Laboratory of Technological Processes




Head

Ludwik Synoradzki

Staff

Grzegorz Brzozowski
Janusz Budnicki
Krzysztof Bujnowski
Krzysztof Dzienis
Barbara Filipiak
Agnieszka Gadomska-Gajadhur
Halina Hajmowicz
Adam Jackowicz
Dominik Jańczewski
Anna Jerzak
Krzysztof Kobryń
Renata Przedpełska
Paweł Ruśkowski
Barttomiej Rybak
Agnieszka Sobiecka
Jerzy Wisialski
Marek Włostowski
Roman Zadrożny
Krzysztof Zawada
Paweł Żuk

Current PhD students

Sylwia Czarnocka-Śniadata
Agnieszka Gadomska-Gajadhur
Agnieszka Sobiecka
Krzysztof Zawada
Aleksandra Kruk

Former PhD students

Dominik Jańczewski
Przemysław Kruk
Tomasz Rowicki
Robert Woźniak
Agnieszka Adamczyk
Paweł Ruśkowski
Jerzy Wisialski
Urszula Bernaś

Current research

- Research and development of chemical and biochemical technologies. Novel molecular level approaches to the process control. Transfer of ideas from research labs to the production scale. Process design and scaling-up, optimization with the aid of DOE. Experimental multi-tone manufacturing
- Chiral dicarboxylic acids. Resolution auxiliaries and building blocks for pharmaceutical and cosmetic industries. Manufacturing of tartaric and glutamic acid derivatives. Structural research on the Baltic amber and its applications in cosmetic industry
- Synthesis and applications of biodegradable polymers. Polylactide (PLA) encapsulation of active substances. Drug delivery systems (DDS). Scaffolds for the knee cartilage. Model pilot PLA installation
- Anticorrosion agents. Development and manufacturing of alkylsalicylaldoximes. Ikorol products line
- Structural and mechanistic studies on new antibacterial rifamycin antibiotics

Selected publications

Synoradzki L., *Laboratory of Technological Processes as an Element of Polytechnical Education*, Przemysł Chemiczny 82, 1345, 2003

Synoradzki L., Bernaś U., Ruśkowski P., *Application of Tartaric Acid and of O-Acyl Tartaric Acids and Anhydrides. Resolution of Racemates*, TAAD Part 2, Organic Preparations and Procedures International 40, 163, 2008

Bernaś U., Hajmowicz H., Madura I. D., Majcher M., Synoradzki L., Zawada K., *Direct Synthesis of Monoacyltartaric Acids and Novel Mono(Benzoyl)Tartaric Anhydride: Unusual Cases in Tartaric Acid Acylation*, TAAD Part 5, Arkivoc (xi), 1, 2010

Bujnowski K., Synoradzki L., Zevaco T. A., Dinjus E., Augustynowicz-Kopeć E., Napiórkowska A., *Rifamycin Antibiotics - New Compounds and Synthetic Methods. Part IV. Study of the Reaction of 3-Formylrifamycin SV with Secondary Amines and Ketones*, Tetrahedron, in print, 2014

Gadomska A.A., Warych I., Ruśkowski P., Synoradzki L., *Manufacturing of Polylactide Nanosheres*, Przemysł Chemiczny, 93/8, 1000, 2014

Hajmowicz H., Wisialski J., Synoradzki L., *Direct Hydrolysis as a Method of Manufacture of DBTA*, TAAD Part 9, Organic Process Research & Development, 15, 427, 2011

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Research profile

Process design, experimental production, scaling-up research (polylactide, chiral dicarboxylic derivatives)

Design of experiments (DOE) and process optimization

Resolution of racemates, tartaric and glutamic acid derivatives

Polylactic acid (polylactide), Baltic amber

Rifamycin antibiotics

Anticorrosion agents (ikorol)

Miniplants and automatic reactors (SCADA systems)

Chemical analysis lab – commercial service

Research equipment

- Pilot plant installations
- Automated minireactors and miniplants
- HPLC
- GPC
- GC-MS

Collaboration

Institute of Catalysis Research and Technology (IKFT), Karlsruhe Institute of Technology (KIT) (Germany)

Ipochem, Warsaw (Poland)

Novichem, Chorzów (Poland)

Sanofi Aventis (Germany)

Scientific Awards

- Prize of the Warsaw University of Technology for successful transfer and commercialization of scientific research – Ludwik Synoradzki, 2009
- Scientific Awards of HM Rector of the Warsaw University of Technology