

# Polymer Synthesis, Characterization and Processing Research Group

## Current research works

- Modification of polymer electrolytes ionic transport properties with boron and aluminum compounds
- Application of new ionic liquids in lithium-ion conducting electrolytes
- Synthesis of novel polymeric materials as electrolyte matrices for lithium-ion batteries
- ATRP methods as a tool for the preparation of functional polymers
- ROP of heterocyclic and heterounsaturated monomers
- Synthesis, characterization and processing of biodegradable polymers
- Polymer composites for aerospace industry

## Selected publications

- E. Zygadło-Monikowska, Z. Florjańczyk, P. Kubisa, T. Biedroń, W. Sadurski, A. Puczyłowska, N. Langwald, J. Ostrowska *Lithium electrolytes based on modified imidazolium ionic liquids*, Int. J. Hydrogen Energy, doi.org/10.1916/j.ijhydene.2013.06.003
- Z. Florjańczyk, A. Józwiak, A. Kundys, A. Plichta, M. Dębowski, G. Rokicki, P. Parzuchowski, P. Lisowska, and A. Zychewicz, *Segmental Copolymers of Condensation Polyesters and Polylactide*, Polym. Degrad. Stab. 2012, 97, 1852.
- E. Zygadło-Monikowska, Z. Florjańczyk, J. Ostrowska, P. Bołtromiuk, J. Frydrych, W. Sadurski, N. Langwald, *Synthesis and characterization of new trifluoroalkoxyborates lithium salts of ionic liquid properties*, Electrochim. Acta 2011, 37, 66.
- E. Zygadło-Monikowska, Z. Florjańczyk, J. Ostrowska, P. Bołtromiuk, J. Frydrych, W. Sadurski, N. Langwald, *Lithium conducting ionic liquids based on lithium borate salts*, J. Power Sources 2010, 195, 6065.
- A. Plichta, W. Li, K. Matyjaszewski, *ICAR ATRP of Styrene and Methyl Methacrylate with  $Ru(Cp^*)Cl(PPh_3)_2$* , Macromolecules 2009, 42 (7), 2330.



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## Research profile

Studies of polymer electrolytes capable of fast ionic transport in electrochemical devices

Utilization of ROP and ATRP in polymer synthesis

Biodegradable polymers

Processing of polymeric materials

Physical and chemical modification of polymers

Hybrid polymers and nanocomposites