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Department Analytical Chemistry and Environmental Engineering



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Education

High school of mathematics and physics "Petru Rares" Piatra Neamt	University Politehnica Bucharest Faculty Chemical Technology	University Politehnica Bucharest Dept. of analytical chemistry	University of Antwerpen, Dept. of Mass Spectrometry	Interscience, Bruxelles, Belgium	Fogarty International Center-Univ. of Michigan, USA	TUV Akademie Rheinland ASRO, Romania	UEFISCDI, Romania	Ministry of National Education
1978-1982	1982-1987	1991 - 1996	2003-2004	2004	2006, 2009	2006, 2007	2011	2012
High School Diploma	University diploma chemical engineer, speciality organic chemistry	Doctor's title analytical chemistry	Postdoctoral stage in analytical hyphenated techniques	Training courses GC/MS maintenance	Training and Research in Environmental Health Training in characterization of carbon nanomaterials environmental applications	Internal auditor for food security certificate and for quality systems in laboratories, 22000,17025	Improvement of academic management diploma	Habilitation in chemistry and chemical engineering

Training

1/04/1990 – 1/05/1990 – research stage at Max Plank Institute, Berlin, Germany, Pd recovery from hydrogenation catalysts

1/02/1993 – 31/08/1993 Tempus research stage at the Dept. of Organic Chemistry, University of Twente, Enschede, the Netherlands (Prof. D.N. Reinhoudt), analytical applications of supramolecular chemistry

1/02/1994 – 1/05/1994 Tempus research stage at the Dept. of Organic Chemistry, University of Twente, Enschede, the Netherlands (Prof. D.N. Reinhoudt), electrochemical sensors

1/04/1996 – 1/07/1996 Tempus research stage at the Dept. of Organic Electrochemistry and Redox Photochemistry, University Joseph Fourier, Grenoble, France (Prof. Eric Saint Aman), chemically modified electrodes for Ca

1/09/1997 – 1/12/1997 Nuffic postdoctoral stage at Dept. of Organic Chemistry, University of Twente, Enschede, the Netherlands the (Prof. D.N. Reinhoudt), ChemFETs for phosphate and fluoride

1/03/2000 – 1/09/2000 research stage at ETH Zurich, Switzerland (Prof Erno Pretsch), Ion selective electrodes for heavy metals

1/10/2000 – 1/03/2001 UREF AUPELF postdoctoral research stage (bourse d'excellence) at the Dept. Of Organic Electrochemistry and Redox Photochemistry, University Joseph Fourier, Grenoble, France (Prof. Eric Saint Aman), chemically modified electrodes for heavy metals

1/04/2001 – 1/06/2001 invited fellowship at ETH Zurich, Switzerland (Prof Erno Pretsch), low detection limit ion selective electrodes and their applications

1/10/2003 – 30/09/2004 postdoctoral stage in analytical hyphenated techniques (GC/MS), Department of Mass Spectrometry, University of Antwerpen, Belgium (prof. Magda Claeys), characterization of rural aerosols from K-puszt, Hungary.

7/10/2007 – 15/10/2007, training course in electrochemical impedance spectroscopy, Electrochemical Society ECS, San Francisco ,USA.

1/12/2008 – 31/03/2009 invited professor at University of Michigan, Dept. of Civil Engineering, USA to develop studies and projects in nanoparticles and their environmental applications; training in techniques of characterization of nanoparticles

Professional experience

Period:	09.1987-03.1990	03.1990-02.1991	02.1991 - present	2004 - 2006
Institution:	FIBREX S.A. Savinesti	ICECHIM Bucharest Centre of Physical Chemistry	University Politehnica of Bucharest	Romanian Academy
Position:	Chemical engineer in the central laboratory of chemical analysis	Chemical researcher	1991-1995-assistant professor 1995-2000 - lecturer 2000-2002 - reader 2002-present - professor	Scientific secretary, Section of Chemical Sciences

Academic and research interests

- electrochemical sensors: potentiometric and voltammetric sensors, miniaturized sensors;
- analytical applications (extractions and ion selective electrodes) of macrocyclic ligands;
- low detection limit ion selective electrodes;
- applications of several types of sensors in different matrices;
- determination of pollutants in waters, soils and fertilizers;
- determination of organic pollutants in atmospheric environment;
- metal ion speciation and its applications in medicine and environment;
- characterization and measurements of nanostructures;
- sustainability in the environment, methods of analysis of organic and inorganic contaminants and their possible effects on health;
- carbon nanostructures and their environmental applications.

Teaching activity

<i>Studies</i>	<i>Program</i>	<i>Code</i>	<i>Course title</i>	<i>Activity</i>
<i>Bachelor</i>	Chemical engineering	UPB.11.F.03.O.008	Chromatographic methods applied in quality control of products	course
<i>Bachelor</i>	Food Engineering/Control and food expertise	UPB.11.S.06.O.003	Chromatographic methods and electrophoresis	Course/ practical work
Master	Consumer protection.	UPB.11.01.O.11.12	Techniques and	Course/ practical

	Quality control of products		systems of evaluation of the quality of products	work
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Publication (selective):

Books and books chapters

1. **A.C. Ion**, I. Ion, A. Culetu, « Carbon-based nanomaterials. Environmental applications », in serie in Micro and Nanoengineering, vol. 19, « Nanomaterials and nanostructures for various applications », Eds. Gh. Brezeanu, H. Iovu, C. Cobianu, D. Dascalu, Ed. Academiei Romane, Bucuresti 2012, p. 31-57, ISBN 978-973-27-2169-8
2. **A. C. Ion**, I. Ion, A. Culetu, “Detection and analysis of natural nanoparticles as environmental nanovectors for contaminants in soils”, in Series in Micro and Nanoengineering, vol. 16, “Nanostructuring and nanocharacterization”, Eds. M. Zaharescu, M. Ciurea, I. Kleps, D. Dascalu, Ed. Academiei Romane, Bucuresti, **2010**, p. 37-62, ISBN 978-973-27-1905-3.
3. D.T. Long, T. C. Voice, **A. C. Ion**, V.C. Lavric, C.P. Bobirica, “Fundamentals environmental chemistry and engineering. Transformation and fate of contaminants in natural and engineering systems”, “Nanomaterials in the environment: environmental properties” p. 219-239, Bucharest **2010** edition
4. **A. C. Ion**, I. Ion, A. Ficai, D.N. Stefan, “Environmental analytical chemistry. Applications of nanosensors. Chemically modified electrode for NO₂⁻ determination in environmental application”, Series in Micro and Nanoengineering, vol. 11, “Progress in nanoscience and nanotechnologies”, Eds. I. Kleps, A.C. Ion, D. Dascalu, Ed. Academiei Romane, Bucuresti, **2007**, p. 231-239, ISBN 978-973-27-1576-5
5. I. Ion, **A.C. Ion**, D.N. Stefan, “Analiza instrumentala. Aplicatii”, Editura Printech **2007**, ISBN 978-973-718-678-2, 166 pagini
6. I.Ion, **A.C. Ion**, A. Ficai, « Probleme de chimie analitică », Editura Printech **2005**, ISBN 973-718-394-0, 321 pagini
7. I. Ion, **A.C.Ion**, A.Ficai “*Probleme de chimie analitica*“, Editura Cartea Universitara, Bucuresti, **2003** (320 pp, ISBN 973-7956-11-7).
8. E.Diacu, **A.C.Ion**,”*Quantitative Chemical Analysis*”, Editura Printech, București **2002**(169 pagini, ISBN 973-652-551-1)
9. **A.C.Ion**, I.Ion, E.Diacu, “*Metode electrochimice de analiză*,”, Editura Printech **2002** (164 pagini, ISBN 973-652- 570 – 1
10. C1. I.Ion, **A.C.Ion**, “*Chimie Analitică (Vol.1. Echilibre chimice)*”, Editura Printech București, **1999** (151 pagini, ISBN 973-652-032-3).
11. **A.C.Ion**, I. Ion, “ *Chimie Analitică și Analiză instrumentală. Metode de separare* “, Editura Printech, București, **1999** (121 pagini, ISBN 973-652-033-1).

Articles

1. **Alina C. Ion**, Stephanie Bley, Ion Ion, Alina Culetu, Stanislav Zahov, Henner Hollert, Thomas-Benjamin Seiler, Investigation of the contaminant sorption of treated Romanian soils using “batch” and biological toxicity assays, Catena 101 (2013), 205-211, Elsevier, ISSN 0341-8162, **IF-2.510**.

2. I. Ion, **A.C. Ion**, Differential pulse voltammetric analysis of lead in vegetables using a surface amino-functionalized exfoliated graphite nanoplatelet chemically modified electrode, *Sensors & Actuators: B. Chemical* 166-167 (2012), 842-847, Elsevier, ISSN 0925-4005, **IF-3,242**.
3. I. Ion, **A.C. Ion**, Determination of chlorpyrifos in broccoli using a voltammetric acetylcholinesterase sensor based on carbon nanostructure-chitosan composite material, *Materials Science and Engineering C* 32 (2012), 1001-1004, Elsevier, ISSN 0928-4931, **IF-1,895**
4. I. Ion, **A.C. Ion**, A. Culetu, Application of an exfoliated graphite nanoplatelet- modified electrode for the determination of quintozen, *Materials Science and Engineering C*, 31, 2011, pp.1553-1557, Elsevier, ISSN 0928-4931, **IF-1,895**
5. **Alina C. Ion**, Alla Alpatova, I. Ion, Alina Culetu, Study on phenol adsorption from aqueous solutions on exfoliated graphitic nanoplatelet, *Materials Science and Engineering B* 176(7) (2011) 588–585, Elsevier, ISSN 0921-5107, **IF-2,394**.
6. **A. C. Ion**, I. Ion, A. Culetu, Lead adsorption onto exfoliated graphitic nanoplatelets in aqueous solutions, *Materials Science and Engineering B*, 176(6), 2011, pp. 504-509, Elsevier, ISSN 0921-5107, **IF-2,394**.
7. **A.C.Ion**, I. Ion, A.Culetu, D. Gherase, C.A.Moldovan, R.Iosub, A.Dinescu, Acetylcholinesterase voltammetric biosensors based on carbon nanostructure chitosan composite material for organophosphate pesticides, *Materials Science and Engineering C*, 30(6), 2010, pp.817-821, Elsevier, ISSN 0928-4931, **IF-1,895**
8. **A.C. Ion**, R.Vermeyley, I. Kourtchev, J.Cafmeyer, X.Chi, A.Gelencsér, W.Maenhaut, M.Claeys, Polar organic compounds in rural PM_{2.5} aerosols from K-pusztá, Hungary, during a 2003 summer field campaign: Sources and diel variations, *Atmospheric Chemistry and Physics*, 5 (7), 2005, pp. 1805-1814, Elsevier, ISSN: 1680-7316, **IF-5,416**.
9. M.Claeys, W.Wang, **A.C. Ion**, I. Kourtchev, A.Gelencsér, W.Maenhaut, Formation of secondary organic aerosols from isoprene and its gas-phase oxidation products through reaction with hydrogen peroxide, *Atmospheric Environment*, 38 (25), 2004, pp. 4093-4098, Elsevier, **ISSN: 1352-2310, IF-3,584**
10. M. Claeys, W. Wang, **A.C. Ion**, R. Vermeyley, I. Kourtchev, J.Cafmeyer and W. Maenhaut” Characterization of isoprene oxidation products in rural continental aerosols”, *International Conference on carbonaceous particles in the atmosphere, Journal of Aerosol Science (Special Issue EAC 2004)*, vol. 35(S1), 2004, pp.153-155, Elsevier, ISSN: 0021-8502, **IF- 2.983**
11. **A.C. Ion**, E.Bakker, E. Pretsch, Potentiometric Cd²⁺ - selective electrode with a detection limit in the low ppt range, (2001) *Analytica Chimica Acta*, 440 (2), 2001, pp. 71-79, Elsevier, ISSN 0003-2670, **IF-3,521**
12. **A.C.Ion**, E. Bakker, E.Pretsch, Erratum: Potentiometric Cd²⁺-selective electrode with a detection limit in the low ppt range (*Analytica Chimica Acta* 440 (2001) (71-79) PII: S0003267001010522) (2002) *Analytica Chimica Acta*, 452 (2), p. 329, Elsevier, ISSN 0003-2670, **IF-3,521**.
13. M.M.G.Antonisse, B.H.M.Snellink-Ruël, **Alina C. Ion**, J.F.J.Engbersen, D.N.Reinhoudt, Synthesis of novel uranyl salophene derivatives and evaluation as sensing molecules in chemically modified field effect transistors(CHEMFETs) (1999) *Journal of the Chemical Society. Perkin Transactions 2*, (6), 1999, pp. 1211-1218, RSC, ISSN 1364-5471, **IF—1,911**.
14. **A.C.Ion**, J.-C.Moutet, A.Pailleret, A.Popescu, E.Saint-Aman, E.Siebert, E.M. Ungureanu, Electrochemical recognition of metal cations by poly(crown ether ferrocene) films investigated by cyclic voltammetry and electrochemical impedance spectroscopy, *Journal of Electroanalytical Chemistry*, 464 (1),1999, pp. 24-30, Elsevier, ISSN 1572-6657, **IF-2,530**.
15. **A. Ion**, I.Ion, A.Popescu, M.Ungureanu, J.-C.Moutet, E.Saint-Aman, A ferrocene crown ether-functionalized polypyrrole film electrode for the electrochemical recognition of barium and calcium cations, *Advanced Materials*, 9 (9), 1997, pp. 711-713, Wiley-VCH, ISSN 0935-9648, **IF-8,379**.

Research projects

<i>Natural nanoparticles in soils as possible environmental vectors for contaminants, nr. 327/2009</i>	<i>PN II, Capacitati, modul III, proiect bilateral Romania - Germania</i>	<i>2009-2010</i>
<i>Removal of organic contaminants from the environment, I 420901</i>	<i>UPB-RO-MSU-USA</i>	<i>2009-2010</i>
<i>„Microtehnologia obtinerii de biosenzori miniaturizati pentru detectare rapida a contaminantilor din produse alimentare”, nr. 52173, cordonator IMT, UPB partener 1</i>	<i>PN II, Parteneriate</i>	<i>2008-2011</i>
<i>„Studiul epidemiologic si experimental privind actiunea poluantilor organici persistenti pe cresterea, dezvoltarea, functia si imunitatea tiroidiana”, UPB partener 1</i>	<i>PN II, Parteneriate</i>	<i>2008-2011</i>

Other information

- scientific secretary of the Chemical Section of Romanian Academy 2004 -2006
- member in the editorial board of *Academica* – journal of the Romanian Academy from 2004
- member in the editorial board of *UPB Sci. Bull., Chem.and Materials Sci.Series*, from 1998
- expert evaluator in the national programmes CEEEX (from 2005), CNCSIS(from 2001) and Romanian Academy (from 2007)
- member of Medical Research Initiative in South Eastern Europe from 2006
- member of ETP European Nanomedicine platform from 2006
- editor of the volume “Progress in nanoscience and nanotechnologies”, *Micro and Nanoengineering series*, 2007, 11, Editura Academiei Romane
- member of Electrochemical Society (USA) from October 2007
- scientific referent at *Mat. Sci. Eng. C (MSEC) (Elsevier)*; *Mat. Sci. Eng. B (Elsevier)*; *International Journal of Environmental Analytical Chemistry (Elsevier)*; *Sensors&Actuators B (Elsevier)*; *Food Chemistry (Elsevier)*; *Desalination (Elsevier)*; *J. Electrochem. Soc.*; *Polish Journal of Environmental Chemistry*
- European Food Safety Agency EFSA expert 2009
- Editor at *IJVEE* from 2009 (*International Journal of Vocational Engineering Education*)