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Željka Petrović

Date of birth: 19/05/1979 | **Nationality:** Croatian | **Gender:** Female | **Phone number:** (+385) 917684985 (Mobile) |

Email address: zpetrov@irb.hr | **Website:** http://www.irb.hr/Ljudi/Zeljka-Petrovic | **Website:**

https://www.croris.hr/crosbi/searchByContext/2/5777 | **LinkedIn:** www.linkedin.com/in/zeljka-petrovic-a97982189 | **X:**

https://twitter.com/Zeljka58140937/status/1301864875162062850 | **Address:** Bijenička cesta 54, 10000, Zagreb, Croatia (Work)

ABOUT ME

ORCID iD: 0000-0001-7609-7863

Laboratory for Synthesis of New Materials
Division of Materials Chemistry
Ruđer Bošković Institute

WORK EXPERIENCE

SENIOR RESEARCH ASSOCIATE – RUĐER BOŠKOVIĆ INSTITUTE – 01/08/2023 – Current – ZAGREB, CROATIA

Research areas:

Dental implants: Surface modification to improve corrosion resistance, bioactivity, and interfacial interactions at the implant–tissue interface, including experimental and computational approaches
Computational modelling (DFT): Density Functional Theory studies of molecular interactions and surface phenomena relevant to functional coatings
Metal oxides: Synthesis and characterisation; investigation of the effects of experimental conditions on morphological, structural, optical, (photo)electrochemical and photocatalytic properties of oxide materials

RESEARCH ASSOCIATE – RUĐER BOŠKOVIĆ INSTITUTE – 06/02/2013 – 31/07/2023 – ZAGREB, CROATIA

Website: http://www.irb.hr/

Research areas:
Metal oxides: Synthesis and characterisation. Investigation of the effects of experimental conditions on the morphological, structural, optical, (photo)electrochemical and photocatalytic properties of oxide particles.
Dental implants: Surface modification to improve the corrosion protection

UNIVERSITY RESEARCH ASSISTANT – UNIVERSITY OF ZAGREB FACULTY OF CHEMICAL ENGINEERING AND TECHNOLOGY – 01/12/2003 – 30/04/2012 – ZAGREB, CROATIA

Website: http://www.fkit.unizg.hr/

Research areas:
Self-assembling organic monolayers on metals: Mechanism and kinetics of formation, structural and barrier properties of monolayers
Oxide films on metals: Formation and growth, mechanism of charge transport, semiconducting properties
Antioxidant properties of phenolic compounds in wines.

EDUCATION AND TRAINING

2004 – 2008 Zagreb, Croatia
PHD (CHEMISTRY) University of Zagreb Faculty of Chemical Engineering and Technology

Address Marulićev trg 19, 10000, Zagreb, Croatia | **Website** https://www.fkit.unizg.hr/ |

Thesis Surface modification by self-assembling monolayers of organic molecules; Supervision: Prof. Dr. Mirjana Metikoš Huković

1997 – 2003 Zagreb, Croatia
MASTER IN CHEMICAL ENGINEERING University of Zagreb Faculty of Chemical Engineering and Technology

Address Marulićev trg 19, 10000, Zagreb, Croatia | **Website** https://www.fkit.unizg.hr/ |

Thesis The production of the Pt/carbon catalyst for fuel cells: an electrochemical approach; Supervision: Prof. Dr. Mirjana Metikoš-Huković

1993 – 1997 Zagreb, Croatia
SECONDARY SCHOOL - GYMNASIUM Gornjogradska gimnazija

Address Katarinin trg 5, 10000, Zagreb, Croatia | **Website** http://gimnazija-gornjogradska-zg.skole.hr/

LANGUAGE SKILLS

Mother tongue(s): **CROATIAN**

Other language(s):

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken production	Spoken interaction	
GERMAN	B2	B2	B2	B2	B2
ENGLISH	B2	B2	B2	B2	B2
ITALIAN	A2	A2	A2	A2	A2

Levels: A1 and A2: Basic user; B1 and B2: Independent user; C1 and C2: Proficient user

PUBLICATIONS

2004-2026: 43 total publications; 41 Web of Science Core Collection publications

Citations:

-792, h-indeks = 17 (Wos CC)

PROJECTS

Principal investigator

Innovation / Technology Transfer
Functional collagen-based coatings for dental implants
Registered innovation, Ruđer Bošković Institute innovation portfolio
2025
Role: Principal author
Field: dental materials, surface modification
Description: Development of collagen-based surface coatings for dental implants to improve anti-corrosion properties and osseointegration at the implant–tissue interface.

Research Projects (Funded by the Croatian Academy of Sciences and Arts – HAZU)
2022
Sterile and clean or sterile and contaminated: How clean is the dental implant?
Role: Project leader

2021
Aluminium from dental implants as a trigger of Alzheimer's disease: how to prevent aluminium dissolution?
Role: Project leader

01/01/2010 – 31/12/2026
Collaborator of international projects

Preparation and characterization of nanostructured iron oxides for application in advanced polymer composites

2024 - 2026

Bilateral project between the Republic of Hungary and the Republic of Croatia. The leader of the CRO team: Lj. Kratofil Krehula

2024 – 2026
Can zeolite serve as a green filler for rubber?

COGITO-France-Croatian project; leader: T. Antonić Jelić (Ruđer Bošković Institute, CRO); P. Judeinstein (Lab Leon Brillouin University Paris-Saclay)

2017 – 2019
Iron Oxide Nanostructures for Environmental and Energy Applications

Bilateral Chinese-Croatian project; leaders: M. Ristić (Institut Ruđer Bošković, CRO); J. Wang (Dalian Institute of Chemical Physics, Chinese Academy of Sciences, China)

2017 – 2019
Design of Ferite Nanoparticles for Agricultural and Environmental Applications

Bilateral Hungarian-Croatian project, leaders: M. Ristić (Ruđer Bošković Institute, CRO); E. Kuzmann (Institute of Chemistry, Hungary)

2016 – 2017
Nanostructured Iron Oxides for Environmental Applications

Bilateral Serbian-Croatian project; leaders: M. Ristić (Ruđer Bošković Institute, CRO); B. Antić (Vinča Institute, Serbia).

2015 – 2017
Nano/microstructure, Optical and Magnetic Properties of Doped Electrospun a-Fe2O3 and Zno Fibres";

Bilateral Austrian-Croatian project; leaders: M. Ristić (Ruđer Bošković Institute, CRO); M. Reissner (TU Wien, Austria).

2010 – 2012
Biomedical Engineering Materials and Functional Coatings for Medical Applications

Bilateral Slovenian-Croatian project; leaders: Z. Grubač (KTF Split, CRO); I. Milošev (Jožef Stefan Institut, Slovenia).

Collaborator of 4 national projects

2017-2022: "*Formation and properties of 1D α-Fe_2O_3 nanostructures doped with selected ions";*
(leaders: M. Ristić: 2017-2019 and S. Krehula: 2019-2022; Ruđer Bošković Institute, CRO)
2013-2015: „*Synthesis and microstructure of metal oxides and oxide glasses*" (leader: M. Ristić; Ruđer Bošković Institute, CRO)
2007-2012: „*New materials and catalysts for sustainable technologies*"*;* (leader: M. Metikoš-Huković, Faculty of Chemical Engineering and Technology University of Zagreb, CRO)
2003-2006: "*New materials and catalysts for sustainable technologies*"*;* (leader: M. Metikoš-Huković; Faculty of Chemical Engineering and Technology University of Zagreb, CRO)

NETWORKS AND MEMBERSHIPS

2021 – CURRENT
Member of the reviewer board of the Materials journal, MDPI AG: Basel, CH

Link https://www.mdpi.com/journal/materials/submission_reviewers

2003 – CURRENT Zagreb, Hrvatska
Member of the Croatian Society of Chemical Engineers

2017 – 2021
Editorial board member of the journal Innovations in Corrosion and Materials Science, Bentham Science Publishers Ltd: Sharjah, Sharjah, AE

Link https://benthamscience.com/journals/innovations-in-corrosion-and-materials-science/

CONFERENCES AND SEMINARS

2004-2025: participation in 50 international and national scientific conferences

HONOURS AND AWARDS

26/04/2024
The annual prize of the Ruder Boskovic Institute for the best scientific work in 2022 – Ruđer Bošković Institute

The paper:
Ankica Šarić, Martina Vrankić, Dirk Luetzenkirchen-Hecht, Ines Despotović, Željka Petrović, Goran Dražić, Franz Eckelt: "*Insight into the Growth Mechanism and Photocatalytic Behavior of Tubular Hierarchical ZnO Structures: An Integrated Experimental and Theoretical Approach*",
Inorganic Chemistry 61 (2022) 2962-2979.

16/02/2011

The prize for the best poster presentation presented at XXII Croatian Meeting of Chemists and Chemical Engineers, Zagreb, Croatia, 13-16 February 2011 – The organising committee

The poster: Ž. Petrović, S. Omanović, M. Metikoš-Huković, *„Self-assembled monolayers of organic molecules on metallic substrates: fundamental and applied investigations"*

SUPERVISIONS

Supervisor (co-mentor) of Master's theses, Faculty of Chemical Engineering and Technology, University of Zagreb

2025, Marin Hodalj: *Electrochemical deposition of collagen coating for dental implants*
2024, Martina Filipović: *Collagen coating for bioactivation of the titanium implant surface*
2023, Janina Roknić: *Surface modification of dental implants*
2021, Tin Takač: *Photocatalytic properties of nanostructured iron oxides*
2019, Gabrijela Radić: *Microstructure of electrospun hematite nanofibres*
2018, Ivan Šajnović: *The influence of synthesis method on the properties of nanostructured zinc oxides*

Supervisor (co-mentor) of Bachelor's theses; Faculty of Chemical Engineering and Technology, University of Zagreb

2023, Lejla Ćutić: *Synthesis of iron oxide fibres by electrospinning*
2016, Ivan Šajnović: *Synthesis and characterisation of ZnO structures*

PROFESSIONAL ACTIVITIES

2015 – 2023

Member of the Centre of Research Excellence for Advanced Materials and Sensing Devices at the Ruđer Bošković Institute

Research unit: New Functional Materials

2015 – CURRENT

Reviewer; scientific papers in journals and projects

-*Journals*: Materials, Coatings, Applied Sciences, Nanomaterials, Metals, Applied Nano, AppliedChem, Open Chemistry, Croatica Chemica Acta, Kemija u industriji, Physica B: Physics of Condensed Matter, Electrochemistry Communications

-*National projects for the Croatian Science Foundation and Croatian Academy of Sciences and Arts*

Member of numerous doctoral, master's and bachelor's examination committees

TEACHING

Assistant in Bachelor's, Master's and Postgraduate Doctoral and Specialist Courses

2006/2007 - 2011/2012: Postgraduate Doctoral and Specialist courses - assistant for laboratory exercises
-*Selected chapters of electrochemistry*
(Postgraduate doctoral course, Faculty of Science-Chemistry, University of Zagreb)
-*Mechanisms of electrochemical corrosion and protection of materials*
(Postgraduate doctoral course, Faculty of Chemical Engineering and Technology, University of Zagreb)
-*Selected chapters of electrochemistry*
(Postgraduate specialised course Corrosion and protection, Faculty of Chemical Engineering and Technology, University of Zagreb)

2003/2004 - 2011/2012: Bachelor's and Master's courses - assistant for laboratory exercises, Faculty of Chemical Engineering and Technology, University of Zagreb:
-*Electrochemistry*
-*Electrochemistry and Corrosion Engineering*
-*Electrochemical organic processes*
-*Electrochemical engineering*

OTHER RESEARCH ACTIVITIES

Co-editor - Books of abstracts

-*4th Mediterranean Conference on the Applications of the Moessbauer Effect, MECAME 2018 Book of Abstracts,* M. Ristić, Ž. Petrović, L. Androš Dubraja, S. Krehula (Eds), Zagreb, Ruđer Bošković Institute, 2018.

-*3rd Mediterranean Conference on the Applications of the Moessbauer Effect, MECAME 2017 Book of Abstracts,* I. Felner, M. Ristić, Ž. Petrović, S. Krehula (Eds.), Jerusalem, Israel, Ruđer Bošković Institute, 2017.

-*2nd Mediterranean Conference on the Applications of the Moessbauer Effect, MECAME 2016 Book of Abstracts,* M. Ristić, Ž. Petrović, S. Krehula (Eds), Zagreb, Ruđer Bošković Institute, 2016.

-*Mediterranean Conference on the Applications of the Moessbauer Effect*, *MECAME 2015 Book of Abstracts,* M. Ristić, Ž. Petrović, S. Krehula (Eds), Zagreb, Ruđer Bošković Institute, 2015.

-*International conference on the applications of the Mossbauer effect, ICAME 2013 Book of Abstracts,*
S. Musić, M. Ristić, S. Krehula, Ž. Petrović (Eds), Zagreb, Ruđer Bošković Institute, 2013.

ORGANISATIONAL SKILLS

Member of the organising committees of the following scientific events

1.) *Mediterranean Conference on the Applications of the Mössbauer Effect - MECAME 2017,* Zadar, Croatia
2.) *Mediterranean Conference on the Applications of the Mössbauer Effect, MECAME 2016,* Cavtat, Croatia
3.) *Mediterranean Conference on the Applications of the Mössbauer Effect, MECAME 2015,* Zadar, Croatia
4.) *International Conference on the Applications of the Mössbauer Effect, ICAME 2013*, Opatija, Croatia
5.) *13th Young Investigators' Seminar on Analytical Chemistry*, 2006, Zagreb, Croatia