



#### Head

Zbigniew Florjańczyk

#### Staff

Ewa Zygadło-Monikowska  
Andrzej Plichta  
Maciej Dębowski  
Norbert Langwald

#### Current PhD students

Anna Kundys  
Anita Frydrych  
Konrad Żurawski  
Katarzyna Rucińska

#### Former PhD students

Cezary Dębek  
Marcin Sobczak  
Michał Kędzierski  
Anna Lasota  
Edyta Wielgus-Barry  
Andrzej Plichta  
Aneta Affek  
Andrzej Wolak  
Aleksandra Cwil  
Maciej Dębowski  
Marcin Affek  
Anna Tomaszewska  
Krzysztof Łokaj  
Justyna Ostrowska  
Elżbieta Chwojnowska

#### Current research

- Studies of polymer electrolytes capable of the fast ionic transport in electrochemical devices
- Utilization of ROP and ATRP in polymer synthesis
- Inorganic-organic hybrid polymers and their composites
- Biodegradable polymers
- Processing and modification of polymeric materials

#### Selected publications

Zygadło-Monikowska E., Florjańczyk Z., Kubisa P., Biedroń T., Sadurski W., Puczyłowska A., Langwald N., Ostrowska J., *Lithium Electrolytes Based on Modified Imidazolium Ionic Liquids*, International Journal of Hydrogen Energy, 39, 2943, 2014

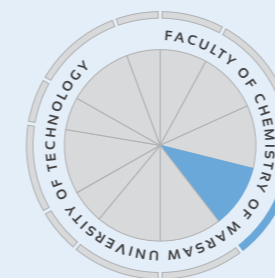
Florjańczyk Z., Józwiak A., Kundys A., Plichta A., Dębowski M., Rokicki G., Parzuchowski P., Lisowska P., Zychewicz A., *Segmental Copolymers of Condensation Polyesters and Polylactide*, Polymer Degradation and Stability, 97, 1852, 2012

Bury W., Chwojnowska E., Justyniak I., Lewiński J., Affek A., Zygadło-Monikowska E., Bąk J., Florjańczyk Z., *Investigations on the Interaction of Dichloroaluminum Carboxylates with Lewis Bases and Water: an Efficient Road Toward Oxo- and Hydroxoaluminum Carboxylate Complexes*, Inorganic Chemistry, 51, 737, 2012

Florjańczyk Z., Dębowski M., Plichta A., Cwil A., Affek M., Chwojnowska E., Kania A., *Polymer Composites Based on Reactive Carboxylate-Alumoxanes*, Macromolecular Symposia, 308, 77, 2011

Plichta A., Florjańczyk Z., Kundys A., Frydrych A., Dębowski M., Langwald N., *On the Copolymerization of Monomers from Renewable Resources: L-lactide and Ethylene Carbonate in the Presence of Metal Alkoxides*, Pure and Applied Chemistry, 86, 733, 2014

Plichta A., Lisowska P., Kundys A., Zychewicz A., Dębowski M., Florjańczyk Z., *Chemical Recycling of Poly(Lactic Acid) via Controlled Degradation with Protic (Macro)Molecules*, Polymer Degradation and Stability, 108, 288, 2014



#### Research profile

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 preparation of functional polymers

Immobilization of drugs on polymeric matrices

ROP of heterocyclic and heterounsaturated monomers

Synthesis, characterization and processing of biodegradable polymers

Synthesis and characterization of inorganic-organic hybrid polymers and nanocomposites

#### Collaboration

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

Faculty of Pharmacy with the Laboratory Medicine Division, Department of Inorganic and Analytical Chemistry, Medical University of Warsaw (Poland)

Faculty of Chemistry, Department of Technology and Materials Chemistry, Rzeszów University of Technology (Poland)

Faculty of Chemistry, Institute of Polymer and Dye Technology, Lodz University of Technology (Poland)

#### Scientific Awards

- Medals of the Polish Chemical Society: Stanislaw Kostanecki Medal, 2008, and Ignacy Mościcki Medal, 2010
- Medal of the Association of the Polish Inventors and Rationalizers: Tadeusz Sendzimir Honorary Medal of SPWiR, 2012
- 1st degree Team Award of HM Rector of the Warsaw University of Technology, 2008 – Zbigniew Florjańczyk, Ewa Zygadło-Monikowska, Andrzej Plichta

#### Research equipment

- Zetasizer Nano ZS (Malvern)
- Universal Mechanical Test Frame Instron 5566 (Instron)
- HAAKE MiniLab II Micro Compounder (Thermo Scientific)
- Triple-detector GPC/SEC Viscotec TDAmx system (Malvern)
- FTIR microscope Nicolet 6700 (Thermo Scientific)

