Science Fund of the Republic of Serbia

High-capacity electrodes for aqueous rechargeable multivalent-ion batteries and supercapacitors: Next step towards a hybrid model
HiSuperBat

Dr Nikola Zdolšek

Participant

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BIOGRAPHY

Personal information

Date and place of birth: 04/09/1989, Belgrade, Serbia
Age: 30
Citizenship: Serbian

Research field and area/areas

Carbon materials, ionic liquids, electrochemical supercapacitors, batteries, fuel cells

Education

Ph.D. in physical chemistry (Nov 2014-Jun 2019) – Faculty of physical chemistry, University of Belgrade
Title of thesis: "*Ionic liquids as media and precursors for synthesis of porous carbon materials for application in fuel cells and supercapacitors*"
Corresponding fields: Physical chemistry of materials, electrochemistry
Ph.D. thesis supervisors: Prof. Dr Biljana Šljukić Paunković, associate professor, Faculty of physical chemistry, University of Belgrade; Dr Tatjana Trtić-Petrović, principal research fellow, "Vinča" Institute of nuclear sciences, University of Belgrade
Average grade: 9.60 (out of 10)
MSc in physical chemistry (Nov 2013- Nov 2014) – Faculty of physical chemistry, University of Belgrade
Title of thesis: "*EPR detection and imaging of free radicals in human teeth*"
Corresponding fields: Physical chemistry, Radiochemistry
Average grade: 10.00 (out of 10)
BSc in physical chemistry (Oct 2008-Nov 2013) – Faculty of physical chemistry, University of Belgrade
Title of thesis: "*EPR detection of free radicals in cold plasma*"
Corresponding fields: Physical chemistry, Biophysical chemistry
Average grade: 8.27 (out of 10)

Dates of appointments

Dec 2019- Present – Research associate
Jan 2017- Dec 2019 – Research assistant
Mar 2015-Jan 2017 – Research trainee

Employment history

Mar 2015-Present – "Vinča" Institute of nuclear sciences, University of Belgrade, Belgrade, Serbia
Oct 2014-Mar 2015 – Serbian radiation protection and nuclear safety agency, Belgrade, Serbia

List of selected publications

1. **N. Zdolšek**, R. P. Rocha, J. Krstić, T. Trtić-Petrović, B. Šljukić, J. L. Figueiredo, M. Vujković, *Electrochemical investigation of ionic liquid-derived porous carbon materials for supercapacitors: pseudocapacitance versus electrical double layer*. Electrochimica Acta 298 (2019): 541-551 https://doi.org/10.1016/j.electacta.2018.12.129
   Impact factor and category: 5.38, M21 (2018)
2. **N. Zdolšek**, A. Dimitrijević, M. Bendova, J. Krstić, R. P. Rocha, J. L. Figueiredo, D. Bajuk-Bogdanović, T. Trtić-Petrović, B. Šljukic, *Electrocatalytic activity of ionic-liquid-derived porous carbon materials for the oxygen reduction reaction.* ChemElectroChem 5 (7) (2018): 1037-1046 https://doi.org/10.1002/celc.201701369
   Impact factor and category: 4.45, M21 (2017)

3. M. Čanji, M. Bendová, M. G. Bogdanov, Z. Wagner, **N. Zdolšek**, F. Quirion, V. Jandová, P. Vrbka, *Phase transitions in higher-melting imidazolium-based ionic liquids: Experiments and advanced data analysis*, Journal of Molecular Liquids (2019), DOI: 10.1016/j.molliq.2019.111222 https://doi.org/10.1016/j.molliq.2019.111222
   Impact factor and category: 4.56, M21 (2018)
4. T. Trtić-Petrović, A. Dimitrijević, **N. Zdolšek**, J. Đorđević, A. Tot, M. Vraneš, S. Gadzurić. *New sample preparation method based on task-specific ionic liquids for extraction and determination of copper in urine and wastewater.* Analytical and Bioanalytical Chemistry 410 (1) (2018): 155-166 https://doi.org/10.1007/s00216-017-0705-z
   Impact factor and category: 3.3, M21 (2017)
5. **N. Zdolšek**, A. Kalijadis, K. Kumrić, T. Trtić-Petrović. "*Solid-phase extraction disk based on multi-walled carbon nanotubes for the enrichment of targeted pesticides from aqueous samples*." Journal of Separation Science 40 (7) (2017): 1564-1571 https://doi.org/10.1002/jssc.201600957
   Impact factor and category: 2.74, M21 (2015)

Citation number (excluding self-citations)

SCOPUS: 25 WoS: 22

Hirsch index

SCOPUS: 3 WoS: 3

Project history

2020-2022 – PROMIS Project "High-capacity electrodes for aqueous rechargeable multivalent-ion batteries and supercapacitors: Next step towards a hybrid model", **participant**

2020-2021 - Proof of Concept project (Number 5252) "Green chemistry for clean energy: development of cost effective carbon catalyst for hydrogen production", **project leader**

2015-2019 – national project no. III45006 "Physics and chemistry with ion beams" The Ministry of Education, Science and Technological Development of the Republic of Serbia, **participant**

2019-2020 – bilateral project "Development of ecological Li-ion batteries" between Serbia and Montenegro, **participant**

International scientific collaboration and mobility

International scientific collaboration

Collaboration with **dr Magdalena Bendova**, Institute of Chemical Process Fundamentals of the Czech Academy of Sciences, Prague, Czech Republic

Mobility

Apr 2017-Jul 2017 – CEEPUS mobility grant at the University of Chemistry and Technology Prague, Faculty of chemical engineering, Department of physical chemistry (freemover arrangement 105922)

Oct 2016-Dec 2016 – COST mobility grant within COST action CM1206 (Exchange on Ionic Liquids) at Institute of Chemical Process Fundamentals of the Czech Academy of Sciences, Prague, Czech Republic

Sep 2016 – International student practice at Joint Institute for Nuclear Research, Dubna, Russian Federation

Skills and other facts relevant to the Project

Advanced expertise in electrochemical techniques for electroactive materials, fuel cells, supercapacitors and batteries. Expertise in solid state and liquid state material characterization: electron microscopy, Raman spectroscopy, infrared spectroscopy, diferenctial scanning calorimetry, thermogravimetric analysis, temperature programmed desorption (TPD). Other laboratory skills: High performance liquid chromatography, ionic chromatography, UV/VIS spectrophotometry.

Link to the database of researcher

ORCID: https://orcid.org/0000-0002-2665-0111
Google Scholar: https://scholar.google.com/citations?user=h4PUIzAAAAAJ&hl=sr&oi=ao