

**Babeş-Bolyai University Cluj-Napoca**  
**2013-2014**

**Doctoral School in Chemical Engineering**

**Doctoral supervisors**

**Paul Şerban Agachi**

*Process modeling, simulation, control and optimization. Classical and advanced Control Systems. CAPE instruments. University management. Research management*

**Ioan Bâtiu**

*Liquid-vapor equilibria (experimental and theoretic). Separation of the components in volatile oil, through batch fractioning. Technological design of the equipment in the chemical industry. Studies of efficient column packing in fractionators for the separation of the volatile oils*

**Jozsef Fazakas**

*Science and engineering of oxide materials. Sol-gel engineering. Nanomaterials*

**Petru Ilea**

*Electrochemical engineering. Inorganic and organic electrosynthesis. Metal electrowinning and refining. Heavy metal recovery from solid and liquid industrial wastes. Application of the direct or mediated electrochemical destruction of inorganic and organic polluting species*

**Affiliated academic staff**

**Liana Mureşan**

*Metals electrodeposition. Corrosion and corrosion protection*

**Cătălin Popescu**

*Applied electrochemistry. Sensors. Modified electrodes*

**Peter Mizsey – Budapest Technical University, Budapest, Hungary**

*Chemical engineering. Process control*

**Zoltan Nagy – Purdue University, USA**

*Process control. Crystallization. Chemical engineering*

**Andrzej Kraslawski – Lappeenranta University of Technology, Finland**

*Process engineering. Data mining*

**Mircea Cristea**

*Process control. Artificial Intelligence*

**Simion Drăgan**

*Chemical engineering processes in heterogeneous systems. Mass transfer with/ without chemical reaction*

**Călin Cristian Cormoş**

*Integrated plant design. Renewable energy. Carbon capture and storage technologies. Advanced energy conversion processes*

**Arpad Imre-Lucaci**

*Optimization. Computer aided process engineering*

**Cornelia Majdik**

*Bioremediation techniques. Biomaterials*

**Andrada Măicăneanu**

*Environmental pollution control (adsorption, ionic exchange, oxidation). Heterogeneous catalysis*

**Sorin Dorneanu**

*Electrosynthesis. Sensors. Computer controlled setups for electrochemical measurements*

**Cristian Botar Jid**

*Process intensification. Computational fluid dynamics. Mathematical modeling of chemical and biological processes*

**Adrian Nicoară**

*Electrochemical investigation methods. Mathematical modelling of electrode processes*

**Barabas Reka**

*Materials science. Process engineering of biomaterials*

**Anamaria Cormoș**

*Chemical engineering. Mathematical modelling of the systems*

The doctoral school in Chemical Engineering has as a goal the education of specialists in Chemical and Process Engineering based on applied research in priority fields related: chemical plant design, modeling, optimization and control, reactor engineering, transfer processes in the chemical industry, vapor-liquid equilibria, electrochemical engineering, electrosynthesis, electro metallurgy, applications of electrochemical engineering in environmental protection, in the electrotechnology of nonpolluting processes, renewable energy, carbon capture and storage technologies, advanced energy conversion, material engineering, cement engineering, composites and biomaterials, environmental pollution, application of process engineering in other nonconventional fields (health, water management etc.).

**PhD graduates ( 2010 – 2012)****Anamaria Padurean**

*Contributions to innovative carbon dioxide capture technologies applied to energy conversion systems*

**George Ostace**

*Model Based Control and Optimization of Biological Wastewater Treatment Plants*

**Andreea Savu**

*Research on the development of a global optimization system for industrial processes*

**Victoria Maxim**

*Energy conversion processes of coal and biomass through gasification with CO<sub>2</sub> capture*

**Mihaela Iancu**

*Advanced control of heat integrated complex plants*

**Codruța Vlaic**

*Hydrogen peroxide electrosynthesis on activated cathode materials by electrochemical techniques*

**Florina Cuibus**

*Electrochemical removal of nitrate from waste water*

**Bianca Robotin**

*The recovery and the practical applications of nickel from waste electrical and electronic equipments*

**Mihaela Anton**

*The recovery of zinc from Zn-MnO<sub>2</sub> spent batteries*

**Szabolcs Fogarasz**

*Recovery of gold and silver from waste printed circuit boards*

## Current PhD students

- Mirela Muresan
- Mihai Mogoş
- Alexandrina Zuza
- Ancuţa Trifoi
- Romeo Racz
- Florin Hanc
- Cosmin Căţănaş
- Emilia Gîlcă
- Alina Popescu
- Mónika Sándor
- Katalin Gal
- Timea Halmagyi

## Projects

- PN-II-PCE-2011-3-0028: Innovative methods for chemical looping carbon dioxide capture applied to energy conversion processes for decarbonised energyvectors poly-generation
- PN-II-CT-ERC-2012-1/2ERC: Innovative methods for carbon dioxide capture applied for decarbonised energy vectors poly-generation
- PN-II-PT-PCCA-2011-3.2-0162: Technical-economic and environmental optimization of CCS technologies integration in power plants based on solid fossil fuel and renewable energy sources (biomass)
- PN-II-PT-PCCA-2011-3.2-0452: Hydrogen production from hydroxylic compounds resulted as biomass processing wastes
- Romania - Switzerland Research Programme (RSRP): Advanced thermo-chemical looping cycles for the poly-generation of decarbonised energy vectors: Material synthesis and characterisation, process modelling and life cycle analysis
- PN-II-PT-PCCA-2011-3.2-0344 Pro-active operation of cascade reservoirs in extreme conditions (floods and droughts) using a Comprehensive Decision Support Systems (CDSS). Case study: Jijia catchment
- UEFISCDI CAPACITATI Modul III – Cooperări Bilaterale Romania - Ungaria 2013-2014, Mathematical modeling of metal leaching processes from waste electrical and electronic equipment for recycling purposes, No. 673/ 2013

## Contact

<http://chem.ubbcluj.ro/pr-acad/doctorat.html>

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Petru Ilea – Email: pilea@chem.ubbcluj.ro