 2011 he is employed as an Assistant professor at the Faculty of Mining, Geology and Petroleum Engineering, Department of Petroleum engineering, and since 2016. as Associate Professor at same faculty. His interests include geothermal energy, thermogeology and reservoir engineering of oil, gas and groundwater.

He published over forty science papers, of which three (3) are indexed in Current Content database (WOS). Also, he has published two (2) book chapters (Springer publishing).

After Scopus database, his science work is quantified with h-index = 4, with 41 citations in last five years.

He is member of Editorial Board for two science journals: "Rudarsko-geološko-naftni zbornik" (ISSN 0353-4529 (Print); ISSN 1849-0409 (Online)) and "Journal of Technology Innovations in Renewable Energy" (ISSN 1929-6002(Online)).

**DATE OF LAST APPOINTMENT TO A RESEARCH-AND-TEACHING OR ART-AND-TEACHING RANK:** 27.05.2013. Senior research assistant

# LIST OF PUBLISHED WORK WHICH QUALIFY HIM/HER FOR IMPLEMENTATION OF THE PROGRAMME, THAT IS, WHICH ARE RELEVANT FOR THE FIELD OF THE DOCTORAL PROGRAMME

1. Kurevija, T.; Vulin, D. High enthalpy geothermal potential of the deep gas fields in Central Drava Basin in Republic of Croatia, Water Resources Management, Volume 25, Issue 12, September 2011, pp 3041-3052, Springer, Science+Business Media. 2. Kurevija, T.; Vulin, D. Krapec, V. Effect of borehole array geometry and thermal interferences on geothermal heat pump system, Energy Conversion and Management, Volume 60, August 2012, Pages 134-142, Elsevier B.V. C

3. Vulin, D; Kurevija, T.; . Kolenković, I. The effect of mechanical rock properties on CO2 storage capacity, Energy, Volume 45, Issue 1, September 2012, Pages 512-518, Elsevier B.V.

4. Kurevija, T.; Vulin, D.; Macenić, M. Impact of geothermal gradient on ground source heat pump system modeling., The Mining-Geological-Petroleum Bulletin, ISSN 0353-4529, Zagreb, Croatia, Vol. 28, 2012., p. 39-45, Indexed in: Scopus, Geobase, Georef, Fluidex, Compendex, Geotechnical abstracts

5. Kurevija, Tomislav; Kapuralić; Josipa; Macenić, Marija. Comparing seasonal performance factor of different heat pump systems for residential HVAC in the Dfb climate area of Croatia // Proceedings of Ecos 2016 - the 29th international conference on efficiency, cost, optimization, simulation and environmental impact of energy systems, Ljubljana : University of Ljubljana, Faculty of Mechanical Engineering, 2016.

6. Kurevija, Tomislav; Macenić, Marija; Borović, Staša. Impact of borehole cement-bentonite grout thermal conductivities on a long-term ground-source heat pump efficiency // Proceedings of Ecos 2016 - the 29th international conference on efficiency, cost, optimization, simulation and environmental impact of energy systems, Ljubljana : University of Ljubljana, Faculty of Mechanical Engineering, 2016.

## LIST OF PUBLISHED WORK IN THE LAST FIVE YEARS



1.Kurevija, T.; Vulin, D. High enthalpy geothermal potential of the deep gas fields in Central Drava Basin in Republic of Croatia, Water Resources Management, Volume 25, Issue 12, September 2011, pp 3041-3052, Springer, Science+Business Media.

2.Kurevija, T.; Vulin, D. Krapec, V. Effect of borehole array geometry and thermal interferences on geothermal heat pump system, Energy Conversion and Management, Volume 60, August 2012, Pages 134-142, Elsevier B.V.C

3.Vulin, D; Kurevija, T.; . Kolenković, I. The effect of mechanical rock properties on CO2 storage capacity, Energy, Volume 45, Issue 1, September 2012, Pages 512-518, Elsevier B.V.

4.Kurevija, T.; Vulin, D.; Macenić, M. Impact of geothermal gradient on ground source heat pump system modeling., The Mining-Geological-Petroleum Bulletin, ISSN 0353-4529, Zagreb, Croatia, Vol. 28, 2012., p. 39-45, Indexed in: Scopus, Geobase, Georef, Fluidex, Compendex, Geotechnical abstracts

5.Kurevija, Tomislav; Kapuralić; Josipa; Macenić, Marija. Comparing seasonal performance factor of different heat pump systems for residential HVAC in the Dfb climate area of Croatia // Proceedings of Ecos 2016 - the 29th international conference on efficiency, cost, optimization, simulation and environmental impact of energy systems, Ljubljana : University of Ljubljana, Faculty of Mechanical Engineering, 2016.

6.Kurevija, Tomislav; Macenić, Marija; Borović, Staša. Impact of borehole cement-bentonite grout thermal conductivities on a long-term ground-source heat pump efficiency // Proceedings of Ecos 2016 - the 29th international conference on efficiency, cost, optimization, simulation and environmental impact of energy systems, Ljubljana : University of Ljubljana, Faculty of Mechanical Engineering, 2016.

# LIST OF SCIENTIFIC AND ARTISTIC PROJECTS IN WHICH HE OR SHE PARTICIPATED AND WHICH ARE RELEVANT FOR THE FIELD OF THE DOCTORAL PROGRAMME

- Associate "Zbrinjavanje ugljikovog dioksida iz geotermalnih i ugljikovodičnih ležišta" since 2006. -2010.g. ((MZT 195-1951322-1340)
- 2. Associate (2012) IPA II science-research project "DRAVA-GEO" programme Mađarska-Hrvatska (2010-2012) no. HUHR/0901/2.1.3/0006 (IPA Cross-border Co-operation Programme-Research on Geothermal Energy Sources-II. Phase Croatian activities) (Main researchers: Dražen Barković, Miroslav Golub)

## LIST OF SCIENTIFIC AND ARTISTIC PROJECTS IN WHICH HE OR SHE PARTICIPATED IN THE LAST FIVE YEARS



#### **ORDINAL NUMBER:** 48

FIRST NAME, LAST NAME, AND TITLE OF THE TEACHER: Ankica Kovač (Đukić), Assistant Professor

**NAME OF INSTITUTION OF EMPLOYMENT OF THE TEACHER**: Faculty of Mechanical Engineering and Naval Architecture, University of Zagreb

#### BIOGRAPHY

## EDUCATION

2013. – Doctoral study of Faculty of Mechanical Engineering and Naval Architecture, Ph.D. Fakulteta strojarstva i brodogradnje u Zagrebu, dr. sc.

2007. – Master study of Faculty of Mechanical Engineering and Naval Architecture, mag. ing. aeronaut.

## EMPLOYMENT

2016. – Assistant Professor, Faculty of Mechanical Engineering and Naval Architecture in Zagreb, Department of power engineering, energy, and ecology, Chair of power engineering and energy

2016. - Today – Head of Laboratory of Power Engineering, Faculty of Mechanical Engineering and Naval Architecture – second mandate

2014. – 2016. – Head of Laboratory of Power Engineering, Faculty of Mechanical Engineering and Naval Architecture – first mandate

2013. – Research Scientific Assistant / Postdoctoral Student, Faculty of Mechanical Engineering and Naval Architecture in Zagreb, Department of power engineering, energy, and ecology, Chair of power engineering and energy

2008. – Research Scientific Assistant / Faculty of Mechanical Engineering and Naval Architecture in Zagreb, Department of power engineering, energy, and ecology, Chair of power engineering and energy

#### **ELECTIONS FOR SCIENTIFIC TITLES**

2014. – Scientific Associate, Faculty of Mechanical Engineering and Naval Architecture in Zagreb, Department of power engineering, energy, and ecology, Chair of power engineering and energy

#### AWARD

2011. –Award of Association of University Professors and other scientists in Zagreb to the young scientists and artists for the contribution in the field of technical sciences.

#### IMPORTANT SCIENTIFIC ACHIEVEMENT

2016. – First Croatian Hydrogen Powered Bicycle

#### **EDUCATIONAL ACTIVITIES**

Mandatory courses: New technologies in energetics (3+2) i Laboratory work E (0+3)

Elective course: Hydrogen and Fuel Cells (2+1)

Activities:

1) Experimental work on real systems based on renewable energy sources and alternative fuels,



#### 2) Educational visits,

3) Seminars and public presentations of achieved results within courses,

4) Applications for Rector award,

5) Final thesis and seminars.

## **ORGANIZATION OF SCIENTIFIC MEETINGS/SYMPOSIUMS**

1) Organization of Open Days of Faculty of Mechanical Engineering and Naval Architecture within Zagreb Energy Week,

2) Organization of invited lectures of scientists from international institutions,

3) Organization of one-day seminar titled 'Hydrogen and Fuel Cells' in Končar Institute,

4) Organization of presentation and workshops within Festival of Science in Zagreb,

5) Organization of Special Session titled 'Hydrogen and Fuel Cells' within International Conference SDEWES 2015.

6) Guest Editor of International Journal of Hydrogen Energy.

#### MEMBERSHIP

Member of International Association of Hydrogen Energy – IAHE

### **TECHICAL SKILLS**

- 1. Design and development of experimental systems based on renewable energy sources (Solar and wind energy)
- 2. MATLAB/Simulink Software for analysis of achieved results and simulations.

#### DATE OF LAST APPOINTMENT TO A RESEARCH-AND-TEACHING OR ART-AND-TEACHING RANK: June, 2016

# LIST OF PUBLISHED WORK WHICH QUALIFY HIM/HER FOR IMPLEMENTATION OF THE PROGRAMME, THAT IS, WHICH ARE RELEVANT FOR THE FIELD OF THE DOCTORAL PROGRAMME

#### EDITORIAL BOOKS

 Book of Abstracts of the 10th Conference on Sustainable Development of Energy, Water and Environment Systems / Ban, Marko; Duić, Neven; Schneider, Daniel Rolph; Guzović, Zvonimir; Arora, Meenakshi; Barbir, Frano; Boldyryev, Stanislav; Connolly, David; Davidson, Brian; **Đukić, Ankica**; Vujanović, Milan; Pukšec, Tomislav; et al (ur.). Zagreb : Faculty of Mechanical Engineering and Naval Architecture, 2015.

**2.** CD Proceedings of the 10th Conference on Sustainable Development of Energy, Water and Environment Systems / Ban, Marko; Duić, Neven; Schneider, Daniel Rolph; Guzović, Zvonimir; Arora, Meenakshi; Barbir, Frano; Boldyryev, Stanislav; Connolly, David; Davidson, Brian; **Đukić, Ankica**; Vujanović, Milan; Pukšec, Tomislav; et al (ur.). Zagreb : Faculty of Mechanical Engineering and Naval Architecture, 2015.

## **BOOK CHAPTER**

**1. Đukić, Ankica;** Güttler, Ivan; Pašičko, Robert: Perspectives of Hydrogen Automotive Applications in Croatia // Energy, Transportation and Global Warming / Grammelis, Panagiotis (ur.). Cham, Switzerland : Springer, 2016. Str. 433-445.



#### **ORIGINAL SCIENTIFIC ARTICLES PUBLISHED IN CC JOURNALS**

**1.** Firak, Mihajlo; **Đukić, Ankica**: Hydrogen transportation fuel in Croatia: Road map strategy. // International journal of hydrogen energy. 41 (2016) , 31; 13820-13830

2. Đukić, Ankica: Autonomous hydrogen production system. // International journal of hydrogen energy. 40 (2015) ,
 24; 7465-7474

**3.** Motalleb, Miri; **Đukić, Ankica**; Firak, Mihajlo: Solar hydrogen power system for isolated passive house. // International journal of hydrogen energy. 40 (2015), 46; 16001-16009

**4.** Đukić, Ankica; Alar, Vesna; Firak, Mihajlo; Jakovljević, Suzana: A significant improvement in material of foam. // Journal of alloys and compounds. 573 (2013) ; 128-132

**5.** Đukić, Ankica; Firak, Mihajlo: Hydrogen production using alkaline electrolyzer and photovoltaic (PV) module. // International journal of hydrogen energy. 36 (2011), 13; 7799-7806

#### **OTHER ARTICLES PUBLISHED IN CC JOURNALS**

1. Đukić, Ankica; Barbir, Frano; Duić, Neven: Hydrogen and fuel cells: A preface to the special issue section on "The 14th Conference on Sustainable Development of Energy, Water and Environment Systems (SDEWES), 27 September–2 October, Dubrovnik, Croatia". // International journal of hydrogen energy. 41 (2016) , 31; 13797-13799

### SCIENTIFIC ARTICLES PUBISHED IN OTHER JOURNALS

 Firak, Mihajlo; Đukić, Ankica: An investigation into the effect of photovoltaic module electric properties on maximum power point trajectory with the aim of its alignment with electrolyzer U-I characteristic. // Thermal science.
 (2010); 729-738

#### SCIENTIFIC ARTICLES PUBLISHED IN PROCEEDINGS OF INTERNAIONAL CONFERENCES

1. Đukić, Ankica; Güttler, Ivan; Pašičko, Robert: Perspectives of hydrogen automotive applications in Croatia // Conference Proceedings. International Conference on Global Warming, Athens, Greece, 2015.

**2.** Đukić, Ankica; Güttler, Ivan; Pašičko, Robert: Forecasting future impact of hydrogen powered vehicles on power system development in Croatia // Proceedings of the 10th Conference on Sustainable Development of Energy, Water and Environment Systems, SDEWES2015.785. 2015.

**3.** Firak, Mihajlo; **Đukić, Ankica**: Hydrogen transportation fuel in Croatia: Road map strategy // Proceedings of the 10th Conference on Sustainable Development of Energy, Water and Environment Systems, SDEWES2015.539. 2015.

4. Đukić, Ankica: Autonomous hydrogen production system //

5. Firak, Mihajlo; Đukić, Ankica: Hydrogen Economy: State of the Art and Perspectives //

**6. Đukić, Ankica;** Grubač, Zoran; Metikoš Huković, Mirjana; Firak, Mihajlo: Water electrolysis on the 3D nickel foam catalyst using solar energy // Second Regional Symposium on Electrochemistry South-East Europe, Program & Book of Abstracts. Belgrade : Serbian Chemical Society, 2010. 123-123



**7. Đukić, Ankica;** Firak, Mihajlo: Hydrogen production using alkaline electrolyzer and photovoltaic (PV) module // HYSYDAYS – 3RD WORLD CONGRESS OF YOUNG SCIENTISTS ON HYDROGEN ENERGY SYSTEMS, Turin, Italy, 07-09.10.2009., Proceedings. 1-10

**8.** Firak, Mihajlo; **Đukić, Ankica:** The Effect of PV module electric properties on the Maximum Power Point (MPP) trajectory with aim of its alignment to electrolyzer U-I characteristics // 5th Dubrovnik Conference on Sustainable Development of Energy Water and Environment Systems : Book of Abstracts + CD proceedings. 2009. 156-156

**9.** Firak, Mihajlo; **Đukić, Ankica**; Agić, Ante: Experiment, modelling and simulation of the solar- hydrogen production system based on the solar cells and alkaline water electrolyzer // CD Proceedings of the International Conference Hydrogen on Islands. 2008. 44-44

**10.** Sedić, Almir; Firak, Mihajlo; **Đukić, Ankica:** The controller for solar-hydrogen stand-alone power system (SAPS) // International Congress Energy and the Environment : 21st Scientific Conference on Energy and the Environment : proceedings / Franković, Bernard (ed.). Rijeka : 2008. 75-86

### ABSTRACTS PUBLISHED IN CONFERENCE PROCEEDINGS

1. Đukić, Ankica; Firak, Mihajlo: Mini gas power plant with thermoelectrical elements, Festival of Science.

2. Firak, Mihajlo; **Đukić, Ankica:** Hydrogen Economy: State of the Art and Perspectives // Book of Abstracts. 2013.

3. Đukić, Ankica; Firak, Mihajlo: Thermoacoustics and electrical energy, Festival of Science.

**4. Đukić, Ankica;** Alar, Vesna; Firak, Mihajlo: The Nickel Foam as the Electrodes Material for an Alkaline Electrolyser // Book of Abstracts. 2012. 127-127

5. Đukić, Ankica; Firak, Mihajlo: Light = Energy, Festival of Science.

**6. Đukić, Ankica;** Firak, Mihajlo: Alkaline Electrolyser with Large Porosity Metal Foam Electrode Characterisation // Book of Abstracts. 2011. 338-339

**7.** Firak, Mihajlo; **Đukić, Ankica.** The State of the Development of the Thermoacoustic Devices // Online Book of Abstracts. 2011.

8. Đukić, Ankica; Firak, Mihajlo. Sun – Sound – Electricity, Festival of Science.

**9. Đukić, Ankica;** Grubač, Zoran; Metikoš-Huković, Mirjana; Firak, Mihajlo: Water electrolysis on the 3D nickel foam catalyst using solar energy // Second Regional Symposium on Electrochemistry South- East Europe. Belgrade, Serbia, 2010. 123

**10.** Đukić, Ankica; Firak, Mihajlo: Hydrogen production using Solar Energy, Festival of Science.

#### **DOCTORAL THESIS**

**1. Đukić, Ankica:** HYDROGEN PRODUCTION VIA WATER ELECTROLYSIS USING SOLAR ENERGY AND PHOTOVOLTAIC MODULE, Doctoral Thesis, Zagreb, Faculty of Mechanical Engineering and Naval Architecture, December 4<sup>th</sup> 2013, pages of 165, Supervisor: Mihajlo Firak.



## LIST OF PUBLISHED WORK IN THE LAST FIVE YEARS

1. Firak, Mihajlo; Đukić, Ankica: Hydrogen transportation fuel in Croatia: Road map strategy. // International journal of hydrogen energy. 41 (2016), 31; 13820-13830

2. Đukić, Ankica: Autonomous hydrogen production system. // International journal of hydrogen energy. 40 (2015) ,
24; 7465-7474

**3.** Motalleb, Miri; **Đukić, Ankica**; Firak, Mihajlo: Solar hydrogen power system for isolated passive house. // International journal of hydrogen energy. 40 (2015), 46; 16001-16009

**4.** Đukić, Ankica; Alar, Vesna; Firak, Mihajlo; Jakovljević, Suzana: A significant improvement in material of foam. // Journal of alloys and compounds. 573 (2013) ; 128-132

**5.** Đukić, Ankica; Firak, Mihajlo: Hydrogen production using alkaline electrolyzer and photovoltaic (PV) module. // International journal of hydrogen energy. 36 (2011), 13; 7799-7806

# LIST OF SCIENTIFIC AND ARTISTIC PROJECTS IN WHICH HE OR SHE PARTICIPATED AND WHICH ARE RELEVANT FOR THE FIELD OF THE DOCTORAL PROGRAMME

1.Hydrogen fuel cells and electrolyzer systems of improved performances (scientific investigation within doctoral studies) 2.Solar and wind power plant on the roof of Laboratory of Power Engineering of FSB – Project Leader

3. Hydrogen integration into city transport - Project Leader

4. Bicycle with additional propulsion of electrical energy and – Project Leader

5.HEPi Bicycle – Project Leader

6. Integration of renewable energy sources and hydrogen technologies – Znanstvena suradnica

7.ENERCOAST - Professional Associate

# LIST OF SCIENTIFIC AND ARTISTIC PROJECTS IN WHICH HE OR SHE PARTICIPATED IN THE LAST FIVE YEARS

1.Hydrogen fuel cells and electrolyzer systems of improved performances (scientific investigation within doctoral studies) 2.Solar and wind power plant on the roof of Laboratory of Power Engineering of FSB – Project Leader

3. Hydrogen integration into city transport – Project Leader

4. Bicycle with additional propulsion of electrical energy and - Project Leader

5.HEPi Bicycle – Project Leader

6. Integration of renewable energy sources and hydrogen technologies – Znanstvena suradnica

7.ENERCOAST – Professional Associate

PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



#### **ORDINAL NUMBER:** 49

FIRST NAME, LAST NAME, AND TITLE OF THE TEACHER: Rene Lisac, Assistant Professor

NAME OF INSTITUTION OF EMPLOYMENT OF THE TEACHER: Faculty of Architecture, University of Zagreb

## BIOGRAPHY

Rene Lisac (born on September 3rd, 1979 in Zagreb), is a graduated architect and PhD in Technical Science in the field of architecture and urban planning. In 1998, he finished 5th High School in Zagreb, and in 1998 he enrolled at the Faculty of Architecture, University of Zagreb, where he graduated in 2004 with excellent marks. In August 2003, he stayed one month in Paris, where he worked in the architectural office Henri Gaudin Architects.

From 2007 until 2012, he was a doctoral student (in the field of Architecture) at the Faculty of Architecture, University of Zagreb. In 2008, during his doctoral study, he professionally developed on the Faculty of Chemical Engineering and Technology, University of Zagreb, as a part of Postgraduate specialist course Ecoengineering. In July 2012, he graduated at the Faculty of Architecture, University of Zagreb with dissertation thesis " Guidelines system for university campuses sustainable planning". He was elected as a senior scientific associate in the scientific field of technical sciences - architecture and urban planning at the University of Zagreb in 2013.

Since 2004, he has been employed at the Faculty of Architecture, University of Zagreb, as a graduate research assistant at the Department of Architectural Design. In period from 2004 until 2016, he actively participates as a researcher (scientist number: 264652) in the realization of tree scientific projects of the Faculty of Architecture registered at the Ministry of Science, Education and Sports of Republic of Croatia and the Croatian Science Foundation. He participates in one project as a part of European Culture Programme 2007-2013.

He participated at practical classes "Introduction to Computer Application", "Computer Application in Architecture I" and "Computer Application in Architecture II", as a part of Office for Computer Application at the Department of Architectural Design, at the Faculty of Architecture, University of Zagreb.

His approach to scientific research is interdisciplinary and primarily includes new trends and their implications on built space with emphasis on sustainable modern requirements. As an author/co-author he published twenty one scientific and other papers, which were published in scientific journals, indexed SCI-WoS, proceedings of international scientific conferences, books and professional journals, and he is the editor of two proceedings. He participated with presentations in eight international scientific conferences.

He participated as an author or co-author on dozens of public urban-architectural calls in the field of professional activities, and so far he won ten rewards. He is a designer of several interiors, one temporary construction, one family house and two objects for temporary stay. His work has been exhibited at the Zagreb Salon. He participated in the several juries for work of urban-architectural public calls. He is the author of many conceptual urban and architectural solutions and projects, and the designer of several derived interiors and buildings. As one of the authors and coordinator of the "City Acupuncture" project, he participated in organisation and implementation of five national and four international multidisciplinary workshops in Croatia, Bosnia and Herzegovina and Macedonia. Some of activities are carried out as a part of international project "City Acupuncture", which is financed by the European Culture Programme 2007-2013. He is a full and active member of the Croatian Architects Association and Zagreb Architects Society, which he is a president from 2015. For the period of one month, he has specialised in his profession in Paris, France as an associate in the field of architecture and urban planning under supervision of a French architect Henri Gaudina.

PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



# **DATE OF LAST APPOINTMENT TO A RESEARCH-AND-TEACHING OR ART-AND-TEACHING RANK:** Senior Scientific Associate, from 4th July 2013

# LIST OF PUBLISHED WORK WHICH QUALIFY HIM/HER FOR IMPLEMENTATION OF THE PROGRAMME, THAT IS, WHICH ARE RELEVANT FOR THE FIELD OF THE DOCTORAL PROGRAMME

## Dissertation

1.Lisac, Rene: Sustav smjernica za planiranje održivih sveučilišnih kampusa. Zagreb : Arhitektonski fakultet, 16.07. 2012., 166 str. Voditelj: Baletić, Bojan

Scientific papers in proceedings of international scientific meetings

1.Baletić, Bojan; Careva, Kristina; Lisac, Rene: Uloga zagrebačkog sveučilišta u planiranju i izgradnji grada naslijeđe u metodi određivanja identiteta // Zbornik radova međunarodnog znanstvenog skupa "Prostorne i razvojne mogućnosti kulturnoga naslijeđa", Zagreb : Sveučilište u Zagrebu, Arhitektonski fakultet, 2015. 298-303 (predavanje,međunarodna recenzija,objavljeni rad,znanstveni).

2.Careva, Kristina; Lisac, Rene: The Impact of New Technologies on City Acupuncture Methodology and Interventions // Places and Technologies 2014 / Vaništa Lazarević, Eva ; Krstić-Furundžić, Aleksandra ; Đukić, Aleksandra ; Vukmirović, Milena (ur.). Beograd : University of Belgrade – Faculty of Architecture, 2014. 138-144 (predavanje,međunarodna recenzija,objavljeni rad,znanstveni).

# Papers and abstracts in proceedings

1.Lisac, Rene; Careva, Kristina; Baletić, Bojan: City acupuncture: new methodologies for public spaces // Becoming local: The atomising society and public space / Ghyka, Celia (ur.)., Bukurešt : Ion Mincu Publishing House, 2014. 20-20 (pozvano predavanje,međunarodna recenzija,sažetak,znanstveni).

2.Lisac, Rene: Studija razvoja otoka - Biševo. // Čovjek i prostor. 52 (2005) , 11/12; 56-57 (članak, stručni)

3. Lisac, Rene: Održivost kao tema budućih Svjetskih izložbi, 2009. (elaborat).

# LIST OF PUBLISHED WORK IN THE LAST FIVE YEARS

Dissertation

1.Lisac, Rene: Sustav smjernica za planiranje održivih sveučilišnih kampusa. Zagreb : Arhitektonski fakultet, 16.07. 2012., 166 str. Voditelj: Baletić, Bojan

Scientific papers in proceedings of international scientific meetings

1.Baletić, Bojan; Careva, Kristina; Lisac, Rene: Uloga zagrebačkog sveučilišta u planiranju i izgradnji grada naslijeđe u metodi određivanja identiteta // Zbornik radova međunarodnog znanstvenog skupa "Prostorne i razvojne mogućnosti kulturnoga naslijeđa", Zagreb : Sveučilište u Zagrebu, Arhitektonski fakultet, 2015. 298-303 (predavanje,međunarodna recenzija,objavljeni rad,znanstveni).

2.Careva, Kristina; Lisac, Rene: The Impact of New Technologies on City Acupuncture Methodology and Interventions // Places and Technologies 2014 / Vaništa Lazarević, Eva ; Krstić-Furundžić, Aleksandra ; Đukić, Aleksandra ; Vukmirović, Milena (ur.). Beograd : University of Belgrade – Faculty of Architecture, 2014. 138-144 (predavanje,međunarodna recenzija,objavljeni rad,znanstveni).

# Papers and abstracts in proceedings

1.Lisac, Rene; Careva, Kristina; Baletić, Bojan: City acupuncture: new methodologies for public spaces // Becoming local: The atomising society and public space / Ghyka, Celia (ur.)., Bukurešt : Ion Mincu Publishing House, 2014. 20-20 (pozvano predavanje,međunarodna recenzija,sažetak,znanstveni).

2.Lisac, Rene: Studija razvoja otoka - Biševo. // Čovjek i prostor. 52 (2005) , 11/12; 56-57 (članak, stručni)



3.Lisac, Rene: Održivost kao tema budućih Svjetskih izložbi, 2009. (elaborat).

# LIST OF SCIENTIFIC AND ARTISTIC PROJECTS IN WHICH HE OR SHE PARTICIPATED AND WHICH ARE RELEVANT FOR THE FIELD OF THE DOCTORAL PROGRAMME

Since 2014, he works on revitalization of the city's public areas under "Zagreb za mene" project, in organisation of the Zagreb Architects Society and in collaboration with the Faculty of Architecture and Zagreb city.

Since 2014, he is a researcher at the scientific project "Innovative Green Building Research in the Campus Living Lab" by Croatian Science Foundation, the main researcher is prof.dr.sc Bojan Baletić.

Since 2010, he acts as one of project coordinator "City Acupuncture", as a part of Zagreb Architects Society activities, and with among other things he is organizing interdisciplinary workshops. From 2011 and 2014, the project "City Acupuncture" is funded by the European Culture Programme 2007-2013.

From 2004 until 2007, he is a researcher at the scientific project "Living space in the Information Age", information technology influences and sustainability requirements on living space.

# LIST OF SCIENTIFIC AND ARTISTIC PROJECTS IN WHICH HE OR SHE PARTICIPATED IN THE LAST FIVE YEARS

Since 2014, he works on revitalization of the city's public areas under "Zagreb za mene" project, in organisation of the Zagreb Architects Society and in collaboration with the Faculty of Architecture and Zagreb city.

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Since 2010, he acts as one of project coordinator "City Acupuncture", as a part of Zagreb Architects Society activities, and with among other things he is organizing interdisciplinary workshops. From 2011 and 2014, the project "City Acupuncture" is funded by the European Culture Programme 2007-2013.

From 2004 until 2007, he is a researcher at the scientific project "Living space in the Information Age", information technology influences and sustainability requirements on living space.

PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



#### **ORDINAL NUMBER:** 50

FIRST NAME, LAST NAME, AND TITLE OF THE TEACHER: Tea Žakula, Assistant Professor

**NAME OF INSTITUTION OF EMPLOYMENT OF THE TEACHER:** Faculty of Mechanical Engineering and Naval Architecture, University of Zagreb

### BIOGRAPHY

PERSONAL INFORMATION

Family name, First name: Žakula Tea

Identification number of the scientist: 305251

URL for web site: https://bib.irb.hr/lista-radova?autor=305251

EDUCATION

2013 Doctor of Philosophy

Massachusetts Institute of Technology, Cambridge, USA

2010 Master of Science

Massachusetts Institute of Technology, Cambridge, USA

2007 Diploma Engineer (M.Eng. Equivalent)

University of Zagreb, Faculty of Mechanical Engineering and Naval Architecture, Croatia

CURRENT AND PREVIOUS POSITIONS

2016 – pres. Assistant Professor

University of Zagreb, Faculty of Mechanical Engineering and Naval Architecture, Croatia

2013 – 2016 Postdoctoral Assistant

University of Zagreb, Faculty of Mechanical Engineering and Naval Architecture, Croatia

2009 – 2013 Research Assistant

Massachusetts Institute of Technology, Cambridge, USA

2007 – 2013 Research Assistant

University of Zagreb, Faculty of Mechanical Engineering and Naval Architecture, Croatia

INVITED LECTURES TO INTERNATIONAL CONFERENCES

2016 International Multidisciplinary Conference on Computer and Energy Science, Split, CRO

• Energy renovation of builings in Croatia: reaching EU targets, issues and upcoming challenges (moderator of a round-table discussion)

2013 ASHRAE Winter Conference, Dallas, TX, SAD

· Optimal coordination of compressor, fan and pump speeds over a wide range of conditions

2012 5th LCEUA (Low Carbone Energy University Alliance), Lausanne, Switzerland

 $\cdot$  Ground heat exchange for high-efficiency cooling system

2012 ASHRAE Winter Conference, Chicago, IL, SAD

 $\cdot$  Variable-speed heat pump model for a wide range of cooling conditions and loads



## FELLOWSHIPS AND AWARDS

2011 Massachusetts Institute of Technology, USA

Martin Fellowship, granted to outstanding MIT students for sustainability related research.

2008 Massachusetts Institute of Technology, USA

Energy Fellowship, granted by the MIT Energy Initiative to outstanding students specifically interested in energy.

2007 University of Zagreb, Faculty of Mechanical Engineering and Naval Architecture (FAMENA)

Medal of Merit, awarded by the FAMENA for exceptional achievements during the undergraduate studies (corresponds to Summa Cum Laude).

2006 Croatian Institute for Nuclear Technology, Croatia

Award of the Croatian Institute for Nuclear Technology, given for the exceptional achievements during the undergraduate studies to a best student in the engineering field.

2005 Croatian Energy Institute Hrvoje Pozar, Croatia

Award of the Croatian Energy Institute Hrvoje Pozar, given for the exceptional achievements during the undergraduate studies to a best student in the engineering field.

2003, 2004 University of Zagreb, FAMENA, Croatia

2005, 2006 Davorin Bazjanac Award, awarded by the FAMENA to a student with the highest grade point average in an academic year.

TEACHING ACTIVITIES

2013 – pres. Modeling of HVAC Systems (Teaching Assistant, Lecturer)

FAMENA, University of Zagreb, Croatia

2013 – pres. Air Conditioning (Teaching Assistant, Lecturer)

FAMENA, University of Zagreb, Croatia

2013 – pres. Heating (Teaching Assistant, Lecturer)

FAMENA, University of Zagreb, Croatia

2012 Environmental Systems (Lecturer)

Northeastern University, USA

2012 Analysis and Design of HVAC Systems (Teaching Assistant)

Massachusetts Institute of Technology, USA

2011 Energy in Building Design (Teaching Assistant)

Massachusetts Institute of Technology, USA

INSTITUTIONAL RESPONSIBILITIES

2013 – pres. Head of Laboratory for Energy Efficiency

University of Zagreb, Faculty of Mechanical Engineering and Naval Architecture

MEMBERSHIPS

ASHRAE (American Society of Heating, Refrigeration and Mechanical Engineers)



 $\cdot$  2012 – pres. Member of the Technical Committee 7.5 Smart Building Systems

· 2011 – 2013 President of MIT student branch

· 2007 – 2011 Member

Senate of Economy Croatia

· 2016 – pres. Vice-president

MAJOR SCIENTIFIC COLLABORATIONS

2013 – 2016 Hrvatska Elektroprivreda, Zagreb, Croatia

Vlasta Zanki, PhD and Tomislav Stašić, MS, Advanced control of HVAC systems in builgins.

2013 – 2016 Massachusetts Institute of Technology, Cambridge, USA

Prof. Leslie Norford, PhD and David Blum, PhD, Participation of buildings in smart grids

and energy markets.

2015 – 2016 Eindhoven University of Technology, Eindhoven, Netherlands

Prof. Rick Lange, PhD. Analysis of the membrane system for air dehumidification.

2015 – 2016 Croatian Telecom Inc., Zagreb, Croatia

Siniša Zmijanac. Cooling advancements of a typical container for telecommunication equipment.

2014 – 2015 Croatian Energy Institute Hrvoje Pozar, Zagreb, Croatia

Margareta Zidar and Ilja Drmač. Retrofitting public buildings in intelligent Mediterranean cities.

2009 – 2011 Masdar Institute of Science and Technology, Abu Dhabi, UAE

Prof. Peter Armstrong, PhD. Optimization of heat pump operation.

2007 Harvard University, Cambridge, SAD

Prof. Daniel Schodek, PhD. Preparation of the material for the book on phase change materials.

DATE OF LAST APPOINTMENT TO A RESEARCH-AND-TEACHING OR ART-AND-TEACHING RANK: June 6th 2016

# LIST OF PUBLISHED WORK WHICH QUALIFY HIM/HER FOR IMPLEMENTATION OF THE PROGRAMME, THAT IS, WHICH ARE RELEVANT FOR THE FIELD OF THE DOCTORAL PROGRAMME

Doctoral and master thesis (znanstveni)

[1] Zakula T. 2013. Model predictive control for energy efficient cooling and dehumidification. Doctoral Thesis. Massachusetts Institute of Technology, Cambridge, MA, SAD.

[2] Zakula T. 2010. Heat pump simulation model and optimal variable-speed control for a wide range of cooling conditions. Master Thesis. Massachusetts Institute of Technology, Cambridge, MA, SAD.

Papers published CC i SCI-E journals

[1] Blum D., Zakula T., Norford L. 2016. Opportunity cost quantification for ancillary services provided by heating, ventilating, and air-conditioning systems. IEEE Transactions on Smart Grid, Volume PP, Issue 99.

[2] Zakula T., Armstrong P. and Norford L. 2015. Advanced cooling technology with thermally activated building surfaces and model predictive control. Energy and Buildings 86.

[3] Zakula T., Armstrong P. and Norford L. 2014. Modeling environment for model predictive control of buildings. Energy and Buildings 85.



[4] Zakula T., Armstrong P. and Norford L. 2012. Optimal coordination of compressor, fan and pump speeds over a wide range of conditions. HVAC&R Research 18(6).

[5] Zakula T., Gayeski N., Armstrong P. and Norford L. 2011. Variable-speed heat pump model for a wide range of cooling conditions and loads. HVAC&R Research 17(5).

## LIST OF PUBLISHED WORK IN THE LAST FIVE YEARS

[1] Zakula T., Balen I. and Simic I. 2015. Hybrid cooling of a container for telecommunication equipment. 45. International Congress on HVAC - Proceedings 2014. Beograd, Srbija.

[2] Gayeski N., Zakula T., Armstrong P. and Norford L. 2011. Empirical modeling of a rolling-piston compressor heat pump for predictive control in low lift cooling. ASHRAE Transactions 117 (2).

[3] Žakula T. 2006. Usporedba proračuna DIN 4701 and EN 12831 na primjeru obiteljske kuće. 7.
 Međunarodno znanstveno-stručno savjetovanje Energetska i procesna postrojenja. Dubrovnik, Hrvatska, 04. - 06.10.2006.

Teaching education programme:

2012 Certified as a part of the MIT teaching certificate program, Massachusetts Institute of Technology, Cambridge, MA, SAD.

# LIST OF SCIENTIFIC AND ARTISTIC PROJECTS IN WHICH HE OR SHE PARTICIPATED AND WHICH ARE RELEVANT FOR THE FIELD OF THE DOCTORAL PROGRAMME

• Principal Investigator on the research project Advanced control of HVAC systems in buildings in the collaboration with Hrvatska Elektroprivreda.

Principal Investigator on the research project *Cooling advancements of a typical container for telecommunication equipment* in the collaboration with Hrvatski Telekom (Croatian Telecom Inc.).

• Principal Investigator on the research project *Analysis of the membrane system for air dehumidification* in the collaboration with the Eindhoven University of Technology, Netherlands.

• Key expert for computer simulations for the IPA project *Retrofitting public buildings in intelligent Mediterranean cities* in the collaboration with Energy Institute Hrvoje Pozar.

• Collaborator on the project *Participation of buildings in smart grids and energy markets* in the collaboration with the Massachusetts Institute of Technology, Cambridge, USA.

• Member of the ASHRAE (American Society of Heating, Refrigeration and Mechanical Engineers) Technical Committee 7.5 Smart Building Systems and the advisor to ASHRAE student branch at the University of Zagreb.

## LIST OF SCIENTIFIC AND ARTISTIC PROJECTS IN WHICH HE OR SHE PARTICIPATED IN THE LAST FIVE YEARS

• Principal Investigator on the research project Advanced control of HVAC systems in buildings in the collaboration with Hrvatska Elektroprivreda.

Principal Investigator on the research project *Cooling advancements of a typical container for telecommunication equipment* in the collaboration with Hrvatski Telekom (Croatian Telecom Inc.).

• Principal Investigator on the research project *Analysis of the membrane system for air dehumidification* in the collaboration with the Eindhoven University of Technology, Netherlands.

• Key expert for computer simulations for the IPA project *Retrofitting public buildings in intelligent Mediterranean cities* in the collaboration with Energy Institute Hrvoje Pozar.

PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



 $\cdot$  Collaborator on the project *Participation of buildings in smart grids and energy markets* in the collaboration with the Massachusetts Institute of Technology, Cambridge, USA.

• Member of the ASHRAE (American Society of Heating, Refrigeration and Mechanical Engineers) Technical Committee 7.5 Smart Building Systems and the advisor to ASHRAE student branch at the University of Zagreb.

PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



## **ORDINAL NUMBER:** 51

FIRST NAME, LAST NAME, AND TITLE OF THE TEACHER: Darko Barbalić, PhD

NAME OF INSTITUTION OF EMPLOYMENT OF THE TEACHER: Hrvatske vode (Croatian Waters)

## BIOGRAPHY

Darko Barbalić was born in 1971 in Sarajevo, Bosnia and Herzegovina. The Faculty of Civil Engineering of the University of Zagreb finished in 1998 with an average score of 4.3. During his studies, he was a demonstrator from Geomehanika and Foundation, Hydraulics and Hydrology. Since 1999 he has been working in Croatian waters, currently in the Water Management Institute of Croatian Waterways. He passed professional exam in 2005 and became a member of the Croatian Chamber of Civil Engineers in 2008. He is a member of the Croatian Hydrological Society (member of the General Board from 2009 to 2013). Postgraduate doctoral program at the Faculty of Civil Engineering, University of Zagreb, Hidrotehnika, was enrolled in 2010. PhD thesis "Type-specific Hydrological Change Indicators for the Danube River Basin in Croatia" he defended in February 2015.

Participates as an assistant in the implementation and improvement of the curriculum in the subject of "River engineering" and "Regulation and melioration", on the technical study of construction of the Technical Polytechnic in Zagreb and on the subjects of "Regulation" and "Melioration" at the Faculty of Geotechnical Engineering of the University of Zagreb. He is a representative of many international expert groups at the level of the European Union and the International Commission for the Protection of the Danube River (ICPDR).

He has published, as author or co-author, more than forty professional and scientific papers in journals and papers.

## DATE OF LAST APPOINTMENT TO A RESEARCH-AND-TEACHING OR ART-AND-TEACHING RANK:

# LIST OF PUBLISHED WORK WHICH QUALIFY HIM/HER FOR IMPLEMENTATION OF THE PROGRAMME, THAT IS, WHICH ARE RELEVANT FOR THE FIELD OF THE DOCTORAL PROGRAMME

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- Darko Barbalić., Vlatka Rajčić: Identification of Water Surfaces on Satellite Images by Neural Network, GRAĐEVINAR 55 (2003) 9, pp 513-518
- Darko Barbalić, Đorđa Medić, Sanja Barbalić: Usporedba metoda za procjenu pronosa onečišćenja GRAĐEVINAR 58 (2006) 9, pp 513-518
- Darko Barbalić, Josip Petraš: Sezonska pojavnost velikih voda na slivu Dunava u Hrvatskoj, GRAĐEVINAR 64 (2012) 1, pp 33-38
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- Danko Biondić, Blagoje Milović, Darko Barbalić: Sustavni pristup zaštiti od poplava u Hrvatskoj, Hrvatske vode 11 (45), pp. 445 458, Zagreb,2003.
- Josip Petras, Josip Marusic, Anto Bagic, Darko Barbalic: Implementation Of Gis In Hydrologic Analysis Of Torrential Watershed Of Botonega Reservoir, zbornik "XTH World Water Congress", Melbourne, Australia, 2000.


- Danijel Brundic, Darko Barbalic, Višnja Omerbegovic, Martin Scheinder-Jacoby, Zeljko Tusic: Alluvial Wetlands Preservation In Croatia, proceedings Of Conference On River Restoration, Wageningen, The Netherlands, 2000.
- Danko Biondić, Darko Barbalić, Josip Petraš: Envelope Curves of Maximum Specific Discharges in the Danube Catchment Area in Croatia, proceedings of 21ST Conference of the Danube Countries, Bucharest, Romania, 2002.
- Danko Biondić, Darko Barbalić: Flood Wave Durations in the Danube River Basin in Croatia, proceedings of the 8th International Symposium on Water Management and Hydraulic Engineering, Podbanské, Slovakia, 2003
- Gorana Cosic Flajsig, Danko Biondic, Darko Barbalic: Ecosystem Role in Croatian Water Management, proceedings of Seminar on The Role of Ecosystemsas Water Suppliers, Convention on Protection and Use of Transboundary Watercourses and International Lakes, Geneva, 2004.
- Danko Biondić, Darko Barbalić: Relationship between the modular values of maximum discharges and coefficients of variation of maximum annual discharges in the Danube River basin in Croatia, proceedings of XXII. Conference of The Danubian Countries on The Hydrological Forecasting and Hydrological Bases of Water Management, Brno, Czech Republic, 2004.
- Danko Biondić, Darko Barbalić, Josip Petraš: Creager's and Francou-Rodier's Envelopes of Extreme Floods in the Danube River Basin in Croatia, proceedings of the PUB Kick-off meeting held in Brasilia, (20-22 November 2002) IAHS Publication 309, 2007.
- Darko Barbalić, Sanja Barbalić, Danko Biondić: River Basin Mangement Plan Programme of Measures, Status and Risks, XXVth Conference of the Danube Countries on Hydrological Forecasting and Hydrological Bases of Water Management, Budapest, Hungary, 2011.
- Martin Schneider-Jacoby, Željko Tusić, Višnja Omerbegović, Darko Barbalić: Održivo korištenje aluvijalnih poplavnih površina u dolini Save - razvoj sustava obrane od poplave Srednjeg posavlja, Zbornik radova Okruglog stola "Hidrologija i vodni resursi Save u novim uvjetima", Hrvatsko hidrološko društvo i Hrvatsko društvo za odvodnju i navodnjavanje, Slavonski Brod, 2000.
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- Danko Biondić, Darko Barbalić: Najveći zabilježeni protoci na hrvatskim vodotocima crnomorskog sliva, zbornik radova seminara "Velike i male vode", Društvo građevinskih inženjera Zagreb i Hrvatsko hidrološko društvo, Zagreb, 2004.
- Danko Biondić, Danko Holjević, Sanja Barbalić, Vesna Grizelj Šimić, Darko Barbalić: Suvremeni pristup zaštiti od štetnog djelovanja voda, Zbornik okruglog stola Zaštita od poplava u Hrvatskoj, Vukovar, 2012.
- Mario Cerutti, Alan Cibilić, Danko Biondić, Sanja Barbalić, Darko Barbalić Twinning projekt "Razvoj karata opasnosti od poplava i rizika od poplava u Hrvatskoj", Dani gospodarenja Vodama 2013
- Marijan Babić, Darko Barbalić, Danko Biondić, Danko Holjević: Upravljanje rizicima od poplava u Hrvatskoj, Zbornik 6. Hrvatska konferencija o vodama, Opatija 21. - 23. svibnja 2015.
- Darko Barbalić, Danko Biondić, Tomislav Majerović, Luka Vukmanić: Karte opasnosti od poplava i karte rizika od poplava, Zbornik 6. Hrvatska konferencija o vodama, Opatija 21. 23. svibnja 2015.

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- Darko Barbalić, Danko Biondić, Sanja Barbalić: Prethodna procjena rizika od poplava, Zbornik 6. Hrvatska konferencija o vodama, Opatija 21. 23. svibnja 2015.
- Marina Barbalić, Samra Polić, Darko Barbalić, Luka Vukmanić, Tomislav Majerović: Procjena rizika od poplava izazvanih izlijevanjem kopnenih vodenih tijela za potrebe procjene rizika od katastrofa, Sabor hrvatskih graditelja 2016, Zbornik, Cavtat, 17-19. 10. 2016.
- Danko Biondić, Sanja Barbalić, Darko Barbalić, Vesna Grizelj Šimić: Plan upravljanja vodnim područjima 2016. 2021., Sabor hrvatskih graditelja 2016, Zbornik, Cavtat, 17-19. 10. 2016.

## LIST OF PUBLISHED WORK IN THE LAST FIVE YEARS

- Darko Barbalić, Josip Petraš: Sezonska pojavnost velikih voda na slivu Dunava u Hrvatskoj, GRAĐEVINAR 64 (2012) 1, pp 33-38
- Darko Barbalić, Neven Kuspilić: Trendovi indikatora hidroloških promjena, GRAĐEVINAR 66 (2014) 7, pp 613-624
- Darko Barbalić, Neven Kuspilić: Indicators of sub-daily hydrological alterations, Tehnički vijesnik, Vol.22 No.5 pp 1345 - 1352 (2015)
- Danko Biondić, Danko Holjević, Sanja Barbalić, Vesna Grizelj Šimić, Darko Barbalić: Suvremeni pristup zaštiti od štetnog djelovanja voda, Zbornik okruglog stola Zaštita od poplava u Hrvatskoj, Vukovar, 2012.
- Mario Cerutti, Alan Cibilić, Danko Biondić, Sanja Barbalić, Darko Barbalić Twinning projekt "Razvoj karata opasnosti od poplava i rizika od poplava u Hrvatskoj", Dani gospodarenja Vodama 2013
- Marijan Babić, Darko Barbalić, Danko Biondić, Danko Holjević: Upravljanje rizicima od poplava u Hrvatskoj, Zbornik 6. Hrvatska konferencija o vodama, Opatija 21. - 23. svibnja 2015.
- Darko Barbalić, Danko Biondić, Tomislav Majerović, Luka Vukmanić: Karte opasnosti od poplava i karte rizika od poplava, Zbornik 6. Hrvatska konferencija o vodama, Opatija 21. 23. svibnja 2015.
- Darko Barbalić, Danko Biondić, Sanja Barbalić: Prethodna procjena rizika od poplava, Zbornik 6. Hrvatska konferencija o vodama, Opatija 21. 23. svibnja 2015.
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- Danko Biondić, Sanja Barbalić, Darko Barbalić, Vesna Grizelj Šimić: Plan upravljanja vodnim područjima 2016. 2021., Sabor hrvatskih graditelja 2016, Zbornik, Cavtat, 17-19. 10. 2016.

# LIST OF SCIENTIFIC AND ARTISTIC PROJECTS IN WHICH HE OR SHE PARTICIPATED AND WHICH ARE RELEVANT FOR THE FIELD OF THE DOCTORAL PROGRAMME

LIST OF SCIENTIFIC AND ARTISTIC PROJECTS IN WHICH HE OR SHE PARTICIPATED IN THE LAST FIVE YEARS

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#### A.6.2. LIST OF POTENTIAL SUPERVISORS EMPLOYED AT THE INSTITUTION THAT PROPOSES THE STUDY PROGRAMME

#### **ORDINAL NUMBER:** 1

FIRST NAME, LAST NAME, AND TITLE OF THE SUPERVISOR: Aleksandra Anić Vučinić, Associate Professor

**NAME OF INSTITUTION OF EMPLOYMENT OF THE SUPERVISOR:** Faculty of Geotechnical Engineering, University of Zagreb

### LIST OF PUBLISHED WORK WHICH QUALIFY HIM/HER AS AN ACTIVE RESEARCHER OR ARTIST IN THE SCIENTIFIC OR ARTISTIC FIELD IN WHICH THE DOCTORAL STUDY IS PROPOSED

Anić Vučinić, Aleksandra; Tepeš, Predrag; Hrenović, Jasna. Efficiency of Subsurface Flow Constructed Wetland with Trickling Filter. Environmental technology 33 (2012),11; p.1323-1330;

Krajačić, Goran; Duić, Neven; Zmijarević, Zlatko; Vad Mathiesen, Brian; Anić Vučinić, Aleksandra; Carvalho, Maria Da Graça. Planning for a 100% independent energy system based on smart energy storage for integration of renewables and CO2 emissions reduction. Applied thermal engineering (31) 2011, 13; p.2073-2083;

Šiljeg, Mario; Anić Vučinić, Aleksandra; Tucak Zorić, Sandra; Kalambura, Sanja; Jovičić, Nives; Čemerin, Vedrana. Green Technologies-Assumption of Economic Recovery. Collegium antropologicum 38 (2014), 1; p. 355-359;

Anić Vučinić, Aleksandra; Vujević, Dinko; Mujkić, Kerim, Novak, Mateja. Recycling of Waste Toner in the Republic of Croatia – An Environmentally Friendly Approach. Chemical Engineering Transactions 34 (2013); 121-126;

Gudelj, Ivana; Hrenović, Jasna; Šoljan, Vice; Landeka Dragičević, Tibela; Anić Vučinić, Aleksandra; Šiljeg, Mario; Galant, Mirjana. Biodegradation of azo dye by adapted mixed microbial cultures. The Holistic Approach to Environment. 3 (2013), 4; p.197-208;

Anić Vučinić, Aleksandra; Vujević, Dinko; Premur, Vitomir; Melnjak, Ivana; Canjuga, Dario. Zbrinjavanje nemetalne komponente tiskanih pločica. // Inženjerstvo okoliša. 1 (2014) , 2; 67-76;

Vujević, Dinko; Mikić, Aleksandra; Lenček, Sandra; Dogančić, Dragana; Zavrtnik, Saša; Premur, Vitomir; Anić Vučinić, Aleksandra. Integralni pristup rješavanju problematike industrijskih otpadnih voda. // Inženjerstvo okoliša. Vol 1 (2014), 1; 25-320

#### LIST OF SELECTED PUBLISHED WORK IN THE LAST FIVE YEARS

Anić Vučinić, Aleksandra; Tepeš, Predrag; Hrenović, Jasna. Efficiency of Subsurface Flow Constructed Wetland with Trickling Filter. Environmental technology 33 (2012),11; p.1323-1330.;

Krajačić, Goran; Duić, Neven; Zmijarević, Zlatko; Vad Mathiesen, Brian; Anić Vučinić, Aleksandra; Carvalho, Maria Da Graça. Planning for a 100% independent energy system based on smart energy storage for integration of renewables and CO<sub>2</sub> emissions reduction. Applied thermal engineering (31) 2011, 13; p.2073-2083.;

Anić Vučinić, Aleksandra; Vujević, Dinko; Mujkić, Kerim, Novak, Mateja. Recycling of Waste Toner in the Republic of Croatia – An Environmentally Friendly Approach. Chemical Engineering Transactions 34 (2013); p. 121-126.;

Vujević, Dinko; Mikić, Aleksandra; Lenček, Sandra; Dogančić, Dragana; Zavrtnik, Saša; Premur, Vitomir; Anić Vučinić, Aleksandra. Integralni pristup rješavanju problematike industrijskih otpadnih voda. // Inženjerstvo okoliša. Vol 1 (2014), 1; p.25-32

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### NUMBER OF SUCCESSFUL MENTORSHIPS THAT RESULTED IN DISSERTATION DEFENCE

One (1)

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#### **ORDINAL NUMBER: 2**

FIRST NAME, LAST NAME, AND TITLE OF THE SUPERVISOR: Jurica Šimurina, Full Professor

NAME OF INSTITUTION OF EMPLOYMENT OF THE SUPERVISOR: Faculty of Economics and Business, University of Zagreb

LIST OF PUBLISHED WORK WHICH QUALIFY HIM/HER AS AN ACTIVE RESEARCHER OR ARTIST IN THE SCIENTIFIC OR ARTISTIC FIELD IN WHICH THE DOCTORAL STUDY IS PROPOSED

T. Gelo, J. Šimurina, I. Šušnjar (2017) Economic Performance of the Energy Sector in Croatia, International Symposium on Economics and Social Science, 2017 / Wong Kin Ho (ur.), International Business Academics Consortium, pp. 26-39

M. Škare, J. Šimurina, D. Tomić (2012) Income terms of trade trend and volatility in Croatia, Economic Research, Vol 25, No. 4, pp. 905-924.

J. Šimurina, A. Dobrović (2011) Analysis of environmental Kuznets curve, Zbornik Ekonomskog fakulteta u Zagrebu, 123-143

J. Šimurina, I. Tolić (2008), Dynamics of the Technology Progress in Economic Development, Ekonomska istraživanja, Vol. 21, No. 3, 12-24.

E. Banovac, T. Gelo, J. Šimurina (2007), Analysis of Economic Characteristics of a Tariff System for Thermal Energy Activities, Energy Policy, Vol. 35, No. 11, November.

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## LIST OF SELECTED PUBLISHED WORK IN THE LAST FIVE YEARS

T. Klarin, J. Šimurina (2014) Taxes and tourism in Croatia, European journal of Business Research 14 (3), 39-46

M. Marković, J. Šimurina, J. Pavičić (2013) Economic and Business Impact of Crisis on Croatian Trade, Review of Integrative Business & Economics Researc, Vol. 2(2), pp. 672-680.

M. Škare, J. Šimurina, D. Tomić (2012) Income terms of trade trend and volatility in Croatia, Economic Research, Vol 25, No. 4, pp. 905-924.

A. Obadić, J. Šimurina, J. Tica (2011) Kriza: preobrazba ili propast?.Zagreb : Ekonomski fakultet Zagreb (edited book).

J. Šimurina (2011) Razvoj i tehnologija, in Čavrak, V. (ed.), Gospodarstvo Hrvatske, Zagreb : Politička kultura, 271-293

J. Šimurina, A. Dobrović (2011) Analysis of environmental Kuznets curve, Zbornik Ekonomskog fakulteta u Zagrebu, 123-143.

## NUMBER OF SUCCESSFUL MENTORSHIPS THAT RESULTED IN DISSERTATION DEFENCE

2

PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



#### **ORDINAL NUMBER: 3**

FIRST NAME, LAST NAME, AND TITLE OF THE SUPERVISOR: Sanja Tišma, Scientific Advisor, PhD

**NAME OF INSTITUTION OF EMPLOYMENT OF THE SUPERVISOR:** Institute for Development and International Relations (IRMO)

LIST OF PUBLISHED WORK WHICH QUALIFY HIM/HER AS AN ACTIVE RESEARCHER OR ARTIST IN THE SCIENTIFIC OR ARTISTIC FIELD IN WHICH THE DOCTORAL STUDY IS PROPOSED

1. Boromisa, Ana-Maria; Tišma, Sanja; Ležaić, Anastasya Raditya. Green Jobs for Sustainable Development. Padstow, Cornwall : Routledge, 2016 (monografija).

2. Boromisa, Ana-Maria; Tišma, Sanja. Mogućnosti korištenja obnovljivih izvora energije i energetska učinkovitost na razini gradova i općina . Zagreb : IMO, 2012 (priručnik).

3. Tišma, Sanja; Boromisa, Ana-Maria; Pavičić Kaselj; Ana. Environmental Finance and Development. Abingdon : Routledge, 2012 (monografija).

4. Tišma, Sanja; Funduk, Marina. Croatian Environmental Policies in the EU Context // EU public policies seen from a national perspective: Slovenia and Croatia in the European Union / Lajh, Damjan ; Petak Zdravko (ur.). Ljubljana : Faculty of Social Sciences, 2015. Str. 225-239.

5. Tišma, Sanja; Funduk, Marina. Green development: a notion affecting sustainable national economies, environmental security and international relations // Mediating security : comprehensive approaches to an ambiguous subject / Klimburg, Alexander ; Pospisil, Jan (ur.). Frankfurt am Main : Peter Lang GmbH, 2013. Str. 23-40.

6. Tišma, Sanja; Funduk, Marina. Hrvatska budućnost - Europska zelena paradigma // Hrvatska u EU - Kako dalje? / Puljiz, Vlado ; Ravlić, Slaven ; Visković, Velimir (ur.). Zagreb : Centar za demokraciju i pravo Miko Tripalo, 2012. Str. 207-229.

## LIST OF SELECTED PUBLISHED WORK IN THE LAST FIVE YEARS

Author's books

1. Boromisa, Ana-Maria; Tišma, Sanja; Ležaić, Anastasya Raditya. Green Jobs for Sustainable Development. Padstow, Cornwall : Routledge, 2016 (monograph).

2. Jurlin, Krešimir; Boromisa, Ana-Maria; Tišma, Sanja; Vučković, Valentina. Ekološka i ekonomska analiza izvedivosti uvođenja poreznog sustava na osobna motorna vozila u Hrvatskoj zavisna o emisiji CO2 i Euro normama o emisijama štetnih plinova . Zagreb : Institut za razvoj i međunarodne odnose, IRMO, 2013. (monograph).

3. Boromisa, Ana-Maria; Tišma, Sanja. Mogućnosti korištenja obnovljivih izvora energije i energetska učinkovitost na razini gradova i općina . Zagreb : IMO, 2012 (handbook).

4. Boromisa, Ana-Maria; Tišma, Sanja; Raditya Ležaić, Anastasya. Gospodarska diplomacija Republike Hrvatske ili zašto Hrvatskoj nužno treba snažna i sustavna gospodarska diplomacija . Zagreb : Institut za međunarodne odnose, 2012 (monograph).

5. Butković, Hrvoje; Samardžija, Višnja; Tišma, Sanja. Učinci gospodarske krize na industrijske odnose u Hrvatskoj . Zagreb : Institut za međunarodne odnose - IMO, 2012. (monograph).

6. Tišma, Sanja; Boromisa, Ana-Maria; Pavičić Kaselj; Ana. Environmental Finance and Development. Abingdon : Routledge, 2012 (monograph).

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1. Želja za znanjem / Tišma, Sanja (ur.). Zagreb : Institut za razvoj i međunarodne odnose (IRMO), 2014

 Hrvatska i Europska unija : Prednosti i izazovi članstva / Tišma, Sanja; Samardžija, Višnja; Jurlin, Krešimir (ur.). Zagreb : Institut za međunarodne odnose (IMO), 2012

# Book chapters

1. Tišma, Sanja; Funduk, Marina. Croatian Environmental Policies in the EU Context // EU public policies seen from a national perspective: Slovenia and Croatia in the European Union / Lajh, Damjan ; Petak Zdravko (ur.). Ljubljana : Faculty of Social Sciences, 2015. Str. 225-239.

2. Tišma, Sanja; Funduk, Marina. Green development: a notion affecting sustainable national economies, environmental security and international relations // Mediating security : comprehensive approaches to an ambiguous subject / Klimburg, Alexander ; Pospisil, Jan (ur.). Frankfurt am Main : Peter Lang GmbH, 2013. Str. 23-40.

3. Tišma, Sanja; Funduk, Marina. Hrvatska budućnost - Europska zelena paradigma // Hrvatska u EU - Kako dalje? / Puljiz, Vlado ; Ravlić, Slaven ; Visković, Velimir (ur.). Zagreb : Centar za demokraciju i pravo Miko Tripalo, 2012. Str. 207-229.

# Articles

1. Jelinčić, Daniela Angelina; Farkaš, Anamarija; Tišma, Sanja. Social Innovations: Sign of the Times?. // Annales-Anali za Istrske in Mediteranske Studije-Series Historia et Sociologia. 26 (2016), 2; 271-284 (članak, znanstveni)

2. Horvatinčić, Karolina; Demonja, Damir; Tišma, Sanja. Green Jobs for Green Food: New Knowledge and Skills for Family Farms in Food Production in Croatia. // Quality - Access to Success. 17 (2016) , 154; 80-84 (izvorni znanstveni rad, znanstveni).

3. Maleković, Sanja; Tišma, Sanja; Keser, Ivana. The importance of entrepreneurial learning on the example of the South East European Center for entrepreneurial learning in Croatia. // The European Journal of Applied Economics. 13 (2016) , 1; 60-71 (članak, znanstveni).

4. Tišma, Sanja; Škunca, Ognjen; Boromisa, Ana-Maria; Čermak; Helena. Marine Litter Management in Fisheries Sector in Croatia: Social Innovation for Circular Economy // Challenges of Europe: Growth, Competitiveness and Inequality. Split : Ekonomski fakultet u Splitu, 2015. 291-305 (pozvano predavanje,objavljeni rad,znanstveni).

5. Tišma, Sanja; Mileusnić Škrtić, Mira; Čermak, Helena; Horvatinčić, Karolina. Sustainable Waste Management: European Experiences - Croatian Perspectives // Seventh Scientific International Conference / Bundo, Sherif (ur.). Prishtine : Globus-College of International Management, 2014. 357-366 (pozvano predavanje,međunarodna recenzija,objavljeni rad,znanstveni).

6. Butković, Hrvoje; Samardžija, Višnja; Tišma, Sanja; Funduk, Marina. Industrial relations and social dialogue in the period of crisis: a comparative perspective. // Public and Municipal Finance. 3 (2014) , 2; 7-18

7. Đukić, Vesnja; Volić, Ivana; Tišma, Sanja, Jelinčić, Daniela Angelina. Responsible Community Based Ecotourism Initiatives in Protected Rural Areas of the Balkans: Case Studies from Serbia and Croatia. // American Journal of Tourism Management. 3 (2014) , 1B; 51-63

8. Mileusnić Škrtić, Mira; Farkaš Anamarija; Tišma, Sanja. From Wish to Action – How does Croatia Manage its Hazardous Waste?. // Environmental Economics. 5 (2014) , 3; 8-17

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9. Samardžija, Višnja; Tišma, Sanja; Skazlić, Ivana. Chalenges of Effective Civil Security System in Croatia in the Context of the EU Membership. // Collegium antropologicum. 38 (2014) , S1; 113-124

10. Mileusnić Škrtić, Mira; Horvatinčić, Karolina; Tišma Sanja. E-learning in banking. // Croatian Journal of Education. 14 (2012) , 2/2012; 257-274

11. Tišma, Sanja; Maleković, Sanja; Keser, Ivana. Methodological applicability and practical use of functional analysis for public administration reform: the case of Croatia. // Public and Municipal Finance. 1 (2012), 2; 51-60

12. Maleković, Sanja; Puljiz, Jakša; Tišma, Sanja. New Opportunities for Regional and Local Actors in Croatia in Supporting Socio-Economic Development. // Southeastern Europe. 35 (2011) , 2; 168-190

## NUMBER OF SUCCESSFUL MENTORSHIPS THAT RESULTED IN DISSERTATION DEFENCE

1 post-doctoral dissertation; 3 doctoral dissertations

PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



#### **ORDINAL NUMBER:** 4

FIRST NAME, LAST NAME, AND TITLE OF THE SUPERVISOR: Tonči Matulić, Full Professor

**NAME OF INSTITUTION OF EMPLOYMENT OF THE SUPERVISOR:** Catholic Theological Faculty, University of Zagreb

LIST OF PUBLISHED WORK WHICH QUALIFY HIM/HER AS AN ACTIVE RESEARCHER OR ARTIST IN THE SCIENTIFIC OR ARTISTIC FIELD IN WHICH THE DOCTORAL STUDY IS PROPOSED

Bioethics, Zagreb, <sup>3</sup>2012.

Bioethichal challenges of cloning humans. Filozofsko-teološko tematiziranje, Zagreb, <sup>2</sup>2012.

Bioethical manual 1: Shaping of the identity of bioethical discipline, Zagreb , <sup>2</sup>2012.

Bioethical manual 2: Life in human hands, Zagreb, <sup>2</sup>2012.

Bioethical manual 3: Medical overestimation of ethical boundaries , Zagreb, <sup>2</sup>2012.

LIST OF SELECTED PUBLISHED WORK IN THE LAST FIVE YEARS

NUMBER OF SUCCESSFUL MENTORSHIPS THAT RESULTED IN DISSERTATION DEFENCE

2

PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



#### **ORDINAL NUMBER:** 5

FIRST NAME, LAST NAME, AND TITLE OF THE SUPERVISOR: Damir Rumenjak, PhD

**NAME OF INSTITUTION OF EMPLOYMENT OF THE SUPERVISOR:** Ministry of environmental protection and energy

LIST OF PUBLISHED WORK WHICH QUALIFY HIM/HER AS AN ACTIVE RESEARCHER OR ARTIST IN THE SCIENTIFIC OR ARTISTIC FIELD IN WHICH THE DOCTORAL STUDY IS PROPOSED

Rumenjak D., Štambuk S. (2007): Fuzzy Modelling in Air Protection, Geofizika, Vol. 24, No. 2, 123-135)

Rumenjak D., Rajković D., Salopek B.(2011): Evidence theory in the construction of linguistic variables for minerals industry, Proceedings of Fifth International Conference Sustainable Development Indicators in the Mineral Industry - SDIMI 2011, 14-17 June 2011, Aachen, str.473-478.

Rumenjak D.(2012.): Ekspertni sustavi za zaštitu okoliša s primjenom u rudarstvu, (Expert systems for environmental protection for application in mining), RGN Zbornik, vol.25, str.107-113

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Rumenjak D.(2015): Normizacija pokazatelja onečišćenja podzemnih i površinskih voda primjenom aparata neizrazite logike (Standardization of pollution indicators of surface and ground waters using fuzzy logic), Znanstveni skup, Održivo korištenje i zaštita voda u sjeverozapadnoj Hrvatskoj, HAZU i GFV, (in connection to work: Rumenjak D.,Štambuk S. (2007): Fuzzy Modelling in Air Protection, Geofizika, Vol. 24, No. 2, 123-135)

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Rumenjak D., Rajković D., Salopek B.(2011): Evidence theory in the construction of linguistic variables for minerals industry, Proceedings of Fifth International Conference Sustainable Development Indicators in the Mineral Industry - SDIMI 2011, 14-17 June 2011, Aachen, str.473-478.

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Rumenjak D.(2015): Normizacija pokazatelja onečišćenja podzemnih i površinskih voda primjenom aparata neizrazite logike (Standardization of pollution indicators of surface and ground waters using fuzzy logic), Znanstveni skup, Održivo korištenje i zaštita voda u sjeverozapadnoj Hrvatskoj, HAZU i GFV, (in connection to work: Rumenjak D.,Štambuk S. (2007): Fuzzy Modelling in Air Protection, Geofizika, Vol. 24, No. 2, 123-135)

#### NUMBER OF SUCCESSFUL MENTORSHIPS THAT RESULTED IN DISSERTATION DEFENCE

PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



#### **ORDINAL NUMBER:** 6

FIRST NAME, LAST NAME, AND TITLE OF THE SUPERVISOR: Igor Petrovic, Assistant Professor

**NAME OF INSTITUTION OF EMPLOYMENT OF THE SUPERVISOR:** Faculty of Geotechnical Engineering, University of Zagreb

LIST OF PUBLISHED WORK WHICH QUALIFY HIM/HER AS AN ACTIVE RESEARCHER OR ARTIST IN THE SCIENTIFIC OR ARTISTIC FIELD IN WHICH THE DOCTORAL STUDY IS PROPOSED

Petrovic, I.; Szavits-Nossan, V.; Stuhec, D. Laboratory testing of waste after biomechanical treatment// Gradevinar, 63 (2011), 1; 43-53

Petrovic, I.; Szavits-Nossan, V.; Kovacic, D. Deformability of municipal waste biomechanical treatment// Gradevinar 63 (2011), 3; 255-264

Petrović, I.; Bauer, E. A simple hypoplastic model for modelling the mechanical behaviour of MBT waste // International Symposium on Computational Geomechanics (ComGeo II), Cavtat-Dubrovnik, April 2011.

Petrović, I.; Štuhec, D.; Kovačić, D. Large Oedometer for Measuring Stiffness of MBT Waste // Geotechnical Testing Journal, Vol. 37, No. 2, 2014, pp. 296–310, doi:10.1520/GTJ20130015. ISSN 0149-6115

Petrovic, I.; Hip, I.; Fredlund, M. (2015) Application of continuous normal-lognormal bivariate density functions in a sensitivity analysis of municipal solid waste landfill // Waste Management, Epub ahead of print 21 November 2015, DOI: 10.1016/j.wasman.2015.11.021

Petrovic, I. (2016) Mini-review of the geotechnical parameters of municipal solid waste: MB-pre-treated vs. raw untreated waste // Waste Management & Research/ DOI: 10.1177/0734242X16649684

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Petrovic, I.; Szavits-Nossan, V.; Stuhec, D. Laboratory testing of waste after biomechanical treatment// Gradevinar, 63 (2011), 1; 43-53

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Petrović, I.; Bauer, E. A simple hypoplastic model for modelling the mechanical behaviour of MBT waste // International Symposium on Computational Geomechanics (ComGeo II), Cavtat-Dubrovnik, April 2011.

Petrović, I.; Štuhec, D.; Kovačić, D. Large Oedometer for Measuring Stiffness of MBT Waste // Geotechnical Testing Journal, Vol. 37, No. 2, 2014, pp. 296–310, doi:10.1520/GTJ20130015. ISSN 0149-6115

Petrovic, I.; Hip, I.; Fredlund, M. (2015) Application of continuous normal-lognormal bivariate density functions in a sensitivity analysis of municipal solid waste landfill // Waste Management, Epub ahead of print 21 November 2015, DOI: 10.1016/j.wasman.2015.11.021

Petrovic, I. (2016) Mini-review of the geotechnical parameters of municipal solid waste: MB-pre-treated vs. raw untreated waste // Waste Management & Research/ DOI: 10.1177/0734242X16649684

#### NUMBER OF SUCCESSFUL MENTORSHIPS THAT RESULTED IN DISSERTATION DEFENCE

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PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



#### **ORDINAL NUMBER: 7**

FIRST NAME, LAST NAME, AND TITLE OF THE SUPERVISOR: Renato Šarc, Dipl.-Ing. Dr.mont.

**NAME OF INSTITUTION OF EMPLOYMENT OF THE SUPERVISOR:** Montanuniversitaet Leoben, Chair of Waste Processing Technology and Waste Management (AVAW)

LIST OF PUBLISHED WORK WHICH QUALIFY HIM/HER AS AN ACTIVE RESEARCHER OR ARTIST IN THE SCIENTIFIC OR ARTISTIC FIELD IN WHICH THE DOCTORAL STUDY IS PROPOSED

Aldrian, A, Sarc, R, Pomberger, R, Lorber, K & Sipple, E-M 2016, 'Solid recovered fuels in the cement industry - semi-automated sample preparation unit as a means for facilitated practical application' Waste management & research: Waste management and research, Bd 34, Nr. 3, S. 254-264.

Wolfsberger, T, Pinkel, M, Polansek, S, Sarc, R, Hermann, R & Pomberger, R 2015, 'Landfill Mining -Development of a cost simulation model' Waste management & research: Waste management and research.

Sarc, R, Lorber, K & Pomberger, R 2015, 'Production of Solid Recovered Fuels (SRF) in the ThermoTeam Plant in Retznei, Austria - Experience, Quality and Quality Assurance of SRF'. in Waste Management . Bd. 5, TK Verlag Karl Thomé-Kozmiensky, S. 399-412

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Lorber, K, Sarc, R & Aldrian, A 2012, 'Design and quality assurance for solid recovered fuel' Waste management & research: Waste management and research, Bd 30, S. 370-380.

## LIST OF SELECTED PUBLISHED WORK IN THE LAST FIVE YEARS

Aldrian, A, Sarc, R, Pomberger, R, Lorber, K & Sipple, E-M 2016, 'Solid recovered fuels in the cement industry - semi-automated sample preparation unit as a means for facilitated practical application' Waste management & research: Waste management and research, Bd 34, Nr. 3, S. 254-264.

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PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



Lorber, K, Sarc, R & Aldrian, A 2012, 'Design and quality assurance for solid recovered fuel' Waste management & research: Waste management and research, Bd 30, S. 370-380.

NUMBER OF SUCCESSFUL MENTORSHIPS THAT RESULTED IN DISSERTATION DEFENCE

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PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



### **ORDINAL NUMBER:** 8

FIRST NAME, LAST NAME, AND TITLE OF THE SUPERVISOR: Anita Ptiček Siročić, Assistant Professor

**NAME OF INSTITUTION OF EMPLOYMENT OF THE SUPERVISOR:** Faculty of Geotechnical Engineering, University of Zagreb

LIST OF PUBLISHED WORK WHICH QUALIFY HIM/HER AS AN ACTIVE RESEARCHER OR ARTIST IN THE SCIENTIFIC OR ARTISTIC FIELD IN WHICH THE DOCTORAL STUDY IS PROPOSED

Book

1. Hrnjak-Murgić, Zlata; Rešček, Ana; Ptiček Siročić, Anita; Kratofil Krehula, Ljerka; Katančić, Zvonimir. "Nanoparticles in Active Polymer Food Packaging", Surrey : Smithers Pira, 2015.

1.4. Scientific papers published in journals cited in tertiary publications

1. D. Vrsaljko, S. Lučić Blagojević, M. Leskovac, Lj. Kratofil Krehula, Anita Ptiček Siročić, Z. Katančić, V. Kovačević, J. Jelenčić, "Effect of Preparation on Morphology-Properties Relationships in SAN/EPDM/PCC Composites", Journal of Composite Materials, 45(13) (2011) 1381-1393. [CC] [SCI EX]; IF=1.068

2. Lj. Kratofil Krehula, Anita Ptiček Siročić, Z. Katančić, J. Jelenčić, V. Kovačević, Z.Hrnjak-Murgić, "Influence of Calcium Carbonate Filler and Mixing Type Process on Structure and Properties of Styrene-Acrylonitrile/Ethylene-Propylene-Diene Polymer Blends", Journal of Applied Polymer Science, 126(4) (2012) 1257-1266 [CC] [SCI EX] Citiranost rada prema WoS - 0; Scopus – 1; IF=1.289

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 (5) (2013) 429–444. [CC] [SCI EX] IF= 0.639

4. Dimitrov N., Lj. Kratofil Krehula, Anita Ptiček Siročić, Z. Hrnjak-Murgić, Analysis of recycled PET bottles products by pyrolysis-gas chromatography, Polymer Degradation & Stability, 98 (5) (2013) 972-979. [CC] [SCI EX] IF= 2.770

5. Anita Ptiček Siročić, A. Fijačko, Z. Hrnjak-Murgić, "Chemical recycling of postconsumer poly(ethyleneterephthalate) bottles-depolymerization study", Chemical and Biochemical Engineering Quarterly, 27 (1) (2013) 65-72. [CC] [SCI EX] IF= 0.689

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8. M. Ščetar, Anita Ptiček Siročić, Z. Hrnjak-Murgić, K. Galić, "Preparation and properties of low density polyethylene film modified by zeolite and nanoclay", Polymer-Plastics Technology and Engineering, 52 (15) (2013) 1611-1620. [CC] [SCI EX] IF= 1.481

9. Anita Ptiček Siročić, Lj. Kratofil Krehula, Z. Katančić, Z. Hrnjak-Murgić, "Kinetic analysis of thermal and thermal-oxidative degradation of polyethylene (nano)composites", Composite Interfaces, 21 (3) (2014) 179-189.

10. Lj. Kratofil Krehula, Z. Katančić, Anita Ptiček Siročić, Z. Hrnjak-Murgić, "Weathering of high density polyethylene-wood plastic composites", Journal of Wood Chemistry and Technology, 34, (2014) 39-54. [CC] [SCI EX] IF= 1.667

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11. Katančić Z., Kratofil Krehula Lj., Ptiček Siročić Anita, Grozdanić V., Hrnjak-Murgić Z., "Effect of Modified Nanofillers on Fire Retarded HDPE/Wood Composites", Journal of composite materials, 48 (30) (2014) 3771-3783.

12. Anita Ptiček Siročić, A. Rešček, M. Ščetar, Lj. Kratofil Krehula, Z. Hrnjak-Murgić, "Development of Low Density Polyethylene Nanocomposites Films for Packaging", Polymer Bulletin, 71 (2014) 705-717.

13. Anita Ptiček Siročić, A. Rešček, Z. Hrnjak-Murgić, "Polyethylene nanocomposites filled with modified nanoparticles", Polymer-Plastics Technology and Engineering, [CC] [SCI EX] 53 (8) (2014) 811-817. IF= 1.481

1.5. Scientific papers published in journals cited in secondary publications

1.5.1. Anita Ptiček Siročić, Lj. Kratofil Krehula, Z. Katančić, A. Rešček, Z. Hrnjak-Murgić, J. Jelenčić, "Karakterizacija otpadnog poli(etilen-tereftalata) nakon alkalne obrade" Kemija u industriji, 60 (7-8) (2011) 379–385.

1.5.2. I. Peternel, Anita Ptiček Siročić, N. Koprivanac, "Peroksodisulfatne soli kao novo fotooksidacijsko sredstvo za obradu obojenih otpadnih voda", Tekstil, 61 (1-6) (2012) 107-115. [SCI EX] IF= 0.086

1.5.3. Anita Ptiček Siročić, M. Omazić, Z. Hrnjak-Murgić, "Utjecaj bioaditiva na svojstva ambalažnog materijala", Inženjerstvo okoliša, 1 (2014) 19-23.

1.5.4. Z. Hrnjak-Murgić, A. Rešček, Ptiček Siročić, Anita, Kratofil Krehula, Lj., Katančić, Z., "Polietilenski nanokompozitni filmovi za pakiranje hrane", Ambalaža 4 (2014), 20-24.

1.5.5. A. Rešček, Z. Hrnjak-Murgić, Kratofil Krehula, Lj., Ptiček Siročić, Anita, "Aktivna višeslojna polimerna ambalaža za pakiranje hrane", Ambalaža 4 (2014),37-39.

1.6. Scientific paper, peer-reviewed, published in the Proceedings of the International Conference

1.6.5. Z. Katančić, Anita Ptiček Siročić, G. Marić, Z. Hrnjak-Murgić, "Mechanical Properties of Elastomer Modified Wood Plastic Composites", Matrib 2011, Vela Luka, June 2011., (CD str. 187-193.)

1.6.6. Anita Ptiček Siročić, A. Rešček, Z. Hrnjak-Murgić, J. Jelenčić, Polyethylene/Nanoclays/Zeolite Nanocomposites in Food Packaging Application", Matrib 2011, Vela Luka, June 2011., (CD str. 394-400.)

1.6.7. Anita Ptiček Siročić, Z. Hrnjak-Murgić, J. Jelenčić, "Chemical Recycling of Postconsumer Poly(ethyleneterephthalate) Bottles", 3rd International Symposium on Environmental Management, SEM 2011, Zagreb, Croatia, October 2011. (CD str. 249-253.)

1.6.8. Z. Katančić, Z Hrnjak-Murgić, Anita Ptiček Siročić, Lj. Kratofil Krehula, J. Jelenčić, "Utjecaj dispergiranosti punila na toplinska svojstva HIPS/EVA polimernih kompozita", 5. Međunarodno znanstveno-stručno savjetovanje Tekstilna znanost i gospodarstvo, 5. TZG 2012, Zagreb, siječnja 2012., str.135-138

# LIST OF SELECTED PUBLISHED WORK IN THE LAST FIVE YEARS

Book

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1.4. Scientific papers published in journals cited in tertiary publications

1. D. Vrsaljko, S. Lučić Blagojević, M. Leskovac, Lj. Kratofil Krehula, Anita Ptiček Siročić, Z. Katančić, V. Kovačević, J. Jelenčić, "Effect of Preparation on Morphology-Properties Relationships in SAN/EPDM/PCC Composites", Journal of Composite Materials, 45(13) (2011) 1381-1393. [CC] [SCI EX]; IF=1.068

PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



 Lj. Kratofil Krehula, Anita Ptiček Siročić, Z. Katančić, J. Jelenčić, V. Kovačević, Z.Hrnjak-Murgić, "Influence of Calcium Carbonate Filler and Mixing Type Process on Structure and Properties of Styrene-Acrylonitrile/Ethylene-Propylene-Diene Polymer Blends", Journal of Applied Polymer Science, 126(4) (2012) 1257-1266 [CC] [SCI EX] Citiranost rada prema WoS - 0; Scopus – 1; IF=1.289

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 (5) (2013) 429–444. [CC] [SCI EX] IF= 0.639

4. Dimitrov N., Lj. Kratofil Krehula, Anita Ptiček Siročić, Z. Hrnjak-Murgić, Analysis of recycled PET bottles products by pyrolysis-gas chromatography, Polymer Degradation & Stability, 98 (5) (2013) 972-979. [CC] [SCI EX] IF= 2.770

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7. Anita Ptiček Siročić, Z. Hrnjak-Murgić, J. Jelenčić, "The surface energy as an indicator of miscibility of SAN/EPDM polymer blends", Journal of Adhesion Science and Technology, 27 (24) (2013) 2615-2628.

8. M. Ščetar, Anita Ptiček Siročić, Z. Hrnjak-Murgić, K. Galić, "Preparation and properties of low density polyethylene film modified by zeolite and nanoclay", Polymer-Plastics Technology and Engineering, 52 (15) (2013) 1611-1620. [CC] [SCI EX] IF= 1.481

9. Anita Ptiček Siročić, Lj. Kratofil Krehula, Z. Katančić, Z. Hrnjak-Murgić, "Kinetic analysis of thermal and thermal-oxidative degradation of polyethylene (nano)composites", Composite Interfaces, 21 (3) (2014) 179-189.

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13. Anita Ptiček Siročić, A. Rešček, Z. Hrnjak-Murgić, "Polyethylene nanocomposites filled with modified nanoparticles", Polymer-Plastics Technology and Engineering, [CC] [SCI EX] 53 (8) (2014) 811-817. IF= 1.481

1.5. Scientific papers published in journals cited in secondary publications

1.5.1. Anita Ptiček Siročić, Lj. Kratofil Krehula, Z. Katančić, A. Rešček, Z. Hrnjak-Murgić, J. Jelenčić, "Karakterizacija otpadnog poli(etilen-tereftalata) nakon alkalne obrade" Kemija u industriji, 60 (7-8) (2011)
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1.5.2. I. Peternel, Anita Ptiček Siročić, N. Koprivanac, "Peroksodisulfatne soli kao novo fotooksidacijsko sredstvo za obradu obojenih otpadnih voda", Tekstil, 61 (1-6) (2012) 107-115. [SCI EX] IF= 0.086



1.5.3. Anita Ptiček Siročić, M. Omazić, Z. Hrnjak-Murgić, "Utjecaj bioaditiva na svojstva ambalažnog materijala", Inženjerstvo okoliša, 1 (2014) 19-23.

1.5.4. Z. Hrnjak-Murgić, A. Rešček, Ptiček Siročić, Anita, Kratofil Krehula, Lj., Katančić, Z., "Polietilenski nanokompozitni filmovi za pakiranje hrane", Ambalaža 4 (2014), 20-24.

1.5.5. A. Rešček, Z. Hrnjak-Murgić, Kratofil Krehula, Lj., Ptiček Siročić, Anita, "Aktivna višeslojna polimerna ambalaža za pakiranje hrane", Ambalaža 4 (2014),37-39.

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1.6.6. Anita Ptiček Siročić, A. Rešček, Z. Hrnjak-Murgić, J. Jelenčić, Polyethylene/Nanoclays/Zeolite Nanocomposites in Food Packaging Application", Matrib 2011, Vela Luka, June 2011., (CD str. 394-400.)

1.6.7. Anita Ptiček Siročić, Z. Hrnjak-Murgić, J. Jelenčić, "Chemical Recycling of Postconsumer Poly(ethyleneterephthalate) Bottles", 3rd International Symposium on Environmental Management, SEM 2011, Zagreb, Croatia, October 2011. (CD str. 249-253.)

1.6.8. Z. Katančić, Z Hrnjak-Murgić, Anita Ptiček Siročić, Lj. Kratofil Krehula, J. Jelenčić, "Utjecaj dispergiranosti punila na toplinska svojstva HIPS/EVA polimernih kompozita", 5. Međunarodno znanstveno-stručno savjetovanje Tekstilna znanost i gospodarstvo, 5. TZG 2012, Zagreb, siječnja 2012., str.135-138

## NUMBER OF SUCCESSFUL MENTORSHIPS THAT RESULTED IN DISSERTATION DEFENCE

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PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



#### **ORDINAL NUMBER:** 9

FIRST NAME, LAST NAME, AND TITLE OF THE SUPERVISOR: Zvjezdana Stančić, Associated Professor

**NAME OF INSTITUTION OF EMPLOYMENT OF THE SUPERVISOR:** Faculty of Geotechnical Engineering, University of Zagreb

LIST OF PUBLISHED WORK WHICH QUALIFY HIM/HER AS AN ACTIVE RESEARCHER OR ARTIST IN THE SCIENTIFIC OR ARTISTIC FIELD IN WHICH THE DOCTORAL STUDY IS PROPOSED

1. Ilijanić, Lj.; Stančić, Z.; Topić, J.; Šegulja, N., 1998: Distribution and phytosociological relationship of snake's-head (Fritillaria meleagris L.). Acta Bot. Croat. 57: 65-88.

2. Pandža, M.; Franjić, J.; Trinajstić, I.; Škvorc, Z.; Stančić, Z., 2001: The most recent state of affairs in the distribution of some neophytes in Croatia. Nat. Croat., Vol. 10 (4): 259-275.

3. Topić, J. & Stančić, Z., 2006: Extinction of fen and bog plants and their habitats in Croatia. Biodiversity and Conservation 15: 3371-3381.

4. Stančić, Z., 2007: Marshland vegetation of the class Phragmito-Magnocaricetea in Croatia. Biologia, Bratislava 62 (3): 297-314.

5. Stančić, Z.; Brigić, A.; Liber, Z.; Rusak, G.; Franjić, J.; Škvorc, Ž., 2008: Adriatic coastal plant taxa and communities of Croatia and their conservation status. Acta Botanica Gallica 155 (2): 179-199.

6. Stančić, Z.; Škvorc. Ž.; Franjić, J.; Kamenjarin, J., 2008: Vegetation of trampled habitats in the Plitvice Lakes National Park in Croatia. Plant Biosystems 142 (2): 264-274.

7. Stančić, Z., 2008: Classification of mesic and wet grasslands in northwest Croatia. Biologia, Bratislava 63 (6): 1085-1099.

8. Stančić, Z., 2009: The species Carex randalpina B. Walln. and association Filipendulo ulmariae-Caricetum randalpinae ass. nov. hoc loco in Croatia. Nat. Croat. 18 (2): 353-366.

## LIST OF SELECTED PUBLISHED WORK IN THE LAST FIVE YEARS

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 Peet, R.K.; Schaminée, J.H.J. (eds.): Vegetation databases for the 21st century. Biodiversity & Ecology 4: 391–391.

3. Brigić, A.; Vujčić-Karlo, S.; Matoničkin Kepčija, R.; Stančić, Z.; Alegro, A.; Ternjej, I. 2014: Taxon specific response of carabids (Coleoptera, Carabidae) and other soil invertebrate taxa on invasive plant Amorpha fruticosa in wetlands. Biol. Invasions 16: 1497-1514.

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5. Stančić, Z.; Vujević, D.; Dogančić, D.; Zavrtnik, S.; Dobrotić, I.; Bajsić, Z.; Dukši, I.; Vincek, D., 2015: Sposobnost akumulacije teških metala kod različitih samoniklih biljnih vrsta [Accumulation of heavy metals in different wild plant species]. Inženjerstvo okoliša 2(1): 7-18

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None

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#### **ORDINAL NUMBER:** 10

FIRST NAME, LAST NAME, AND TITLE OF THE SUPERVISOR: Goran Kniewald, Full Professor

NAME OF INSTITUTION OF EMPLOYMENT OF THE SUPERVISOR: Rudjer Bošković Institute, Zagreb

LIST OF PUBLISHED WORK WHICH QUALIFY HIM/HER AS AN ACTIVE RESEARCHER OR ARTIST IN THE SCIENTIFIC OR ARTISTIC FIELD IN WHICH THE DOCTORAL STUDY IS PROPOSED

1. Furdek, M., Vahčič, M., Ščančar, J., Milačič, R., Kniewald, G. and Mikac, N. (2012): Organotin compounds in seawater and mussels Mytilus galloprovincialis along the Croatian Adriatic coast. Marine Pollution Bulletin 64/2, 189-199.

2. Žvab-Rožič, P., Dolenec, T., Lojen, S., Kniewald, G. and Dolenec, M. (2014): Using stable nitrogen isotopes in Patella sp. To trace sewage-derived material in coastal ecosystems. Ecological Indicators 36, 224-230.

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Prof. Kniewald is one of the authors of the handbook Pollution Crime Forensic Investigation Manual – Vol. I and II. Interpol, Lyon, 2014.

### LIST OF SELECTED PUBLISHED WORK IN THE LAST FIVE YEARS

1. Furdek, M., Vahčič, M., Ščančar, J., Milačič, R., Kniewald, G. and Mikac, N. (2012): Organotin compounds in seawater and mussels Mytilus galloprovincialis along the Croatian Adriatic coast. Marine Pollution Bulletin 64/2, 189-199.

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## NUMBER OF SUCCESSFUL MENTORSHIPS THAT RESULTED IN DISSERTATION DEFENCE

3

PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



#### **ORDINAL NUMBER:** 11

FIRST NAME, LAST NAME, AND TITLE OF THE SUPERVISOR: Nikola Sakač, Assistant Professor

**NAME OF INSTITUTION OF EMPLOYMENT OF THE SUPERVISOR:** Faculty of Geotechnical Engineering, University of Zagreb

LIST OF PUBLISHED WORK WHICH QUALIFY HIM/HER AS AN ACTIVE RESEARCHER OR ARTIST IN THE SCIENTIFIC OR ARTISTIC FIELD IN WHICH THE DOCTORAL STUDY IS PROPOSED

Web of Science citated papers:

1. Sakač, Nikola; Karnaš, Maja; Grčić, Magdalena. Direct Potentiometric Method for Human Stress Determination. // Chemical and Biochemical Engineering Quarterly. 29 (2015) ; 315-321

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## LIST OF SELECTED PUBLISHED WORK IN THE LAST FIVE YEARS

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2. Sakač, Nikola; Karnaš, Maja; Grčić, Magdalena. Direct Potentiometric Method for Human Stress Determination. // Chemical and Biochemical Engineering Quarterly. 29 (2015) ; 315-321

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4. Šubarić, Drago; Ačkar, Đurđica; Babić, Jurislav; Sakač, Nikola; Jozinović, Antun. Modification of wheat starch with succinic acid/acetic anhydride and azelaic acid/acetic anhydride mixtures I. Thermophysical and pasting properties.. // Journal of food science and technology. 51 (2014) , 10; 2616-2623

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# NUMBER OF SUCCESSFUL MENTORSHIPS THAT RESULTED IN DISSERTATION DEFENCE

None

PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



#### **ORDINAL NUMBER:** 12

FIRST NAME, LAST NAME, AND TITLE OF THE SUPERVISOR: Ivica Kisić, Full Professor

NAME OF INSTITUTION OF EMPLOYMENT OF THE SUPERVISOR: Faculty of Agriculture, University of Zagreb LIST OF PUBLISHED WORK WHICH QUALIFY HIM/HER AS AN ACTIVE RESEARCHER OR ARTIST IN THE SCIENTIFIC OR ARTISTIC FIELD IN WHICH THE DOCTORAL STUDY IS PROPOSED

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2. Bilandzija, D., Zgorelec, Z., Kisic, I. (2016). Influence of Tillage Practices and Crop Type on Soil CO2 Emissions. Sustainability, 8/90; doi:10.3390/su8010090,

3. Bogunovic, I., Kisic, I., Jurisic, A. 2015: Influence of wildfire and fire suppression by seawater on soil properties. Applied Ecology and Environmental Research, DOI: http://dx.doi.org/10.15666/aeer/1304\_11571169,

4. Kalmar T., Bottlik L., Kisić I., Gyuricza C., Birkas M. (2013). Soil protecting effect on the surface cover in extreme summer periods. Plant, Soil and Environment, 59/9: 404-409. Citiranost rada (ISI WoS – 2; Scopus:3),

5. Jurišić A., Kisić I., Zgorelec Ž., Kvaternjak I. (2012). Influence of water erosion on copper and sulphur distribution in vineyard soils. Journal of Environmental Protection and Ecology, 13/2A: 880-889. Citiranost rada (ISI WoS – 1; Scopus:3),

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1. Kisic, I., Bogunovic, I., Birkas, M., Jurisic, A., Spalevic, V (2016). The role of tillage and crops on a soil loss of an arable Stagnic Luvisol. Archives of Agronomy and Soil Science, http://dx.doi.org/10.1080/03650340.2016.1213815,

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8.Kisić I., Jurišić A., Mesić H., Mesić S. (2011). Heavy Metals Uptake by Aerial Biomass and Grain of Soybean. Soybean – Biochemistry, Chemistry and Physiology, part II, chapter 24, 425-434. Editor: Tzi Bun Ng. Publisher: InTech open acces publisher. Rijeka Croatia. Navedeno poglavlje je do ožujka 2016. godine imalo više od 4550 pregleda.

9. Kisić I. 2012. Sanacija onečišćenoga tla. Sveučilišni udžbenik, Agronomski fakultet Sveučilišta u Zagrebu,

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11. Kisić I. (2016). Antropogena erozija tla. Sveučilišni udžbenik, Agronomski fakultet Sveučilišta u Zagrebu,

12. Jug, D., Birkas, M., Kisić, I. (2015). Obrada tla u agroekološkim okvirima. Poljoprivredni fakultet Sveučilišta J.J. Strossmayera. Udžbenici Sveučilišta u Osijeku, Osijek,

13. Birkas M., Kalmar T., Kisić I., Jug D., Smutny V., Szemok A. (2012). The effect of rainfall event in 2010 on the physical soil conditions. Novenytermeles, 61/1: 7-36.

14. Bašić F., Kisić I., Mesić M. 2012. Framework of climate change- and soil type-oriented tillage and land management in Croatia. Chapter in book: Impact of tillage and fertilization on probable climate threats in Hungary and Croatia, soil vulnerability and protection (Birkas M., Mesić M. – eds.). Szent Istvan University Press, Godollo, p. 55-72.

15. Birkas M., Kisić I., Mesić M., Barnabas P. 2012. Soil compaction consequences in the Hungarian and Croatian fields. Chapter in book: Impact of tillage and fertilization on probable climate threats in Hungary and Croatia, soil vulnerability and protection (Birkas M., Mesić M. – eds.). Szent Istvan University Press, Godollo, p. 73-88.

16. Birkas M., Mesić M., Kisić I., Zgorelec Z., Percze A., Šestak I., Jurišić A., Nagy L., Bilandžija D., Jolankai M. 2012. Experiences in the field assesment in the S&T project. Chapter in book: Impact of tillage and fertilization on probable climate threats in Hungary and Croatia, soil vulnerability and protection (Birkas M., Mesić M. – eds.). Szent Istvan University Press, Godollo, p. 139-186.

17. Kisić I., Husnjak S., Gajić-Čapka M., Cindrić K., Bilandžija D., Prekalj B. (2013). Erozija tla vjetrom u Čepić polju – uzroci, posljedice i mjere ublažavanja. Hrvatske vode, 21/83: 25-38.

18. Bilandžija D., Zgorelec Ž., Kisić I., Mesić M., Jurišić A., Šestak I. (2013). Seasonal changes of CO2 emissions in tillage induced agroecosystem. 1st Regional Symposium on Landslides in the Adriatic-Balkan Region. 3td Workshop of the Croatian-Japanese Project "Risk Identification and Land-use Planning for Disaster Mitigation of Landslides and Floods in Croatia". March 6-9, 2013. Zagreb, Croatia,



19. Mesic M., Birkas M., Zgorelec Z., Kisic I., Sestak I., Jurisic A., Husnjak S. 2014. Soil Carbon Variability in some Hungarian and Croatian Soils. Chapter in book: Soil Carbon (Hartemink A.E., McSweeney K. - eds.). Springer International Publishing, Switzerland, p. 419-426.

20. Kisić I., 2014. Effects of Soil Contamination on the Selection of Remediation Method. Chapter in book: Handbook of Research on Advancements in Environmental Engineering. IGI Global – Disseminator of Knowledge, USA, p. 605.

21. Bašić F., Mesić M., Kisić I. (2015). U službi hrvatske poljoprivrede – 60 godina nastave, istraživanja i stručne djelatnosti Zavoda za OPB. Agronomski fakultet.

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Pet (5)

1. Andrija Špoljar: Utjecaj gnojidbe na fizikalno-kemijske značajke tla. Datum i mjesto obrane: Agronomski fakultet, 12.02.2008.

2. Lidija Bertović: Fitoakumulacija metala iz tla onečišćenoga ugljikovodicima u kontroliranim uvjetima. Datum i mjesto obrane: Agronomski fakultet, 05.05.2010.

3. Ivka Kvaternjak: Utjecaj načina i rokova obrade na fizikalna svojstva pseudogleja i prinose kukuruza i soje. Datum i mjesto obrane: Agronomski fakultet, 01.07.2011.

4. Igor Bogunović: Promjene fizikalnih značajki pseudogleja pri različitim načinima obrade na nagnutim terenima. Datum i mjesto obrane: Agronomski fakultet, 20.05.2015.

5. Darija Bilandžija: Emisija ugljikovog dioksida pri različitim načinima obrade tla. Datum i mjesto obrane: Agronomski fakultet, 09.06.2015. PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



#### **ORDINAL NUMBER:** 13

FIRST NAME, LAST NAME, AND TITLE OF THE SUPERVISOR: Željka Zgorelec, Associated Professor

NAME OF INSTITUTION OF EMPLOYMENT OF THE SUPERVISOR: Faculty of Agriculture, University of Zagreb LIST OF PUBLISHED WORK WHICH QUALIFY HIM/HER AS AN ACTIVE RESEARCHER OR ARTIST IN THE SCIENTIFIC OR ARTISTIC FIELD IN WHICH THE DOCTORAL STUDY IS PROPOSED

### http://bib.irb.hr/lista-radova?autor=270772

 Prevendar Crnić Andreja, Zgorelec Željka, Šuran Jelena, Jurasović Jasna, Špirić Zdravko, Levak Stefani, Bašić Ferdo, Kisić Ivica &Srebočan Emil (2016): Mercury in Eiseniafetida and soil in the vicinity of a natural gas treatment plant in northern Croatia, Journal of Environmental Science and Health, Part A: Toxic/Hazardous Substances and Environmental Engineering. Vol. 51, Issue 2, 114-120

2. Bogunović, Igor; Mesić, Milan; Zgorelec, Željka; Jurišić, Aleksandra; Bilandžija, Darija (2014). Spatial variation of soil nutrients on sandy-loam soil. Soil & tillage research. 144; 174-183

3. Šestak, Ivana; Mesić, Milan; Zgorelec, Željka; Kisić, Ivica; Bašić, Ferdo (2014). Winter wheat agronomic traits and nitrate leaching under variable nitrogen fertilization. Plant, Soil and Environment. 60, 9; 394-400

4. Zgorelec, Željka; Mesić, Milan; Jurišić, Aleksandra; Šestak, Ivana (2013). Leached Phosphorus Measured in Drainage Water Through a Field Experiment With Varying Nitrogen Rates. Journal of Environmental Protection and Ecology. 14, 2; 463-467

5. Jurišić, Aleksandra; Kisić, Ivica; Zgorelec, Željka; Kvaternjak, Ivka (2012). Influence of water erosion on copper and sulphur distribution in vineyard soils. Journal of Environmental Protection and Ecology. 13, 2A; 880-889

6. Zgorelec, Željka; Pehnec, Gordana; Bašić, Ferdo; Kisić, Ivica; Mesić, Milan; Žužul, Silva; Jurišić, Aleksandra; Šestak, Ivana; Vađić, Vladimira; Čačković, Mirjana (2012). Sulphur Cycling Between Terrestrial Agroecosystem and Atmosphere. Arhiv za higijenu radai toksikologiju. 63, 3; 301-310

7. Žužul, Silva; Zgorelec, Željka; Bašić, Ferdo; Kisić, Ivica; Mesić, Milan; Vađić, Vladimira; Orct, Tatjana (2011). Arsenic in Air and Soil in the Vicinity of the Central Gas Station Molve, Croatia. Bulletin of environmental contamination and toxicology. 86, 5; 501-505.

## LIST OF SELECTED PUBLISHED WORK IN THE LAST FIVE YEARS

1. Prevendar Crnić Andreja, Zgorelec Željka, Šuran Jelena, Jurasović Jasna, Špirić Zdravko, Levak Stefani, BašićFerdo, Kisić Ivica &Srebočan Emil (2016): Mercury in Eiseniafetida and soil in the vicinity of a natural gas treatment plant in northern Croatia, Journal of Environmental Science and Health, Part A: Toxic/Hazardous Substances and Environmental Engineering. Vol. 51, Issue 2, 114-120

2. Bogunović, Igor; Mesić, Milan; Zgorelec, Željka; Jurišić, Aleksandra; Bilandžija, Darija (2014). Spatial variation of soil nutrients on sandy-loam soil. Soil & tillage research. 144; 174-183

3. Šestak, Ivana; Mesić, Milan; Zgorelec, Željka; Kisić, Ivica; Bašić, Ferdo (2014). Winter wheat agronomic traits and nitrate leaching under variable nitrogen fertilization. Plant, Soil and Environment. 60, 9; 394-400

4. Zgorelec, Željka; Mesić, Milan; Jurišić, Aleksandra; Šestak, Ivana (2013). Leached Phosphorus Measured in Drainage Water Through a Field Experiment With Varying Nitrogen Rates. Journal of Environmental Protection and Ecology. 14, 2; 463-467

5. Jurišić, Aleksandra; Kisić, Ivica; Zgorelec, Željka; Kvaternjak, Ivka (2012). Influence of water erosion on copper and sulphur distribution in vineyard soils. Journal of Environmental Protection and Ecology. 13, 2A; 880-889

PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



 Zgorelec, Željka; Pehnec, Gordana; Bašić, Ferdo; Kisić, Ivica; Mesić, Milan; Žužul, Silva; Jurišić, Aleksandra; Šestak, Ivana; Vađić, Vladimira; Čačković, Mirjana (2012). Sulphur Cycling Between Terrestrial Agroecosystem and Atmosphere. Arhiv za higijenu rada i toksikologiju. 63, 3; 301-310

7. Žužul, Silva; Zgorelec, Željka; Bašić, Ferdo; Kisić, Ivica; Mesić, Milan; Vađić, Vladimira; Orct, Tatjana (2011). Arsenic in Air and Soil in the Vicinity of the Central Gas Station Molve, Croatia. Bulletin of environmental contamination and toxicology. 86, 5; 501-505.

## NUMBER OF SUCCESSFUL MENTORSHIPS THAT RESULTED IN DISSERTATION DEFENCE

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PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



#### **ORDINAL NUMBER:** 14

FIRST NAME, LAST NAME, AND TITLE OF THE SUPERVISOR: Bojan Šarkanj, Assistant Professor

**NAME OF INSTITUTION OF EMPLOYMENT OF THE SUPERVISOR:** Faculty of Food Technology, University of Josip Juraj Strossmayer in Osijek, Croatia

LIST OF PUBLISHED WORK WHICH QUALIFY HIM/HER AS AN ACTIVE RESEARCHER OR ARTIST IN THE SCIENTIFIC OR ARTISTIC FIELD IN WHICH THE DOCTORAL STUDY IS PROPOSED

1. Abia, Wilfred A.; Warth, Benedikt; Ezekiel, , Chibundu N.; **Šarkanj, Bojan**; Turner, Paul C.; Marko, Doris; Krska, Rudolf; Sulyok, Michael. Uncommon toxic microbial metabolite patterns in traditionally home-processed maize dish (fufu) consumed in rural Cameroon. // Food and chemical toxicology. 107 (2017); 10-19.

 Generotti, Silvia; Cirlini, Martina; Šarkanj, Bojan; Sulyok, Michael; Berthiller, Franz; Dall'Asta, Chiara; Suman, Michele. Formulation and processing factors affecting trichothecene mycotoxins within industrial biscuit-making. // Food chemistry. 229 (2017); 597-603.

3. Kovač, Tihomir; **Šarkanj, Bojan**; Klapec, Tomislav; Borišev, Ivana; Kovač, Marija; Nevistić, Ante; Strelec, Ivica. Fullerol C60(OH)24 nanoparticles and mycotoxigenic fungi: A preliminary investigation into modulation of mycotoxin production. // Environmental science and pollution research international. 24 (2017); 16673-16681.

4. Molnar, Maja; Pavić, Valentina; **Šarkanj, Bojan**; Čačić, Milan; Vuković, D.; Klenkar, Jelena. Mono- and bis-dipicolinic acid heterocyclic derivatives – thiosemicarbazides, triazoles, oxadiazoles and thiazolidinones as antifungal and antioxidant agents. // Heterocyclic communications. 23 (2017); 35-42.

5. Warth, Benedikt; Del Favero, Giorgia; Wiesenberger, Gerlinde; Puntscher, Hannes; Woelflingseder, Lydia; Fruhmann, Philipp; **Šarkanj, Bojan**; Krska, Rudolf; Schuhmacher, Rainer; Adam, Gerhard; Marko, Doris. Identification of a novel human deoxynivalenol metabolite enhancing proliferation of intestinal and urinary bladder cells. // Scientific Reports. 6 (2016); 33854.

6. Perić, Magdalena; Bošnjak, Zinka; **Šarkanj, Bojan**; Barbić, Jerko; Antolović-Požgain, Arlen; Ružman, Nataša; Roksandić-Križan, Ivana; Vuković, Dubravka. Polymorphisms of Toll-like receptors 2 and 4 in chronically infected hepatitis C patients from north-east Croatia. // Archives of virology. 160 (2015); 297-304.

7. Warth, Benedikt; Fruhmann, Philipp; Wiesenberger, Gerlinde; Kluger, Bernhard; **Šarkanj, Bojan**; Lemmens, Marc; Hametner, Christian; Fröhlich, Johannes; Adam, Gerhard; Krska, Rudolf; Schuhmacher, Rainer. Deoxynivalenol-sulfates : identification and quantification of novel conjugated (masked) mycotoxins in wheat. // Analytical and bioanalytical chemistry. 407 (2015); 1033-1039.

8. Čačić, Milan; Pavić, Valentina; Molnar, Maja; **Šarkanj, Bojan**; Has-Schön, Elizabeta. Design and Synthesis of Some New 1, 3, 4- Thiadiazines with Coumarin Moieties and Their Antioxidative and Antifungal Activity. // Molecules. 19 (2014); 1163-1177.

 Strelec, Ivica; Šarkanj, Bojan; Mrša, Vladimir; Ugarčić-Hardi, Žaneta. Chemical Composition, Quality Parameters, Exopeptidase and Oxidoreductase Activity Changes During Temporal Development of Wheat Grain Infestation by Sitophilus granarius. // Journal of food biochemistry. 38 (2014); 175-183.

10. Bošnjak, Zinka; Perić, Magdalena; Roksandić Križan, Ivana; Džijan, Snježana; Ružman, Nataša; Pastuović, Tajana; **Šarkanj, Bojan**; Bertić, Vedran; Burian, Sven; Vuković, Dubravka. Prevalence and Genotype Distribution of High-risk Human Papillomavirus (HR HPV) in Male Genital Samples of Osijek-Baranja County. // Collegium antropologicum. 37 (2013); 1203-1208.

11. Šarkanj, Bojan; Molnar, Maja; Čačić, Milan; Gille, Lars. 4-Methyl-7-hydroxycoumarin antifungal and antioxidant activity enhancement by substitution with thiosemicarbazide and thiazolidinone moieties. // Food chemistry. 139 (2013); 488-495.

12. Šarkanj, Bojan; Warth, Benedikt; Uhlig, Silvio; Abiab, Wilfred A.; Sulyok, Michael; Klapec, Tomislav; Krska, Rudolf; Banjari, Ines. Urinary analysis reveals high deoxynivalenol exposure in pregnant women from Croatia. // Food and chemical toxicology. 62 (2013); 231-237.

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### NUMBER OF SUCCESSFUL MENTORSHIPS THAT RESULTED IN DISSERTATION DEFENCE

Zero (0).

PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



#### **ORDINAL NUMBER:** 15

FIRST NAME, LAST NAME, AND TITLE OF THE SUPERVISOR: Stjepan Strelec, Associated Professor

**NAME OF INSTITUTION OF EMPLOYMENT OF THE SUPERVISOR:** Faculty of Geotechnical Engineering, University of Zagreb

LIST OF PUBLISHED WORK WHICH QUALIFY HIM/HER AS AN ACTIVE RESEARCHER OR ARTIST IN THE SCIENTIFIC OR ARTISTIC FIELD IN WHICH THE DOCTORAL STUDY IS PROPOSED

Strelec, Stjepan; Gazdek, Mario; Mesec, Josip. Blasting design for obtaining desired fragmentation. Technical Gazette: Scientific Professional journal of technical faculties of the Josip Juraj Strossmayer University of Osijek. 18 (2011), 1; 79-86.

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Strelec, Stjepan; Stanko, Davor; Gazdek, Mario. Empirical correlation between the shear-wave velocity and the dynamic probing heavy Test; Case study Varaždin, Croatia. ACTA GEOTECHNICA SLOVENICA. 13 (2016), 1; 3-15.

Stanko, Davor; Markušić, Snježana; Strelec, Stjepan; Gazdek, Mario. HVSR analysis of seismic site effects and soil- structure resonance in Varaždin city (North Croatia). Soil dynamics and earthquake engineering. 92 (2017) 666-677.

Stanko, Davor; Markušić, Snježana; Strelec, Stjepan; Gazdek, Mario. Seismic response and vulnerability of historical Trakošćan Castle, Croatia using HVSR method. Environmental Earth Sciences. 75 (2016), 5; 368-1-368-14.

Gotić, I., Baturić, I., Strelec, S., Grabrovec, D. (1992): IN SITU Geotechnical Investigations of Clay using explosives on the motorway route Komin-Goričan. Journal Roads and Bridges, Vol. 1-2, pp 27-31.

Strelec, S. (1994): Evaluation of slope stability of quarries built in carbonate rocks. Croatian Geotechnical Journal, Vol. 2, No. 3-4, pp 61-68.

Mesec, J., Strelec, S., Težak, D. (2016): Ground vibrations level characterization through the geological strength index (GSI). The Mining-Geological-Petroleum Engineering Bulletin, Vol. 32; No. 1; pp 1-6.

Bedovec, Matija; Grabar, Kristijan; Strelec, Stjepan. Analysis of slug tests in formations of high hydraulic conductivity. Inženjersvo okoliša, Scientific and professional journal in the area of environmental engineering, 3 (2016), 1; 33-39.

Grabar, Kristijan; Miklin, Željko; Strelec, Stjepan. Geotechnical investigations of the fortress "Minčeta", Dubrovnik, Croatia. Inženjerstvo okoliša, Scientific and professional journal in the area of environmental engineering, 3 (2016), 2; 63-72.

Strelec, S., Gašpert M. (2008): The impact of seismic stress on slope stability. Mineral, 4/2008; 16-22, Zagreb.

Horvat M., Strelec S., Gazdek M. (2011): The selection and use of machinery and equipment for the compaction of clay and rock material. Mineral, 1/2011; 24-28; Zagreb.

Strelec, Stjepan; Jug, Jasmin; Stanko, Davor. Determination of the design values of the maximum earthquake (EUROCODE 8) using multi channel analysis of surface waves (MASW). Mineral, 3/2014 (2014); 24-30.

PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



Strelec, Stjepan; Grabar, Kristijan; Gazdek, Mario, Špiranec, Miljenko; Stanko, Davor; Jug, Jasmin. Geophysical – geotechnical landfill site investigation. Inženjerstvo okoliša, Scientific and professional journal in the area of environmental engineering, 1 (2014), 2; 103-112.

Strelec, Stjepan; Gazdek, Mario; Jeđud, Boris. Soil stiffness evaluation based on in situ tests and correlations between vs, NSPT i N10H. Inženjerstvo okoliša, Scientific and professional journal in the area of environmental engineering, 1 (2014), 1; 43-54.

Strelec, Stjepan; Grabar, Kristijan; Miklin, Željko; Jug, Jasmin. Geotechnical investigations and monitoring for road landslide remediation. Inženjerstvo okoliša, Scientific and professional journal in the area of environmental engineering, 2 (2015), 2; 111-117.

Đurinek, Marija; Ivandić, Krešo; Strelec, Stjepan. In-situ soil testing for construction of pumping station of irrigation system Vaška-Kapinci. Inženjerstvo okoliša, Scientific and professional journal in the area of environmental engineering, 2 (2015), 1; 37-44.

Hlevnjak, Branko; Strelec, Stjepan; Jug, Jasmin. Hydrogeological conditions of occurrence of clay interbed within Varaždin aquifer. Inženjerstvo okoliša, Scientific and professional journal in the area of environmental engineering, 2 (2015), 2; 73-81.

Špiranec, Miljenko; Grabar, Kristijan; Strelec, Stjepan. Determination slip surface in situ by dilatometer (DMT) test ("Kd method"). Geotechnical aspects of damages caused by natural phenomena, 7th Conference of Croatian Geotechnical Society, Varaždin, November 2016. 191-196.

Strelec, Stjepan; Gazdek, Mario; Mesec, Josip; Jug, Jasmin; Stanko, Davor. Implementation of in situ and geophysical methods for road landslides investigations. Geotechnical aspects of damages caused by natural phenomena, 7th Conference of Croatian Geotechnical Society, Varaždin, November 2016. 179-184.

Grabar, Kristijan; Strelec, Stjepan; Mesec, Josip; Golub, Miroslav. Application of the investigation results for creation of "Krivaja" landslide spatial mode. Geotechnical aspects of damages caused by natural phenomena, 7th Conference of Croatian Geotechnical Society, Varaždin, November 2016. 185-190.

Strelec, Stjepan; Jug, Jasmin; Stanko, Davor; Gazdek, Mario; Anić Vučinić, Aleksandra. Geophysical investigations at municipal solid waste landfill Jakuševac. ISWA world congress 2016 uniting ideas for successful waste management/ Stanisavljević, N.; Fellner, J.; Hossain, S.; Levis, J.W. (ur.). Novi Sad: University of Novi Sad, Faculty of Technical Sciences, 2016. 1379-1389.

# LIST OF SELECTED PUBLISHED WORK IN THE LAST FIVE YEARS

Strelec, Stjepan; Stanko, Davor; Gazdek, Mario. Empirical correlation between the shear-wave velocity and the dynamic probing heavy Test; Case study Varaždin, Croatia. ACTA GEOTECHNICA SLOVENICA. 13 (2016), 1; 3-15.

Stanko, Davor; Markušić, Snježana; Strelec, Stjepan; Gazdek, Mario. HVSR analysis of seismic site effects and soil- structure resonance in Varaždin city (North Croatia). Soil dynamics and earthquake engineering. 92 (2017) 666-677.

Stanko, Davor; Markušić, Snježana; Strelec, Stjepan; Gazdek, Mario. Seismic response and vulnerability of historical Trakošćan Castle, Croatia using HVSR method. Environmental Earth Sciences. 75 (2016), 5; 368-1-368-14.

Mesec, J., Strelec, S., Težak, D. (2016): Ground vibrations level characterization through the geological strength index (GSI). The Mining-Geological-Petroleum Engineering Bulletin, Vol. 32; No. 1; pp 1-6.



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Grabar, Kristijan; Miklin, Željko; Strelec, Stjepan. Geotechnical investigations of the fortress "Minčeta", Dubrovnik, Croatia. Inženjerstvo okoliša, Scientific and professional journal in the area of environmental engineering, 3 (2016), 2; 63-72.

Strelec, Stjepan; Jug, Jasmin; Stanko, Davor. Determination of the design values of the maximum earthquake (EUROCODE 8) using multi channel analysis of surface waves (MASW). Mineral, 3/2014 (2014); 24-30.

Strelec, Stjepan; Grabar, Kristijan; Gazdek, Mario, Špiranec, Miljenko; Stanko, Davor; Jug, Jasmin. Geophysical – geotechnical landfill site investigation. Inženjerstvo okoliša, Scientific and professional journal in the area of environmental engineering, 1 (2014), 2; 103-112.

Strelec, Stjepan; Gazdek, Mario; Jeđud, Boris. Soil stiffness evaluation based on in situ tests and correlations between vs, NSPT i N10H. Inženjerstvo okoliša, Scientific and professional journal in the area of environmental engineering, 1 (2014), 1; 43-54.

Strelec, Stjepan; Grabar, Kristijan; Miklin, Željko; Jug, Jasmin. Geotechnical investigations and monitoring for road landslide remediation. Inženjerstvo okoliša, Scientific and professional journal in the area of environmental engineering, 2 (2015), 2; 111-117.

Đurinek, Marija; Ivandić, Krešo; Strelec, Stjepan. In-situ soil testing for construction of pumping station of irrigation system Vaška-Kapinci. Inženjerstvo okoliša, Scientific and professional journal in the area of environmental engineering, 2 (2015), 1; 37-44.

Hlevnjak, Branko; Strelec, Stjepan; Jug, Jasmin. Hydrogeological conditions of occurrence of clay interbed within Varaždin aquifer. Inženjerstvo okoliša, Scientific and professional journal in the area of environmental engineering, 2 (2015), 2; 73-81.

Špiranec, Miljenko; Grabar, Kristijan; Strelec, Stjepan. Determination slip surface in situ by dilatometer (DMT) test ("Kd method"). Geotechnical aspects of damages caused by natural phenomena, 7th Conference of Croatian Geotechnical Society, Varaždin, November 2016. 191-196.

Strelec, Stjepan; Gazdek, Mario; Mesec, Josip; Jug, Jasmin; Stanko, Davor. Implementation of in situ and geophysical methods for road landslides investigations. Geotechnical aspects of damages caused by natural phenomena, 7th Conference of Croatian Geotechnical Society, Varaždin, November 2016. 179-184.

Grabar, Kristijan; Strelec, Stjepan; Mesec, Josip; Golub, Miroslav. Application of the investigation results for creation of "Krivaja" landslide spatial mode. Geotechnical aspects of damages caused by natural phenomena, 7th Conference of Croatian Geotechnical Society, Varaždin, November 2016. 185-190.

Strelec, Stjepan; Jug, Jasmin; Stanko, Davor; Gazdek, Mario; Anić Vučinić, Aleksandra. Geophysical investigations at municipal solid waste landfill Jakuševac. ISWA world congress 2016 uniting ideas for successful waste management/ Stanisavljević, N.; Fellner, J.; Hossain, S.; Levis, J.W. (ur.). Novi Sad: University of Novi Sad, Faculty of Technical Sciences, 2016. 1379-1389.

## NUMBER OF SUCCESSFUL MENTORSHIPS THAT RESULTED IN DISSERTATION DEFENCE

Once a co-mentor

Gazdek M. (2009): The impact of seismic velocity on the rock classification. PhD Thesis. University of Zagreb, Faculty of Civil Engineering, Zagreb.

PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



#### **ORDINAL NUMBER:** 16

FIRST NAME, LAST NAME, AND TITLE OF THE SUPERVISOR: Mario Gazdek, Assistant Professor

**NAME OF INSTITUTION OF EMPLOYMENT OF THE SUPERVISOR:** Faculty of Geotechnical Engineering, University of Zagreb

LIST OF PUBLISHED WORK WHICH QUALIFY HIM/HER AS AN ACTIVE RESEARCHER OR ARTIST IN THE SCIENTIFIC OR ARTISTIC FIELD IN WHICH THE DOCTORAL STUDY IS PROPOSED

Stanko, Davor; Markušić, Snježana; Strelec, Stjepan; Gazdek, Mario. Seismic response and vulnerability of historical Trakošćan Castle, Croatia using HVSR method. // Environmental Earth Sciences. 75 (2016) , 5; 368-1-368-14 (članak, znanstveni).

Strelec, Stjepan; Stanko, Davor; Gazdek, Mario. Empirical correlation between the shear-wave velocity and the dynamic probing heavy Test; Case study Varaždin, Croatia. // ACTA GEOTECHNICA SLOVENICA. 13 (2016), 1; 5-17 (članak, znanstveni).

Stanko, Davor; Markušić, Snježana; Strelec, Stjepan; Gazdek, Mario. HVSR Analysis of Seismic Site Effects and Soil- Structure Resonance in Varaždin city (North Croatia). // Soil dynamics and earthquake engineering. (2016).

Gazdek, Mario; Bačić, Mario; Kovačević, Meho Saša. Seismic quality index (SQi) of rock mass. // Technical Gazette. 21 (2014), 1; 79-86 (članak, znanstveni).

Strelec, Stjepan; Gazdek, Mario; Jeđud, Boris. Procjena krutosti tla in-situ ispitivanjima i korelacije između vs, NSPT i N10H. // Inženjerstvo okoliša. 1 (2014), 1; 43-54 (prethodno priopćenje, znanstveni).

Kovačević, Meho Saša; Marčić, Danijela; Gazdek, Mario. Application of geophysical investigations in underground engineering. // Tehnički vjesnik: znanstveno-stručni časopis tehničkih fakulteta Sveučilišta u Osijeku. 20 (2013), 6; 1111-1117 (pregledni rad, znanstveni).

Gazdek, Mario; Strelec, Stjepan; Rezo, Milan. Estimation of vibro replacement by compression seismic waves. // Tehnički vjesnik: znanstveno-stručni časopis tehničkih fakulteta Sveučilišta u Osijeku. 18 (2011), 2; 243-252 (prethodno priopćenje, znanstveni).

Strelec, Stjepan; Gazdek, Mario; Mesec, Josip. Blasting design for obtaining desired fragmentation. // Tehnički vjesnik: znanstveno-stručni časopis tehničkih fakulteta Sveučilišta u Osijeku. 18 (2011), 1; 79-86 (prethodno priopćenje, znanstveni).

Strelec, Stjepan; Gazdek, Mario; Mesec, Josip. Blasting Design for Obtaining Desired Fragmentation. // TEHNICKI VJESNIK-TECHNICAL GAZETTE. 18 (2011); 79-86 (članak, znanstveni).

Stanko, Davor; Strelec, Stjepan; Gazdek, Mario; Filipović, Alen; Kaniški, Nikola. Procjena odziva tla mjerenjem mikroseizmičkog nemira u gradu Varaždinu. // Inženjerstvo okoliša. 2 (2015), 1; 45-54 (pregledni rad, ostalo).

Strelec, Stjepan; Grabar, Kristijan; Gazdek, Mario, Špiranec, Miljenko; Stanko, Davor; Jug, Jasmin. Geofizičko - geotehničko istraživanje odlagališta otpada. // Inženjerstvo okoliša. 1 (2014), 2; 103-112 (članak, stručni).

Strelec, Stjepan; Gazdek, Mario; Grabar, Kristijan; Špiranec, Miljenko; Stanko, Davor; Jug, Jasmin. Geofizičko-geotehničko istraživanje odlagališta otpada // XIII. Međunarodni simpozij gospodarenja otpadom Zagreb 2014 / Aleksandra Anić Vučinić (ur.). Zagreb: Geotehnički fakultet, 2014. 35-36 (predavanje, međunarodna recenzija, sažetak, stručni).

PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



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Strelec, Stjepan, Smrečki, Danijel; Gazdek, Mario. Komplementarnost geotehničkih i geofizičkih metoda u određivanju projektnih svojstava tla // Naučno-stručni simpozijum GEO-EXPO 2013 / Zekan, Sabid (ur.). Tuzla: Društvo za geotehniku u Bosni i Hercegovini, 2013. 235-242 (predavanje, međunarodna recenzija, objavljeni rad, stručni).

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None

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#### **ORDINAL NUMBER:** 17

FIRST NAME, LAST NAME, AND TITLE OF THE SUPERVISOR: Boris Kavur, Assistant Professor

**NAME OF INSTITUTION OF EMPLOYMENT OF THE SUPERVISOR:** Faculty of Geotechnical Engineering, University of Zagreb

LIST OF PUBLISHED WORK WHICH QUALIFY HIM/HER AS AN ACTIVE RESEARCHER OR ARTIST IN THE SCIENTIFIC OR ARTISTIC FIELD IN WHICH THE DOCTORAL STUDY IS PROPOSED

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## NUMBER OF SUCCESSFUL MENTORSHIPS THAT RESULTED IN DISSERTATION DEFENCE

None



#### **ORDINAL NUMBER:** 18

FIRST NAME, LAST NAME, AND TITLE OF THE SUPERVISOR: Biljana Kovačević Zelić, Full Professor

**NAME OF INSTITUTION OF EMPLOYMENT OF THE SUPERVISOR:** Faculty of Mining, Geology and Petroleum, University of Zagreb

LIST OF PUBLISHED WORK WHICH QUALIFY HIM/HER AS AN ACTIVE RESEARCHER OR ARTIST IN THE SCIENTIFIC OR ARTISTIC FIELD IN WHICH THE DOCTORAL STUDY IS PROPOSED

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Veinović, Ž.; Kovačević Zelić, B., Kvasnička, P. (2003): Laboratorijsko mjerenje koeficijenta propusnosti tla usporedba konvencionalnih i novih metoda. Rudarsko-geološko-naftni zbornik, 15 (2003), 95-102, RGNF, Zagreb.

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Kosić, D., Kovačević Zelić, B., Domitrović, D., Barać, D. (2015): Long-term efficiency of clay geosynthetic barriers. Proceedings of the XVI ECSMGE Geotechnical Engineering for Infrastructure and Development, 2015., Edinburgh, 2723-2728Kavur, B., Vrkljan, I., Kovačević Zelić, B. (2011): Procjena hidrauličkih značajki nezasićenog ekspanzivnog tla. Građevinar 3 (2011), 245-253.

Domitrović, D., Kovačević Zelić, B. (2013): The relationship between swelling and shear strength properties of bentonites. Proceedings of the 18th International Conference on Soil Mechanics and Geotechnical Engineering (Delage, P.; Desrues, J.; Frank, R.; Puech, A.; Schlosser, F., Eds.), Paris, France, September 2-6, 2013. Presses des ponts, Paris, 219-222.

Domitrović, D., Vučenović, H., Kovačević Zelić, B. (2012): Ispitivanje svojstava bentonita kao inženjerske barijere u odlagalištima radioaktivnog otpada. Rudarsko-geološki-naftni zbornik, 24 (2012), 19-27, RGNF, Zagreb.

Veinović, Ž., Kovačević Zelić, B., Končić, A. (2012): The Role of Underground Research Laboratories within National Repository Development Programmes. UNDER CITY - Proceedings of Colloquium on Using Underground Space in Urban Areas in South-East Europe (Kolić, D., Ed.), Dubrovnik, Croatia, April 12-14, 2012. ITA Croatia, 473-481.

## NUMBER OF SUCCESSFUL MENTORSHIPS THAT RESULTED IN DISSERTATION DEFENCE

Four



#### **ORDINAL NUMBER:** 19

FIRST NAME, LAST NAME, AND TITLE OF THE SUPERVISOR: Josip Mesec, Full Professor

**NAME OF INSTITUTION OF EMPLOYMENT OF THE SUPERVISOR:** Faculty of Geotechnical Engineering, University of Zagreb

LIST OF PUBLISHED WORK WHICH QUALIFY HIM/HER AS AN ACTIVE RESEARCHER OR ARTIST IN THE SCIENTIFIC OR ARTISTIC FIELD IN WHICH THE DOCTORAL STUDY IS PROPOSED

Mesec, J., Kovač, I., Soldo B. (2010): Estimation particle velocity on the basis of the blast event measurements at the different rock units. Journal: Soil Dynamics and Earthquake Engineering. Vol. 30, pp. 1004-1009.

Strelec, S., Gazdek, M., Mesec, J. (2011): Blasting Design for Obtaining Desired Fragmentation, Journal: Technical Gazette, Article No. 1802-06, Vol. 18, No.1, pp 78-86.

Mesec, J. (2005): Dopuštene količine eksplozivnog punjenja ovisno o relativnoj seizmičkoj osjetljivosti stijenskih masa, Rudarsko-geološko-naftni zbornik, Vol. 17, pp 61-72.

Mesec, J., Vrkljan, D., Ester Z. (2009): Allowed quantity of explosive charge depending on the distance from the blast. Journal: Geotechnical and Geological Engineering. Vol. 3, pp 431-438.

Mesec, J., Kovač, I., Žganec S. (2015): In-hole velocity of detonation (VOD) measurements as a framework for the selection type of explosive: International Journal of Mining Science and Technology. Volume 25, Issue 4, Pages 675-680.

### LIST OF SELECTED PUBLISHED WORK IN THE LAST FIVE YEARS

Mesec, J., Kovač, I., Soldo B. (2010): Estimation particle velocity on the basis of the blast event measurements at the different rock units. Journal: Soil Dynamics and Earthquake Engineering. Vol. 30, pp. 1004-1009.

Strelec, S., Gazdek, M., Mesec, J. (2011): Blasting Design for Obtaining Desired Fragmentation, Journal: Technical Gazette, Article No. 1802-06, Vol. 18, No.1, pp 78-86.

Mesec, J., Kovač, I., Žganec S. (2015): In-hole velocity of detonation (VOD) measurements as a framework for the selection type of explosive: International Journal of Mining Science and Technology. Volume 25, Issue 4, Pages 675-680.

### NUMBER OF SUCCESSFUL MENTORSHIPS THAT RESULTED IN DISSERTATION DEFENCE

None



#### **ORDINAL NUMBER: 20**

FIRST NAME, LAST NAME, AND TITLE OF THE SUPERVISOR: Željko Hećimović, Full Professor

**NAME OF INSTITUTION OF EMPLOYMENT OF THE SUPERVISOR:** Faculty of Civil Engineering, Architecture and Geodesy, University of Split

LIST OF PUBLISHED WORK WHICH QUALIFY HIM/HER AS AN ACTIVE RESEARCHER OR ARTIST IN THE SCIENTIFIC OR ARTISTIC FIELD IN WHICH THE DOCTORAL STUDY IS PROPOSED

Hećimović, Ž. (2013): Relativistic effects on satellite navigation. Tehnički vjesnik/Technical Gazette, Vol. 20, No. 1, 195-203.

Barišić, A., A. Crnković, Ž. Hećimović (2011): Satellite orbits optimized for satellite supported services on the territory of Croatia. Tehnički vjesnik/Technical Gazette, Vol. 18, No. 2, 179-186.

Bilajbegović, A., M. Solarić, Ž. Bačić, Ž. Hećimović (1989): Globalno pozicijsko određivanje osnova i primjena. Geodetski list, 7-9, str. 231-254, Zagreb 1989.

Hećimović, Ž. (2001): Parametri definiranja performansi navigacijskih sustava. Geodetski list, 55(78), str. 33 – 48, Zagreb 2001.

Hećimović, Ž., T. Bašić (2003): Globalni geopotencijalni modeli na teritoriju Hrvatske. Geodetski list, 57(80), 2, 73-89, Zagreb.

Brkić, M., Ž. Hećimović, T. Bašić (2003): Geomagnetska deklinacija na prostoru Hrvatske na temelju globalnih geomagnetskih modela. Geodetski list, 57(80), 1, 1-15, Zagreb.

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Hećimović, Ž., N. Rožić, T. Bašić, D. Markovinović (2003): Status of the Croatian First Order Gravity Network. In: J. A. Torres and H. Hornik (Eds.): Proceedings of the Symposium of the IAG Section I (Positioning), Commission X (Global and Regional Geodetic Networks), Sub-commission for Europe (EUREF), Publication No. 13, Toledo, Spain, June 4-7, 2003. Mitteilungen des Bundesamtes für Kartographie und Geodäsie, Band 33, 306-310, Frankfurt am Main 2004.

Hećimović, Ž.; Marasović, S.; Crompvoets, J. (2014): Development of Local Spatial Data Infrastructure in Croatia. Journal of Spatial Science. http://dx.doi.org/10.1080/14498596.2014.908424, Taylor & Francis, V59, Nr. 2, September 2014. pp 221-234.

Hećimović, Ž., B. Barišić, I. Grgić (2004): European Vertical Reference Network (EUVN) Considering CHAMP and GRACE Gravity Models. Report on the Symposium of the IAG Subcommission for Europe (EUREF) held

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Bašić, T., Hećimović, Ž. (2005): Latest Geoid Determination for the Republic of Croatia. IAG International Symposium Gravity, Geoid and Space Missions GGSM2004, Session 3: Regional geoid modeling, Porto, Portugal, 30.8.-3.9.2004, Faculty of Science, University of Porto, CD-Proceedings, Porto.

Hećimović, Ž., Bašić, T. (2005): Modeling of Terrain Effect on Gravity Field Parameters in Croatia. IAG International Symposium Gravity, Geoid and Space Missions GGSM2004, Session 5: Topographic data bases and gravity modeling, Porto, Portugal, 30.8.-3.9.2004, Faculty of Science, University of Porto, CD-Proceedings, Porto 2005.

Hećimović, Ž. (2006): Spectral behavior of global gravitational models considering EUVN network. Report on the Symposium of the IAG Subcommission for Europe (EUREF) held in Vienna, Austria, 1 - 4 June 2005. Report on the Symposium of the IAG Subcommission for Europe (EUREF) held in Vienna, Austria, 1 - 4 June 2005.

Grgić, I., B. Barišić, Ž. Hećimović (2006): Realization of EUVN densification project in the Republic of Croatia. Report on the Symposium of the IAG Subcommission for Europe (EUREF) held in Riga, Latvia, 14 - 17 June 2006. Report on the Symposium of the IAG Subcommission for Europe (EUREF) held in Riga, Latvia, 14 - 17 June 2006.

Hećimović, Željko; Igor, Matišić; Peroš, Josip. Pseudolites as UAV Navigation Support. Proceedings of the International Symposium on Engineering Geodesy / Paar, Rinaldo ; Marendić, Ante ; Zrinski, Mladen (ur.). Varaždinske toplice : Tonimir Ltd., 2016. 427-437.

Hećimović, Željko; Marasović, Slaven; Lukić Andrea. Copernicus Programme as Challenge for Geodesy and Geoinformatics // SIG 2016, Proceedings of tghe International Symposium on Engineering Geodesy / Paar, Rinaldo ; Marendić, Ante ; Zrinski, Mladen (ur.). Varaždinske toplice : Tonimir Ltd., 2016. 503-513.

Hećimović, Ž., M. Grgić, M. Pejaković (2013): Referentni sustavi s obzirom na usluge prostornih podataka. 3. CROPOS konferencija, 24.-25.10.2013. Opatija. Zbornik radova 3. CROPOS konferencija, ISBN 978-953-55915-3-5, CIP 857710, str. 133-140. Opatija 2013.

Željko Hećimović, Matjaž Štanfel, Gordan Horvat (2015): Analiza kontinuiranih mjerenje na odabranim EPN stanicama. Str. 114-124. Pregledni znanstveni rad. Ur.: Bašić T.; Pavasović M.; Marjanović M. (2015): Zbornik radova 4. CROPOS konferencije, Zagreb, 22.05.2015. Izdavači: Geodetski fakultet Sveučilišta u Zagrebu i Državna geodetska uprava. ISBN: 978-953-293-655-1. Tisak: Intergrafika TTŽ d.o.o.

Željko Hećimović, Igor Matišić, Filip Mudronja (2016): Program opažanja Zemlje Kopernik i bespilotne letjelice. 9. SIMPOZIJ OVLAŠTENIH INŽENJERA GEODEZIJE: "Geodezija kao profesija – Doing Business in Croatia", 21.–23. listopad 2016., Opatija, Hrvatska.

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Filip Kovačić, Željko Hećimović (2015): Geoprostorni proizvodi i usluge na temelju obrade Landsat 8 podataka. Zbornik radova 8. simpozij ovlaštenih inženjera geodezije "Geodetska politika za budućnost". Str. 150-157, 23. do 25. listopada 2015., Opatija.

Hećimović, Ž. (2011): Geographical names as part of the global, regional and national spatial data infrastructures. International NSDI Conference. CD-Zbornik radova. September 19-20, 2011. Skopje, Macedonia.

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## LIST OF SELECTED PUBLISHED WORK IN THE LAST FIVE YEARS

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Hećimović, Ž.; Marasović, S.; Crompvoets, J. (2014): Development of Local Spatial Data Infrastructure in Croatia. Journal of Spatial Science. http://dx.doi.org/10.1080/14498596.2014.908424, Taylor & Francis, V59, Nr. 2, September 2014. pp 221-234.

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Hećimović, Ž., Lj. Rašić, T. Ciceli (2013): Status of Croatian NSDI. In: Hećimović, Ž.; V. Cetl (Eds): Proceedings SDI Days 2013, p.p. 127-132. SDI Days 2013. 26th - 27th September, 2013. Šibenik. State Geodetic Administration, ISBN 978-953-519-6 (printed), CIP 855396, ISBN 978-953-293-520-2 (digital), 2013, Zagreb

Željko Hećimović (2014): Spatial Reasoning as Market Value. Global Environment, Stakeholders' Profile and Corporate Governance in Geodesy. 1st International Interdisciplinary Scientific Conference. October 3-5, 2014, Faculty of Geodesy, University of Zagreb.

Ciceli, T., Lj. Rašić, Ž. Hećimović (2012): On the Road to Spatially Enabled Government: Case Study Croatia. Global Geospatial Conference 2012. Spatially Enabling Government, Industry and Citizens. Québec City, Canada, 14-17 May 2012.

## NUMBER OF SUCCESSFUL MENTORSHIPS THAT RESULTED IN DISSERTATION DEFENCE

None



### **ORDINAL NUMBER:** 21

FIRST NAME, LAST NAME, AND TITLE OF THE SUPERVISOR: Milan Rezo, Assistant Professor

**NAME OF INSTITUTION OF EMPLOYMENT OF THE SUPERVISOR:** Faculty of Geotechnical Engineering, University of Zagreb

LIST OF PUBLISHED WORK WHICH QUALIFY HIM/HER AS AN ACTIVE RESEARCHER OR ARTIST IN THE SCIENTIFIC OR ARTISTIC FIELD IN WHICH THE DOCTORAL STUDY IS PROPOSED

### **BOOKS AND MONOGRAPHS**

Rezo M: Analysis of the Positioning Network Status and Application of Transformed GPS Data Serving the Needs of Geoinformation Systems in the Republic of Croatia", Master thesis, University of Zagreb, Faculty of Geodesy, 2002

Rezo M: The Importance and Application of Physical Parameters in a Modern Approach to Geodetic Works of State Measuring, Doctoral dissertation, University of Zagreb, Faculty of Geodesy, 2010

Rezo M: Planar Geodesy, University Workbook. Publisher: University of Zagreb, Faculty of Geotechnical Engineering, Varaždin, 2013

SCIENTIFIC PAPERS published in journals indexed in Current Contents ( CC ), Science Citation Index ( SCI ) and Science Citation Expanded ( SCIE ) databases - A PAPERS:

Rezo, M., Špoljarić, D., Šljivarić, M: The Changes of Sea Level and Variations of Moon Declinations in Nutation Period at Four Tide Gauges in Croatia, Geodetski list 64 ( 87 ), 4, pages 263-278, Zagreb, 2010

Gazdek, M., Strelec, S., Rezo, M: Estimation of vibro replacement by compression seismic waves, Tehnički vjesnik, Volume 18, pages 243-252, Slavonski Brod, 2011

Rezo, M., Markovinović, D., Šljivarić, M.: Influence of the Earth`s topographic masses on vertical deflection, Tehnički vjesnik, Volume 21, pages 697-705, Slavonski Brod, 2014

SCIENTIFIC PAPERS published in journals indexed in some other important bibliographic databases ( such as Bibliographia Cartographica; Geobase; GEOPHOKA; Georef; Scopus; Social Sciences Citation Index; TRIS; Referentivnyj Žurnale GEografija; Inspec; COMPENDEX ) - B PAPERS:

Šugar, D., Zrinjski, M., Rezo, M.: Basic Geodetic Works during Establishment and Distance Determination of Pula Base Line, Geodetski list, 69 (2015), 2, pages 115-138, Zagreb, 2015

Brkić, M., Šugar, D., Rezo, M., Markovinović, D., Bašić, T.: Croatian Geomagnetic Repeat Stations Network, Geodetski list, 59 ( 82 ), 2, pages 113-127, Zagreb, 2005

Bašić, T., Markovinović, D., Rezo, M.: Basic Gravimetric Network of the Republic of Croatia, Geodetski list, 60 (83), 2, pages 73-91, Zagreb, 2006

Rezo, M., Šljivarić, M., Pavasović, M.: Vertical Crustal Movement in Area of Istra and Kvarner at the Territory of the Republic of Croatia. Electronic Journal of Geotechnical Engineering. Volume 15 (2010), Bund. Q (2010), Ppr10.132ar.pdf: 1835-1847

Šugar, D., Jungwirth, E., Rezo, M.: Geomagnetic Elements Determination on the Selected Locations with the Red Soil, Geodetski list, 65 (88), 3, pages 221-240, Zagreb, 2011

Rezo, M., Pavasović, M., Šljivarić, M.: The Analysis of Adriatic Sea Tide Gauge Data from Year 1953 to 2006, Geodetski list, 68 ( 2014 ), 4, pages 269-290, Zagreb, 2014

Rezo, M., Markovinović, D., Šljivarić, M.: Analysis, Processing and Integral Adjustment of Precise Levelling Network (NVT), Geodetski list, 69 (2015), 1, pages -, Zagreb, 2015

PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



Peer-reviewed SCIENTIFIC PAPAERS published in proceedings of international scientific conferences –D: PAPERS

Bašić, T., Rezo, M., Markovinović, D.: Homo Homogenisation of GPS fields in cities referring to the new positional datum of the Republic of Croatia, Mitteilungen des Bundesamtes fuer Kartographie und Geodaesie, Frankfurt am Main, 2006, Bd. 38. - pp. 400-407, 2006

Rezo, M., Kranjec, M., Rezo, A.: Adujstment of terestric and GPS measurements when monitoring deformation on hydroelectric power plants. Proceedings of a Symposium on engineering geodesy with international participation: SEG 2007. Novaković, Gorana (ed.) Vinkovci: Croatian Geodetic Society, pages 137-150, 2007

Rezo, M., Kranjec, M., Rezo, A.: Adujstment of levelling measurements when monitoring deformation on hydroelectric power plants. Proceedings of a Symposium on engineering geodesy with international participation: SEG 2007. Novaković, Gorana (ed.) Vinkovci: Croatian Geodetic Society, pages 165-173, 2007

Rezo, M., Šugar, D., Težak, I., Zidar, M.: Determination of horizontal movements, rotations and acclivities by methods of alining and clinometry at hydroelectric power plants. Proceedings of a Symposium on engineering geodesy with international participation: SEG 2007. Novaković, Gorana (ed.) Vinkovci: Croatian Geodetic Society, pages 151-164, 2007

Šljivarić, M., Markovinović, D., Rezo, M., Kranjec, M.: Application of encoded survey by RTK GPS/GLONASS method in real estate cadastre). Proceedings of the First cadaster congress in Bosnia and Herzegovina with international participation. Editor in chief I. Lesko. Mostar: Geodetic society of Herzeg-Bosnia, pages 93-102, 2007

Pavasović M., Rezo M., Bašić T.: The aplication of GNSS VRS service in industrial survey. 5th international Conference on Engineering Surveying INGEO 2011, Brijuni, Croatia, September 22-24, 2011, Editors: Kopačik, A., Kyrinovič, P. and Roić, M., ISBN 978-953-6082-15-5, 279-286, Faculty of Geodesy, Zagreb, 2011

ABSTARCTS AND POSTERS at international conferences

Markovinović, D., Rezo, M. (2002): Basic Gravimetric Network of the Republic of Croatia. I. Ph. D. Civilexpo. International Ph. D. Conference od Civil Engineering, November 21. - 22. 2002., Budapest, Hungary, 2002

Bašić, T., Markovinović, D., Rezo M. 2004: Basic Gravimetric Network of the Republic of Croatia // IAG Proceedings of the GGSM2004 Symposium, Porto, Portugal, Aug. 30 - Sep. 3, 2004. Springer Verlag, 2004

Markovinović, D., Rezo, M., Bašić, T.: Zero series of measurements in Basic gravimetric network of the Republic of Croatia. Geophysical Research Abstracts, Vol. 6, 02706, 2004, ISSN: 029-7006. European Geosciences Union (EGU) (ur.). Nice: European Geosciences Union (EGU), 2004

Brkić M., Šugar D., Rezo M., Markovinović D., Bašić T. 2005: Croatian Geomagnetic Repeat Stations Network – A National Report, Poster, 2nd Workshop on European Geomagnetic Repeat Station Survey 2004 – 2005, Institute of Geodesy and Cartography, Warsaw 6-8 April 2005

Brkić M., Šugar D., Rezo M., Markovinović D., Bašić T.: Croatian Geomagnetic Repeat Stations Network, NATO Programme Security through Science Advanced Research Workshop "New data for the magnetic field in the Republic of Macedonia for enhanced flying and airport safety", Ohrid, Republic of Macedonia, 17-21 May 2005

Brkić M., Šugar D., Pavasović M, Rezo M., Vujić E.: Croatian geomagnetic surveys 2007 – 2008 – A National Report, abstract and poster, 4th MagNetE Workshop on European Geomagnetic Repeat Station Survey, Helsinki, 8-10 June 2009

## LIST OF SELECTED PUBLISHED WORK IN THE LAST FIVE YEARS

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Rezo M: Planar Geodesy, University Workbook. Publisher: University of Zagreb, Faculty of Geotechnical Engineering, Varaždin, 2013

Rezo, M., Markovinović, D., Šljivarić, M.: Influence of the Earth`s topographic masses on vertical deflection, Tehnički vjesnik, Volume 21, pages 697-705, Slavonski Brod, 2014

Šugar, D., Zrinjski, M., Rezo, M.: Basic Geodetic Works during Establishment and Distance Determination of Pula Base Line, Geodetski list, 69 (2015), 2, pages 115-138, Zagreb, 2015

Pavasović M., Rezo M., Bašić T.: The aplication of GNSS VRS service in industrial survey. 5th international Conference on Engineering Surveying INGEO 2011, Brijuni, Croatia, September 22-24, 2011, Editors: Kopačik, A., Kyrinovič, P. and Roić, M., ISBN 978-953-6082-15-5, 279-286, Faculty of Geodesy, Zagreb, 2011

Rezo, M., Pavasović, M., Šljivarić, M.: The Analysis of Adriatic Sea Tide Gauge Data from Year 1953 to 2006, Geodetski list, 68 ( 2014 ), 4, pages 269-290, Zagreb, 2014

Rezo, M., Markovinović, D., Šljivarić, M.: Analysis, Processing and Integral Adjustment of Precise Levelling Network (NVT), Geodetski list, 69 (2015), 1, pages -, Zagreb, 2015

## NUMBER OF SUCCESSFUL MENTORSHIPS THAT RESULTED IN DISSERTATION DEFENCE

There aren't any successful mentorships that resulted in a dissertation defence.



#### **ORDINAL NUMBER: 22**

FIRST NAME, LAST NAME, AND TITLE OF THE SUPERVISOR: Krešo Ivandić, Associated Professor

**NAME OF INSTITUTION OF EMPLOYMENT OF THE SUPERVISOR:** Faculty of Geotechnical Engineering, University of Zagreb

LIST OF PUBLISHED WORK WHICH QUALIFY HIM/HER AS AN ACTIVE RESEARCHER OR ARTIST IN THE SCIENTIFIC OR ARTISTIC FIELD IN WHICH THE DOCTORAL STUDY IS PROPOSED

Kvasnička, P.; Matešić, L.; Ivandić, K.: Geotechnical site classification and Croatian National Annex for Eurocode 8, Geofizika, 28 (2011) 83-97.

Kovačević, M.S.; Ivandić, K.; Marčić, D.: Testing the load-bearing capacity of harbour no. 5 in the Ploče port, Technical Gazette. 18 (2011) 3; 417-422.

Cerić, A.; Marčić, D.; Ivandić, K.: A risk-assessment methodology in tunnelling, Technical Gazette. 18 (2011) 4; 529-536.

Bandić, M., Ivandić, K.: Reliability evaluation of Eurocod 7 design approaches for anchored embedded walls, UNDER CITY Colloquium on Using Ubderground Space in Urban Areas in South East Europe, Dubrovnik, Croatia, 12-14 April, 2012.

Tehničko praćenje i održavanje sidrene armiranobetonske "Moj Dvor" u Zagrebu, 6. savjetovanje Hrvatskog geotehničkog društva, Sanacija, tehničko praćenje i održavanje u geotehnici, Zadar/Peruča, 17.-19. listopada 2013.

### LIST OF SELECTED PUBLISHED WORK IN THE LAST FIVE YEARS

Bandić, M., Ivandić, K.: Reliability evaluation of Eurocod 7 design approaches for anchored embedded walls, UNDER CITY Colloquium on Using Ubderground Space in Urban Areas in South East Europe, Dubrovnik, Croatia, 12-14 April, 2012.

Tehničko praćenje i održavanje sidrene armiranobetonske "Moj Dvor" u Zagrebu, 6. savjetovanje Hrvatskog geotehničkog društva, Sanacija, tehničko praćenje i održavanje u geotehnici, Zadar/Peruča, 17.-19. listopada 2013.

### NUMBER OF SUCCESSFUL MENTORSHIPS THAT RESULTED IN DISSERTATION DEFENCE

None



#### **ORDINAL NUMBER: 23**

FIRST NAME, LAST NAME, AND TITLE OF THE SUPERVISOR: Božidar Biondić, Professor Emeritus

**NAME OF INSTITUTION OF EMPLOYMENT OF THE SUPERVISOR:** Faculty of Geotechnical Engineering, University of Zagreb, in retirement

LIST OF PUBLISHED WORK WHICH QUALIFY HIM/HER AS AN ACTIVE RESEARCHER OR ARTIST IN THE SCIENTIFIC OR ARTISTIC FIELD IN WHICH THE DOCTORAL STUDY IS PROPOSED

### LIST OF SELECTED PUBLISHED WORK IN THE LAST FIVE YEARS

1. Biondić, B., Biondić, R. (2014):Hidrogeologija dinarskog krša u Hrvatskoj . Sveučilišni udžbenik, Geotehnički fakultet, Varaždin

2. Biondić, R., Meaški, H., Biondić, B, (2016): Hydrogeology of the sinking zone of the Korana River downstream of the Plitvice Lakes, Croatia. Acta carsologica. Prihvaćeno za tisak.

 Meaški, H., Biondić, B., Biondić, R. (2016): Delineation of the Plitvice Lakes karst catchment area, Croatia.
 In: Stevanović, Zoran ; Krešić, Neven ; Kukurić, Neno (eds.): Karst without Boundaries. International Association of Hydrogeologists - Selected papers. Nizozemska : CRC Press/Balkema; 269-284.

4. Biondić, R., Meaški, H., Biondić, B. (2014): Vulnerability mapping of Novljanska Žrnovnica karstic spring catchment area (Croatia) – In: Kukurć, N., Stevanović, Z., Krešić, N. (eds): Proceedings of International Conference and Field Seminar "Karst Without Boundaries". Trebinje (BiH), 11-15.6.2014; 357-363

5. Biondić, B., Biondić, R. (2013): Hidrogeologija Gorskog kotara. U: Pavić, A. (ur.): Vode razvijaju Gorski kotar. Udruga za očuvanje hrvatskih voda i mora - Slap, Zagreb, 21-24.

6. Biondić, R., Biondić, B., Rubinić, J., Meaški, H. (2012): Quality and quantity status and risk assessment of groundwater bodies in the karst area of Croatia. In: Maloszewski, P., Witczak, S., Malina, G. (eds): Groundwater Quality Sustainability. International Association of Hydrogeologists - Selected papers. London: CRC Press Balkema; 163-172.

7. Biondić, R., Biondić, B, Meaški, H. (2012): Water supply spring zone Novljanska Žrnovnica (Croatia) – new quantities of drinking water in the conditions of salt water intrusion. Acta carsologica. 41 (2-3); 253-264.

8. Biondić, B., Biondić, R., Meaški, H. (2011): Zaštita vodnih resursa u Nacionalnom parku Plitvička jezera. U: Šutić, B., Mataija, I., Šikić, Z., Dujmović, A., Ružić, V., Brozinčević, A. (ur.): Znanstveno-stručni skup Nacionalnog parka Plitvička jezera povodom 60 godina od osnivanja i 30 godina od upisa na UNESCO-vu Listu svjetske kulturne i prirodne baštine. JUNP Plitvička jezera, Hrvatska, 82-102.

9. Biondić, R., Biondić, B., Rubinić, J., Meaški, H. (2011): Ocjena stanja i rizika cjelina podzemnih voda na krškom području Republike Hrvatske. U: Biondić, D., Holjević, D., Tropan, Lj. (ur.): Hrvatske vode pred izazovom klimatskih promjena. Opatija, Hrvatska, 479-489.

10. Biondić, B., Biondić, R. (2011): Zaštita vodnih resursa u Dubrovačko-neretvanskoj županiji. U: Biondić, R. (ur.): Voda - značajan prirodni resurs u razvoju Dubrovačko - neretvanske županije. Zbornik radova s konferencije, ZZJZ Dubrovačko-neretvanske županije, Dubrovnik, 22-24.

## NUMBER OF SUCCESSFUL MENTORSHIPS THAT RESULTED IN DISSERTATION DEFENCE

Four (4)

PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



#### **ORDINAL NUMBER: 24**

FIRST NAME, LAST NAME, AND TITLE OF THE SUPERVISOR: Krešo Pandžić, Assistant Professor

NAME OF INSTITUTION OF EMPLOYMENT OF THE SUPERVISOR: Meteorological and Hydrological Service

LIST OF PUBLISHED WORK WHICH QUALIFY HIM/HER AS AN ACTIVE RESEARCHER OR ARTIST IN THE SCIENTIFIC OR ARTISTIC FIELD IN WHICH THE DOCTORAL STUDY IS PROPOSED

#### LIST OF SELECTED PUBLISHED WORK IN THE LAST FIVE YEARS

1. Pandžić, K., Trninić, D., Likso, D. and T. Bošnjak, 2008: Long-term variations in water balance components for Croatia. Theoretical and Applied Climatology, 95, 39-51.

2. Pandžić, K. and T. Likso, 2010: Homogeneity of air temperature annual average time series for Croatia. Int. J. Climatol. 30, 1215-1225.

3. Likso, T. and K. Pandžić, 2012: Determination of surface layer parameters at the edge of a suburban area. Theoretical and Applied Climatology, 108, 373-384.

4. Pandžić, K. i Z. Žibrat (urednici), 2014: 160 godina meteoroloških motrenja i njihova primjena u Republici Hratskoj. Državni hidrometeorološki zavod, Zagreb.



#### **ORDINAL NUMBER: 25**

FIRST NAME, LAST NAME, AND TITLE OF THE SUPERVISOR: Robert Pašičko, Assistant Professor

**NAME OF INSTITUTION OF EMPLOYMENT OF THE SUPERVISOR:** Faculty of Geotechnical Engineering, University of Zagreb

LIST OF PUBLISHED WORK WHICH QUALIFY HIM/HER AS AN ACTIVE RESEARCHER OR ARTIST IN THE SCIENTIFIC OR ARTISTIC FIELD IN WHICH THE DOCTORAL STUDY IS PROPOSED

Đukić, Ankica; Güttler, Ivan; Pašičko, Robert: Perspectives of Hydrogen Automotive Applications in Croatia // Energy, Transportation and Global Warming / Grammelis, Panagiotis (ur.). Cham, Switzerland : Springer, 2016. Pp. 433-445.

Pašičko, Robert: Optimization of power system operation and development under emission trading Scheme, doktorska disertacija. Sveučilište u Zagrebu, srpanj 2014.

Pašičko, Robert; Branković, Čedo; Šimić, Zdenko: Assessment of climate change impacts on energy generation from renewable sources in Croatia. Renewable Energy, Vol. 46, pp. 224-231, 2012

Protic, Sonja Maria, Pasicko, Robert: Croatia's Rural Areas – Renewable Energy Based Electricity Generation for Isolated Regions. Thermal Science, Vol. 18, No. 3, pp. 733-744, 2014

Robert Pašičko, Čedo Branković, Ivan Rajšl. Use of Energy Models in Assessment of Climate Change Impact on Renewable Energy Generation, 2nd International Conference Energy and Meteorology, Toulouse, France, 25.-28. June 2013

Šimić, Zdenko; Pašičko, Robert; Branković, Čedo: Climate change impacts on renewable energy sources, Scientific-professional conference with international participation "Challenges in Meteorology 2", 6. -7. March 2012, Zagreb, Croatia

Zoran Kordić, Lin Herencic, Robert Pašičko, Daniela Carrington. Renewable Energy Cooperation Potential between Member States and West Balkan Countries. 7th Dubrovnik Conference on Sustainable Development of Energy Water and Environment Systems" Dubrovnik, Croatia, 22-26. September 2013

## LIST OF SELECTED PUBLISHED WORK IN THE LAST FIVE YEARS

Pašičko, Robert; Branković, Čedo; Šimić, Zdenko: Assessment of climate change impacts on energy generation from renewable sources in Croatia. Renewable Energy, Vol. 46, pp. 224-231, 2012

Protic, Sonja Maria, Pasicko, Robert: Croatia's Rural Areas – Renewable Energy Based Electricity Generation for Isolated Regions. Thermal Science, Vol. 18, No. 3, pp. 733-744, 2014

Robert Pašičko, Čedo Branković, Ivan Rajšl. Use of Energy Models in Assessment of Climate Change Impact on Renewable Energy Generation, 2nd International Conference Energy and Meteorology, Toulouse, France, 25.-28. June 2013

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Pašičko, Robert; Robić, Slavica; Tomšić, Željko: Modelling CO2 Emissions Impacts on Croatian Power System. Thermal Science, Vol. 14, No. 3, pp. 657-673, 2010

Pašičko, Robert; Stanić, Zoran; Debrecin, Nenad: Modeling Sustainable Development Scenarios of Croatian Power System. The Journal of Electrical Engineering, Vol. 61, no. 3, pp.157–163, 2010NUMBER OF SUCCESSFUL MENTORSHIPS THAT RESULTED IN DISSERTATION DEFENCE

PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



#### **ORDINAL NUMBER: 26**

FIRST NAME, LAST NAME, AND TITLE OF THE SUPERVISOR: Ranko Biondić, Full Professor

**NAME OF INSTITUTION OF EMPLOYMENT OF THE SUPERVISOR:** Faculty of Geotechnical Engineering, University of Zagreb

LIST OF PUBLISHED WORK WHICH QUALIFY HIM/HER AS AN ACTIVE RESEARCHER OR ARTIST IN THE SCIENTIFIC OR ARTISTIC FIELD IN WHICH THE DOCTORAL STUDY IS PROPOSED

1. Biondić, R., Meaški, H. & Biondić, B. (2016): Hydrogeology of the sinking zone of the Korana River deownstream of the Plitvice Lakes, Croatia. – ACTA CARSOLOGICA (prihvaćeno za tisak), 1-18, Postojna. (Science Citation Index Expanded (Web of Science))

2. Biondić, R., Biondić, B. & Meaški, H. (2012): Water supply spring zone Novljanska Žrnovnica (Croatia) – new quantities of drinking water in the conditions of salt water intrusion.– ACTA CARSOLOGICA. 41, 2-3; 253-264, Postojna. (Science Citation Index Expanded (Web of Science))

3. Biondić, B., Biondić, R., Meaški, H. (2010): The conceptual hydrogeological model of the Plitvice Lakes.– In: Bonacci, O. & Juračić, M. (eds.): Geologia Croatica. 63, 2; pp 195-206, Croatian Geological Survey and Croatian Geological Society, Zagreb. (Geo Abstracts, GeoRef, GeoArchive, Geotitles, Geobase, Scopus, MINABS Online, BIOSIS, Zoological Abstracts, PASCAL, Petroleum Abstracts, Chemical Abstracts, Current Geographical Abstracts, EBSCO Academic Search Complete, and Science Citation Index Expanded (Web of Science))

4. Biondić, B., Biondić, R. & Kapelj, S. (2006): Karst groundwater protection of the Kupa River catchment area and sustainable development.– Environmental Geology, Vol. 49, Number 6, March 2006, pp 828-839, Springer-Verlag, Heidelberg. (Current Contents, Applied Science & Technology Abstracts)

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7. Biondić, B., Biondić, R. & Kapelj, S. (2003): Protection of the Karst Aquifers in the River Kupa Catchment Area and Sustainable Development.– U: Pezdič, J. (ur.): RMZ - Materials and Geoenvironment. 50 (2003), 1, pp. 33-36, Ljubljana, Slovenija. (CA Search – Chemical Abstracts, METADEX, GeoRef, Energy Science and Technology, PASCAL)

8. Biondić, B., Prestor, J., Biondić, R., Lapanje, A., Kapelj, S., Janža, M., Rikanović, R., Urbanc, J. & Singer, D. (2002): Obmejni vodonosniki med Slovenijo in Hrvaško - Območje med Kvarnerskim in Tržaškim zalivom.– Geologija 45/2, 311-318, Ljubljana, Slovenija. (GeoRef, Chemical Abstracts, PASCAL, Zoological Record)

9. Biondić, B., Dukarić, F., Kuhta, M. & Biondić, R. (1997): Hydrogeological Exploration of the Rječina River Spring in the Dinaric Karst.– Geologia Croatica, Journal of the Institute of Geology Zagreb and the Croatian Geological Society. 50 (1997), 2; 279-288. (Geo Abstracts, GeoRef, GeoArchives, Mineralogical Abstracts, BIOSIS, PASCAL, Petroleum Abstracts, Chemical Abstracts, Current Geographical Abstracts, CA Search (Chemical Abstracts), Current Geographical Abstracts)

10. Biondić, R., Meaški, H. & Biondić, B. (2014): Vulnerability mapping of the Novljanska Žrnovnica karstic spring catchment area in Croatia.- International conference and field seminar "Karst without boundaries", Proceedings, 11.-15.06.2014., Trebinje (BiH) – Dubrovnik, 357 – 363. (organized by: GEF, UNDP, UNESCO-IHP, International association of hydrogeologists, Global water partnership, Igrac)

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11. Meaški, H., Biondić, B. & Biondić, R. (2014): Delineation of karst catchment area using several methods – an example of Plitvice Lakes catchment.- International conference and field seminar "Karst without boundaries", Proceedings, 11.-15.06.2014., Trebinje (BiH) – Dubrovnik, 118 – 123. (organized by: GEF, UNDP, UNESCO-IHP, International association of hydrogeologists, Global water partnership, Igrac)

12. Meaški, H., Biondić, B. & Biondić, R. (2016): Delineation of the Plitvice Lakes karst catchment area, Croatia. U: Stevanović, Z., Krešić, N., & Kukurić, N. (ur.). Karst without Boundaries, IAH Selected Papers edition, Vol. 23, CRC Press, 269-284.

13. Biondić, R., Biondić, B., Rubinić, J. & Meaški, H. (2012): Quality and quantity status and risk assessment of groundwater bodies in the karst area of Croatia.– U: Maloszewski, P., Witczak, S. & Malina, G. (ur.): Groundwater Quality Sustainability. International Association of hydrogeologists selected papers. London. CRC Press. Balkema, 163-172 (ISBN 978-0-415-69841-2).

14. Biondić, R., Petrič, M. & Rubinić, J. (2015): II. Study area: Northern Istria: Overview of hydrogeology.- U: Zupan Hajna, N., Ravbar, N., Rubinić, J. & Petrič, M. (ur.): Life and water in karst. Monitoring of transboundary water resources of Northern Istria.60-74. Karst Research Institute ZRC SAZU, Postojna, Slovenija, (ISBN 978-961-254-819-3).

15. Petrič, M., Ravbar, N., Brun, C., Biondić, R. & Kogovšek, J. (2015): III. Karst water resources monitoring: Assessment of flow dynamics and solute transport based on the monitoring of a flood pulse.- U: Zupan Hajna, N., Ravbar, N., Rubinić, J. & Petrič, M. (ur.): Life and water in karst. Monitoring of transboundary water resources of Northern Istria.124-134. Karst Research Institute ZRC SAZU, Postojna, Slovenija, (ISBN 978-961-254-819-3).

## LIST OF SELECTED PUBLISHED WORK IN THE LAST FIVE YEARS

1. Biondić, R., Meaški, H. & Biondić, B. (2016): Hydrogeology of the sinking zone of the Korana River deownstream of the Plitvice Lakes, Croatia. – ACTA CARSOLOGICA (prihvaćeno za tisak), 1-18, Postojna. (Science Citation Index Expanded (Web of Science))

2. Biondić, R., Biondić, B. & Meaški, H. (2012): Water supply spring zone Novljanska Žrnovnica (Croatia) – new quantities of drinking water in the conditions of salt water intrusion.– ACTA CARSOLOGICA. 41, 2-3; 253-264, Postojna. (Science Citation Index Expanded (Web of Science))

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4. Biondić, R., Meaški, H. & Biondić, B. (2014): Vulnerability mapping of the Novljanska Žrnovnica karstic spring catchment area in Croatia.- International conference and field seminar "Karst without boundaries", Proceedings, 11.-15.06.2014., Trebinje (BiH) – Dubrovnik, 357 – 363. (organized by: GEF, UNDP, UNESCO-IHP, International association of hydrogeologists, Global water partnership, Igrac)

5. Meaški, H., Biondić, B. & Biondić, R. (2014): Delineation of karst catchment area using several methods – an example of Plitvice Lakes catchment.- International conference and field seminar "Karst without boundaries", Proceedings, 11.-15.06.2014., Trebinje (BiH) – Dubrovnik, 118 – 123. (organized by: GEF, UNDP, UNESCO-IHP, International association of hydrogeologists, Global water partnership, Igrac)

6. Meaški, H., Biondić, B. & Biondić, R. (2016): Delineation of the Plitvice Lakes karst catchment area, Croatia. U: Stevanović, Z., Krešić, N., & Kukurić, N. (ur.). Karst without Boundaries, IAH Selected Papers edition, Vol. 23, CRC Press, 269-284.

7. Biondić, R., Biondić, B., Rubinić, J. & Meaški, H. (2012): Quality and quantity status and risk assessment of groundwater bodies in the karst area of Croatia.– U: Maloszewski, P., Witczak, S. & Malina, G. (ur.):

PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



Groundwater Quality Sustainability. International Association of hydrogeologists selected papers. London. CRC Press. Balkema, 163-172 (ISBN 978-0-415-69841-2).

8. Biondić, R., Petrič, M. & Rubinić, J. (2015): II. Study area: Northern Istria: Overview of hydrogeology.- U: Zupan Hajna, N., Ravbar, N., Rubinić, J. & Petrič, M. (ur.): Life and water in karst. Monitoring of transboundary water resources of Northern Istria.60-74. Karst Research Institute ZRC SAZU, Postojna, Slovenija, (ISBN 978-961-254-819-3).

9. Petrič, M., Ravbar, N., Brun, C., Biondić, R. & Kogovšek, J. (2015): III. Karst water resources monitoring: Assessment of flow dynamics and solute transport based on the monitoring of a flood pulse.- U: Zupan Hajna, N., Ravbar, N., Rubinić, J. & Petrič, M. (ur.): Life and water in karst. Monitoring of transboundary water resources of Northern Istria.124-134. Karst Research Institute ZRC SAZU, Postojna, Slovenija, (ISBN 978-961-254-819-3).



#### **ORDINAL NUMBER: 27**

FIRST NAME, LAST NAME, AND TITLE OF THE SUPERVISOR: Hrvoje Meaški, Assistant Professor

**NAME OF INSTITUTION OF EMPLOYMENT OF THE SUPERVISOR:** Faculty of Geotechnical Engineering, University of Zagreb

LIST OF PUBLISHED WORK WHICH QUALIFY HIM/HER AS AN ACTIVE RESEARCHER OR ARTIST IN THE SCIENTIFIC OR ARTISTIC FIELD IN WHICH THE DOCTORAL STUDY IS PROPOSED

1. Biondić, R., Meaški, H., Biondić, B, (2016): Hydrogeology of the sinking zone of the Korana River downstream of the Plitvice Lakes, Croatia. Acta carsologica, 45 (1); 43-56.

 Meaški, H., Biondić, B., Biondić, R. (2016): Delineation of the Plitvice Lakes karst catchment area, Croatia.
 Stevanović, Zoran ; Krešić, Neven ; Kukurić, Neno (eds.): Karst without Boundaries. International Association of Hydrogeologists - Selected papers. Nizozemska : CRC Press/Balkema; 269-284.

3. Biondić, R., Meaški, H., Biondić, B. (2014): Vulnerability mapping of Novljanska Žrnovnica karstic spring catchment area (Croatia) – In: Kukurć, N., Stevanović, Z., Krešić, N. (eds): Proceedings of International Conference and Field Seminar "Karst Without Boundaries". Trebinje (BiH), 11-15.6.2014; 357-363

4. Biondić, R., Biondić, B., Rubinić, J., Meaški, H. (2012): Quality and quantity status and risk assessment of groundwater bodies in the karst area of Croatia. In: Maloszewski, P., Witczak, S., Malina, G. (eds): Groundwater Quality Sustainability. International Association of Hydrogeologists - Selected papers. London: CRC Press Balkema; 163-172.

5. Biondić, R., Biondić, B., Meaški, H. (2012): Water supply spring zone Novljanska Žrnovnica (Croatia) – new quantities of drinking water in the conditions of salt water intrusion. Acta carsologica. 41 (2-3); 253-264.

6. Biondić, B., Biondić, R., Meaški, H. (2011): Zaštita vodnih resursa u Nacionalnom parku Plitvička jezera. U: Šutić, B., Mataija, I., Šikić, Z., Dujmović, A., Ružić, V., Brozinčević, A. (ur.): Znanstveno-stručni skup Nacionalnog parka Plitvička jezera povodom 60 godina od osnivanja i 30 godina od upisa na UNESCO-vu Listu svjetske kulturne i prirodne baštine. JUNP Plitvička jezera, Hrvatska, 82-102.

7. Biondić, R., Biondić, B., Rubinić, J., Meaški, H. (2011): Ocjena stanja i rizika cjelina podzemnih voda na krškom području Republike Hrvatske. U: Biondić, D., Holjević, D., Tropan, Lj. (ur.): Hrvatske vode pred izazovom klimatskih promjena. Opatija, Hrvatska, 479-489.

8. Biondić, B., Biondić, R., Meaški, H. (2010): The conceptual hydrogeological model of the Plitvice Lakes.– In: Bonacci, O. & Juračić, M. (eds.): Geologia Croatica. 63 (2); 195-206

9. Biondić, R., Biondić, B., Rubinić, J. & Meaški, H. (2010): Quality and quantity status and risk assessment of groundwater bodies in karst areas of Croatia.- In: Zuber, A., Kania, J. & Kmiecik, E. (eds) Groundwater Quality Sustainability. XXXVIII IAH Congress. Krakow, Poland, 12-17.9.2010; 801-807

10. Biondić, B., Zojer, H., Biondić, R. & Meaški, H. (2009): Sustainability of the water resources in the National Park Plitvice Lakes.- In: Bonacci, O. (ed): Centre for karst, Sustainability of the karst environment - Dinaric karst and other karst regions. Plitvice Lakes, 23-26.9.2009; 23-24 (ISBN: 978-953-7333-02-7)

11. Biondić, B., Zojer, H., Biondić, R., Beyene, Y., Kapelj, S., Meaški, H. & Zwicker, G. (2008): Mountainous lakes – Sustainable utilization of water in the pilot area Plitvice Lakes.– In: Probst, G., Probst, E., Probst, M., Schafranek, S. & Trubswasser, B. (eds): Wasserressourcen und deren Bewirtschaftung - Die Bedeutung von Netzwerken. Internationale Fachtagung. Kompetenznetzwerk Wasserressourcen GmbH. Graz, Austria, 22-23.9.2008; 109-117

PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



12. Biondić, B., Biondić, R., Meaški, H. (2007): Example of problem solving of the salinity increase of the karst aquifers in Croatia. In: Pulido Bosch, A., Lopez-Geta, J.A., Ramos Gonzalez, G. (eds.): Los acuiferos costeros: Retos y soluciones (Coastal aquifers: challenges and solutions). Madrid : Instituto geologico y minero de Espana (IGME), 927-938.

13. Biondić, B., Meaški, H. & Biondić, R. (2005): Vodni resursi krških područja u Hrvatskoj.– U: Biondić, B. & Božičević, J. (ur.): Zbornik radova Prvog savjetovanja Hrvatski krš i gospodarski razvoj, Centar za krš. Gospić-Zadar, 10.-11.12.2004.; 73-82

## LIST OF SELECTED PUBLISHED WORK IN THE LAST FIVE YEARS

1. Biondić, R., Meaški, H., Biondić, B, (2016): Hydrogeology of the sinking zone of the Korana River downstream of the Plitvice Lakes, Croatia. Acta carsologica, 45 (1); 43-56.

Meaški, H., Biondić, B., Biondić, R. (2016): Delineation of the Plitvice Lakes karst catchment area, Croatia.
 Stevanović, Zoran ; Krešić, Neven ; Kukurić, Neno (eds.): Karst without Boundaries. International
 Association of Hydrogeologists - Selected papers. Nizozemska : CRC Press/Balkema; 269-284.

3. Biondić, R., Meaški, H., Biondić, B. (2014): Vulnerability mapping of Novljanska Žrnovnica karstic spring catchment area (Croatia) – In: Kukurć, N., Stevanović, Z., Krešić, N. (eds): Proceedings of International Conference and Field Seminar "Karst Without Boundaries". Trebinje (BiH), 11-15.6.2014; 357-363

4. Biondić, R., Biondić, B., Rubinić, J., Meaški, H. (2012): Quality and quantity status and risk assessment of groundwater bodies in the karst area of Croatia. In: Maloszewski, P., Witczak, S., Malina, G. (eds): Groundwater Quality Sustainability. International Association of Hydrogeologists - Selected papers. London: CRC Press Balkema; 163-172.

5. Biondić, R., Biondić, B., Meaški, H. (2012): Water supply spring zone Novljanska Žrnovnica (Croatia) – new quantities of drinking water in the conditions of salt water intrusion. Acta carsologica. 41 (2-3); 253-264.

6. Biondić, B., Biondić, R., Meaški, H. (2011): Zaštita vodnih resursa u Nacionalnom parku Plitvička jezera. U: Šutić, B., Mataija, I., Šikić, Z., Dujmović, A., Ružić, V., Brozinčević, A. (ur.): Znanstveno-stručni skup Nacionalnog parka Plitvička jezera povodom 60 godina od osnivanja i 30 godina od upisa na UNESCO-vu Listu svjetske kulturne i prirodne baštine. JUNP Plitvička jezera, Hrvatska, 82-102.

7. Biondić, R., Biondić, B., Rubinić, J., Meaški, H. (2011): Ocjena stanja i rizika cjelina podzemnih voda na krškom području Republike Hrvatske. U: Biondić, D., Holjević, D., Tropan, Lj. (ur.): Hrvatske vode pred izazovom klimatskih promjena. Opatija, Hrvatska, 479-489.

PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



### **ORDINAL NUMBER: 28**

FIRST NAME, LAST NAME, AND TITLE OF THE SUPERVISOR: Sanja Kapelj, Full Professor

**NAME OF INSTITUTION OF EMPLOYMENT OF THE SUPERVISOR:** Faculty of Geotechnical Engineering, University of Zagreb.

LIST OF PUBLISHED WORK WHICH QUALIFY HIM/HER AS AN ACTIVE RESEARCHER OR ARTIST IN THE SCIENTIFIC OR ARTISTIC FIELD IN WHICH THE DOCTORAL STUDY IS PROPOSED

1. Kapelj, S.; Kapelj, J.; Švonja, M. (2012): Hidrogeološka obilježja sliva Jadra i Žrnovnice. Tusculum 5 (1), (2012), 205-516. (in Croatian with English abstract)

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2. Prtoljan, B.; Kapelj, S.; Dukarić, F.; Vlahović, I.; Mrinjek, E. (2012). Hydrogeochemical and isotopic evidence for definition of tectonically controled catchmnet areas of the Konavle area speings (SE Dalmatia, Croatia). Journal of Geochemical Exploration, 112, 285-296.

3. Kapelj, S., Loborec, J., Kapelj, J. (2013): Assessment of aquifer intrinsic vulnerability by the SINTACS method. Geologia Croatica, 66 (2), 119-128.

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5. Loborec, J.; Kapelj, S.; Dogančić, D.; Ptiček Siročić, A. (2014); Assessment of groundwater vulnerability in Croatian karstic aquifer in Jadro and Žrnovnica springs catchment area // Hydrogeological and Environmental Investigation in Karst System / Andrei, Bartolome; Carrasco, Francisco; Duran, Juan Jose; Jimenez, Pablo; LaMoreaux, James W. (ur.). Madrid: Springer Verlag, 397-407.

## NUMBER OF SUCCESSFUL MENTORSHIPS THAT RESULTED IN DISSERTATION DEFENCE

6



#### **ORDINAL NUMBER: 29**

FIRST NAME, LAST NAME, AND TITLE OF THE SUPERVISOR: Jelena Loborec, Assistant Professor

**NAME OF INSTITUTION OF EMPLOYMENT OF THE SUPERVISOR:** Faculty of Geotechnical Engineering, University of Zagreb

LIST OF PUBLISHED WORK WHICH QUALIFY HIM/HER AS AN ACTIVE RESEARCHER OR ARTIST IN THE SCIENTIFIC OR ARTISTIC FIELD IN WHICH THE DOCTORAL STUDY IS PROPOSED

1. Kapelj, S., Loborec, J., Kapelj, J. (2013): Assessment of aquifer intrinsic vulnerability by the SINTACS method. Geologia Croatica, Vol. 66, No. 2.

2. Loborec, J., Kapelj, S., Dogančić, D., Ptiček Siročić, A. (2014): Assessment of groundwater vulnerability in Croatian karstic aquifer in Jadro and Žrnovnica springs catchment area. V. International Symposium on karst, Malaga 2014. In: Andreo, B., Carrasco, F., Duran, J. J., Jimenez, P., LaMoreaux, J.W. (ur.): Hydrogeological and Environmental Investigations in Karst Systems, Madrid, Springer Verlag, Str. 397-407.

3. Loborec, J., Kapelj, S., Novak, H. (2015): Analysis of ground water pollution hazard in karst: a case study of the Jadro and Žrnovnica springs catchment area. Journal CIVIL ENGINEER 67, 11, 1093-1103.

4. Kopić, J., Loborec, J., Nakić, Z. (2016): Hydrogeological and hydrogeochemical characteristics of the wider area of the regional well field Eastern Slavonia - Sikirevci. The Mining-Geology-Petroleum Engineering Bulletin, Vol 31, No. 34, 47-66, DOI: 10.17794/rgn.2016.3.4.

5. Počekal, N., Loborec, J., Meaški, H. (2016): The landslide risk map preparation using GIS technology – an example of the Bednja municipality. The Journal Inženjerstvo okoliša, Vol. 3, No. 1., 7-20.

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7. Loborec, J. & Đurin, B. (2016): Implementation of multi-criterial analysis to selecting the optimal method for intrinsic vulnerability assessment of karst aquifers. The Journal Hrvatske vode, 24/97, 193-202.

## LIST OF SELECTED PUBLISHED WORK IN THE LAST FIVE YEARS

1. Kapelj, S., Loborec, J., Kapelj, J. (2013): Assessment of aquifer intrinsic vulnerability by the SINTACS method. Geologia Croatica, Vol. 66, No. 2.

2. Loborec, J., Kapelj, S., Dogančić, D., Ptiček Siročić, A. (2014): Assessment of groundwater vulnerability in Croatian karstic aquifer in Jadro and Žrnovnica springs catchment area. V. International Symposium on karst, Malaga 2014. In: Andreo, B., Carrasco, F., Duran, J. J., Jimenez, P., LaMoreaux, J.W. (ur.): Hydrogeological and Environmental Investigations in Karst Systems, Madrid, Springer Verlag, Str. 397-407.

3. Loborec, J., Kapelj, S., Novak, H. (2015): Analysis of ground water pollution hazard in karst: a case study of the Jadro and Žrnovnica springs catchment area. Journal CIVIL ENGINEER 67, 11, 1093-1103.

4. Kopić, J., Loborec, J., Nakić, Z. (2016): Hydrogeological and hydrogeochemical characteristics of the wider area of the regional well field Eastern Slavonia - Sikirevci. The Mining-Geology-Petroleum Engineering Bulletin, Vol 31, No. 34, 47-66, DOI: 10.17794/rgn.2016.3.4.

5. Počekal, N., Loborec, J., Meaški, H. (2016): The landslide risk map preparation using GIS technology – an example of the Bednja municipality. The Journal Inženjerstvo okoliša, Vol. 3, No. 1., 7-20.

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7. Loborec, J. & Đurin, B. (2016): Implementation of multi-criterial analysis to selecting the optimal method for intrinsic vulnerability assessment of karst aquifers. The Journal Hrvatske vode, 24/97, 193-202.



### **ORDINAL NUMBER: 30**

FIRST NAME, LAST NAME, AND TITLE OF THE SUPERVISOR: Bojan Đurin, Assistant Professor

**NAME OF INSTITUTION OF EMPLOYMENT OF THE SUPERVISOR:** Faculty of Geotechnical Engineering, University of Zagreb

LIST OF PUBLISHED WORK WHICH QUALIFY HIM/HER AS AN ACTIVE RESEARCHER OR ARTIST IN THE SCIENTIFIC OR ARTISTIC FIELD IN WHICH THE DOCTORAL STUDY IS PROPOSED

1. Đurin, Bojan. Some Aspects of the Operation Work of Pump Station and Water Reservoir. Periodica Polytechnica Civil Engineering. 60 (2016).

2. Đurin, Bojan; Lucija, Baić; Kuzik, Mirna; Matin, Josip. Hidrauličke, energetske i hidrološke karakteristike održivih sustava navodnjavanja: primjer nogometnog kluba "Obreš", Sveti Ilija, Hrvatska (Hydraulic, energeticandhydrologicalcharacteristicsofsustainableirrigationsystems: anexampleoffootballclub "Obreš", Sveti Ilija, Croatia). Voda za sve (Water for all), Osijek, Croatia, Prehrambeno-tehnološki fakultet Sveučilišta Josipa Jurja Strossmayera, 2016. 11-12

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4. Đurin, Bojan; Margeta, Jure; Bojanić, Davor.TheImpactofthe Water ConsumptionRegime on theWorkofReservoirs. // E-WAter. 1 (2015); 1-21.

5. Patrčević, Vladimir; Đurin, Bojan; Kuharić, Ivan. Analyses of Intensity Precipitation for the Dimensioning of Drainage Facility of Rainfall on the Area Town Daruvar. Inženjerstvo okoliša. 2 (2015), 2; 103-110.

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9. Đurin, Bojan; Margeta, Jure.AnalysisofthePossible Use ofSolarPhotovoltaic Energy in Urban Water Supply Systems. Water. 6 (2014), 6; 1546-1561.

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12. Đurin, Bojan; Zlatarek, Darko.Klasični i integralni način projektiranja i građenja oborinske kanalizacije (Classicand Integral MethodofStormwaterSewers Design andConstruction). Mineral. 99 (2014), 5; 22-25.

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3. Đurin, Bojan.SizingoftheSustainableIrrigation System byUsingoftheCritical Period Method: CaseStudyoftheFootball Club "Obreš", Sveti Ilija, Croatia. International Journal ofSustainable Energy Development (IJSED). 4 (2015), 1; 206-214.

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14. Đurin, Bojan.Koncept održivosti rada urbanog vodoopskrbnog sustava korištenjem solarne fotonaponske energije (TheConceptofSustainabilityof Urban Water Supply System UsingSolarPhotovoltaic Energy). Prvi skup mladih istraživača iz područja građevinarstva, arhitekture, geodezije i elektrotehnike "Zajednički temelji" (The First Simposiumof Young ResearchersintheFieldof Civil Engineering, Architecture, SurveyingandElectricalEngineering "Zajednički temelji"), Split, Croatia. Split: Sveučilište u Splitu, Fakultet građevinarstva, arhitekture i geodezije, 2013. 15-16.

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#### **ORDINAL NUMBER: 31**

FIRST NAME, LAST NAME, AND TITLE OF THE SUPERVISOR: Miroslav Golub, Full Professor

**NAME OF INSTITUTION OF EMPLOYMENT OF THE SUPERVISOR:** Faculty of Geotechnical Engineering, University of Zagreb

LIST OF PUBLISHED WORK WHICH QUALIFY HIM/HER AS AN ACTIVE RESEARCHER OR ARTIST IN THE SCIENTIFIC OR ARTISTIC FIELD IN WHICH THE DOCTORAL STUDY IS PROPOSED

Chapter in Scientific and Research Book

1.(2012) Golub M., Kurevija T., Geothermal Energy Development Strategy in Republic of Croatia Due to Promotion of Renewable Energy in European Union, rad u knjizi Geothermal Resource Assessment of The Drava Basin" str. 27-46, Ekonomski fakultet u Osijeku 2012., ISBN: 978-953-253-107-7, CIP University Library of Osijek number 130508080., 372 pp.

2.(2012) Jelić K., Golub M., Kolbah S., Kulenović I., Škrlec M., Croatian Goethermal Resources, rad u knjizi Geothermal Resource Assessment of The Drava Basin" str. 9-26, Ekonomski fakultet u Osijeku 2012., ISBN: 978-953-253-107-7, CIP University Library of Osijek number 130508080., 372 pp.

### Scientific Papers Abroad

1.(2010) Krešimir Jelić, Mroslav Golub, Slobodan Kolbah, Ismet Kulenović, Mladen Škrlec "Croatia Geothermal Resources Updates in the Year 2009", Proceedings World Geothermal Congress, Bali, Indonesia, 25-29 April 2010. p. 1-9.

2.(2015) Kolbah S., Škrlec M., Golub M., Kurevija T.,: Croatia Country Update 2015, Abstract submitted, World Geothermal Congress

3.(2016) Strelec, Golub, Grabar, Marciuš. " Aquifer Parameters for Purposes of Heating Pump System" (Određivanje parametara vodonosnika za potrebe sustava dizalica topline), Internatonal Congress: Energy and The Environment 2016, Opatija, Croatia

Published Scientific Papers in Croatia

1.(2011) Kolbah S., Škrlec M., Golub M.,: The Scientific and Engineering Approach to the Sustainable Development of a Deep Waters and Geothermal Resources Environment Systems in Republic of Croatia 6th Dubrovnik Conference on Sustainable Development of Energy, Water and Environment Systems SDEWES11-0133, Dubrovnik 2011. (e-verzija)

2.(2013) Pavlović D., Golub M., Jerolimov Z., "Prikaz načela bitnih za odabir terminala za uplinjavanje (UPP) u Republici Hrvatskoj temeljem usporednih elemenata UPP terminala u Poljskoj i Litvi", HSUP Znanstveno stručni skup stručnjaka za plin, Opatija 2013., zbornik u e-verziji

Međunarodni projekt vezan je na znanstveni projekt: Razvoj ekološkog plosnatog motora Stilingovog tipa (195014) obzirom na međusobnu suradnju sa Sveučilištem u Rimu "La Sapienza", a što je rezultiralo zajedničkim radovima pod nazivom "Zagreb-Roma Group":NSB

Scientific papers published in coordination with PhD participant:

1.(2008) Kurevija, T.; Vulin D.; Golub, M.: Geothermal Potential Assessment of the Gas Fields in Central Drava Basin in Republic of Croatia Due to Exergy Analysis, World Renewable Energy Congress X, 19-25. July 2008, Glasgow, Scotland.

2.(2008) D. Vulin, T. Kurevija, M. Golub: Enhanced Geothermal Systems-The Usage of CO2 as Heat Transmission Fluid, Zbornik radova: Energy and The Environment, Opatija 2008, Vol. II, p. 247-258.



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4.(2006) Rajković, D.; Golub, M.; Kurevija, T.: Evaluation of the Low Temperature Geothermal Sources in Croatia, Proceedings of the 15th Mine Planning and Equipment Selection, Torino, Italy, 19-22. September 2006, pp.6.

5.(2005) Golub, M.; Kurevija, T.; Košćak-Kolin S.: Binary Rankine Cycle Optimization, Proceedings of 3rd International Oil and Gas Conference, Zadar, Croatia, 04-07.October 2005. pp.6.

6.(2004) Golub, M.; Kurevija, T.; Košćak-Kolin S.: Influence of the Joule-Thompson Effect on Geothermal Energy Production at the Reservoir Velika Ciglena, International Congress Energy and Environment 2004., Opatija, Croatia, 27-29. October 2004., Vol II, p. 33-38.

7.(2004) Golub, M.; Kurevija, T.; Košćak-Kolin S.: Thermodynamic Cycle Optimization in the Geothermal Energy Production, The Mining-Geological-Petroleum Bulletin, Zagreb, Croatia, Vol 16, 2004., p. 81-86.

8.Košćak-Kolin, S.; Golub, M.; Rajković, D.: "Impact of the heat power on the unit geothermal energy cost", World Renewable Energy Congress VII 2002., Cologne, Germany, 29 June-5 July 2002, Renewable energy (ISSN 0960-1481).

## LIST OF SELECTED PUBLISHED WORK IN THE LAST FIVE YEARS

Chapter in Scientific and Research Book

1.(2012) Golub M., Kurevija T., Geothermal Energy Development Strategy in Republic of Croatia Due to Promotion of Renewable Energy in European Union, rad u knjizi Geothermal Resource Assessment of The Drava Basin" str. 27-46, Ekonomski fakultet u Osijeku 2012., ISBN: 978-953-253-107-7, CIP University Library of Osijek number 130508080., 372 pp.

2.(2012) Jelić K., Golub M., Kolbah S., Kulenović I., Škrlec M., Croatian Goethermal Resources, rad u knjizi Geothermal Resource Assessment of The Drava Basin" str. 9-26, Ekonomski fakultet u Osijeku 2012., ISBN: 978-953-253-107-7, CIP University Library of Osijek number 130508080., 372 pp.

## Scientific Papers Abroad

1.(2015) Kolbah S., Škrlec M., Golub M., Kurevija T.,: Croatia Country Update 2015, Abstract submitted, World Geothermal Congress

2.(2016) Strelec, Golub, Grabar, Marciuš. " Aquifer Parameters for Purposes of Heating Pump System" (Određivanje parametara vodonosnika za potrebe sustava dizalica topline), Internatonal Congress: Energy and The Environment 2016, Opatija, Croatia

Published Scientific Papers in Croatia

1.(2011) Kolbah S., Škrlec M., Golub M.,: The Scientific and Engineering Approach to the Sustainable Development of a Deep Waters and Geothermal Resources Environment Systems in Republic of Croatia 6th Dubrovnik Conference on Sustainable Development of Energy, Water and Environment Systems SDEWES11-0133, Dubrovnik 2011. (e-verzija)

2.(2013) Pavlović D., Golub M., Jerolimov Z., "Prikaz načela bitnih za odabir terminala za uplinjavanje (UPP) u Republici Hrvatskoj temeljem usporednih elemenata UPP terminala u Poljskoj i Litvi", HSUP Znanstveno stručni skup stručnjaka za plin, Opatija 2013., zbornik u e-verziji



#### **ORDINAL NUMBER: 32**

FIRST NAME, LAST NAME, AND TITLE OF THE SUPERVISOR: Ankica Kovač (Đukić), Assistant Professor

**NAME OF INSTITUTION OF EMPLOYMENT OF THE SUPERVISOR:** Faculty of Mechanical Engineering and Naval Architecture, University of Zagreb

LIST OF PUBLISHED WORK WHICH QUALIFY HIM/HER AS AN ACTIVE RESEARCHER OR ARTIST IN THE SCIENTIFIC OR ARTISTIC FIELD IN WHICH THE DOCTORAL STUDY IS PROPOSED

1. Firak, Mihajlo; Đukić, Ankica: Hydrogen transportation fuel in Croatia: Road map strategy. // International journal of hydrogen energy. 41 (2016) , 31; 13820-13830

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#### **ORDINAL NUMBER: 33**

FIRST NAME, LAST NAME, AND TITLE OF THE SUPERVISOR: Tea Žakula, Assistant Professor

**NAME OF INSTITUTION OF EMPLOYMENT OF THE SUPERVISOR:** Faculty of Mechanical Engineering and Naval Architecture, University of Zagreb

LIST OF PUBLISHED WORK WHICH QUALIFY HIM/HER AS AN ACTIVE RESEARCHER OR ARTIST IN THE SCIENTIFIC OR ARTISTIC FIELD IN WHICH THE DOCTORAL STUDY IS PROPOSED

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2012 položen MIT teaching certificate program, Massachusetts Institute of Technology, Cambridge, MA, SAD.



#### **ORDINAL NUMBER: 34**

FIRST NAME, LAST NAME, AND TITLE OF THE SUPERVISOR: Aleksandra Lobnik, Full Professor

**NAME OF INSTITUTION OF EMPLOYMENT OF THE SUPERVISOR:** Faculty of mechanical engineering, University of Maribor, Slovenia

LIST OF PUBLISHED WORK WHICH QUALIFY HIM/HER AS AN ACTIVE RESEARCHER OR ARTIST IN THE SCIENTIFIC OR ARTISTIC FIELD IN WHICH THE DOCTORAL STUDY IS PROPOSED

1. LOBNIK, Aleksandra, KORENT UREK, Špela. Sol-gel based opto-chemical sensor for detection of diethyl chlorophosphate and method for its preparation : EP 2 678 673 (B1), 2016-06-08. Berlin, Germany: European Patent Office, 2016. 8 str. [COBISS.SI-ID 19608854]

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NUMBER OF SUCCESSFUL MENTORSHIPS THAT RESULTED IN DISSERTATION DEFENCE

Four (4)



#### **ORDINAL NUMBER: 35**

FIRST NAME, LAST NAME, AND TITLE OF THE SUPERVISOR: Danko Biondić, Assistant Professor

NAME OF INSTITUTION OF EMPLOYMENT OF THE SUPERVISOR: Hrvatske vode (Croatian Waters)

LIST OF PUBLISHED WORK WHICH QUALIFY HIM/HER AS AN ACTIVE RESEARCHER OR ARTIST IN THE SCIENTIFIC OR ARTISTIC FIELD IN WHICH THE DOCTORAL STUDY IS PROPOSED

- Biondić, D., Barbalić, D. Petraš, J. (2002): Envelope Curves of Maximum Specific Discharges in the Danube River Catchment Area in Croatia, Proceedings of the 21st Conference of the Danube Countries on Hydrological Forecasting and Hydrological Bases of Water Management (CD-ROM), Bucharest, Romania.
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- 13. Babić, M., Barbalić, D., Biondić, D., Holjević, D. (2015): Upravljanje rizicima od poplava u Hrvatskoj, 6. hrvatska konferencija o vodama, Zbornik radova, 535-543, Opatija.
- 14. Biondić, D., Barbalić, S., Barbalić, D., Grizelj Šimić, V. (2016): Plan upravljanja vodnim područjima 2016.
  2021., Sabor hrvatskih graditelja 2016., Zbornik radova, 523-536, Cavtat.
- Biondić, D., Barbalić, S., Barbalić, D., Grizelj Šimić, V, Medić, Đ. (2017): Planiranje upravljanja vodama i hidrotehničke melioracije, Okrugli stol "Hidrotehničke melioracije u Hrvatskoj - stanje i izazovi", Zbornik radova, 25-46, Višnjica kod Slatine.

## LIST OF SELECTED PUBLISHED WORK IN THE LAST FIVE YEARS

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- 3. Babić, M., Barbalić, D., Biondić, D., Holjević, D. (2015): Upravljanje rizicima od poplava u Hrvatskoj, 6. hrvatska konferencija o vodama, Zbornik radova, 535-543, Opatija.
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- 5. Biondić, D., Barbalić, S., Barbalić, D., Grizelj Šimić, V, Medić, Đ. (2017): Planiranje upravljanja vodama i hidrotehničke melioracije, Okrugli stol "Hidrotehničke melioracije u Hrvatskoj - stanje i izazovi", Zbornik radova, 25-46, Višnjica kod Slatine.
PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



# **ORDINAL NUMBER:** 36

FIRST NAME, LAST NAME, AND TITLE OF THE SUPERVISOR: Goran Klobučar, Full Professor

NAME OF INSTITUTION OF EMPLOYMENT OF THE SUPERVISOR: Division of Biology, Faculty of Science, University of Zagreb

LIST OF PUBLISHED WORK WHICH QUALIFY HIM/HER AS AN ACTIVE RESEARCHER OR ARTIST IN THE SCIENTIFIC OR ARTISTIC FIELD IN WHICH THE DOCTORAL STUDY IS PROPOSED

Topić Popović, N., Strunjak-Perović, I., Barišić, J., Kepec, S., Jadan, M., Beer-Ljubić, B., Matijatko, V., Palić, D., Klobučar, G., Babić, S., Gajdoš Kljusurić, J., Čož-Rakovac, R. (2016) Native Prussian carp (Carassius gibelio) health status, biochemical and histological responses to treated wastewaters. Environ Poll 218: 689-701

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Carić H, Klobučar G, Štambuk A (2016) Ecotoxicological risk assessment of antifouling emissions in a cruise ship port. J Cleaner Prod 121: 159-168

4. Šrut M, Bourdineaud J-P, Štambuk A, Klobučar GIV (2015) Genomic and gene expression responses to genotoxic stress in PAC2 zebrafish embryonic cell line. J Applied Toxicol 35: 1381-1389

5. Topić Popović, N., Strunjak-Perović, I., Klobučar, R.S., Barišić, J., Babić, S., Jadan, M., Kepec, S., Kazazić, S.P., Matijatko, V., Beer Ljubić, B., Car, I., Repec, S., Stipaničev, D., Klobučar, G.I.V., Čož-Rakovac, R. (2015) Impact of treated wastewater on organismic biosensors at various levels of biological organization. Sci Tot Enviro 538: 23-37

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8. Šrut M, Štambuk A, Klobučar GIV (2013) What is Comet assay not telling us: AFLP reveals wider aspects of genotoxicity. Toxicol in vitro 27: 1226-1232

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14. Pavlica M, Štambuk A, Malović L, Mladinić M, Klobučar GIV (2011) DNA integrity of chub erythrocytes (Squalius cephalus L.) as an indicator of pollution-related genotoxicity in the River Sava. Environ Monitor Assess 177: 85-94

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17. Štambuk A, Pavlica M, Vignjević G, Bolarić B, Klobučar GIV (2009) Assessment of genotoxicity in polluted freshwaters using caged painter's mussel, Unio pictorum. Ecotoxicology 18: 430-439

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3. Carić H, Klobučar G, Štambuk A (2016) Ecotoxicological risk assessment of antifouling emissions in a cruise ship port. J Cleaner Prod 121: 159-168

4. Jelić, M., Klobučar, G.I.V., Grandjean, F., Puillandre, N., Franjević, D., Futo, M., Amouret, J., Maguire, I. (2016) Insights into the molecular phylogeny and historical biogeography of the white-clawed crayfish (Decapoda, Astacidae). Mol Phyl Evol 103: 26-40.

5. Hudina, S., Hock, K., Radović, A., Klobučar, G., Petković, J., Jelić, M., Maguire, I. (2016) Speciesspecific differences in dynamics of agonistic interactions may contribute to the competitive advantage of the invasive signal crayfish (Pacifastacus leniusculus) over the native narrow-clawed crayfish (Astacus leptodactylus). Mar Fresh Behav Physiol 49: 147-157.

6. Maguire, I., Jelić, M., Klobučar, G., Delpy, M., Delaunay, C., Grandjean, F. (2016) Prevalence of the pathogen Aphanomyces astaci in freshwater crayfish populations in Croatia. Dis Aquat Organ 118: 45-53.

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# NUMBER OF SUCCESSFUL MENTORSHIPS THAT RESULTED IN DISSERTATION DEFENCE

Slavko Kepec: "Ekotoksikološka i mikrobiološka karakterizacija pročišćenih otpadnih voda grada Virovitice". Zagreb : Prirodoslovno-matematički fakultet, Biološki odsjek, 06.06. 2016, 115 str. Voditelji: Natalija Topić Popović i Göran Klobučar.

Maja Šrut: "Genome stability of zebrafish (Danio rerio Hamilton, 1822) after exposure to model genotoxicants." Zagreb : Prirodoslovno-matematički fakultet, 05.10. 2012., 114 str. Voditelj: Göran Klobučar.

Godila Emilia Thomas. "Impact of anthropogenic stressors on the population genetics of the common bioindicator Dreissena polymorpha (Pallas, 1771)". Mainz : Department of Ecology, Universität Mainz, 07.12. 2012, 92 str. Voditelji: Eva Maria Griebeler i Göran Igor Vinko Klobučar.

Anamaria Štambuk: "Utjecaj onečišćenja na genetičku raznolikost populacija dagnje Mytilus galloprovincialis Lamarck, 1819". Zagreb : Prirodoslovno-matematički fakultet, 18.03. 2011, 149 str. Voditelj: Göran Igor Vinko Klobučar.

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A.6.3. LIST OF SCIENTIFIC, ARTISTIC AND DEVELOPMENTAL PROJECTS ON WHICH THE PROGRAMME OF THE DOCTORAL STUDY IS BASED

**ORDINAL NUMBER:** 1

TITLE OF THE PROJECT: Database of grassland vegetation in Croatia PROJECT CODE: Zvjezdana Stančić, Associated Professor DURATION OF THE PROJECT (START AND END DATE OF THE PROJECT): 2004-2005 SOURCE OF FUNDING: State Institute for Nature Protection of the Republic of Croatia, Ministry of Culture

# ORDINAL NUMBER: 2

**TITLE OF THE PROJECT:** A complete system of disposing of waste sludge from wastewater treatment plants using thermal treatment

PROJECT CODE: Aleksandra Anić Vučinić, Associated Professor

DURATION OF THE PROJECT (START AND END DATE OF THE PROJECT):2013-2014

SOURCE OF FUNDING: University of Zagreb, The Environmental Protection and Energy Efficiency Fund

# **ORDINAL NUMBER:** 3

**TITLE OF THE PROJECT:** Ecological studies of the management impact in crops of maize and cabbage on the composition of weeds in northwestern Croatia

PROJECT CODE: Zvjezdana Stančić, Associated Professor

DURATION OF THE PROJECT (START AND END DATE OF THE PROJECT): 2016

SOURCE OF FUNDING: University of Zagreb

#### **ORDINAL NUMBER:** 4

TITLE OF THE PROJECT: Experimental testing of granular stiffness of MBT waste PROJECT CODE: Igor Petrović, Assistant Professor DURATION OF THE PROJECT (START AND END DATE OF THE PROJECT): 2015-2017

SOURCE OF FUNDING: University of Zagreb

#### **ORDINAL NUMBER:** 5

**TITLE OF THE PROJECT:** Geophysical-geotechnical exploration of waste landfill for the purpose of environmental protection

PROJECT CODE: Stjepan Strelec, Associated Professor

DURATION OF THE PROJECT (START AND END DATE OF THE PROJECT): 2013-2014

SOURCE OF FUNDING: University of Zagreb

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#### **ORDINAL NUMBER:** 6

TITLE OF THE PROJECT: COST Action 65 - Hydrogeological aspects of groundwater protection in karstic areas PROJECT CODE: Božidar Biondić, Professor Emeritus DURATION OF THE PROJECT (START AND END DATE OF THE PROJECT): 1989-1995 SOURCE OF FUNDING: European Commission

#### **ORDINAL NUMBER:** 7

TITLE OF THE PROJECT: COST Action 621 - Groundwater management of coastal karstic aquifers ŠIFRA PROJEKTA, SUVODITELJ: Božidar Biondić, Professor Emeritus DURATION OF THE PROJECT (START AND END DATE OF THE PROJECT): 1998-2002 SOURCE OF FUNDING: European Commission

#### **ORDINAL NUMBER:** 8

**TITLE OF THE PROJECT:** Defining of trends and groundwater status assessment on the karstic area in Croatia **PROJECT CODE:** Ranko Biondić, Associated Professor

DURATION OF THE PROJECT (START AND END DATE OF THE PROJECT):2015-2016 SOURCE OF FUNDING: Croatian Waters

ORDINAL NUMBER: 9 TITLE OF THE PROJECT: Halophilic flora and vegetation of Croatia PROJECT CODE: Zvjezdana Stančić, Associated Professor DURATION OF THE PROJECT (START AND END DATE OF THE PROJECT):2005 SOURCE OF FUNDING: State Institute for Nature Protection of the Republic of Croatia, Ministry of Culture

#### **ORDINAL NUMBER:** 10

**TITLE OF THE PROJECT:** Inventory of marshland vegetation of the class *Phragmito-Magnocaricetea* in the area of Krapina-Zagorje County

PROJECT CODE: Zvjezdana Stančić, Associated Professor

DURATION OF THE PROJECT (START AND END DATE OF THE PROJECT):2010

**SOURCE OF FUNDING:** Public Institution for management of protected natural areas of Krapina-Zagorje County

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#### **ORDINAL NUMBER:** 11

**TITLE OF THE PROJECT:** IPA II scientific-research project "DRAVA-GEO" transboundary programme Hungary-Croatia

PROJECT CODE: br. HUHR/0901/2.1.3/0006, Miroslav Golub, Full Professor

DURATION OF THE PROJECT (START AND END DATE OF THE PROJECT): 2010-2012

SOURCE OF FUNDING: IPA Cross-border Co-operation Programme-Research on Geothermal Energy Sources

# **ORDINAL NUMBER:** 12

TITLE OF THE PROJECT: Research on sustainable water supply in the villages of the Dinaric karst

PROJECT CODE: Mladen Zelenika, Full Professor

DURATION OF THE PROJECT (START AND END DATE OF THE PROJECT): 2001-2004

**SOURCE OF FUNDING:** The Republic Croatia Ministry of Science, Education and Sport

# **ORDINAL NUMBER:** 13

TITLE OF THE PROJECT: Characterization of municipal solid waste

PROJECT CODE: 160-0831529-3031, Davorin Kovačić, Full Professor

DURATION OF THE PROJECT (START AND END DATE OF THE PROJECT): 2007-2010

**SOURCE OF FUNDING:** The Republic Croatia Ministry of Science, Education and Sport

#### **ORDINAL NUMBER:** 14

**TITLE OF THE PROJECT:** Karst Aquifers Vulnerability Assessment (KAVA) method applied to the Bakar Bay catchment area in Croatia

PROJECT CODE: Ranko Biondić, Full Professor

DURATION OF THE PROJECT (START AND END DATE OF THE PROJECT): 2015-2016

SOURCE OF FUNDING: UNESCO MedPartnership project

#### **ORDINAL NUMBER:** 15

**TITLE OF THE PROJECT:** Intrinsic vulnerability mapping of karstic aquifers on the example of the Novljanska Žrnovnica catchment area

PROJECT CODE: Ranko Biondić, Full Professor

# DURATION OF THE PROJECT (START AND END DATE OF THE PROJECT): 2014-2016

SOURCE OF FUNDING: University of Zagreb

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#### **ORDINAL NUMBER:** 16

TITLE OF THE PROJECT: Intelligent Energy Europe program (BETTER, CROSKILLS, CITIZENERGY, WISE Power) PROJECT CODE: Robert Pašičko, Assistant Professor DURATION OF THE PROJECT (START AND END DATE OF THE PROJECT): 2012-2017 SOURCE OF FUNDING: EU

#### **ORDINAL NUMBER: 17**

TITLE OF THE PROJECT: Quantitative evaluation of circular economy in electric and electronic waste management PROJECT CODE: Dinko Vujević, Assistant Professor DURATION OF THE PROJECT (START AND END DATE OF THE PROJECT): 2015 SOURCE OF FUNDING: University of Zagreb

#### **ORDINAL NUMBER:** 18

TITLE OF THE PROJECT: Matrix risk of seismic activity in northwestern Croatia PROJECT CODE: Josip Mesec, Full Professor DURATION OF THE PROJECT (START AND END DATE OF THE PROJECT): 2016 SOURCE OF FUNDING: University of Zagreb

#### **ORDINAL NUMBER:** 19

TITLE OF THE PROJECT: Possibilities of separating Indium from LCDs using ultrasonic baths PROJECT CODE: Aleksandra Anić-Vučinić, Associated Professor DURATION OF THE PROJECT (START AND END DATE OF THE PROJECT):2016 SOURCE OF FUNDING: University of Zagreb

#### **ORDINAL NUMBER:** 20

TITLE OF THE PROJECT: Mountainous lakes: Sustainable utilisation of water in the pilot area Plitvice Lakes PROJECT CODE: Božidar Biondić, Professor Emeritus DURATION OF THE PROJECT (START AND END DATE OF THE PROJECT): 2005-2008 SOURCE OF FUNDING: Plitvice Lakes National Park, The Government of the Republic of Austria, The Republic Croatia Ministry of Science, Education and Sport

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#### **ORDINAL NUMBER: 21**

TITLE OF THE PROJECT: Neophyte species of Croatian vascular flora PROJECT CODE: Zvjezdana Stančić, Associated Professor DURATION OF THE PROJECT (START AND END DATE OF THE PROJECT): 2006 SOURCE OF FUNDING: State Institute for Nature Protection of the Republic of Croatia, Ministry of Culture

#### **ORDINAL NUMBER: 22**

**TITLE OF THE PROJECT:** Status and risk assessment of groundwater bodies in the karstic area in the Republic of Croatia

PROJECT CODE: Ranko Biondić, Full Professor

DURATION OF THE PROJECT (START AND END DATE OF THE PROJECT):2008-2009

SOURCE OF FUNDING: Croatian Waters

# **ORDINAL NUMBER: 23**

TITLE OF THE PROJECT: Determination of heavy metals in vegetables

PROJECT CODE: Zvjezdana Stančić, Associated Profesor

# DURATION OF THE PROJECT (START AND END DATE OF THE PROJECT):2013-2014

SOURCE OF FUNDING: Varaždin County

#### **ORDINAL NUMBER: 24**

**TITLE OF THE PROJECT:** Determination of heavy metals in soil and plant samples along the railway lines in Varaždin County

PROJECT CODE: Zvjezdana Stančić, Associated Professor

# DURATION OF THE PROJECT (START AND END DATE OF THE PROJECT): 2015-2016

SOURCE OF FUNDING: Varaždin County

#### **ORDINAL NUMBER: 25**

**TITLE OF THE PROJECT:** Determination of heavy metals in soil and plant samples along the railway lines in Varaždin County

PROJECT CODE: Zvjezdana Stančić, Associated Professor

# DURATION OF THE PROJECT (START AND END DATE OF THE PROJECT): 2014-2015

SOURCE OF FUNDING: Varaždin County

PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



#### **ORDINAL NUMBER: 26**

TITLE OF THE PROJECT: Sustainable utilization and protection of water resources in the NP Plitvice Lakes PROJECT CODE: 160-0000000-2569, Božidar Biondić, Professor Emeritus DURATION OF THE PROJECT (START AND END DATE OF THE PROJECT): 2007-2010 SOURCE OF FUNDING: The Republic Croatia Ministry of Science, Education and Sport

#### **ORDINAL NUMBER: 27**

TITLE OF THE PROJECT: Sustainable LCD recycling PROJECT CODE: Aleksandra Anić-Vučinić, Associated Professor DURATION OF THE PROJECT (START AND END DATE OF THE PROJECT): 2013-2014 SOURCE OF FUNDING: University of Zagreb

#### **ORDINAL NUMBER: 28**

TITLE OF THE PROJECT: Sensitivity of karst hydrogeological systems PROJECT CODE: 160-0982709-1709, Sanja Kapelj, Full Professor DURATION OF THE PROJECT (START AND END DATE OF THE PROJECT): 2007-2010 SOURCE OF FUNDING: The Republic Croatia Ministry of Science, Education and Sport

#### **ORDINAL NUMBER: 29**

TITLE OF THE PROJECT: Basic Hydrogeological Map of the Republic of Croatia (S 1:100.000) PROJECT CODE: Božidar Biondić, Full Professor DURATION OF THE PROJECT (START AND END DATE OF THE PROJECT): 1985-2002 SOURCE OF FUNDING: The Republic Croatia Ministry of Science, Education and Sport

ORDINAL NUMBER: 30 TITLE OF THE PROJECT: Drinking water – export product (PIVIP) PROJECT CODE: Božidar Biondić, Full Professor DURATION OF THE PROJECT (START AND END DATE OF THE PROJECT): SOURCE OF FUNDING: The Republic Croatia Ministry of Science, Education and Sport

ORDINAL NUMBER: 31 TITLE OF THE PROJECT: Improvements of clay soils using explosives PROJECT CODE: Josip Mesec, Full Professor DURATION OF THE PROJECT (START AND END DATE OF THE PROJECT): 2013-2016

PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



# **SOURCE OF FUNDING:** University of Zagreb

#### **ORDINAL NUMBER: 32**

**TITLE OF THE PROJECT:** The potential for removal of heavy metals using the method of phytoremediation along railway lines in northwestern Croatia

**PROJECT CODE:** Zvjezdana Stančić, Associated Professor

DURATION OF THE PROJECT (START AND END DATE OF THE PROJECT):2014-2015

SOURCE OF FUNDING: University of Zagreb

# **ORDINAL NUMBER: 33**

TITLE OF THE PROJECT: Assessment of dynamic soil properties by seismic methods PROJECT CODE: Stjepan Strelec, Associated Professor DURATION OF THE PROJECT (START AND END DATE OF THE PROJECT):2014-2016 SOURCE OF FUNDING: University of Zagreb

# **ORDINAL NUMBER: 34**

TITLE OF THE PROJECT: The Project of rural electrification in Croatia PROJECT CODE: Robert Pašičko, Assistant Profesor DURATION OF THE PROJECT (START AND END DATE OF THE PROJECT): 2015-2016 SOURCE OF FUNDING: The Environmental Protection and Energy Efficiency Fund

# **ORDINAL NUMBER:** 35

TITLE OF THE PROJECT: Class *Molinio-Arrhenatheretea* in northwestern Croatia PROJECT CODE: Zvjezdana Stančić, Associated Professor DURATION OF THE PROJECT (START AND END DATE OF THE PROJECT): 1997-2002 SOURCE OF FUNDING: Ministry of Science and Technology of the Republic of Croatia

ORDINAL NUMBER: 36 TITLE OF THE PROJECT: Development of energy cooperatives in Croatia PROJECT CODE: Robert Pašičko, Assistant Professor DURATION OF THE PROJECT (START AND END DATE OF THE PROJECT):2013-2014 SOURCE OF FUNDING: Heinrich Bell Stiftung

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ORDINAL NUMBER: 37 TITLE OF THE PROJECT: Development of the Croatian approach to vulnerability of the karst aquifers PROJECT CODE: Sanja Kapelj, Full Professor DURATION OF THE PROJECT (START AND END DATE OF THE PROJECT):2013-2015 SOURCE OF FUNDING: University of Zagreb

#### **ORDINAL NUMBER: 38**

TITLE OF THE PROJECT: Development of a chemical sensor for determining stress in humans PROJECT CODE: Nikola Sakač, Assistant Professor DURATION OF THE PROJECT (START AND END DATE OF THE PROJECT): 2013-2014 SOURCE OF FUNDING: University J.J. Strossmayera in Osijek

#### **ORDINAL NUMBER: 39**

TITLE OF THE PROJECT: Development of project proposals for the Global Environmental Facility PROJECT CODE: Robert Pašičko, Assistant Professor DURATION OF THE PROJECT (START AND END DATE OF THE PROJECT): 2012-2015 SOURCE OF FUNDING: Global Environment Facility

#### **ORDINAL NUMBER:** 40

TITLE OF THE PROJECT: The remediation of soil contaminated by flood river silt using plants PROJECT CODE: Dinko Vujević, Assistant Professor DURATION OF THE PROJECT (START AND END DATE OF THE PROJECT): 2013-2014 SOURCE OF FUNDING: University of Zagreb

#### **ORDINAL NUMBER:** 41

TITLE OF THE PROJECT: The habitat of neophyte species of vascular flora in Croatia PROJECT CODE: Zvjezdana Stančić, Associated Professor DURATION OF THE PROJECT (START AND END DATE OF THE PROJECT):2006-2007 SOURCE OF FUNDING: State Institute for Nature Protection of the Republic of Croatia, Ministry of Culture

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# **ORDINAL NUMBER:** 42

TITLE OF THE PROJECT: The water management study of Jadro and Žrnovnica springs PROJECT CODE: Sanja Kapelj, Full Professor DURATION OF THE PROJECT (START AND END DATE OF THE PROJECT): 2005-2012 SOURCE OF FUNDING: Croatian Waters

# **ORDINAL NUMBER:** 43

**TITLE OF THE PROJECT:** Systematic application of solar photovoltaic energy in order to achieve sustainable irrigation systems

PROJECT CODE: Bojan Đurin, Assistant Professor

DURATION OF THE PROJECT (START AND END DATE OF THE PROJECT): 2016

SOURCE OF FUNDING: University of Zagreb

# **ORDINAL NUMBER:** 44

TITLE OF THE PROJECT: Technical support for the development of green economy in Tajikistan and Kyrgyzstan

PROJECT CODE: Robert Pašičko, Assistant Professor

DURATION OF THE PROJECT (START AND END DATE OF THE PROJECT): 2014-2016

SOURCE OF FUNDING: Global Environment Facility /Innovation Facility

# **ORDINAL NUMBER:** 45

**TITLE OF THE PROJECT:** Removing heavy metals by phytoremediation in the area of Varaždin and its surroundings

PROJECT CODE: Zvjezdana Stančić, Associated Professor

# DURATION OF THE PROJECT (START AND END DATE OF THE PROJECT): 2013

SOURCE OF FUNDING: Varaždin County

#### **ORDINAL NUMBER:** 46

**TITLE OF THE PROJECT:** Vulnerability mapping of Novljanska Žrnovnica karstic spring catchment area in Croatia

PROJECT CODE: Ranko Biondić, Full Professor

# DURATION OF THE PROJECT (START AND END DATE OF THE PROJECT): 2013-2014

SOURCE OF FUNDING: UNESCO MedPartnership project

PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



# **ORDINAL NUMBER: 47**

**TITLE OF THE PROJECT:** Common system of assessment of sustainability of water resources management of the Škocjanske jame and Risnjak National Parks

**PROJECT CODE:** Ranko Biondić, Full Professor

DURATION OF THE PROJECT (START AND END DATE OF THE PROJECT): 2014-2015

SOURCE OF FUNDING: IPA transboundary programme Slovenia-Croatia

# **ORDINAL NUMBER:** 48

TITLE OF THE PROJECT: Sludge disposal from municipal wastewater treatment plants PROJECT CODE: Aleksandra Anić Vučinić, Associated Professor DURATION OF THE PROJECT (START AND END DATE OF THE PROJECT): 2013-2014 SOURCE OF FUNDING: University of Zagreb

# **ORDINAL NUMBER:** 49

TITLE OF THE PROJECT: Disposal of carbon dioxide from geothermal and hydrocarbon deposits PROJECT CODE: Miroslav Golub, Full Professor DURATION OF THE PROJECT (START AND END DATE OF THE PROJECT): 2013 SOURCE OF FUNDING: The Republic of Croatia Ministry of Science, Education and Sport

PROPOSAL OF THE DOCTORAL STUDY PROGRAMME



# **B. DOCUMENTS**

# NOTE: Enclosed documents should be marked and attached respecting the order set in the table above.

<b>DOCUMENTS</b> (mark with YES or NO, depending on the documents you are enclosing)	YES /NO (write)
<b>B.1.</b> Decision of Faculty Councils of research-and-teaching constituents, or Academy Councils of art- and-teaching constituents, or other competent bodies, on the proposed study programme	YES
<b>B.2.</b> Proof of accreditation of the university graduate study, or the university integrated undergraduate and graduate study, from the same scientific or art field, or, in the case of interdisciplinary studies, proof of accreditation of university graduate studies, or the university integrated undergraduate and graduate studies in all disciplines of the said interdisciplinary study	YES
<b>B.3.</b> Cost estimation with the projection of costs necessary for implementation of the proposed doctoral study	YES
<b>B.4.</b> Proof of secured financial resources needed for implementation of research and teaching in the form of a statement by the Proposer of the study programme, or in the form of a contract with the university with which the study programme is implemented jointly	YES
<b>B.5.</b> Proof of the adequate number of work contracts concluded with research and- teaching and/or art-and-teaching staff (out of the total number of equated hours for the proposed study programme, at least a half should be carried out by full-time employees with a research-and-teaching and/or art-and-teaching rank) of the programme Proposer. The ratio of the total number of full-time employees and the total number of students enrolled should not exceed the figure determined by the Regulations on accreditation content and by the requirements for issuance of accreditation for conducting higher education activities, implementation of a study programme, and reaccreditation of higher education universities	YES
<b>B.6.</b> For the joint doctoral studies, enclosed the agreement among the partner institutions on the implementation of a joint study program and common qualifications	NO
<b>B.7.</b> For doctoral programs between 2 universities in Croatia, enclosed the agreement between the higher education institutions concerning the organization, realization and completion of this study programme	NO
<b>B.8.</b> A statement by the Proposer of the study programme whether they will seek new work places	YES
<b>B.9.</b> Opinion of the 3 organizations related to labour market	YES