UNIVERSITATEA BABEŞ-BOLYAI
BABEŞ-BOLYAI TUDOMÁNYEGYETEM
BABEŞ-BOLYAI UNIVERSITÄT
BABEŞ-BOLYAI UNIVERSITY
TRADITIO ET EXCELLENTIA

Facultatea de Chimie şi Inginerie Chimică
UBB

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TOPICS OF THE PHD SUPERVISORS
for Admission to the Doctoral Studies in Chemical Engineering
September 2021

PhD supervisor Prof. Călin Cristian CORMOŞ

1. Fundamental elements of chemical reaction engineering applied for homogenous and heterogeneous systems;
2. Fundamental elements of conceptual design and thermal integration of chemical processes;
3. Basic elements of CO_2 capture and utilization technologies.

Bibliography

1. O. Levenspiel, *Chemical reaction engineering*, John Wiley & Sons, New York, 1999.
2. E. Gavrilă, I. Bildea, V. Topan, S. Agachi, *Ingineria reacţiilor chimice. Utilaj specific*, Universitatea Babeş – Bolyai, Cluj – Napoca, vol. I+II, 1988.
3. C.C. Cormos, *Ingineria Reacţiilor Chimice, Aplicaţii practice pentru studiul reactoarelor omogene şi eterogene gaz-lichid*, Presa Universitara Clujana, 2014.
4. R. Smith, *Chemical process – Design and integration*, 2-nd edition, John Wiley & Sons, 2016.
5. W.D. Seider, J.D. Seader, D.R. Lewin, *Product & process design principles*, John Wiley & Sons, 2004.
6. C.C. Cormos, *Decarbonizarea combustibililor fosili solizi prin gazeificare*, Presa Universitara Clujana, 2008.
7. Intergovernmental Panel on Climate Change (IPCC), Special report: *Carbon Dioxide Capture and Storage*, 2005, www.ipcc.ch.

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PhD supervisor Prof. Vasile Mircea CRISTEA

1. Fundamentals of modelling and simulation of the transfer phenomena (momentum, heat and mass) for systems with concentrated and distributed parameters;
2. Fundamentals of automatic control of chemical processes using classical algorithms and algorithms based on mathematical models;
3. Fundamentals of artificial intelligence: artificial neural networks, fuzzy logic and genetic algorithms;
4. Fundamentals of optimization and optimal control of chemical processes.

Bibliography

1. M.V. Cristea, P.S. Agachi, *Elemente de Teoria Sistemelor,* Editura Risoprint, Cluj-Napoca, 2002.
2. P.S. Agachi, M.V. Cristea, *Basic Process Engineering Control,* Editura Walter De Gruyter GmbH, Berlin, 2014.
3. P.S., Agachi, Cristea M.V., A.A. Csavdari, B. Szilagyi, *Advanced Process Engineering Control*, Editura Walter De Gruyter GmbH, Berlin, 2016.
4. P.S. Agachi, *Automatizarea proceselor chimice*, Casa cărţii de Ştiinţă, Cluj-Napoca, 1994.
5. A. Sipos, V. M. Cristea, E. Mudura, A. Imre-Lucaci, D. Bratfalean, *Modelarea, simularea şi conducerea avansată a bioproceselor fermentative*, Editura Universităţii "Lucian Blaga" din Sibiu, Vol. II, 2010.
6. K.M. Hangos, I.T. Cameron, *Process Modelling and Model Analysis*, Academic Press, 2001.

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PhD supervisor Prof. Petru ILEA

1. Thermodynamics and electrochemical kinetics;
2. Elements of electrochemical engineering;
3. Environmental electrochemistry;
4. Electrosynthesis.

Bibliography

1. L. Oniciu, L. Mureşan, *Electrochimie aplicată*, Presa universitară Clujeană, Cluj Napoca, 1998.
2. L. Oniciu, P. Ilea, I.C. Popescu, *Electrochimie Tehnologică*, Editura Casa Cărţii de Ştiinţă Cluj-Napoca, 1995.
3. P. Ilea, *Electrosinteze anorganice*, Editura Casa Cărţii de ŞtiinţăCluj-Napoca, 2005.
4. N. Vaszilcsin, Maria Nemes, L. Oniciu, P. Ilea, *Electrochimie - aplicaţii numerice*, Editura Politehnica, Timişoara, 1999.

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PhD supervisor Prof. Graziella Liana TURDEAN

1. Nanomaterials. Structural characterization and properties of nanomaterials;
2. Chemically modified electrodes. Preparation methods;
3. Electrochemical techniques of investigation for bio/materials having redox, electrocatalytic or host-guest complexation properties. Cyclic voltammetry.

Bibliography

1. (a) Cao G., *Nanostructures and nanomaterials. Synthesis, properties, and applications*, Imperial College Press, 2004, chap 8, pp. 329-344;
   (b) Hodoroaba V.-D., Unger W., Shard A., *Characterization of Nanoparticles: Measurement Processes for Nanoparticles*, 2019, pp. 7-217;
   (c) Tantra R., *Nanomaterial Characterization: An Introduction*, 2016, pp. 153-179.
2. (a) Durst R. A., Baumner A. J., Murray R. W., Buck R. P., Andrieux C. P., *Chemically modified electrodes: recommended terminology and definitions*, Pure & App. Chem., 1997, 69(6), 1317-1323;
   (b) Kenneth L. Brown, *Electrochemical preparation and characterization of chemically modified electrodes*, book chapter, DOI: 10.5772/intechopen.81752.
3. (a) Mureşan L., Oniciu L., *Electrochimie aplicată*, Presa Universitară Clujeană, Cluj-Napoca, 1998;
   (b) Bard A. J., Faulkner L. R., E*lectrochemical methods. Fundamentals and applications*, Wiley, New York, 2001, chap 6, p. 226-243;
   (c) Kaifer A., Gomez-Kaifer M., *Supramolecular Electrochemistry*, Wiley, NewYork, 1999.