PERSONAL INFORMATION

Ana Palčić

Laboratory for the Synthesis of New Materials
Division of Materials Chemistry
Ruđer Bošković Institute
Bijenička 54, Zagreb, Croatia
+385 1 456 1184
ana.palcic@irb.hr
https://www.irb.hr/eng/Divisions/Division-of-Materials-Chemistry/Laboratory-for-Synthesis-of-New-Materials/Employees/Ana-Palcic

WORK EXPERIENCE

2022– Senior research associate
Division of Materials Chemistry, Ruđer Bošković Institute

2015–2022 Research associate
Division of Materials Chemistry, Ruđer Bošković Institute

2013–2015 Postdoctoral fellow
Laboratory for Catalysis and Spectrochemistry, ENSICaen, University of Caen, France

2012–2015 Senior assistant
Division of Materials Chemistry, Ruđer Bošković Institute

2008–2012 Assistant
Division of Materials Chemistry, Ruđer Bošković Institute

EDUCATION AND TRAINING

2020 Scholarship of the Government of the French Republic for professional development
Laboratory for Catalysis and Spectrochemistry, ENSICAEN, University of Caen, France

2019 Unity through Knowledge Fund grant
Laboratory for Catalysis and Spectrochemistry, ENSICAEN, University of Caen, France

2019 German Academic Exchange Service (DAAD) grant
Institute of Chemical Technology, University of Leipzig, Germany

2013–2015 Postdoctoral fellowship
Laboratory for Catalysis and Spectrochemistry, ENSICAEN, University of Caen, France

2008–2012 Ph.D.
University of Zagreb, Croatia

2011–2012 training
Laboratory for Catalysis and Spectrochemistry, ENSICAEN, University of Caen, France (5 months)

2003–2007 M.Sc.
University of Zagreb, Croatia

PERSONAL SKILLS

Communication skills

good communication skills developed through work with the students and in international laboratories

Organisational / managerial / supervision skills

- principal investigator of the project funded by the Croatian Science Foundation (2020-2025)
- principal investigator of the project funded by the Unity through knowledge fund (2019)
- member of the Scientific committee of the "9th Serbian-Croatian-Slovenian Symposium on Zeolites, Belgrade, Serbia" (2019)
- principal investigator of the project funded by the experiment.com crowdfunding platform (2018)
- principal investigator of two projects funded by the Foundation of the Croatian Academy of Science (2018, 2017)
- member of the Organizing committee of the "6th Croatian-Slovenian-Serbian Symposium on Zeolites, Šibenik, Croatia" (2015)
- organiser of the seminars of the Division of the materials chemistry at RBI (2012-2013)
- principal investigator of the project funded by Croatian Scientific Foundation for young scientists (2011)
- member of the Organizing committee of the "Scientific Encounters of the Third Kind at the Ruđer Bošković Institute" (2011)
- taking part in the organisation of the workshops: 1st LCS workshop – Zeolites: Prospects and challenges (Caen, France, March 2012), 3rd LCS workshop (Caen, France, May 2014), 4th LCS workshop (Caen, France, April 2015) and conference 2nd Euro-Asia Zeolite Conference", Nice, France, 25.-28. January 2015
- supervisor of three master student theses and 1 post-doctoral fellow
- supervisor of more than 15 students' internship projects

- two ongoing PhD projects

Job-related skills

- synthesis of micro- and mesoporous materials via hydrothermal and mechanochemical route
- characterization of materials using various instrumental methods, e.g. powder X-ray diffraction (PXRD), (in situ) infrared (FTIR), Raman and solid state UV/VIS spectroscopy, optical and scanning electron microscopy (SEM), atom absorption spectrometry (AAS), thermal analyses (TG, DTG), dynamic (DLS) and low angle laser light scattering (LALLS), rheological measurements
- using of specialized computer programs for treatment of the experimental data (Omnic, Mercury, dmfit, Vesta, Mastersizer 2000, MagicPlot, etc.)

Awards and Honors

- 2020 Award of the Ruđer Bošković Institute for best scientific papers in the year 2019
- 2007 Medal of the Department of Chemistry, Faculty of Science, University of Zagreb
- 2003–2007 Zagreb County Scholarship
- 2003 Award of the City of Velika Gorica for best high school students
- 2001–2003 Scholarship of the City of Velika Gorica

SCIENTIFIC ACTIVITIES

Book Editor

A. Palčić, L. Hafiz (Eds.) "Book of abstracts of the 2nd Euro-Asia Zeolite Conference", Nice, France, January 25-28, 2015.

Book Chapter

A. Palčić, V. Valtchev, Synthesis and application of (nano) zeolites, "Reference Module in Chemistry, Molecular Sciences and Chemical Engineering 2021", Elsevier, 2021. https://doi.org/10.1016/B978-0-12-823144-9.00005-4

Membership in professional associations

- International Zeolite Association – IZA
- Croatian Chemical Society
- Croatian Crystallographic Association
- Croatian Zeolite Association
- Slovenian Zeolite Association

Teaching

- 2008–2010, 2018, 2020 Laboratory exercises in inorganic chemistry 1, Department of Chemistry, Faculty of Science, University of Zagreb; 60 h per semester
- 2008–2011, 2019, 2018, 2021 Laboratory exercises in inorganic chemistry 2, Department of Chemistry, Faculty of Science, University of Zagreb; 60 h per semester

Reviewer

- Comptes Rendus Chimie, Croatica Chemica Acta, ACS Applied Materials and Interfaces, Journal of Sol-Gel Science and Technology, Colloids and Surfaces B: Biointerfaces, Kemija u industriji, ChemCatChem, Inorganic Chemistry Frontiers, Journal of Porous Materials, Journal of Industrial and Engineering Chemistry, Microporous and Mesoporous Materials, Journal of Colloid and Interface Science, Dyes and Pigments, Catalysis Science and Technology, Energy-Sources, Molecular Crystals and Liquid Crystals, Chemical Communications, Colloids and Surfaces A: Physicochemical and Engineering Aspects, Industrial & Engineering Chemistry Research, Catalysis Today, The Journal of Physical Chemistry Letters, Angewandte Chemie, Chinese Journal of Chemical Engineering, Frontiers in Bioengineering and Biotechnology, SN Applied Sciences, Scientific Reports, ST-OPEN, Sustainable Materials and Technologies, RSC Advances, Chemical papers, Catalysts, Crystals
- National Science Centre – Poland

Oral presentations

- 2022 20th International Zeolite Conference, Valencia, Spain
- 2021 9th Croatian-Slovenian-Serbian Symposium on Zeolites, Split, Croatia
- 2019 workshop “Zeolites – Enigma of Happiness”, Saint-Malo, France (**invited talk**)
- 2019 2nd Solid-State Science & Research meeting, Zagreb, Croatia
- 2018 Post-ZMPC2018 School, Kinugawa, Japan (**invited talk**)
- 2018 ZMPC2018, Yokohama, Japan
- 2017 11. meeting: “Održivi razvoj regije Gacke”, Otočac, Croatia
- 2017 7th FEZA Conference – The ZEOLITES: Materials with Engineered Properties, Sofia, Bulgaria
- 2017 1st Solid-State Science & Research meeting, Zagreb, Croatia
- 2017 7th Slovenian-Serbian-Croatian Symposium on Zeolites, Ljubljana, Slovenia (**keynote speaker**)
- 2016 CMD26 - Condensed Matter in Groningen, Groningen, The Netherlands (**invited talk**)
- 2016 18th International Zeolite Conference - Zeolites for a Sustainable World, Rio de Janeiro, Brazil
- 2015 6th Croatian-Slovenian-Serbian Symposium on Zeolites, Šibenik, Croatia
- 2012 SLONANO 2012, Ljubljana, Slovenia
- 2010 3rd Croatian-Slovenian Symposium on Zeolites, Trogir, Croatia
- 2009 18th Croatian-Slovenian Crystallographic Meeting, Varaždin, Croatia
- 2009 2nd Slovenian-Croatian Symposium on Zeolites, Ljubljana, Slovenia
- 2008 1st Croatian Symposium on Zeolites, Split, Croatia

Popularization of science

- 2021 invited at TV show “The third element”
- 2017 oral presentation at the Open day of the Ruđer Bošković Institute
- 2013 presenter of the topic “Voyage to the past” at the Open days of the Ruđer Bošković Institute
- 2010, 2008 guide at the Open days of the Ruđer Bošković Institute

Papers published in scientific journals cited in Web of Science Core Collection database

1) K. J. Ardila-Fierro, L. Vugrin, I. Halasz, **A. Palčić**, J. G. Hernández, "Mechanochemical bromination of naphthalene catalyzed by zeolites; from small scale to continuous synthesis", Chem. Methods (2022), e202200035.
2) M. Jablonska, K. Góra-Marek, P. Cleto Bruzzese, **A. Palčić**, K. Pyra, K. Tarach, M. Bertmer, D. Poppitz, A. Pöppl, R. Gläser, "Influence of Framework *n*(Si)/*n*(Al) Ratio on the Nature of Cu Species in Cu-ZSM-5 for NH_3-SCR-DeNO_x", ChemCatChem (2022), e202200627.
3) N. Katada, K. Yamamoto, M.Fukui, K. Asanuma, S. Inagaki, K. Nakajima, S. Suganuma, E. Tsuji, **A. Palčić** , V. Valtchev, P. St. Petkov, K. Simeonova, G. N. Vayssilov, Y. Kubota, "Acidic property of YNU-5 zeolite influenced by its unique micropore system", Micropor. Mesopor. Mater. 330 (2022) 111592.
4) **A. Palčić**, S. Moldovan, H. El Siblani, A. Vicente, V. Valtchev, "Defect sites in zeolites: origin and healing", Adv. Sci. 4 (2021) 2104414.
5) **A. Palčić**, S. Navarro Jaén, D. Wu, M. Cai, C. Liu, E. A. Pidko, A. Y. Khodakov, V. Ordomsky, V. Valtchev, "Embryonic zeolites for highly efficient synthesis of dimethyl ether from syngas", Micropor. Mesopor. Mater. 322 (2021) 111138.
6) K. N. Bozhilov, T. Thanh, Z. Qin, T. Terlier, **A. Palčić**, J. D. Rimer, V. Valtchev, "Time-resolved dissolution elucidates the mechanism of zeolite MFI crystallization", Sci. Adv. 7 (2021) eabg0454.
7) **A. Palčić**, E. Catizzone, "Application of nanosized zeolites in methanol conversion processes: A short review", Curr. Opin. Green Sustain. Chem. 7 (2021) 100393. *review paper*
8) **A. Palčić**, V. Valtchev, "Analysis and control of acid sites in zeolites", Appl. Catal. A 606 (2020) 117795. *review paper*
9) **A. Palčić**, P. Cleto Bruzzese, K. Pyra, M. Bertmer, K. Góra-Marek, D. Poppitz, A. Pöppl, R. Gläser, M. Jabłońska, "Nanosized Cu-SSZ-13 and Its Application in NH3-SCR", Catalysts 10 (2020) 506.
10) **A. Palčić**, S. Babić, A. Maršavelski, M. Galić, N. Topić Popović, I. Strunjak Perović, R. Čož-Rakovac, J. Bronić, V. Valtchev, "Nanosized zeolite beta - Determining the safety of usage by zebrafish Danio rerio embryos", Micopor. Mesopor. Mater. 299 (2020) 110103.
11) A.Y. Khodakov, V.V. Ordomsky, M. Cai, V. Subramanian, Y. Lu, **A. Palčić**, V. Valtchev, S. Moldovan, O. Ersen, "Assessment of Metal Sintering in the Copper-Zeolite Hybrid Catalyst for Direct Dimethyl Ether Synthesis using Synchrotron-based X-ray Absorption and Diffraction", Catal. Today 343 (2020) 199-205.
12) **A. Palčić**, B.M. Szyja, M. Mičetić, T. Čendak, M. Akouche, K. Juraić, M. Čargonja, D. Mekterović, V. Vušak, V, Valtchev, "Impact of the Zn source on the RSN-type zeolite formation" Inorg. Chem. Front. 6 (2019) 2279-2290.
13) S. Bosnar, M. Dutour Sikirić, V. Smrečki, J. Bronić, S. Šegota, V. Strasser, T. Antonić Jelić, **A. Palčić**, B. Subotić, "Controlled aggregation of core(amorphous silica)@shell(TPA+-polysilicate) nanoparticles at room temperature by selective removal of TPA+ ions from the nanoparticle shell" Inorg. Chem. Front. 6 (2019) 1639-1653. Cover page article
14) **A. Palčić**, V.V. Ordomsky, Z. Qin, V. Georgieva, V. Valtchev, "Tuning Zeolite Properties for a Highly Efficient Synthesis of Propylene from Methanol" Chem. Eur. J. 24 (2018) 13136-13149.
15) S. Bosnar, T. Antonić Jelić, J. Bronić, M. Dutour Sikirić, S. Šegota, V. Čadež, V. Smrečki, **A. Palčić**, B. Subotić, "Deep insight in the processes occurring during early stages of the formation and room temperature evolution of the core(amorphous SiO2)@shell(organocations) nanoparticles" J. Phys. Chem. C 122 (2018) 9441-9454.
16) M. Cai, **A. Palčić**, V. Subramanian, S. Moldovan, O. Ersen, V. Valtchev, V.V. Ordomsky, A.Y. Khodakov, "Direct dimethyl ether synthesis from syngas on copper–zeolite hybrid catalysts with a wide range of zeolite particle sizes", J. Catal. 338 (2016) 227-238.
17) A. Puškarić, I. Halasz, M. Gredičak, **A. Palčić**, J. Bronić, "Synthesis and structure characterization of zinc and cadmium dipeptide coordination polymers", New J. Chem. 40 (2016) 4252-4257.
18) P. Losch, M. Boltz, B. Louis, **A. Palčić**, V. Valtchev, "Impact of external surface passivation of nano-ZSM-5 zeolites in the Methanol-To-Olefins reaction", Appl. Catal. A 509 (2016) 30-37.
19) G. Melinte, V. Georgieva, M.-A. Springuel-Huet, A. Nossov, O. Ersen, F. Guenneau, A. Gedeon, **A. Palčić**, K.N. Bozhilov, C. Pham-Huu, S. Qiu, S. Mintova, V. Valtchev, "3D study of morphology and dynamics of zeolite nucleation", Chem. Eur. J. 21 (2015) 18316-18327.
20) **A. Palčić**, F. Zapata-Abellan, A. Vicente, C. Fernandez, V. Georgieva, J. Bronić, V. Valtchev, "Formation mechanism of three-membered ring containing microporous zincosilicate RUB-17", CrystEngComm 17 (2015) 7063-7069. (IF2020 = 3,545; Q1 - Crystallography (24 %))
21) M. Bouchoucha, F. Tielens, F. Gaslain, F.-C. Torro, S. Casale, **A. Palčić**, V. Valtchev, J.-F. Lambert, M. Jaber, "Melanin polymerization held in check: a composite of dihydroxyphenylalanine with zeolite beta", J. Phys. Chem. C 119(16) (2015) 8736-8747.
22) V. Georgieva, A. Vicente, C. Fernandez, R. Retoux, **A. Palčić**, V. Valtchev, S. Mintova, "Control of Na-EMT zeolite synthesis by organic additives", Cryst. Growth Des. 15(4) (2015) 1898-1906.
23) **A. Palčić**, A. Puškarić, M. Mazaj, E. Žunkovič, N. Zabukovec Logar, J. Bronić, "Structural and degradation studies of a new biocompatible chiral Zn-L-tartarate metal-organic framework", J. Solid State Chem. 225 (2015) 59-64.
24) **A. Palčić**, S. Bosnar, D. Bosnar, J. Kontrec, J. Bronić, "Relation of the aged gel microstructure on the Zeolite A particulate properties", Acta Chim. Slov. 62(1) (2015) 130-135.

25) **A. Palčić**, I. Halasz, J. Bronić, "Crystal structure of copper(II) citrate monohydrate solved from a mixture powder X-ray diffraction pattern", Powder Diffr. 29(1) (2014) 28-32.
26) **A. Palčić**, B. Subotić, V. Valtchev, J. Bronić, "Nucleation and crystal growth of zeolite A synthesised from hydrogels of different density", CrystEngComm 15 (2013) 5784-5791.
27) **A. Palčić**, L. Sekovanić, B. Subotić, J. Bronić, "Zeolite A synthesis under dynamic conditions, after hydrogel aging", Croat. Chem. Acta 85(3) (2012) 297-301.
28) N. Ren, J. Bronić, T. Antonić Jelić, **A. Palčić**, B. Subotić, "Seed-induced, structure directing agent-free crystallization of sub-micrometer zeolite ZSM-5: a population balance analysis", Cryst. Growth Des. 12 (2012) 1736-1745.
29) J. Bronić, **A. Palčić**, B. Subotić, L. Itani, V. Valtchev, "Influence of alkalinity of the starting system on size and morphology of the zeolite A crystals", Mater. Chem. Phys. 132 (2012) 973-976.
30) **A. Palčić**, J. Bronić, Đ. Brlek, B. Subotić, "New insights on the autocatalytic nucleation in zeolite A synthesis", CrystEngComm 13 (2011) 1215-1220.