Laboratory of Biodegradable and Bioactive Polymers




Head

Gabriel Rokicki

Staff

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Current PhD students

Izabela Steinborn-Rogulska
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Joanna Przygórzewska
Marta Pawłowska
Piotr Pawłowski
Tomasz Kowalczyk
Anna Piotrowska

Current research

- Synthesis and characterization of novel polymeric materials
- Development of environmentally friendly technologies
- Development of materials with unique physicochemical properties

Selected publications

Steinborn-Rogulska I., Parzuchowski P., Rokicki G., *Melt/Solid-State Polytransesterification Supported by an Inert Gas Flow – an Alternative Route for the Synthesis of High Molar Mass Poly(L-lactic Acid)*, Polymer Chemistry, 5, 5412, 2014

Brzozowska A., Paczesny J., Parzuchowski P., Kusznerczuk M., Nikiforov K., Rokicki G., Gregorowicz J., *Hyperbranched Polyesters Terminated with Alkyl Chains of Different Length at the Air/Water Interface and on Solid Substrates*, Macromolecules, 47, 5256, 2014

Gregorowicz J., Wawrzyńska E. P., Parzuchowski P. G., Fraś Z., Rokicki G., Wojciechowski K., Wieczorek S. A., Wiśniewska A., Plichta A., Dąbrowski K., Tryznowski M., *Synthesis, Characterization, and Solubility in Supercritical Carbon Dioxide of Hyperbranched Copolyester*, Macromolecules, 46, 7180, 2013

Tryznowski M., Tomczyk K. M., Fraś Z., Gregorowicz J., Rokicki G., Wawrzyńska E., Parzuchowski P. G., *Aliphatic Hyperbranched Polycarbonates – Synthesis, Characterization and Solubility in Supercritical Carbon Dioxide*, Macromolecules, 45, 6819, 2012

Tomczyk K. M., Guńka P. A., Parzuchowski P. G., Zachara J., Rokicki G., *Intramolecular Etherification of Five-Membered Cyclic Carbonates Bearing Hydroxyalkyl Groups*, Green Chemistry, 14, 1749, 2012

Rokicki G., Parzuchowski P., *ROP of Cyclic Carbonates and ROP of Macrocycles. In: Matyjaszewski K and Möller M (eds.)* Polymer Science: A Comprehensive Reference, 4, 247, 2012. Amsterdam: Elsevier BV

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Research profile

Synthesis and characterization of polymers for biomedical applications – drug carriers, shape memory polymers, dental resins, biocompatible materials

Synthesis and characterization of hyperbranched polymers and polymer networks

Applications of renewable resources (carbon dioxide, glicerol, plant oils, etc.) for the synthesis of new polymers and polymer networks

Development of new environmentally friendly technologies and polymer recycling

Synthesis and copolymerization of heterocyclic monomers – cyclic carbonates and lactones

Solubility of hyperbranched polymers in supercritical carbon dioxide

MALDI-TOF mass spectrometry of polymeric materials

Synthesis and characterization of biodegradable polymers

Collaboration

Institute of Physical Chemistry, Polish Academy of Sciences, Warsaw (Poland)

Faculty of Chemistry, University of Warsaw (Poland)

The Centre of Molecular and Macromolecular Studies, Polish Academy of Sciences, Łódź (Poland)

The Centre of Polymer and Carbon Materials, Polish Academy of Sciences, Zabrze (Poland)

Research equipment

- Bruker ULTRAFLEX MALDI-TOF mass spectrometer
- Automatic laboratory reactor IKA LR 2000
- Biorad FTS 165 FTIR spectrometer