

## PERSONAL INFORMATION

Date of birth

Marko Robić

23 May 1993

Citizenship

Croatian

Address

Zagreb (Sesvete), Croatia

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E-MAIL

mrobic@irb.hr

Title

mag.appl.chem. (Master in Applied Chemistry)



## WORKING EXPERIENCE

Since July 2018

## Research Assistant

Rudjer Bosković Institute, Division of Material Chemistry, Laboratory for Synthesis of New Materials

The main focus is metal oxide preparation by electrospinning and hydrothermal method. The most common characterization techniques include UV-Vis-NIR (Shimadzu UV-3600), FT-IR (ATR) (PerkinElmer System 2000), Mössbauer Spectroscopy (Wissel), Field Emission SEM (Jeol 7000) and XRPD (ItalStructures APD 2000, Panalytical Aeris, Panalytical Empyrean). Experience in photocatalytic experiments (photo-Fenton reaction).

January 2018 – July 2018

## Volunteering

Rudjer Bosković Institute, Division of Physical Chemistry, Laboratory for Green Synthesis

Work in International group. The main focus is the solution and mechanochemical synthesis of coordinating and organometallic compounds (activation of C-H bonds) as chemosensors based on azobenzene derivatives. Experience in the preparation of ligands and metal complexes.

October 2013– December 2013

## Demonstrator

Faculty of Chemical Engineering and Technology, Department of General and Inorganic Chemistry

Working as a demonstrator in a student laboratory.

## EDUCATION

Since November 2018

## PhD Study of Chemistry

Faculty of Science, University of Zagreb

Course: Inorganic and Structural Chemistry

September 2015 – July 2017

## Graduate Study of Applied Chemistry

Faculty of Chemical Engineering and Technology, University of Zagreb

Course: Applied Chemistry

Module: Environmental Protection

September 2012 – July 2015

## Undergraduate Study of Applied Chemistry

Faculty of Chemical Engineering and Technology, University of Zagreb

Course: Applied Chemistry

## Participation at conferences

### Poster presentations

- 1) 5th Mediterranean Conference on the Applications of the Mössbauer Effect (**MECAME 2019**)  
19-23 May 2019, Montpellier, France  
Poster title: XRD, Mössbauer spectroscopic and FE SEM characterization of electrospun  $\alpha$ -Fe<sub>2</sub>O<sub>3</sub> nanofibres  
Authors: M. Robić, M. Marcuš, A. Kremenović, S. Musić, M. Ristić.
- 2) International Conference on the Applications of the Mössbauer Effect (**ICAME 2019**),  
01-06 September 2019, Dalian, China  
Poster title: Preparation and properties of electrospun Cr-doped  $\alpha$ -Fe<sub>2</sub>O<sub>3</sub> nanofibers,  
Authors: Marko Robić, Mira Ristić, Željka Petrović, Marijan Marcuš, Stjepko Krehula and Svetozar Musić
- 3) Fifth PhD Student Symposium of the Faculty of Science (**SSDS 2021**),  
24-25 April 2021, Zagreb, Croatia  
Poster title: Forced hydrolysis of FeCl<sub>3</sub> solutions in the presence of Cr<sup>3+</sup> ions in acidic medium  
Authors: Marko Robić, Mira Ristić, Erno Kuzmann, Zoltan Homonnay, Stjepko Krehula, Svetozar Musić
- 4) Mössbauer Spectroscopy from Magnetic Nanoarchitectures to Environmental Science:  
A Symposium in Honor of Dr. Jean Marc Greneche, American Chemical Society (**ACS Fall 2021**)  
Atlanta, GA, USA, 2021, online  
Poster title: Effects of Cr<sup>3+</sup> ions and hexamethylenetetramine on the forced hydrolysis of FeCl<sub>3</sub> solutions.  
Authors: Marko Robić, Mira Ristić, Stjepko Krehula, Erno Kuzmann, Zoltan Homonnay, Svetozar Musić
- 5) International Conference on the Applications of the Mössbauer Effect (**ICAME 2021**)  
05-10 September 2021, Brasov, Romania  
Poster title: Electrospun Ti-doped haematite fibres and their properties.  
Authors: Robić, Marko; Ristić, Mira; Marcuš, Marijan; Krehula, Stjepko; Musić, Svetozar
- 6) 27th Croatian Meeting of Chemists and Chemical Engineers (**27HSKIKI 2021**),  
05-08 October 2021, Veli Lošinj, Croatia  
Poster title: Synthesis and properties of electrospun fibres in the system Er<sub>2</sub>O<sub>3</sub>-Fe<sub>2</sub>O<sub>3</sub>  
Authors: Marko Robić, Mira Ristić, Stjepko Krehula and Svetozar Musić

### Oral presentations

International Symposium on the Industrial Applications of the Mössbauer Effect (**ISIAME 2022**),  
10-16 September 2022, Olomouc, Czech Republic  
Title: Influence of Sm and Y molar fractions on the properties of electrospun (Fe, Sm) and (Fe, Y) oxides,  
Authors: Marko Robić, Zoltán Homonnay, Ernő Kuzmann, Petre Badica, Andrei Alexandru-Dinu, Andrei Kuncser, Victor Kuncser, Nina Popov, Stjepko Krehula, Mira Ristić, Svetozar Musić

## Experience in chemistry (sample preparation and characterisation)

Metal oxide preparation by electrospinning (hematite, rare earth oxides, maghemite, orthoferrites, garnets)  
Hydrothermal synthesis (hematite, goethite, akaganeite, chromium oxide, iron phosphates)  
Mössbauer spectroscopy - measurement and fitting  
Field Emission SEM - authorized user  
Other characterizations: FT-IR (ATR) and UV-Vis spectroscopy, XRPD  
Photocatalysis experiments (photo-Fenton reaction)

## Acknowledgments and awards

### Dean's award

Dean's award upon completing undergraduate study at the Faculty of Chemical Engineering and Technology

### Poster award

International Conference on the Applications of the Mössbauer Effect (**ICAME 2019**)  
01-06 September 2019, Dalian, China

## Published articles

### As co-author (before PhD)

- 1) Tuneable solid-state emitters based on benzimidazole derivatives: Aggregation induced red emission and mechanochromism of D- $\pi$ -A fluorophores, Ema Horak, Marko Robić, Aleksandra Šimanović, Vilko Mandić, Robert Vianello, Marijana Hranjec, Ivana Murković Steinberg, Dyes and Pigments 162 (2019) 688–696, <https://doi.org/10.1016/j.dyepig.2018.10.069>
- 2) Facile Mechanochemical Anion Substitution in Cyclopalladated Azo-Benzenes, Alen Bjelopetrović, Marko Robić, Ivan Halasz, Darko Babić, Marina Juribašić Kulcsár and Manda Ćurić, Organometallics 38 (2019) 4479–4484, <https://doi.org/10.1021/acs.organomet.9b00626>

### As the main author (during PhD)

- 1) Synthesis and properties of nanostructured Cr-doped hematite fibres, Marko Robić, Mira Ristić, Marijan Marciuš, Stjepko Krehula, Svetozar Musić, Chem Pap 74 (2020) 4345–4353, <https://doi.org/10.1007/s11696-020-01247-6>
- 2) Electrospun Ti-doped haematite fibres and their properties, Marko Robić, Mira Ristić, Marijan Marciuš, Stjepko Krehula and Svetozar Musić, J Nanopart Res 22 (2020) 358, <https://doi.org/10.1007/s11051-020-05090-4>
- 3) Synthesis of nanocrystalline eskolaite via grimaldiite, Marko Robić, Mira Ristić, Stjepko Krehula, Marijana Jurić, Svetozar Musić, Chem Pap 75 (2021) 735–741, <https://doi.org/10.1007/s11696-020-01338-4>
- 4) Forced hydrolysis of FeCl<sub>3</sub> solutions in the presence of Cr<sup>3+</sup> ions, Marko Robić, Mira Ristić, Erno Kuzmann, Zoltan Homonnay, Stjepko Krehula, Svetozar Musić, J. Phys. Chem. Solids 156 (2021) 110166, <https://doi.org/10.1016/j.jpcs.2021.110166>
- 5) Forced hydrolysis of FeCl<sub>3</sub> solutions in the presence of guanylurea phosphate, Marko Robić, Mira Ristić, Stjepko Krehula, Svetozar Musić, Colloids and surfaces. A, Physicochemical and engineering aspects, 634 (2022), 128047, 10, <https://doi.org/10.1016/j.colsurfa.2021.128047>
- 6) Forced hydrolysis of FeCl<sub>3</sub> solutions in the presence of Cr<sup>3+</sup> ions and Hexamethylenetetramine, Marko Robić, Mira Ristić, Stjepko Krehula, Ernő Kuzmann, Zoltán Homonnay, Svetozar Musić, Journal of Materials Research, 2022.

## Computer skills

- OriginLab
- MS Office
- Match! (XRD analysis)
- X'Pert HighScore Plus
- MossWinn (for fitting Mössbauer spectra)

## Hobbies

- Gym
- Jogging
- Hiking
- Reading
- Singing (choir)
- Dancing
- Playing tambura (Croatian instrument)