

# Curriculum Vitae

## PERSONAL INFORMATION

Name and surname **Darija Domazet Jurašin**  
Academic title Ph.D.  
Position Research Associate, Laboratory for biocolloids and surface chemistry, Division of Physical Chemistry, Ruđer Bošković Institute (RBI)  
Year and institution of PhD obtained 2010, Faculty of Science, University of Zagreb, Croatia  
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Citizenship Croatian  
Date and place of birth 15<sup>th</sup> December 1977, Zagreb, Croatia

## WORK EXPERIENCE

Date (from – until) September 2014 -  
Institution Ruđer Bošković Institute  
Position Research associate  
Work field Physico-chemical properties of surfactants and their cationic mixtures in solution and solid state, self-assembling of surfactants, application of dynamic and electrophoretic light scattering (DLS and ELS) for characterization of biological systems, metal nanoparticles and drug delivery systems, crystallization of biologically relevant minerals - calcium phosphates

Date (from – until) February 2011 – September 2014  
Institution Ruđer Bošković Institute  
Position Postdoctoral student, senior research assistant  
Work field Physico-chemical properties of surfactants in solution and solid state, self-assembling of surfactants, application of dynamic and electrophoretic light scattering (DLS and ELS) for characterization of nanomaterials, preparation, physico-chemical and biological characterization of biomimetic organic-inorganic composites and biopolymer scaffolds

Date (from – until) September 2004 – February 2011  
Institution Ruđer Bošković Institute  
Position Ph.D. student, junior researcher  
Work field Physico-chemical properties of surfactants in solution and solid state, self-assembling of surfactants, application of dynamic and electrophoretic light scattering (DLS and ELS) for characterization of nanomaterials

## EDUCATION

Date 2004 – 2010  
Place Zagreb  
Institution University of Zagreb, Faculty of Sciences, Department of Physical Chemistry  
Title of qualification awarded Ph.D. in chemistry  
Ph.D. Thesis *Structure-property relationship of cationic oligomeric surfactants and*

*catanionic mixtures*  
 Date 1996 – 2004  
 Place Zagreb  
 Institution University of Zagreb, Faculty of Sciences, Department of Inorganic Chemistry  
 Title of qualification awarded B.Sc. in chemistry  
 B.Sc. Thesis *Preparation and characterization of the mercury(II) compounds with pyridine-2, 5-dicarboxylic acid*

#### TRAINING

Workshop *Material Characterization*  
 Year 2011  
 Place Rogla, Slovenia  
 Workshop FP6 SSA project INCOMAT workshop *Creating international cooperation teams of excellence in the field of emerging biomaterial surface research*  
 Year 2008  
 Place Zagreb, Croatia  
 Workshop First Croatian summer school of synchrotron radiation "SynCro'07"  
 Year 2007  
 Place Rijeka, Croatia

#### LANGUAGES

**MOTHER TONGUE** **Croatian**

#### ENGLISH LANGUAGE

Speaking active  
 Writing active  
 Reading active

#### RESEARCH AND OTHER PROJECTS

##### Project Leader:

- 2011; *Characterization of biopolymeric scaffolds interaction with cells*. Project was funded by Unity through Knowledge Fund (UKF), Gaining Experience Grant.  
<https://sites.google.com/site/ukf2abiopolymericcaffolds/home>

##### Collaborator:

- 2018 – in progress; *Mechanisms of calcium phosphates formation on inorganic nanomaterials. A biomimetic synthetic route for multifunctional nanocomposites for hard tissue regeneration (CaPBiomimNanocomp)*, project leader: Ph.D. Maja Dutour Sikirić. Project is funded by Croatian Science Foundation.
- 2017 – in progress; *Protective mechanisms and effects of nano-delivered flavonoids in model cell membranes and neurons (NanoFlavNeuroProtect)*, project leader: Ph.D. Suzana Šegota. Project is funded by Croatian Science Foundation.
- 2016 – 2017; *Biocompatible nanoparticles with enhanced therapeutic efficacy of flavonoids in food*, project leader: Ph.D. Suzana Šegota. Project was funded by Business Innovation Croatian Agency (BICRO), Proof of Concept.
- 2016 – 2017; Croatian-Serbian bilateral project *Biodegradable nanoparticles with increased flavonoid therapeutic efficacy*, project leader: Ph.D. Suzana Šegota. Project was funded by Croatian Ministry of Science, Education and Sport.
- 2014 - 2017; *Bioinspired materials – Formation Mechanisms and Interaction*, project leader: Ph.D. Damir Kralj. Project was funded by Croatian Science Foundation.
- 2014 – 2016; Croatian-Slovenian bilateral project *Development of calcium phosphate bioceramics for hard tissue regeneration based on biomineralization*, project leader: Ph.D. Maja Dutour Sikirić. Project was funded by Croatian Ministry of Science, Education and Sport.

- 2012 - 2013; *Multifunctional composite coating for bone implants*, project leader: Ph.D. Maja Dutour Sikirić. Project was funded by Business Innovation Croatian Agency (BICRO), Proof of Concept.
- 2007 - 2014; *Surfactants, Processes in Solutions and at Interfaces*, project leader: Ph.D. Nada Filipović-Vinceković (2007 - 2010) and Ph.D. Maja Dutour Sikirić (2010 - 2014). Project was funded by Croatian Ministry of Science, Education and Sport.
- 2010 - 2011; Croatian-Serbian bilateral project *Synthesis of amorphous calcium phosphate by ultrasonic spray pyrolysis*, project leader: Ph.D. Maja Dutour Sikirić. Project was funded by Croatian Ministry of Science, Education and Sport.
- 2007 - 2009; FP6 SSA INCOMAT *Creating international cooperation teams of excellence in the field of emerging biomaterial surface research*, project leader: prof. Klaus Leifeith
- Project was funded by EU.
- 2002 - 2006; *Surfactants, Processes in Solutions and at Interfaces*, project leader: Ph.D. Nada Filipović-Vinceković. Project was funded by Croatian Ministry of Science, Education and Sport.

#### TEACHING

- from 2016 co-lecturer of *Physico-chemical processes in the environment*, Postgraduation interdisciplinary study "Environmental protection" organized by University of Osijek and Ruđer Bošković Institute
- 2015/2016 - assistant in *Higher Laboratory Exercises in Physical Chemistry*, Department of Chemistry, Faculty of Science, University of Zagreb
- 2014 - 2018 - assistant in *Cell Biophysics*, Faculty of Science, University of Zagreb
- from 2015 - assistant in *Biomembranes*, Faculty of Science, University of Zagreb

#### MENTORSHIP OF DEFENDED DOCTORAL AND MASTER DISSERTATIONS AND TRAINING OF YOUNG RESEARCHERS AND SCIENTISTS

- Sanja Novak, 2015, B.Sc. thesis "*Interactions in mixtures of sodium bis (2-ethylhexyl) sulfosuccinate (AOT) and ionic liquid*", Faculty of Science, University of Zagreb
- Natali Nakić, 2015, B.Sc. thesis "*Stability of titanate nanowires in aqueous medium*, Faculty of Science", University of Zagreb
- Ines Bosak, 2012, B.Sc. thesis "*Precipitation of calcium phosphates in the presence of titanate nanotubes*", Faculty of Science, University of Zagreb
- Mateja Zadavec, 2012, B.Sc. thesis "*Influence of electrolytes on the physico-chemical properties of monomeric and dimeric surfactants*", Faculty of Science, University of Zagreb

#### VISITS TO FOREIGN RESEARCH AND EDUCATION INSTITUTIONS

- January 2016; European Commission Joint Research Centre (JRC), Ispra, Italy
- June 2011 - December 2011; Laboratory of Biophysics, Condensed matter physics, Jožef Stefan Institute, Ljubljana, Slovenia

#### MEMBERSHIP IN SCIENCE ORGANIZATIONS AND BODIES

- Croatian Microscopy Society
- European colloid and interface society (ECIS)

#### COMMISSIONS, COMMITTEES, BOARDS AND WORK GROUPS

- 2014 - 2017; substitute member of Management Committee in the COST Action *MP1301 "New Generation Biomimetic and Customized Implants for Bone Engineering (NEWGEN)"*
- from 2014 Member and from 2016 President of Technical Subcommittee 91 "*Surface active agents*", Croatian Standards Institute

#### ADDITIONAL INFORMATION

- reviewer for *Langmuir*, *Soft Matter*, *RCS Advances*, *Journal of Materials Chemistry C*, *Colloid*

**List of publications:**

- **33** original scientific paper published in journals indexed in Current Contents
- **2** chapters in the books – 1 book indexed in Book Citation Index in Web of Science™ Core Collection
- **2** scientific paper published in International Conference Proceedings
- **10** lectures and **19** poster presentations at international and **1** lecture and **13** poster presentations at domestic Conferences

**Chapter in the book:**

1. **D. Domazet Jurašin**, S. Šegota, V. Čadež, A. Selmani, M. Dutour Sikirić, Recent Advances in Catanionic Mixtures, Application and Characterization of Surfactants, Dr. Reza Najjar (Ed.), InTech, 2017., DOI: 10.5772/67998.
2. **D. Jurašin**, M. Dutour Sikirić, Higher Oligomeric Surfactants — From Fundamentals to Applications, Oligomerization of Chemical and Biological Compounds, Dr. Claire Lesieur (Ed.), InTech, 2014., DOI: 10.5772/57655

**Publication in Journals with Review Board:**

1. B. Pem, I. Pongrac, L. Ulm, I. Pavičić, V. Vrčec, D. Domazet Jurašin, M. Ljubojević, A. Krivohlavek, I. Vinković Vrčec, Toxicity and safety study of silver and gold nanoparticles functionalized with cysteine and glutathione, *Beilstein Journal of Nanotechnology* **10** (2019) 1802
2. R. Barbir, W. Goessler, M. Ćurlin, V. Micek, M. Milić, B. Vuković, M. Milić, M. Ljubojević, **D. Domazet Jurašin** I. Vinković Vrčec, Protein Corona Modulates Distribution and Toxicological Effects of Silver Nanoparticles In Vivo, *Particle and Particle Systems Characterization* **36** (2019) 1900174
3. A. Sadžak, L. Mandić, V. Strasser, G. Baranović, **D. Domazet Jurašin**, M. Dutour Sikirić, S. Šegota, Enhanced Protection of Biological Membranes during Lipid Peroxidation: Study of the Interactions between Flavonoid Loaded Mesoporous Silica Nanoparticles and Model Cell Membranes, *International Journal of Molecular Sciences* **20** (2019) 2709
4. A. Selmani, J. Lützenkirchen, K. Kučanda, D. Dabić, E. Redel, I. Delač Marion, D. Kralj, **D. Domazet Jurašin\***, M. Dutour Sikirić, Tailoring the stability/aggregation of one-dimensional TiO<sub>2</sub>(B)/titanate nanowires using surfactants, *Beilstein Journal of Nanotechnology* **10** (2019) 1024-1037.
5. I. Buljan Meić, J. Kontrec, **D. Domazet Jurašin**, A. Selmani, B. Njegić Džakula, N. Maltar-Strmečki, D.M. Lyons, M. Plodinec, M. Čeh, A. Gajović, M. Dutour Sikirić, D. Kralj, How similar are amorphous calcium carbonate and calcium phosphate? A comparative study of amorphous phases formation conditions, *Crystengcomm* **20** (2018) 35-50.
6. V. Čadež, I. Erceg, A. Selmani, **D. Domazet Jurašin**, S. Šegota, D.M. Lyons, D. Kralj, M. Dutour Sikirić, Amorphous Calcium Phosphate Formation and Aggregation Process Revealed by Light Scattering Techniques, *Crystals* **8** (2018) 254.
7. I. Capjak, M. Zebić Avdičević, M. Dutour Sikirić, **D. Domazet Jurašin**, A. Hozić, D. Pajić, S. Dobrović, W. Goessler, I. Vinković Vrčec, Behavior of silver nanoparticles in wastewater: systematic investigation on the combined effects of surfactants and electrolytes in the model systems, *Environmental Science: Water Research and Technology* **4** (2018) 2146-2159.
9. I. M. Pongrac, L. Brkić Ahmed, H. Mlinarić, **D. Domazet Jurašin**, I. Pavičić, AM, Marjanović Čermak, M. Milić, S. Gajović, I. Vinković Vrčec, Surface coating affects uptake of silver nanoparticles in neural stem cells, *Journal of trace elements in medicine and biology* **50** (2018) 684-692.

9. T. Vinković, Tomislav; I. Štolfa Čamagajevac, M. Tkalec, W. Goessler, **D. Domazet Jurašin**, I. Vinković Vrček, Does plant growing condition affects biodistribution and biological effects of silver nanoparticles?, *Spanish journal of agricultural research* **16** (2018) 4.
10. I. Capjak, S. Šupraha Goreta, **D. Domazet Jurašin**, I. Vinković Vrček, How protein coronas determine the fate of engineered nanoparticles in biological environment, *Arhiv za higijenu rada i toksikologiju* **68** (2017) 245-253.
11. I. Buljan Meić, J. Kontrec, **D. Domazet Jurašin**, B. Njegić Džakula, L. Štajner, D. M. Lyons, M. Dutour Sikirić, D. Kralj, Comparative study of calcium carbonates and calcium phosphates precipitation in model systems mimicking the inorganic environment for biomineralization, *Crystal Growth & Design* **17** (2017) 1103-1117.
12. M. Levak, P. Burić, **D. Domazet Jurašin**, N. Mikac, N. Bačić, R. Drexel, F. Meier, Ž. Jakšić, D. M. Lyons, Effect of protein corona on silver nanoparticle stabilization and ion release kinetics in artificial seawater, *Environmental Science & Technology* **51** (2017) 1259-1266.
13. T. Vinković, O. Novak, M. Strnad, W. Goessler, **D. Domazet Jurašin**, N. Parađiković, I. Vinković Vrček, Cytokinin response in pepper plants (*Capsicum annuum L.*) exposed to silver nanoparticles, *Environmental Research* **156** (2017) 10-18.
14. **D. Domazet Jurašin**, M. Ćurlin, I. Capjak, T. Crnković, M. Lovrić, M. Babić, D. Horak, I. Vinković Vrček, S. Gajović, Surface coating affects behavior of metallic nanoparticles in a biological environment, *Beilstein Journal of Nanotechnology* **7** (2016) 246-262.
15. S. Novak, S. Morasi Piperčić, S. Makarić, I. Primožič, M. Ćurlin, Z. Štefanić, **D. Domazet Jurašin\***, Interplay of Noncovalent Interactions in Ionic Liquid/Sodium Bis(2-ethylhexyl) Sulfosuccinate Mixtures: From Lamellar to Bicontinuous Cubic Liquid Crystalline Phase, *Journal of Physical Chemistry B* **120** (2016) 12557-12567.
16. M. Skočibušić, R. Odžak, Z. Štefanić, I. Križić, L. Krišto, O. Jović, T. Hrenar, I. Primožič, **D. Jurašin\***, Structure-property relationship of quinuclidinium surfactants-Towards multifunctional biologically active molecules, *Colloids and Surfaces B - Biointerfaces* **140** (2016) 548-559.
17. D. C. Antonio, C. Cascio, Ž. Jakšić, **D. Jurašin**, D. M. Lyons, A. J. A. Nogueira, F. Rossi, L. Calzolari, Assessing silver nanoparticles behaviour in artificial seawater by mean of AF4 and spICP-MS, *Marine Environmental Research* **111** (2015) 162-169.
18. E. Bura-Nakić, M. Marguš, **D. Jurašin**, I. Milanović, I. Ciglencečki, Chronoamperometric study of elemental sulphur (S) nanoparticles (NPs) in NaCl water solution: new methodology for S NPs sizing and detection, *Geochemical Transactions* **16** (2015) 1-1-1-9.
19. P. Burić, Ž. Jakšić, L. Štajner, M. Dutour Sikirić, **D. Jurašin**, C. Cascio, L. Calzolari, D. M. Lyons, Effect of silver nanoparticles on Mediterranean sea urchin embryonal development is species specific and depends on moment of first exposure, *Marine Environmental Research* **111** (2015) 50-59.
20. A. Selmani, I. Coha, K. Magdić, B. Čolović, V. Jokanović, S. Šegota, S. Gajović, A. Gajović, **D. Jurašin**, M. Dutour Sikirić, Multiscale study of the cationic surfactants influence on amorphous calcium phosphate precipitation *CrystEngComm* **17** (2015) 8529-8548.
21. L. Ulm, A. Krivohlavek, **D. Jurašin**, M. Ljubojević, G. Šinko, T. Crnković, I. Žuntar, S. Šikić, I. Vinković Vrček, Response of biochemical biomarkers in the aquatic crustacean *Daphnia magna* exposed to silver nanoparticles, *Environmental Science and pollution research* **22** (2015) 19990-19999.
22. I. Vinković Vrček, I. Pavičić, T. Crnković, **D. Jurašin**, M. Babić, D. Horak, M. Lovrić, L. Ferhatović, M. Ćurlin, S. Gajović, Does surface coating of metallic nanoparticles modulate their interference with in vitro assays? *RSC Advances* **5** (2015) 70787-70807.
23. R. Podlipec, S. Gorgieva, **D. Jurašin**, I. Urbančić, V. Kokol, J. Štrancar, Molecular mobility of scaffolds' biopolymers influences cell growth, *ACS Applied Materials and Interfaces* **6** (2014) 15980-15990.
24. M. Vinceković, M. Ćurlin, **D. Jurašin\***, Impact of the Cationic Surfactant on the Self-Assembly of Sodium Caseinate, *Journal of Agricultural and Food Chemistry* **62** (2014) 8543-8554.

25. E. Bura-Nakić, M. Marguš, I. Milanović, **D. Jurašin**, I. Ciglencečki-Jušić, The development of electrochemical methods for determining nanoparticles in the environment. Part II: chronoamperometric study of FeS in sodium chloride solutions, *Environmental chemistry* **11** (2013) 187-195.
26. **D. Jurašin\***, M. Vinceković, A. Pustak, I. Šmit, M. Bujan, N. Filipović-Vinceković, Lamellar to Hexagonal Columnar Liquid Crystalline Phase Transition in a Catanionic Surfactant Mixture: Dodecylammonium Chloride/Sodium Bis(2-ethylhexyl) Sulfosuccinate, *Soft Matter* **9** (2013) 3349-3360.
27. **D. Jurašin\***, A. Pustak, I. Habuš, I. Šmit, N. Filipović-Vinceković, Polymorphism and Mesomorphism of Oligomeric Surfactants: Effect of the Degree of Oligomerization, *Langmuir* **27** (2011) 14118-14130.
28. **D. Jurašin\***, I. Habuš, N. Filipović-Vinceković, Role of the alkyl chain number and head groups location on surfactants self-assembly in aqueous solutions, *Colloids and Surfaces A: Physicochem. Eng. Aspects* **368** (2010) 119-128.
29. **D. Jurašin**, I. Weber, N. Filipović-Vinceković, Phase Behavior in Mixtures of Cationic Dimeric and Anionic Monomeric Surfactants, *Journal of Dispersion Science and Technology* **30** (2009) 622-633.
30. M. Brgles, **D. Jurašin**, M. Dutour Sikirić, R. Frkanec, J. Tomašić, Entrapment of ovalbumin into liposomes – factors affecting entrapment efficiency, liposome size, and zeta potential, *Journal of Liposome Research* **18** (2008) 235-248.
31. D. Krznarić, G. R. Helz, E. Bura-Nakić, **D. Jurašin**, Accumulation mechanism for metal chalcogenide nanoparticles at Hg electrodes: Cu sulfide example, *Analytical Chemistry* **80** (2008) 742-749.
32. E. Bura-Nakić, D. Krznarić, **D. Jurašin**, G. R. Helz, I. Ciglencečki, Voltammetric characterization of metal sulfide particles and nanoparticles in model solutions and natural waters, *Analytica Chimica Acta* **594** (2007) 44-51.
33. M. Gavella, M. Kveder, V. Lipovac, **D. Jurašin**, N. Filipović-Vinceković, Antioxidant properties of ganglioside micelles, *Free Radical Research* **41** (2007) 1143-1150.
34. M. Vinceković, **D. Jurašin**, V. Tomašić, M. Bujan, N. Filipović-Vinceković, Interactions in aqueous mixtures of alkylammonium chlorides and sodium cholate, *Journal of Dispersion Science and Technology* **27** (2006) 1099-1111.