



University POLITEHNICA of Bucharest  
Faculty of Applied Chemistry and Materials Science



## Ioan CĂLINESCU

Professor

Department of Bioresources and Polymers Science

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### Biography

Date	Role
2001-	Professor, Bioresources and Polymers Science Department, University POLITEHNICA of Bucharest
1999-2001	Associate Professor/Reader, Technology of Organic Substances & Macromolecule Compounds Department, University POLITEHNICA of Bucharest
1993-1999	Senior Lecturer, Technology of Organic Substances & Macromolecule Compounds Department, University POLITEHNICA of Bucharest
1990-1993	Assistant Professor, Technology of Organic Substances & Macromolecule Compounds Department, University POLITEHNICA of Bucharest
1982-1984	Engineer, Technology of Organic Substances & Macromolecule Compounds
1987-1990	Department, University POLITEHNICA of Bucharest
1984-1987	Scientific researcher, National Research Center for CBRN
1992-1996	Ph.D. in Chemical Engineering, POLITEHNICA University of Bucharest, Thesis Title: “Liquid phase oxidation of alkyl-aromatic hydrocarbons”
1975-1980	MSc. with 1 <sup>st</sup> class honors in Organic Chemical Technology, University POLITEHNICA of Bucharest

### Research

#### Research Interests

- Biofuels, biorefineries;
- Industrial chemistry – organic chemicals;
- Electron beam and microwave applications in chemical synthesis and material processing;
- Pollution control;
- Chemical and nuclear decontamination.



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### **Selected Research Projects**

- „Ultrasonic/Microwave Nonconventional Techniques as new tools for nonchemical and chemical processes”, project: P\_37\_471, financed by contract: 47/05.09.2016, 2000 k€, Director for research
- Eco-friendly process for extraction of valuable compounds from plants – ECOVALUEPLANT, PN-II-PT-PCCA-2013 nr.172 / 2014, 400 k€, Project manager
- Technology and Equipment for the Treatment of Solid Oil Waste (drilling and sludge pit), CEEEX 138/2006, 435 k€, Project manager;
- VOC Removal by combined electron beam and microwave treatment, CEEEX 55/2005, 415 k€, Project manager;
- VOC Removal by combined electron beam and microwave treatment, IAEA-Wien, 13138/RF/2005-2006, UPB Responsible;
- Conversion performance increasing of the acid gases from flue gas by combined treatment with electron beam and microwave, PNCDI-2, 21-025/2007, UPB Responsible.

### **Academic interests**

#### **Teaching activity**

- Organic Technologies
- Biorefineries Technologies
- Pollutant Emissions in the Biofuels Manufacture & Use
- Fuels, burning and pollution
- Catalysis
- Petroleum chemistry
- Surface active agents
- Experimental strategy in organic technology

**Director of Master Study for ‘Biofuels, Biorefineries & Related Technologies’**

**PhD supervisor: 2009**-present, 15 doctoral degrees awarded, 6 PhD students in stage

### **Honours and Awards**

Award for Technical Competence for the paper entitled: Non-thermal plasma Processing for SO<sub>2</sub> and NO<sub>x</sub> Removal – International Conference Optim 2002

“Emilian Bratu” medal from Romanian Chemical Society, 2015



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### ***Invited Lectures and Presentations***

In 2005, 2006, 2007, and 2008 I was invited to present my research at the "*Research Coordination Meeting on Electron Beam Treatment of organic pollutants contained in gaseous streams*", organized by the International Atomic Energy Agency in Vienna, Beijing, Warsaw, and Sofia. Here we made contact with several of the most renowned specialists in the world in the remediation of industrial gases using electron beam and microwave.

### ***Other Significant Activities***

- **Head of Department:** Technology of Organic Substances & Macromolecule Compounds (2004-2012)
- **Dean** of the Faculty of Applied Chemistry and Materials Science (2013- )

### ***Membership of Professional Bodies***

- From 1990: Member of the Romanian Chemical Society
- From 1990: Member of the Romanian Society for Chemical Engineering
- **National Consultant** for Regional Workshop on Feasibility Study For Electron Beam Flue Gas Treatment organised by International Atomic Agency (2005-2008)
- From 2015 Member of Association for Microwave Power in Europe for Research and Education

### ***Further Information***

- ✓ Reviewer for:
  - Ultrasonics Sonochemistry
  - Environmental Science & Technology
  - Chemical Engineering Journal
  - Journal of Hazardous Materials
  - Surface and Coatings Technology
  - Transport Problems
  - Revue Roumaine de Chimie
  - UPB-Scientific Bulletin,
  - 11<sup>th</sup> International Conference on Optimization of Electrical and Electronic Equipment
- ✓ Member in The Organizing Committee of The 15<sup>th</sup>, 16<sup>th</sup>, 17<sup>th</sup> Romanian International Conference on Chemistry and Chemical Engineering, Bucharest.
- ✓ President of the Organizing Committee of the 18<sup>th</sup> and 19<sup>th</sup> Romanian International Conference on Chemistry and Chemical Engineering, Bucharest
- ✓ Member in Technical Committee AMPERE 2017



## Publications

**Journal Articles 78 papers in ISI journals, 12 in other international journals with referees, 21 in national recognized journals (CNCSIS), 14 in other national journals, 150 in conference volumes, 411 citations, H-index 11**

- M. Vinatoru, T.J. Mason, I. Calinescu, „**Ultrasonically assisted extraction (UAE) and microwave assisted extraction (MAE) of functional compounds from plant materials**”, Trends in Analytical Chemistry 97 (2017) 159-178
- Anca Racoti, Adam J. Buttress, Eleanor Binner, Chris Dodds, Adrian Trifan & Ioan Calinescu, „**Microwave assisted hydro-distillation of essential oils from fresh ginger root (Zingiber officinale Roscoe)**”, Journal of Essential Oil Research, DOI: 10.1080/10412905.2017.1360216
- Galan, A.-M., Calinescu, I., Trifan, A., Dodds, C., Binner, E., **New insights into the role of selective and volumetric heating during microwave extraction: Investigation of the extraction of polyphenolic compounds from sea buckthorn leaves using microwave-assisted extraction and conventional solvent extraction**, Chemical Engineering and Processing: Process Intensification 2017, 116, pp. 29-39  
<http://dx.doi.org/10.1016/j.cep.2017.03.006>
- Sibianu, T.I., Dimitrakis, G., Katrib, J., (...), Calinescu, I., Irvine, D.J., **Utilization of Dielectric Properties Assessment to Evaluate the Catalytic Activity and Rate of Deactivation of Heterogeneous Catalysts**, Industrial and Engineering Chemistry Research 2017, 56(8), pp. 1940-1947 WOS:000395493600006
- Ioan Calinescu, Ioana Asofiei, Adina Ionuta Gavrilă, Adrian Trifan, Daniel Ighigeanu, Diana Martin, Constantin Matei, Mihaela Buleandra, Integrating Microwave Assisted Extraction of Essential Oils and Polyphenols from Rosemary and Thyme Leaves, Chemical Engineering Communications, 2017
- Ioan Calinescu, Vasile Lavric, Ioana Asofiei, Adina Ionuta Gavrilă, Adrian Trifan, Daniel Ighigeanu, Diana Martin, Constantin Matei, **Microwave assisted extraction of polyphenols using a coaxial antenna and a cooling system**, Chemical Engineering and Processing: Process Intensification, 2017,  
<http://dx.doi.org/10.1016/j.cep.2017.02.003>

### **Books (7 books and books chapters)**

- Călinescu, I., Iliuta, I., **Heterogeneous Catalysts – Applications in organic chemical industry**, Ed. Printech, Bucharest, 2007, ISBN: 978-973-718-646-1 (in English).
- Iliuta, I., Calinescu, I., **Water - Apa – Treatment processes and quality standards - Legal regulations**, Ed. Printech, Bucharest, 2008, ISBN: 978-973-718-977-6 (in Romanian).
- Iovu, H., Călinescu, I., Martin, D., **Polymeric materials, new methods of synthesis and applications**, Ed. Printech, Bucharest, 1998, ISBN: 973-9402-58-5 (in Romanian).
- Martin, D., Ighigeanu, D., Calinescu, I., **Gaseous Pollutants Treatment by Combined Electron Beams and Microwaves**, pp. 181-198 in *Practical Aspects and Applications of Electron Beam Irradiation*, Research Signpost / Transworld Research Network, Kerala, India 2011
- Mateescu, E., Craciun, G., Martin, D., Ighigeanu, D., Radoiu, M., Calinescu, I., Iovu, H., **Environmental Aspects of Microwave Heating in Polyelectrolyte synthesis** in: *Advances in Microwave & Radio Frequency Processing*, Editor (s): Monika Willert – Porada, Springer Berlin, 2003, 349-354, ISBN:978-3-540-43252-4
- Radoiu, M., Calinescu, I., Martin, D., Calinescu, R., **Liquid Phase Catalytic Hydrodechlorination of chlorobenzene under microwave irradiation** in: *Advances in Microwave & Radio Frequency*



*Processing*, Editor (s): Monika Willert – Porada, Springer Berlin, 2003, 398-405, ISBN 978-3-540-43252-4.

- Călinescu, I., Martin, D., Iovu, H., **Aplicații ale microundelor în sinteza și procesarea materialelor**, pag.113-158 in *Electrotehnologii : Protecția mediului, procesarea de materiale și control nedistructiv* » Ed. AGIR, București 2011, ISBN: 978-973-720-353-3

#### **Patents - 4**

- Ighigeanu, D., Martin D., Calinescu I., Matei C., Manaila, E., Craciun, G., “**Enhancement of conversion performance of gaseous pollutants in industrial waste gases by combined treatment with accelerated electrons and microwaves**”, Assignee: INFLPR, Patent Number(s): RO126841-A2 Derwent Primary Accession Number: 2011-Q13072
- Ighigeanu D P, Calinescu I, Martin D, Matei C, “**Process for removing SO<sub>2</sub> and NO<sub>x</sub> from industrial flue gases by treatment with medium energy accelerated electrons in the presence of fine water droplets**”, Patent Number(s): RO129069-A2, 2014, Derwent Primary Accession Number: 2014-A67536 [04
- Predeanu, G., Lambescu, S., Calinescu, I., Chipurici, P., Slavescu, V., Mihaiescu, D. , Vacarciuc, I., Patrut, A. , Ciminian, C., **Process for air and used water treatment using active coal obtained from recycled materials**, Patent number: RO125293-A2/30.03.2010;
- Avram R., Călinescu, I., Vueric, E., **Continuous separation of anthracene from coke chemistry anthracene|consists of extraction based on aqueous soln. of polar solvents** Patent no: RO 103108 B1 19911102