

## Gabriela Ambrožić, Ph.D.



📍 Department of Physics, Centre for Micro and Nano Sciences and Technologies  
University of Rijeka  
Ulica Radmile Matejčić 2  
51000 Rijeka

☎ + 385 - (0)51 - 584632

✉ [gabriela.ambrozic@phy.uniri.hr](mailto:gabriela.ambrozic@phy.uniri.hr)

### WORK EXPERIENCE

---

- 2014 – **Assistant professor of Chemistry, Senior Research Associate**  
Department of Physics, Centre for Micro and Nano Sciences and Technologies, University of Rijeka
- 2014 – **Head of Laboratory for Synthesis of Functional Materials**  
Division of Experimental and Applied Physics (Department of Physics), Centre for Micro and Nano Sciences and Technologies, University of Rijeka
- 2010 – 2014 **Research Associate**  
Center of Excellence PolyMat (Polymer Materials and Technologies), Ljubljana
- 2009 – 2012 **Research Associate**  
National Institute of Chemistry, Ljubljana
- 2006-2008 **Researcher**  
Lek Pharmaceuticals Ltd, Biopharmaceuticals, Ljubljana
- 2003-2004 **Postdoctoral researcher**  
Dipartimento di Scienze Farmaceutiche, University of Trieste, Italy
- 2002 -2005 **Doctoral assistant**  
National Institute of Chemistry, Ljubljana
- 1997-2002 **Assistant, PhD student**  
National Institute of Chemistry, Ljubljana

---

**EDUCATION**

- 2002 **Ph.D.in chemical sciences**  
Faculty of Chemistry and Chemical Technology, University of Ljubljana, Slovenia
- 1997 **B.Sc. in chemistry**  
Faculty of Chemistry and Chemical Technology, University of Ljubljana, Slovenia

---

**PROJECTS**

- 2009.-2012. Novel generation of polymethacrylate / zinc oxide nanocomposites for advanced applications“ (2008-04081)
- 2009.-2012. Polimeri in polimerni materiali s posebnimi lastnostmi (P2-0145)
- 2003.-2004. "EMMMA" ("Exploiting Mechanical Motion within Molecular Architectures"; HPRN-CT-2002-00168),
- 2003.-2004. Self-organized supramolecular polyurethanes (Z2-5403)
- 1999.-2004. Polimeri in polimerni materiali s posebnimi lastnostmi (P2-0145)
- 1999.-2001. Polimeri z načrtovano makromolekularno strukturo (J2-1531)

---

**RESEARCH INTERESTS**

- ALD synthesis of thin ceramic films
- Synthesis and characterization of polymer nanocomposites and hybrid materials with bactericidal properties.
- Sol-gel synthesis and characterization of ZnO sub-micro and nanoparticles.
- Synthesis and characterization of liquid crystals for applications in optical devices.
- Synthesis and characterization of the polymer for a controlled release of therapeutic drug.
- Synthesis and characterization of fluorophore markers for application in medical diagnostics.
- Studies of hydrogen bonding in polymer and biological systems.

## BIBLIOGRAPHY

## Original scientific papers

1. G. Ambrožič, S. Čeh Simon, A. Petrič, NMR proof of a piperidine to pyrrolidine ring contraction during nucleophilic substitution, *Magn. Reson. Chem.* **36** (1998) 873-877.
2. G. Ambrožič, M. Žigon, Supramolecular liquid-crystalline polyurethane, *Macromol. Rapid Commun.* **21** (2000) 53-56.
3. J. Stare, J. Mavri, G. Ambrožič, D. Hadži, Strong intramolecular hydrogen bonds. Part I, Vibrational frequencies of the OH group in some picolinic acid N-oxides predicted from DTF calculated potentials and located in the infrared spectra, *J. Mol. Struct., Theochem.* **500** (2000) 429-440.
4. G. Ambrožič, J. Mavri, M. Žigon, Liquid-crystalline complexes of polyurethane containing an isonicotinamide moiety with 4-dodecyloxybenzoic acid, *Macromol. Chem. Phys.* **203** (2002) 439-447.
5. G. Ambrožič, M. Žigon, Supramolecular liquid-crystalline polyurethanes = Supramolekularni tekočokristalinični poliuretan, *Mater. Tehnol.* **34** (2000) 279-282.
6. M. Brecl, G. Ambrožič, M. Žigon, Aromatic side-chain liquid-crystalline polyurethanes with azobenzene mesogenic units, *Polym. Bull.* **48** (2002) 151-157.
7. M. Žigon, G. Ambrožič, Supramolecular polymers = Supramolekularni polimeri, *Mater. Tehnol.* **37** (2003) 231-236.
8. R. Vianello, B. Kovačević, G. Ambrožič, J. Mavri, Z. B. Maksić, Hydrogen bonding in complex of serine with histidine: computational and spectroscopic study of model compounds, *Chem. Phys. Lett.* **400** (2004) 117-121.
9. J. Stare, A. Jezierska-Mazzarello, G. Ambrožič, I. J. Košir, J. Kidrič, A. Koll, J. Mavri, D. Hadži, Density functional calculation of the 2D potential surface and deuterium isotope effect on <sup>13</sup>C chemical shifts in picolinic acid N-oxide: comparison with experiment, *J. Am. Chem. Soc.* **126** (2004) 4437-4443.
10. G. Ambrožič, M. Žigon, Hydrogen bonded liquid-crystalline polyurethane complexes with 4-dodecyloxybenzoic acid, *Acta Chim. Slov.* **52** (2005) 207-214.
11. G. Ambrožič, M. Žigon, Hydrogen-bonded polyurethane complexes based on 4-alkoxybenzoic acids as the low molar mass components, *Polym. Int.* **54** (2005) 606-613.
12. G. Ambrožič, M. Žigon, Supramolecular azobenzene polyurethanes = Supramolekularni poliuretani z azobenzenskimi skupinami, *Mater. Tehnol.* **40** (2006) 99-105.
13. M. Devetak, B. Zupančič, A. Lebar, P. Umek, B. Zalar, V. Domenici, G. Ambrožič, M. Žigon, M. Čopič, I. Drevenšek Olenik, Micropatterning of light-sensitive liquid-crystal elastomers, *Phys. Rev. E Stat. nonlinear soft matter phys.* **80** (2009) 050701-1-050701-4.
14. V. Domenici, G. Ambrožič, M. Čopič, A. Lebar, I. Drevenšek Olenik, P. Umek, B. Zalar, B. Zupančič, M. Žigon, Interplay between nematic ordering and thermomechanical response in a side-chain liquid single crystal elastomer containing pendant azomesogen units, *Polymer* **50** (2009) 4837-4844.
15. G. Ambrožič, I. Djerdj, S. D. Škapin, M. Žigon, Z. Crnjak Orel, The double role of p-toluenesulfonic acid in the formation of ZnO particles with different morphologies, *CrystEngComm* **12** (2010) 1862-1868.
16. G. Ambrožič, S. D. Škapin, M. Žigon, Z. Crnjak Orel, The synthesis of zinc oxide nanoparticles from zinc acetylacetonate hydrate and 1-butanol or isobutanol, *J. Colloid Interface Sci.* **346** (2010) 317-323.
17. G. Ambrožič, S. D. Škapin, M. Žigon, Z. Crnjak Orel, Poly(zinc dimethacrylate) as a precursor in the low-temperature formation of ZnO nanoparticles, *J. Colloid Interface Sci.* **360** (2011) 370-376.

18. G. Ambrožič, S. D. Škapin, M. Žigon, Z. Crnjak Orel, The Formation of Zinc Oxide Nanoparticles from Zinc Acetylacetonate Hydrate in tert-Butanol: a Comparative Mechanistic Study with Isomeric C4 Alcohols as the Media, *Mater. Res. Bull.* **46** (2011) 2497-2501.

19. M. Gregorc, B. Zalar, V. Domenici, G. Ambrožič, I. Drevenšek Olenik, M. Fally, M. Čopič, Depth Profile of Optically Recorded Patterns in Light-Sensitive Liquid Crystal Elastomers, *Phys. Rev., E Stat. nonlinear soft matter phys.* **84** (2011) 031707-1-031707-5.

20. G. Ambrožič, S. D. Škapin, M. Žigon, Z. Crnjak Orel, Microwave-assisted non-aqueous synthesis of ZnO nanoparticles = Sinteza nanodelcev ZnO v nevodnem mediju pod vplivom mikrovalov, *Mater. Tehnol.* **45** (2011) 173-177.

21. M. Gregorc, H. Li, V. Domenici, G. Ambrožič, M. Čopič, I. Drevenšek Olenik, Kinetics of holographic recording and spontaneous erasure processes in light-sensitive liquid crystal elastomers, *Materials* **5** (2012) 741-753.

22. I. Djerdj, J. Popović, J. Stare, G. Ambrožič, S. D. Škapin, B. Kozlevčar, D. Pajić, Z. Jagličić, Z. Crnjak Orel, Nanocrystalline hybrid inorganic-organic one-dimensional chain systems tailored with 2- and 3-phenyl ring monocarboxylic acids, *J. Mater. Chem.* **22** (2012) 10255-10265.

23. M. Gregorc, H. Li, V. Domenici, G. Ambrožič, M. Čopič, I. Drevenšek Olenik, Optical properties of light-sensitive liquid-crystal elastomers in the vicinity of the nematic-paranematic phase transition, *Phys. Rev., E Stat. nonlinear soft matter phys.* **87** (2013) 022507-1-022507-7.

24. G. Ambrožič, J. Šribar, S. D. Škapin, M. Žigon, Z. Crnjak Orel, An Antibacterial Macroporous Polyurethane Hybrid Material with a High Content of Zinc Ions: A Template to Uniform ZnO Nanoparticles, *Mater. Res. Bull.* (2013), **48** (2013) 1428-1434.

25. E. Borello, M. Cifelli, C. Duce, G. Galli, M. R. Tine', V. Hamplova, G. Ambrožič, V. Domenici, Chemical-Physical Characterization of a Binary Mixture Made of a Photosensitive Azobenzene Derivative and a Smectogen, *Mol. Cryst. Liq. Cryst.* **614** (2015), 54–61.

#### Publications in Refereed Conference Proceedings

1. M. Gregorc, V. Domenici, G. Ambrožič, M. Čopič, I. Drevenšek Olenik, Hidden holograms in light-sensitive liquid crystal elastomers. *The proceedings of the Austrian - Slovenian Polymer Meeting 2013.* (2013) str. 89, Austrian - Slovenian Polymer Meeting (ASPM 2013), 3-5 travnja 2013., Bled, Slovenia.

2. G. Ambrožič, M. Žigon, Hydrogen-bonded liquid-crystalline polyurethane complexes with 4-dodecyloxybenzoic acid, *Nanostructured and functional polymer-based materials and composites* (2005) str. 177, 1st International symposium of the Network of excellence - NANOFUN-POLY, 24. – 27. travnja 2005., Dresden, Germany.

3. M. Brecl, G. Ambrožič, M. Žigon, T. Malavašič, Hard segmented side chain liquid crystal polyurethanes with azobenzene mesogenic moieties, *The new polymers: science, technology and applications* (1998) str. 217. Polymer '98, 9.– 11. rujna 1998., Brighton, UK.

4. G. Ambrožič, M. Žigon, The influence of the polymer main-chain conformation on the stability of supramolecular side-chain liquid-crystalline polyurethanes = Vpliv konformacije polimerne glavne verige na stabilnost supramolekularnih stranskovertikalnih tekočokristaliničnih poliuretanov, *Zbornik referatov s posvetovanja* (2004) str. 63. 10th Slovenian chemical days 2004, 23. i 24. rujna 2004., Maribor, Slovenia.

#### Patents

1. M. Kunstelj, V. Menart, G. Ambrožič, V. Gaberc-Porekar, Selenium-containing water-soluble polymers and their conjugates: EP2244739 (B1) - 2012-08-29. European Patent Office, 2012.

2. M. Kunstelj, V. Menart, G. Ambrožič, V. Gaberc-Porekar, Selenium containing modifying agents and conjugates: US8389695 (B2) - 2013-03-05.

3. S. Bolka, G. Ambrožič, Nuša Janžekovič, Branka Ramovš, Reinforced Polymeric Panels: EP 2 824 239 (A1) - 2015-01-14.