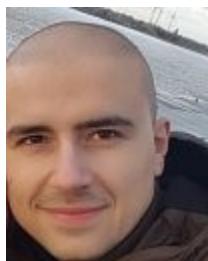


## Personal information

### Ivan Marić



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 <https://www.irb.hr/Zavodi/Zavod-za-kemiju-materijala/Laboratorij-za-radijacijsku-kemiju-i-dozimetriju/Zaposlenici/Ivan-Marić>

Sex Male | Date of birth 28/8/1993 | Nationality Croatian

## Work Experience

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1 April 2024 -  
now

### Research Associate

- **Ruđer Bošković Institute, Division of Materials Chemistry, Radiation Chemistry and Dosimetry Laboratory, Zagreb (Croatia)**
  - Synthesis of composite noble and non-noble metal catalysts on conductive supports
  - Synthesis of magnetic nanoparticles (iron oxides) and Au, Ag nanoparticles
  - Radiolytic synthesis of iron oxide/Au and iron oxide/Ag nanocomposite materials

1 May 2022 – 31  
December 2023

### Postdoctoral Fellow

- **Ruđer Bošković Institute, Division of Materials Chemistry, Radiation Chemistry and Dosimetry Laboratory, Zagreb (Croatia)**
- **National Institute of Chemistry, Division of Materials Chemistry, Ljubljana (Slovenia), ERC project “Towards Nanostructured Electrocatalysts with Superior Stability”**
  - Synthesis of composite noble and non-noble metal catalysts supported on conductive supports such as titanium oxynitride and various graphene materials for electrocatalytic water splitting.

1 August 2022 –  
30 April 2023

### Postdoctoral Fellow

- **Ruđer Bošković Institute, Division of Materials Chemistry, Radiation Chemistry and Dosimetry Laboratory, Zagreb (Croatia)**
  - Radiolytic synthesis of composite iron oxide/Au and iron oxide/Ag nanoparticles, microwave synthesis of manganese oxide nanostructures, and investigation of their catalytic properties for the degradation of organic pollutants in aqueous systems
- **University of Ljubljana, Faculty of Health Sciences, Ljubljana (Slovenia)**
  - Preparation of composite PMMA/Au films for dental applications, investigation of their mechanical and surface properties, as well as their antifungal and antibacterial properties

1 August 2018 –  
31 July 2022

### Assistant

- **Ruđer Bošković Institute, Division of Materials Chemistry, Radiation Chemistry and Dosimetry Laboratory, Zagreb (Croatia), CSF project “The effect of polymers on the radiolytic synthesis of magnetic nanoparticles”**
  - Synthesis of magnetic nanoparticles (iron oxides) and Au, Ag nanoparticles in the presence of various polymers, as well as their nanocomposite hydrogels by  $\gamma$ -irradiation.
  - Characterization of materials with thermal analysis method (DSC), FTIR, UV-Vis and Mössbauer spectroscopy (at room temperature, at low temperatures and in-magnetic field), XRD, DLS and microscopy (SEM, TEM), N<sub>2</sub> gas adsorption, SQUID magnetometry

1 February 2018 –  
1 August 2018

### Student Researcher

- **Ruđer Bošković Institute, Division of Materials Physics, Laboratory for Molecular Physics and Synthesis of New Materials, Zagreb (Croatia)**
  - Synthesis and characterization of various metal oxides and oxyhydroxides (TiO<sub>2</sub>, manganese oxides in different oxidation states, iron oxides)
  - Catalysis experiments of synthesized materials for the degradation of organic dyes,

September 2017 – Associate

December 2017

- **Total Research & Technology, Feluy (Belgium)**

- Data analysis and descriptive statistics, scientific articles and patents analysis relevant for the energy sector

## **Education**

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2018-2022

**Ph. D. in Chemistry (13. 5. 2022.)**

**University of Zagreb, Faculty of Science, Department of Chemistry**

- Title of the PhD thesis: "The effect of polymers on the radiolytic synthesis of magnetic iron oxide nanoparticles"
- Mentor: Dr. Tanja Jurkin

2015-2018

**M. Sc. Chemistry (21. 2. 2018.)**

**University of Zagreb, Faculty of Science, Department of Chemistry**

- Title of the MSc thesis: "Hydrothermal synthesis and photocatalytic activity of nanocrystalline solid solutions of the TiO<sub>2</sub>-Fe<sub>2</sub>O<sub>3</sub> system"
- Mentor: Dr. Marijan Gotić and Dr. Goran Štefanić

2012-2015

**B. Sc. Chemistry**

**University of Osijek, Department of Chemistry**

- Title of the BSc thesis: "Solution and refinement of crystal structures"
- Mentor: Dr. Berislav Marković

## **Personal Skills**

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**Job-related skills**

- Extensive experience in the use of ionizing irradiation techniques for the synthesis of iron oxide nanoparticles
- Extensive experience in the use of irradiation techniques for the synthesis of nanocomposite polymer hydrogels (Au, Ag and magnetic iron oxide composite polymer gels)
- Extensive experience in the analysis of iron oxides by Mössbauer spectroscopy in different conditions (external magnetic field, low temperature, room temperature)
- Good knowledge of experimental techniques for the synthesis of magnetic iron oxide nanoparticles and Ag, Au, Mn oxides and Ti oxides nanoparticles (gamma-irradiation, hydrothermal synthesis, mechanochemistry, microwave synthesis, high temperature annealing)
- Good knowledge of the synthesis of Pt, Ru, Cu, Co, Pd, Ir metal nanoparticles, as well as the synthesis and modification of properties of titanium oxynitride
- Working knowledge of different instrumental analysis techniques: DSC, XRD, FT-IR, UV-Vis spectroscopy, DLS, electron microscopy, SQUID magnetometry, rheology, gas adsorption
- Working knowledge of surface characterization techniques such as contact angle measurement (tensiometry), profilometry, streaming potential measurement, colorimetry
- Experience in electrochemical measurements of catalytic activity for hydrogen and oxygen evolution reactions
- Experience in testing the SERS activity of nanoparticles on model molecules
- Experience in the testing of catalytic activity of nanoparticles on model systems
- Experience in structural and morphological characterization of liposomes, bacteria, solid solutions, and silicon nanostructures

**Digital competences (computer skills)**

- Very good knowledge of Microsoft Office suite (Excel, Powerpoint, Word), Origin for general data analysis, crystallographic software (Maud, Match!, Qualx, Olex2, Mercury), Mössbauer spectra fitting software (MossWinn), UV-Vis spectra analysis (Spectragraphy) and other.
- Basic knowledge of the Python programming language, and several Python packages such as numpy, pandas, matplotlib.

Mother tongue	Croatian				
Other language(s)	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
English	C1	C1	B2	B2	C1
Slovene	B2	B1	A2	A2	A1

## Additional information

**Research projects** **Collaborator on 6 research projects and principal investigator of 4 research project:**

- PI on Installation Research Project funded by Croatian Science Foundation “Radiation-Induced Synthesis of High-Entropy Alloys: Novel Catalytic Solutions for Hydrogen Economy” (2026.-2031.). Funding: 290 625 EUR.
- PI on bilateral Croatian-Slovenian project funded by Croatian MSE “Radiolytic synthesis of efficient Ru-M/TiON nanostructured catalysts for water electrolysis” (2025.-2026.). Funding: 2000 EUR.
- PI on the CRP project by International Atomic Energy Agency “Face masks recycling with the use of radiation technologies” (2022. – 2026). Funding: 16000 EUR.
- PI on internal RBI project “Acquisition and installation of equipment for activity and stability testing of electrocatalysts for water electrolysis” (2024. – 2025.). Funding: 9940 EUR.
- Collaborator on Research Project of Croatian Science Foundation “Radiolytically synthesized magnetic nanoparticles for hyperthermia effect on cancer cells” (2023.-2027.). PI: Dr. Tanja Jurkin
- Postdoctoral fellow on ERC project “Towards Nanostructured Electrocatalysts with Superior Stability” (2020. – 2025.). PI: Dr. Nejc Hodnik
- Collaborator on the CRP project of International Atomic Energy Agency „Innovative production of novel biocomposite based on bacterial nanocellulose from biowaste using radiation technology” (2023. – 2028.). PI: Dr. Ivana Tartaro Bujak
- Collaborator on the Installation Research Project of Croatian Science Foundation UIP-2017-05-7337 “The impact of polymers on radiolytic synthesis of magnetic nanoparticles” (2018 – 2023). PI: Dr. Tanja Jurkin
- Collaborator on Croatian-Hungarian bilateral project “Platinum decorated iron tin oxide solid solutions for hydrogen gas sensing” (2021 – 2022). PI: Dr. Marijan Gotić
- Collaborator on Croatian-Slovenian bilateral project “Radiolytic synthesis of magnetic  $\delta$ -FeOOH@Au nanoparticles designed for biomedical applications” (2020 – 2021). PI: Dr. Tanja Jurkin

**Membership in scientific organizations**

- Croatian Chemical Society
- European Microscopy Society
- Croatian Radiation Protection Association
- Croatian Society for Electron Microscopy
- Croatian Crystallographic Union

**Conferences and training courses**

- 35 presentations at international conferences (3 oral and 32 poster presentations)
- Full list of abstracts available at:  
<https://www.croris.hr/osobe/profil/34870>  
[https://www.croris.hr/crosbi/searchByContext/2/34870?VRSTA\\_RAD=5&VRSTA\\_RAD=7](https://www.croris.hr/crosbi/searchByContext/2/34870?VRSTA_RAD=5&VRSTA_RAD=7)
- 15 training courses and workshops

**Publications and citations**

- **28 scientific papers (1<sup>st</sup> author of 12 papers), 202 citations, h-index = 11**
- Full list of papers available at:  
[https://www.croris.hr/crosbi/searchByContext/2/34870?VRSTA\\_RAD=4&TIP\\_RAD=1](https://www.croris.hr/crosbi/searchByContext/2/34870?VRSTA_RAD=4&TIP_RAD=1)

at WoSCC: <https://www.webofscience.com/wos/woscc/summary/431dc5be-1790-4932-bcfe-ef49c178991d-c41d473b/relevance/1>

at Scopus: <https://www.scopus.com/authid/detail.uri?authorId=57204789378>

at Google Scholar: <https://scholar.google.hr/citations?user=fGZWGc8AAAAJ&hl=en&oi=ao>

## Awards

- Medal of excellence awarded by University of Zagreb, Faculty of Science, Department of Chemistry
- Best student award awarded by University of Osijek, Department of Chemistry
- Ruđer Bošković Institute yearly award for best scientific papers in 2019. (1 paper)
- Ruđer Bošković Institute yearly award for best scientific papers in 2020. (4 papers)
- Department of Chemistry, Institute Ruđer Bošković yearly award for the best paper in the 2nd category (without PhD) in 2020.
- Ruđer Bošković Institute stipend for 1 month stay at IMMM in France (2020.)
- French Embassy and Ruđer Bošković Institute stipend for 1 month stay at IMMM in France (2019.)
- IAEA-iiia stipend for the participation at the 19<sup>th</sup> International Meeting on Radiation Processing and Pre-IMRP Training Course in Strasbourg and Reims in France 2019.

## Other

- Reviewer for Spectrochimica Acta Part A: Molecular and Biomolecular Spectroscopy (IF: 4.098)
- Reviewer for Arabian Journal of Chemistry (IF: 6.0)
- Reviewer for congress Second International Conference on Applications of Radiation Science and Technology (ICARST-2022)
- Assisted in the mentorship of a diploma thesis of MSc Monika Mihaljević "Synthesis of nanocomposite poly(ethylene oxide) hydrogels with Ag nanoparticles by gamma irradiation"