

PERSONAL INFORMATION

Stipe Lukin

 Zagreb (Croatia)

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Sex Male | Date of birth 31/12/1991 | Nationality Croatian

WORK EXPERIENCE

10/2016–Present

Research Assistant

Ruđer Bošković Institute
Bijenička Cesta 54, 10000 Zagreb (Croatia)
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Laboratory for Green Synthesis, Division of Physical Chemistry

- mechanochemical synthesis of MOFs and pharmaceutical cocrystals
- development of real-time and in situ monitoring techniques for mechanochemical reactions based on Raman and powder XRD diffraction
- chemometric data analysis

05/2013–10/2016

Extracurricular scientific research

Ruđer Bošković Institute, Zagreb (Croatia)

Scientific research during the undergraduate studies at the Laboratory for Green Synthesis.

- reactivity in the solid state
- in situ Raman spectroscopy monitoring of mechanochemical reactions

EDUCATION AND TRAINING

10/2010–09/2014

Bachelor of Science - Chemistry

University of Zagreb, Faculty of Science, Zagreb (Croatia)

Final exam thesis: Molecular Dynamics - computational method

Thesis advisor: prof. dr. sc. Branimir Bertoša

10/2014–07/2016

Master of Science - Chemistry

University of Zagreb, Faculty of Science, Zagreb (Croatia)

Physical chemistry and Biochemistry

Master thesis: Mechanochemical cocrystal formation studied by *in situ* Raman spectroscopy

Thesis advisor: dr. sc. Ivan Halasz

10/2016–Present

PhD in Physical Chemistry

University of Zagreb, Faculty of Science, Zagreb (Croatia)

PhD advisor: dr. sc. Ivan Halasz

07/2015–10/2015

ERASMUS+ Internship

Institute for Research in Biomedicine (IRB)
C/ Baldiri Reixac 10, 08028 Barcelona (Spain)
www.irbbarcelona.org

Internship in group for Molecular Modelling and Bioinformatics in Division for Structural and Computational Biology led by prof. Modesto Orozco and under the supervision of dr. Antonija Kuzmanić.

- research of molecular dynamics of DNA crystal systems using Gromacs and AMBER software

PERSONAL SKILLS

Foreign language(s)	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
English	C1	C1	C1	C1	B2
Italian	A2	A2	A2	A2	A1

Levels: A1 and A2: Basic user - B1 and B2: Independent user - C1 and C2: Proficient user
Common European Framework of Reference for Languages

Communication skills

I gave oral presentations on several scientific conferences and television series.

Dynamic professional environment gave me opportunities for the development of "soft skills" needed for daily communications with my peers and industry representatives.

ERASMUS internship provided me with an experience of managing in a foreign country and an international laboratory.

Organisational / managerial skills

I participated in the organization of three Open days of Chemistry Department and one Open day of Ruđer Bošković Institute events.

Job-related skills

- crystal structure refinement and elucidation from the powder XRD data in TOPAS
- overall 24 days of synchrotron beamtime at ESRF in Grenoble (ID15A and ID31 beamlines) and DESY in Hamburg (P02.1 beamline)
- chemometric analysis
- programming (C, Matlab, Mathematica)
- spectroscopic methods (FTIR, Raman, XRD)
- use of various chemical software

ADDITIONAL INFORMATION

Honours and awards

2018 - Annual award of Ruđer Bošković Institute for scientific publication with a high impact factor in 2017 awarded by the Director General

2014 - Rector's Award of University of Zagreb for student scientific research

2014 - Department of Chemistry award in acknowledgment of extracurricular scientific research

2013 - Special Rector's Award of University of Zagreb

Publications

12. T. Stolar, **S. Lukin**, M. Tireli, I. Sović, B. Karadeniz, I. Kereković, G. Matijašić, M. Gretić, Z. Katančić, I. Dejanović, M. Di Michiel, I. Halasz, K. Užarević, Control of pharmaceutical cocrystal polymorphism on various scales by mechanochemistry: transfer from the laboratory batch to the large-scale extrusion processing, *ACS Sustainable Chemistry & Engineering*, **2019**, DOI: 10.1021/acssuschemeng.9b00043

11. **S. Lukin**, M. Tireli, T. Stolar, D. Barišić, M. V. Blanco, M. Di Michiel, K. Užarević, I. Halasz, Isotope Labeling Reveals Fast Atomic and Molecular Exchange in Mechanochemical Milling Reactions, *Journal of the American Chemical Society*, **2019**, 141(3), 1212-1216.

10. **S. Lukin**, M. Tireli, I. Lončarić, D. Barišić, P. Šket, D. Vrsaljko, M. Di Michiel, J. Plavec, K. Užarević, I. Halasz, Mechanochemical carbon-carbon bond formation that proceeds via a cocrystal

intermediate, *Chemical Communications*, **2018**, 54, 13216-13219.

9. **S. Lukin**, I. Lončarić, M. Tireli, T. Stolar, M. V. Blanco, P. Lazić, K. Užarević, I. Halasz, Experimental and Theoretical Study of Selectivity in Mechanochemical Cocrystallization of Nicotinamide with Anthranilic and Salicylic Acid, *Crystal Growth & Design*, **2018**, 18(3), 1539-1547.
8. A. Bjelopetrović, **S. Lukin**, I. Halasz, K. Užarević, I. Đilović, D. Barišić, A. Budimir, M. Juribašić Kulšcar, M. Čurić, Mechanism of Mechanochemical C-H Bond Activation in an Azobenzene Substrate by Pd(II) Catalysts, *Chemistry: a European Journal*, **2018**, 24(42), 10672-10682.
7. **S. Lukin**, T. Stolar, M. Tireli, M. Blanco, D. Babić, T. Friščić, K. Užarević, I. Halasz, Tandem *in situ* monitoring for quantitative assessment of mechanochemical reactions involving structurally unknown phases, *Chemistry: a European Journal*, **2017**, 23, 13941-13949.
6. **S. Lukin**, T. Stolar, M. Tireli, D. Barišić, M. Di Michiel, K. Užarević, I. Halasz, Solid-State Supramolecular Assembly of Salicylic Acid and 2-Pyridone, 3-Hydroxypyridine or 4-Pyridone, *Croatica Chemica Acta*, **2017**, 90(4), 707-710.
5. N. Biliškov, A. Borgschulte, K. Užarević, I. Halasz, **S. Lukin**, S. Milošević, I. Grbović, J. Novaković, *In situ* and Real-time Monitoring of Mechanochemical Preparation of $\text{Li}_2\text{Mg}(\text{NH}_2\text{BH}_3)_4$ and their Thermal Dehydrogenation, *Chemistry: a European Journal*, **2017**, 23, 16274-16282.
4. M. Tireli, S. Maračić, **S. Lukin**, M. Juribašić Kulšcar, D. Žilić, M. Cetina, I. Halasz, S. Raić-Malić, K. Užarević, Solvent-free Copper-catalyzed Click Chemistry for the Synthesis of Novel N-heterocyclic Hybrids based on Quinolone and 1,2,3-triazole, *Beilstein Journal of Organic Chemistry*, **2017**, 13, 2352-2363.
3. T. Stolar, L. Batzdorf, **S. Lukin**, D. Žilić, C. Motillo, T. Friščić, F. Emmerling, I. Halasz, K. Užarević, *In Situ* Monitoring of the Mechanochemical Synthesis of the Archetypal Metal-Organic Framework HKUST-1: Effect of Liquid Additives on the Milling Reactivity, *Inorganic Chemistry* **2017**, 56(11), 6599-6608.
2. M. Juribašić Kulšcar, I. Halasz, A. Budimir, K. Užarević, **S. Lukin**, A. Monas, F. Emmerling, J. Plavec, M. Čurić, Reversible Gas-Solid Ammonia N-H Bond Activation Mediated by an Organopalladium Complex, *Inorganic Chemistry* **2017**, 56(9), 5342-5351.
1. T. Stolar, **S. Lukin**, J. Požar, M. Rubčić, G. M. Day, I. Biljan, D. Š. Jung, G. Horvat, K. Užarević, E. Meštrović, I. Halasz, Solid-State Chemistry and Polymorphism of the Nucleobase Adenine, *Crystal growth & Design*, **2016**, 16(6), 3262-3270.

Conferences

5. **S. Lukin**, T. Stolar, M. Tireli, M. V. Blanco, D. Babić, T. Friščić, I. Halasz, K. Užarević, Quantitative *in situ* monitoring of mechanochemical polymorph selectivity, *Solid-State Science and Research*, 2017, Zagreb, Croatia - **Oral presentation**
4. **S. Lukin**, T. Stolar, M. Tireli, M. Di Michiel, I. Halasz, K. Užarević, Solvent-free synthesis of pharmaceutically active compounds, *The 1st European PhD & PostDoc Symposium*, 2017, Barcelona, Spain - **Poster**
3. **S. Lukin**, T. Stolar, M. Tireli, M. V. Blanco, D. Babić, T. Friščić, K. Užarević, I. Halasz, Quantitative *in situ* monitoring of mechanochemical selectivity in pharmaceutical cocrystal polymorphs, *INCOME2017 - 9th International Conference on Mechanochemistry and Mechanical Alloying*, 2017, Košice, Slovakia - **Oral presentation**
2. T. Stolar, **S. Lukin**, J. Požar, K. Užarević, E. Meštrović, I. Halasz, Solid-state chemistry and polymorphism of the nucleobase adenine, *The Twenty-fourth Croatian-Slovenian Crystallography Meeting*, 2016, Bol, Croatia - **Oral presentation**
1. **S. Lukin**, T. Stolar, K. Užarević, I. Halasz, Mechanochemical cocrystal formation studied by *in situ* Raman spectroscopy, *The Twenty-fourth Croatian-Slovenian Crystallography Meeting*, 2016, Bol, Croatia - **Oral presentation**

Presentations

Invited lecture at the National Institute of Chemistry in Ljubljana, Slovenia by dr. Blaž Likozar, Head of the Department of Catalysis and Chemical reaction Engineering (4th October 2018). title of the lecture: "In situ monitoring of chemical reactions in the solid state".