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Education and training

Dates	1981-1987
Title of qualification awarded	PhD in Chemical Engineering
Principal subjects/occupational skills covered	Chemical and Biochemical Reactors, (Bio)chemical kinetics, Numerical and Statistical Methods, Optimization, Risk and sensitivity analysis
Name and type of organisation providing education and training	University Politehnica of Bucharest (Romania), Dept. of Chemical Engineering (Polizu Str. 1)
Level in national or international classification	PhD
Dates	1974-1979
Title of qualification awarded	Diplomat Engineer (Master of Science)
Principal subjects/occupational skills covered	Chemical engineering (Mathematics, Chemistry, Physics, Mechanics, Numerical calculus, Transport phenomena, Chemical and biochemical reaction engineering, Unit operations, Plant optimisation, etc.)
Name and type of organisation providing education and training	University Politehnica of Bucharest, Romania
Level in national or international classification	BSc and MSc
Dates	1970-1974
Title of qualification awarded	Baccalaureate
Principal subjects/occupational skills covered	High School (Lyceum) level
Name and type of organisation providing education and training	Lyceum "Gheorghe Lazar" in Bucharest, Romania
Level in national or international classification	High School

Professional experience

Dates	2002-2003
Occupation or position held	Visiting Research Scientist
Main activities and responsibilities	Research and teaching activities in the molecular and systems biology / metabolic engineering
Name and address of employer	Texas A&M University (College Station, Texas, USA), Dept. of Chemistry, Biochemistry, and Bioengineering
Type of business or sector	Research + Tutorship (Educational)
Dates	1999-in present
Occupation or position held	Professor in Chemical & Biochemical Reaction Engineering
Main activities and responsibilities	Teaching and research activities in the (bio)chemical engineering field
Name and address of employer	University Politehnica of Bucharest (Romania), Dept. of Chemical Engineering (Polizu Str. 1)
Type of business or sector	Education + Research

Dates	1997-1999
Occupation or position held	Associate Professor in Chemical & Biochemical Reaction Engineering
Main activities and responsibilities	Teaching and research activities in the (bio)chemical engineering field
Name and address of employer	University Politehnica of Bucharest (Romania), Dept. of Chemical Engineering (Polizu Str. 1)
Type of business or sector	Education + Research
Dates	1992-1997
Occupation or position held	Assistant Professor
Main activities and responsibilities	Teaching and research activities in the (bio)chemical engineering field
Name and address of employer	Swiss Federal Institute of Technology - ETH Zürich (Switzerland), Chemical Engineering Department, (Universitatstrasse 6, CH-8092)
Type of business or sector	Education + Research
Dates	1990-1991
Occupation or position held	Lecturer in Chemical & Biochemical Reaction Engineering
Main activities and responsibilities	Teaching and research activities in the chemical engineering field
Name and address of employer	University Politehnica of Bucharest (Romania), Dept. of Chemical Engineering (Polizu Str. 1)
Type of business or sector	Education + Research
Dates	1982-1990
Occupation or position held	Research Engineer
Main activities and responsibilities	Research activities in the chemical engineering field (catalysis, biocatalysis, chemical reactors, process development and scale-up, plant design)
Name and address of employer	ICECHIM - Chemical & Biochemical Energetics Institute Bucharest, (Bio)Catalysis Group
Type of business or sector	Research, Design & Process Development
Dates	1979-1981
Occupation or position held	In-stage Chemical Engineer
Main activities and responsibilities	Plant engineer
Main activities and responsibilities	Process monitoring and control
Name and address of employer	Organic Chemical Enterprises in Bucharest ("Miraj", and "Dudesti"), Romania
Type of business or sector	Chemical industry

Academic and research interests (keywords). Areas of Expertise

chemical engineering,
biochemical engineering,
chemical, biochemical and biological reactors (modelling, optimisation, control),
kinetic / mathematical modelling of (bio)chemical and biological processes,
process identification, statistical estimation, data numerical treatment,
process analysis and optimization,
enzymatic processes and catalytic process modelling,
cell process modelling,
protein synthesis regulation,
wastewater biological treatment,
risk analysis and ecological impact of chemical plants,
chemical energetics (chemical storage of energy),
systems biology,
metabolic engineering,
computational biology,
drug delivery (modelling and design).

Teaching activity

Type	Specialization (Code)	UPB Code	Course title	Activity type
BSc	Chemical and biochemical process engineering (s5)	UPB.11.S.06.O.519	Risk assessment of chemical plants	Course, seminars, applications
MSc	Chemical and biochemical process engineering (s2)	UPB.11.S.10.O.208	Risk assessment of chemical plants	Course, seminars, applications
MSc	Food chemistry and biochemical technology (s1)	UPB.11.S.09.O.0406	Metabolic engineering	Course
BSc	Food chemistry and biochemical technology (s8)	UPB.11.S.08.O.414	Biochemical technology	Course, seminars

Publications (selective): (*h*-index = 18, *i10* index= 37, >1050 citations)

Books (selected from 8 books, 5 teaching notes, and 6 book chapters)

1. Iordache, O., **Maria, G.**, Corbu, S., Modelarea statistică și estimarea parametrilor proceselor chimice ([Statistical Modelling and Estimation of Chemical Process Models](#)), Rom. Academy Publ. House, Bucharest, 1991, 240 pages. (ISBN 973-27-0195-1);
2. **Maria, G.**, Evaluarea cantitativă a riscului proceselor chimice și modelarea consecințelor accidentelor ([Chemical Process Quantitative Risk Analysis and Modelling of Accident Consequences](#)), Printech Publ., Bucharest, 2007 (630 pages), ISBN 978-973-718-667-6;
3. **Maria, G.**, Analiza statistică și corelarea datelor experimentale (bio)chimice. Repartiții și estimatori statistici ([Statistical data analysis and correlations. Distributions and estimators](#)), Printech Publ, Bucharest, 2008 (550 pag.), ISBN 978-973-718-886-1.

4. **Maria, G.**, Luta, I., Tehnici de modelare cinetică și de proiectare in-silico a structurilor mezoporoase funcționalizate la eliberarea controlată de principii biologice active (*Kinetic models for the in-silico design of functionakized mesoporous supports for the controlled release of biological active principles*), Printech Publ, Bucharest, 2015 (476 pag.), ISBN 978-606-23-0443-0
5. **Maria, G.**, Crisan, M., Maria, C., Estimarea parametrilor modelelor cinetice ale proceselor (bio)chimice, (*Parameter estimation of the (Bio)chemical process kinetic models*), Printech Publ., Bucharest, 2016 (528 pag.), ISBN 978-606-23-0633-5.
6. **G. Maria**, *A review of some novel concepts applied to modular modelling of genetic regulatory circuits*, Series: Current Trends in Biomedical Engineering & Biosciences. Juniper publishing house, 1890 W Hillcrest Dr, Newbury Park, California 91320, (USA) 2017, ISSN: 2572-1151 (USA), ISBN (USA) 978-1-946628-03-9. <https://juniperpublishers.com/ebook-info.php>
7. **Maria, G** Deterministic modelling approach of metabolic processes in living cells - a still powerful tool for representing the metabolic process dynamics, Series: Current Trends in Biomedical Engineering & Biosciences, Juniper publishing house, 1890 W Hillcrest Dr. Newbury Park, California 91320. (USA) 2017, ISBN 978-1-946628-07-7(USA). <https://juniperpublishers.com/ebook-info.php>
8. Muntean, O., Bozga, G., Woinaroschy, A., Stefan, A., Nagy, I., Juncu, G., Lavric, V., **Maria, G.**, Teodorescu, C., Mihalcea, E., Reactoare chimice: Studii de caz (*Chemical Reactors: Case Studies*), Lithography Univ. Politehnica Bucharest, 1990, vol. 1-2, 334 pag and 293 pag.;

Papers (selected from 132 published papers in ISI and Scopus indexed journals)

Chemical and biochemical kinetics

1. Mihail, R., Straja, S., **Maria, G.**, Musca, G., Pop, G., Kinetic Model for Methanol Conversion to Olefins, *Industrial Engineering Chemistry Process Design Development* 22, 532-538 (1983). DOI: 10.1021/i200022a031. IF = 2.237. ISSN= 0196-4305.
2. Mihail, R., Straja, S., **Maria, G.**, Musca, G., Pop, G., A Kinetic Model for Methanol Conversion to Hydrocarbons, *Chemical Engineering Science* 38, 1581-1591 (1983). doi:10.1016/0009-2509(83)80094-3. IF = 2.431. ISSN= 0009-2509 .
3. Treitz, G., **Maria, G.**, Giffhorn, F., Heinze, E., Kinetic Model Discrimination via step-by-step Experimental and Computational Procedure in the Enzymatic Oxidation of D-Glucose, *Jl. Biotechnology* 85, 271-287 (2001). doi:10.1016/S0168-1656(00)00371-0. IF = 3.045. ISSN= 0168-1656.
4. Zhang, W., Tichy, S.E., Perez, L.M., **Maria, G.C.**, Lindahl, P.A., Simanek, E.E., Evaluation of Multivalent Dendrimers Based on Melamine. Kinetics of Dithiothreitol - Mediated Thiol-Disulfide Exchange Depends on the Structure of the Dendrimer, *Journal of American Chemical Society* 125(17), 5086-5094 (2003). DOI: 10.1021/ja0210906. IF = 9.907. ISSN= 0002-7863.
5. **Maria, G.**, Relations between Apparent and Intrinsic Kinetics of Programmable Drug Release in Human Plasma, *Chemical Engineering Science* 60, 1709-1723 (2005). doi:10.1016/j.ces.2004.11.009. IF = 2.431. ISSN= 0009-2509.
6. **Maria, G.**, Maria, C., A review of accidental release simulated case studies on dispersion and bioaccumulation of PCB and CBz persistent pollutants in riverbeds, *Revista de Chimie* 60(7), 699-705 (2009). IF=0.81, ISSN= 0034-7752.
7. **Maria, G.**, Berger, D., Nastase, S., Luta, I., Modelling alternatives of the irinotecan release from functionalized mesoporous-silica supports, *Microporous and Mesoporous Materials* 149(1), 25-35 (2012). IF = 3.285, ISSN= 1387-1811. DOI: 10.1016/j.micromeso.2011.09.005.
8. Ene, M.D., **Maria, G.**, Temperature decrease (30-25oC) influence on bi-enzymatic kinetics of D-glucose oxidation, *Journal of Molecular Catalysis B: Enzymatic* 81(9), 19-24 (2012). DOI: 10.1016/j.molcatb.2012.05.001. IF = 2.735. ISSN= 1381-1177.
9. **Maria, G.**, Ene, M.D., Modelling enzymatic reduction of 2-keto-D-glucose by suspended aldose reductase, *Chemical & Biochemical Engineering Quarterly*, 27 (4) 385-395 (2013). IF = 0.911. ISSN= 0352-9568.

Novel numerical algorithms

10. Mihail, R., **Maria, G.**, A Modified Matyas Algorithm (MMA) for Random Process Optimization, *Computers & Chemical Engineering* 10, 539-544 (1986). doi:10.1016/0098-1354(86)85032-3. IF = 2.320. ISSN= 0098-1354.
11. **Maria, G.**, Muntean, O., Model Reduction and Kinetic Parameters Identification for the Methanol Conversion to Olefins, *Chemical Engineering Science* 42, 1451-1460 (1987). doi:10.1016/0009-2509(87)85017-0. IF = 2.431. ISSN= 0009-2509.
12. **Maria, G.**, An Adaptive Strategy for Solving Kinetic Model Concomitant Estimation-Reduction Problems, *Canadian Journal of Chemical Engineering* 67, 825-832 (1989). DOI: 10.1002/cjce.5450670514 . IF = 0.748. ISSN= 0008-4034.
13. **Maria, G.**, Rippin, D.W.T., Modified Integral Procedure (MIP) as a Reliable Short-Cut Method in Mechanistical Based ODE Kinetic Model Estimation: Non-Isothermal and Semi-Batch Process Cases, *Computers & Chemical Engineering* 19, S709-S714 (1995). doi:10.1016/0098-1354(95)87118-7. IF = 2.320. ISSN= 0098-1354.
14. **Maria, G.**, Rippin, D.W.T., Recursive Robust Kinetics Estimation by Using Mechanistic Short-Cut Technique and a Pattern-Recognition Procedure, *Computers & Chemical Engineering* 20, S587-S592 (1996). doi:10.1016/0098-1354(96)00107-X . IF = 2.320. ISSN= 0098-1354.
15. **Maria, G.**, Rippin, D.W.T., Modified Integral Procedure (MIP) as a Reliable Short-Cut Method for Kinetic Model Estimation : Isothermal, Non-Isothermal and (Semi-) Batch Process Cases, *Computers & Chemical Engineering* 21, 1169-1190 (1997). doi:10.1016/S0098-1354(96)00328-6. IF = 2.320. ISSN= 0098-1354.
16. **Maria, G.**, Adaptive random search and shortcut techniques for process model identification and monitoring, In: Foundations of Computer Aided Process Operations, Pekny, J.F., Blau, G.E., Carnahan, B. (Eds.), *AIChE Symp. Ser.* no. 320, vol. 94, 351-359 (1998). OCLC Number: 92263149. ISSN:0065-8812.
17. **Maria, G.**, A Review of Algorithms and Trends in Kinetic Model Identification for Chemical and Biochemical Systems, *Chemical and Biochemical Engineering Quarterly* 18(3), 195-222 (2004). IF = 0.911. ISSN= 0352-9568.

(the top-paper of CABEQ Journal). <http://silverstripe.fkit.hr/cabeq/top-articles/>

Reactor optimization

18. Crisan, M., **Maria, G.**, Modular simulation to check performances of various reactors for the enzymatic D-glucose oxidation, *Revue Roumaine de Chimie*, 61 (6-7), 549-556, 2016, IF = 0.418, SRI=0.25. ISSN=0035-3930.
19. Scoban, A.G., **Maria, G.**, Model-based optimization of the feeding policy of a fluidized bed bioreactor for mercury uptake by immobilized *P. putida* cells, *Asia-Pacific Journal of Chemical Engineering*, 11(5), 721-734, 2016. IF = 0.789. SRI=0.51, ISSN= 1932-2143. DOI: 10.1002/apj.2003
20. **Maria, G.**, Dan, A., Derivation of optimal operating policies under safety and technological constraints for the acetoacetylation of pyrrole in a semi-batch catalytic reactor, *Computers & Chemical Engineering* 35, 177-189 (2011). Doi: 10.1016/j.compchemeng.2010.05.003 . SRI = 1.94, IF = 2.320. ISSN= 0098-1354.
21. **Maria, G.**, Stefan, D.N., Evaluation of critical operating conditions for a semi-batch reactor by complementary use of sensitivity and divergence criteria, *Chemical & Biochemical Engineering Quarterly*, 25 (1), 9-25 (2011). IF = 0.911. ISSN= 0352-9568.
22. **Maria, G.**, Enzymatic reactor selection and derivation of the optimal operation policy by using a model-based modular simulation platform, *Computers & Chemical Engineering* 36(1), 325-341 (2012). DOI: 10.1016/j.compchemeng.2011.06.006. IF = 2.320. ISSN= 0098-1354.
23. **Maria, G.**, Dan, A., Derivation of critical and optimal operating conditions for a semi-batch reactor under parametric uncertainty based on failure probability indices, *Asia-Pacific Journal of Chemical Engineering*, 7, 733-746 (2012). DOI: 10.1002/apj.625. IF = 0.758. ISSN= 1932-2143.
24. Dan, A., **Maria, G.**, Pareto Optimal Operating Solutions for a Semibatch Reactor Based on Failure Probability Indices, *Chemical Engineering & Technology*, 35(6), 1098-1103 (2012). DOI: 10.1002/ceat.201100706. IF = 1.598. ISSN= 0930-7516.

25. **Maria, G.,** Dan, A., Setting optimal operating conditions for a catalytic reactor for butane oxidation using parametric sensitivity analysis and failure probability indices, *Jl. Loss Prevention in the Process Industries*, 25(6), 1033-1043 (2012). DOI: 10.1016/j.jlp.2012.06.007. IF = 1.033. ISSN= 0950-4230.

Risk assessment

26. **Maria, G.,** Heinzle, E., Kinetic System Identification by Using Short-Cut Techniques in Early Safety Assessment of Chemical Processes, *Jl. Loss Prevention in the Process Industries* 11(3), 187-206 (1998). doi:10.1016/S0950-4230(97)00050-8. IF = 1.033. ISSN= 0950-4230.
27. **Maria, G.,** Stefan, D.N., Variability of the risk operating limits with the catalyst properties in a fixed-bed vapour-phase catalytic reactor for nitrobenzene hydrogenation, *Jl. Loss Prevention in the Process Industries* 23(1), 112–126 (2010). doi:10.1016/j.jlp.2009.06.007. IF = 1.033. ISSN= 0950-4230.
28. **Maria, G.,** Stefan, D.N., Comparative evaluation of critical operating conditions for a tubular catalytic reactor using thermal sensitivity and loss of stability criteria, *Chemical Papers* 64(4), 450-460 (2010). DOI: 10.2478/s11696-010-0035-5. IF = 1.096. ISSN= 0366-6352.
29. **Maria, G.,** Dinculescu, D., Khwayyir, H.H.S., Proximity risk assessment for two sensitive chemical plants based on the accident scenario consequence analysis, *Asia-Pacific Journal of Chemical Engineering*, , 9(1), (2014) 146–158, 2014. DOI: 10.1002/apj.1755. IF = 0.758. ISSN= 1932-2143.

Cell processes

30. **Maria, G.,** Modular-Based Modelling of Protein Synthesis Regulation, *Chemical and Biochemical Engineering Quarterly* 19, 213-233 (2005). SRI = 0.44, IF = 0.911. ISSN= 0352-9568.
31. **Maria, G.,** Application of lumping analysis in modelling the living systems -A trade-off between simplicity and model quality, *Chemical and Biochemical Engineering Quarterly* 20, 353-373 (2006). IF = 0.911. ISSN= 0352-9568.
32. **Maria, G.,** Modelling bistable genetic regulatory circuits under variable volume framework, *Chemical and Biochemical Engineering Quarterly* 21, 417-434 (2007). IF = 0.911. ISSN= 0352-9568.
33. **Maria, G.,** Building-up lumped models for a bistable genetic regulatory circuit under whole-cell modelling framework, *Asia-Pacific Journal of Chemical Engineering* 4, 916-928 (2009). DOI:10.1002/apj.297. IF = 0.758. ISSN= 1932-2143.
34. **Maria, G.,** A dynamic model to simulate the genetic regulatory circuit controlling the mercury ion uptake by *E. coli* cells, *Revista de Chimie* 61(2), 172-186 (2010). IF=0.81, ISSN= 0034-7752.
35. **Maria, G.,** Xu, Z., Sun, J., Investigating alternatives to in-silico find optimal fluxes and theoretical gene knockout strategies for *E. coli* cell, *Chemical & Biochemical Engineering Quarterly* 25(4), 403-424 (2011). IF = 0.911. ISSN= 0352-9568.
36. **Maria, G.,** Luta, I., Structured cell simulator coupled with a fluidized bed bioreactor model to predict the adaptive mercury uptake by *E. coli* cells, *Computers & Chemical Engineering*, 58, 98-115 (2013). DOI: 10.1016/j.compchemeng.2013.06.004. IF = 2.320. ISSN= 0098-1354.
37. **Maria, G.,** Extended repression mechanisms in modelling bistable genetic switches of adjustable characteristics within a variable cell volume modelling framework, *Chemical & Biochemical Engineering Quarterly*, 28 (1) 83–99 (2014). IF = 0.911. ISSN= 0352-9568.
38. **Maria, G.,** Insilico derivation of a reduced kinetic model for stationary or oscillating glycolysis in *Escherichia coli* bacterium, *Chemical & Biochemical Engineering Quarterly*, 28(4), 509-529 (2014). SRI = 0.44, IF = 0.911. doi: 10.15255/CABEQ.2014.2002

Relevant research projects (selected from more than 35 national and international projects)

1. SNSF Swiss-Romanian Project on: 'Ecological Design and Operation of Chemical Processes', at ETH Zürich, Switzerland, Chem. Eng. Dept., granted by the Swiss National Science Foundation, 1997-1998).
2. NATO Grant no. 974850-99/1999-2001 on 'Identification, Optimal Monitoring and Risk Limits for a Wastewater Biological Treatment Plants', at Universidade da Porto, Portugal, Chem. Eng. Dept. (1999-2001).
3. DAAD Research Grant no. 324-ro-99/1999 on: 'Testing Novel Short-Cut Methods for Kinetic Characterisation of Biochemical Processes', at Universität des Saarlandes, Germany, Bioengineering Lab. (1999).
4. European TEMPUS-S-JEP 11219-1996/1999 Project on 'Centre of PC Assisted Education in Chemistry', sub-theme: 'Simulation of a Wastewater Biological Treatment Plant under Steady-State and Dynamic Conditions', at Ecole Nationale Polytechnique de Grenoble, France, Chem. Eng. Dept (1996-1999).
5. Dept Project on: 'Kinetics Identification and Process Simulation for the Drinking Water Denitrification via a Three-Phase Catalytic Membrane Reactor', at Techn. University Erlangen, Germany, Chem. Eng. Dept (2000).
6. National Institute of Health Project no. PAL-GM63958/2002-2003, Department of Chemistry and Biochemistry, Texas A&M University (College Station, USA), on the theme: 'Methodology to construct and simulate molecular-level mechanisms by which living systems grow and divide', and NIH Project EES-GM64650/ 2002-2003 on 'Kinetics of Programmable Drug Release in Human Plasma'.
7. Coordinator ERASMUS Mobility Project / 2007-2012 on Bioengineering, Univ. Politehnica Bucharest and Univ. des Saarlandes, Technische Biochemie (Germany).
8. Coordinator ERASMUS Mobility Project / 2010-2015 on Bioengineering, Univ. Politehnica Bucharest and Technical University of Hamburg-Harburg, Institute of Bioprocess & Biosystems Engineering (Germany).
9. DFG Grant SFB-578/2006, Development of biotechnological Processes by Integrating Genetic and Engineering Methods (Technische Universität Braunschweig, Germany).
10. DAAD Research Grant no. A/09/02572 / 2009, on: 'Dynamic modelling of some genetic regulatory circuits to simulate the bacterial resistance in a polluted environment by using the whole-cell modelling approach', Technical University of Hamburg-Harburg (TUHH), Institute of Bioprocess and Biosystems Engineering (Germany, 2009).
11. National CNCSIS Project 1490/2004-2005 on: 'Kinetic modelling studies on the homeostatic cell regulation of the protein synthesis' ('Studii de modelare cinetica a proceselor de reglare homeostatica a sintezei proteinelor celulare - Aplicatii la simularea metabolismului fierului si a unor interactiuni proteice in celulele eucariote') (Univ. Politehnica Bucharest, 2004-2005).
12. National CNCSIS Project 54/2006-2008 on: 'Educational platform for interdisciplinary research and development on Bioengineering and Biotechnology' ("Platforma de cercetare, dezvoltare si formare profesionala interdisciplinara in Bioinginerie si Biotehnologie") (Univ. Politehnica Bucharest, 2006-2008).
13. National PNCDI2 2077/2007-2010 Project on: 'Elaboration of advanced biotechnologies to produce antioxidant drugs with thiorularhodine ("Elaborarea biotehnologiilor avansate de preparare a produselor farmaceutice antioxidante cu thiorularhodina si studiul potentialelor aplicatii terapeutice") (INCD Microbiology and Immunology "Cantacuzino", 2006-2009).
14. National CNCSIS Project nr. 1543/2008-2011 (IDEI) on: 'A nonlinear approach to conceptual design and safe operation of chemical processes' ("O abordare neliniara a problemelor de proiectare conceptuala si de operare in conditii de siguranta a proceselor chimice").
15. European Commission Project through European Regional Development Fund and of the Romanian state budget, project POSCCE-O2.1.2-2009-2, ID 691 / 2010-2014, "New mesoporous aluminosilicate materials for controlled release of biological active substances" (Noi materiale din clasa aluminosilicatilor mezoporoși pentru eliberare controlată de substanțe biologice active).

Other information (Supervised PhD projects):

PhD supervisor in Chemical & Biochemical engineering (from 2008). 5 completed theses, 3 PhD-s in progress, as following:

2008 -2011, Dragoș Nicolae ȘTEFAN, Analiza de senzitivitate termică și de risc în operarea reactoarelor chimice. ([Thermal sensitivity and risk analysis used for chemical reactor operation](#)).

2010 - 2013, Manuela Diana BUBOI (ENE), Studii privind cinetica unor procese enzimatic de oxido-reducere cu importanță în industria de sinteză a zaharidelor. ([Kinetic studies on some oxido-reduction enzymatic processes of importance in the monosaccharide industry](#)).

2010 - 2013, Anca DAN, Studii privind optimizarea reactoarelor chimice cu includerea criteriilor de operare în siguranță. ([Studies on chemical reactor optimization including safety operation criteria](#)).

2011 - 2014, Ionela LUȚĂ, Studii de modelare a eliberării controlate de compuși biologic activi și a acțiunii unor microorganisme depuse pe suporturi solizi poroși. ([Modelling studies on the controlled-release of biological active compounds and on the activity of some microorganisms immobilized on porous solid supports](#)).

2013 - 2017, Hasan Hadi Salman KHWAYYIR (Najaf Technical College, Iraq), The risk analysis of industrial plants that include highly sensitive chemical reactors. ([The risk analysis of industrial plants that include highly sensitive chemical reactors](#)).

2013 - în prezent, Constantin MUSCALU, Studii privind optimizarea reactoarelor chimice industriale cu senzitivitate parametrică ridicată utilizând criterii multi-obiectiv în prezența incertitudinii parametrică. ([Optimization of chemical industrial reactors of high thermal sensitivity by using multi-objective criteria in the presence of parametric uncertainty](#)).

2014 - în progress, Mara CRIȘAN, Studii privind optimizarea unor reactoare enzimatic industriale cu sisteme enzimatic complexe (sistem multi-enzimatic). ([Studies on industrial enzymatic reactor optimization involving complex multi-enzymatic systems](#))

2017 – in progress, Andreea ȘCOBAN, Aplicarea unor tehnici de inginerie chimica la modelarea unor etape esențiale din metabolismul central al carbonului în culturile celulare cu aplicatie la optimizarea funcționării bioreactoarelor. ([Application of chemical engineering concepts and tools for modelling some essential steps of the central carbon metabolism in living cells applied to the bioreactor optimization](#)).

Stages abroad, Fellows, and Guest Positions

- 2010 (July-August). Visiting Professor în proiectul KIP KSCX2-YW-G-030 on „Simulation and applications of integrated cellular networks”, la Tianjin Institute of Industrial Biotechnology, Chinese Academy of Sciences, Tianjin (China)(Prof. Jibin Sun).
- 2009 (July-August). Visiting Professor with DAAD Research Grant no. A/09/02572/2009, on: „Dynamic modelling of some genetic regulatory circuits to simulate the bacterial resistance in a polluted environment by using the whole-cell modelling approach”, la Technische Universität Hamburg (TUHH), Institute of Bioprocess & Biosystems Engineering (Germany) (Prof. An-Ping Zeng).
- 2006 (July). Guest Research Scientist at Technische Universität Braunschweig (Germany), and German Research Centre for Biotechnology, during DFG-578 Project: „Development of Biotechnological Processes by Integrating Genetic and Engineering Methods” (Prof. Wolf Deckwer).
- 2002 – 2003 (March). Research Scientist at Texas A&M University (College Station, Texas, USA), Department of Chemistry and Cellular Biology, with National Institute of Health NIH Fellow PAL-GM63958 / 2002-2003: „Kinetic simulations of minimal living systems”, and with National Institute of Health NIH Fellow EES-GM64650 / 2002-2003: „Molecular recognition in dendrimers based on melamine - Kinetics of programmable drug release in human plasma”, (Prof. E. Simanek).
- 2000 (June-Aug). Guest Professor at Universität Erlangen-Nürnberg (Germany), Dept. Chemical Engineering, project: „Kinetics Identification and Process Simulation for the Drinking Water Denitrification via a Three-Phase Catalytic Membrane Reactor” (Prof. G. Emig, Prof. Roland Dittmeyer).

- 2000 (Feb-March, Nov-Dec). Guest Professor at University of Porto (Portugal), Departamento de Engenharia Quimica (Automatics & Robotics in Bio-Chemistry), NATO Grant no. 974850-99/1999-2001 „Identification of Optimal Operating Conditions and Risk Limits for Biological Wastewater Treatment Plants” (Prof. Sebastiao Feyeo de Azevedo, Prof. Romualdo Salcedo).
- 1999 (July-Aug). Visiting Professor with DAAD Research Grant no. 324-ro-99/1999 at Universität des Saarlandes (Germany), Dept. Biochemical Engineering, on: „Testing Novel Short-Cut Methods for Kinetic Characterisation of Biochemical Processes” (Prof. Elmar Heinzle).
- 1997 (Aug-Oct). Research stage at Swiss Federal Institute of Technology ETH Zürich (Switzerland), Department of Chemical Engineering, SNSF (Swiss National Science Foundation) Project no. 71P - 050113 /1997-1998: „Ecological and Risk Analysis in Chemistry” (Prof. Konrad Hungerbühler).

More than 30 invited Lectures in the field of chemical & biochemical engineering presented at:

presented at ETH Zürich (CH) (1992,1993,1997); Univ. of Porto (P) (1993,2000); Ecole Polytechnique Lausanne (CH) (1994,1996,1997); Princeton Univ. 1994; Queen’s Univ. Kingston (Canada) (1994); TU Erlangen (D) (1996,2000); BASF (1996); Univ. Politecnica de Catalunya, Barcelona (ES) (1996); Univ. des Saarlandes (D) (1999,2009); TU Stuttgart (D) (1999); Ecole Nationale Polytechnique de Grenoble (F) (1999), Ecole Nationale Polytechnique Montpellier (F) (2000); Texas A&M Univ. (USA) (2002); RWTH Aachen (D) (2004), TU Braunschweig (D) (2006), TU Hamburg (D) (2006,2009); Univ. of Zagreb (HR) (2007), Tianjin Institute of Industrial Biotechnology (China) (2010); University Babes-Bolyai Cluj-Napoca (RO)(2013); Inst. of Biochemistry of Romanian Academy, 15 Jan. 2016.

Plenary lectures in international Conferences:

- 5th European Symp. Computer Aided Process Engineering, June 11-14, 1995, Bled (Slovenia); http://books.google.ro/books/about/Fifth_European_Symposium_on_Computer_Aid.html?id=KhWRPgAACAAJ&redir_esc=y
- 20th Croatian Meeting of Chemists & Chemical Engineers, Feb. 2007, Zagreb (HR); http://www.hdki.hr/20_skup_2007/en/plenary.html
- 12th National Conference of Academic Days, Timisoara (RO), 26-27 May 2011. http://acad-tm.edu.ro/pdf/Program_ZAT_2011.pdf
- 15th ROMPHYSICHEM, International Conference of Physical Chemistry, 11-13 September, 2013, Bucharest <http://gw-chimie.math.unibuc.ro/romphyschem/index.php/organizers15>
- 13th Academic Days of Timisoara, June 13-14, 2013, Timișoara, (RO). <http://acad-ichtm.edu.ro/>; <http://acad-ichtm.edu.ro/>
- 18th International Conference on Chemistry and Chemical Engineering RICCCCE-18, Sinaia, 4-8 Sept 2013;
- National symposium "Environment & Progress", University Babes-Bolyai Cluj-Napoca, 25 October, 2013;
- 10th ELSEDIMIA International Conference on “Environmental Legislation, Safety Engineering and Disaster Management”, 18-19 September 2014, Cluj-Napoca (RO);
- 7th International Symposium “New trends and strategies in the chemistry of advanced materials with relevance in biological systems, technique and environmental protection”, June 5-6, 2014, Timișoara, Romania. <http://acad-ichtm.edu.ro/>;
- Symposium SICHEM-2016, University Politehnica of Bucharest, 8 Sept. 2016.

Co-chairman or member in the organizing Committees of 16 international conferences. Among them:

- *5th Int. Conference on Computational Bioengineering (ICCB-5)*, 11-13 September, 2013, Leuven, Belgium;
- *ROMPHYSICHEM-15, 15-th International Conference of Physical Chemistry*, 11-13 September, 2013, Bucharest;

- 13th Edition of *Academic Days* of Timisoara, June 13-14, 2013, Timișoara (Romania);
- *ELSEDIMA 10th and 11th International Conference* (Environmental Legislation, Safety Engineering and Disaster Management), 18-19 September 2014 and 26-28 May 2016, Cluj-Napoca (RO).

Member of:

Romanian Society of Chemical Engineering,
 Romanian Society of Chemistry,
 Romanian Society of Bioengineering and Biotechnology,
 DAAD Alumni Fellow Association (Germany),
 National Society of Science and Environmental Engineering (Romania)
 EFCE (European Federation of Chemical Engineering)- national representative

Reviewer for:

Analytica Chimica Acta, Bioprocess and Biosystems Engineering, Canadian Journal of Chemical Engineering, Chemical Engineering Science, Chemical Engineering Journal, Chemical & Biochemical Engineering Quarterly, Chemical Engineering Communications, Computers & Chemical Engineering, Environmental Science and Technology, Food Technology and Biotechnology, Ind. Engineering Chemistry Research, Journal of Process Control, JI. Biotechnology, JI. of Bioscience & Bioeng., Journal of Molecular Catalysis B: Enzymatic, Journal of Petroleum and Gas Engineering, Revista de Chimie (Bucharest), Sc. Bull. Univ. Politehnica Bucharest, etc. (25 journals).

.Editorial activity:

- member in the Scientific board of *Chemical & Biochemical Engineering Quarterly* (Croatian, Slovenian, Austrian Soc. of Chemical Eng. and Bioprocess Technology)
 - member in the Editorial board of *Revista de Chimie (Bucharest)* (Romanian Society of Chemistry).
 - member in the Scientific advisory board of **The Scientific Bulletin of University POLITEHNICA of Bucharest** (Series Chemistry & Materials Science).
<http://www.scientificbulletin.UPBuc.ro/SeriaB - Chimie si Stiinta Materialelor.php>
 - member in the Editorial board of **Bulletin of Romanian Chemical Engineering Society**
- member of the Editorial Advisory Board of **ECOTERRA** Journal of Environmental Research and Protection (online ISSN 2248-3128), edited by National Society of Environmental Sciences and Engineering, Cluj-Napoca Romania..

Awards:

'Nicolae Teclu' Prize of the Romanian Academy for kinetic studies on selective conversion of methanol to olefins (1985). Diploma of excellence in research of the Romanian Federation of Biomedical Engineering, 2006.

included in "Who's Who in the World in Science & Technology" (1996 - in present)

First classified at the European Olympiad of Chemistry for high-school graduates, 1974