

## PERSONAL INFORMATION



## Mîndroiu Mihaela

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Sex feminine | Date of birth 01.01.1981 | Nationality Romanian

## WORK EXPERIENCE

### 2014 – present Associate Professor

- at University POLITEHNICA of Bucharest, General Chemistry Department, Faculty of Applied Chemistry and Material Science

Main activities and responsibilities:

- ✓ **Teaching activity:** Course: General Chemistry at Power Engineering Faculty and Faculty of Entrepreneurship, Business Engineering and Management (FAIMA) from University POLITEHNICA of Bucharest; Seminars and laboratories: Physical Chemistry and General Chemistry for non chemistry faculties from University POLITEHNICA of Bucharest; Scientific coordinator: at Student Scientific Sessions Communication with students; Book development dedicated for students and future engineers "*Chemical compounds with practical applications - The relationship between chemical structure and properties*", **Mihaela Mîndroiu**, ed. Printech, Bucharest, ISBN 978-606-23-0215-3, 160 pages, 2014;
- ✓ **Research activity:** Participation in the research projects. Presenting of the research results at national and international conferences and publication of the results in ISI papers
- ✓ **Technical activity:** implication in organization of a new research laboratory - *Ecomatica L 025* and *General Chemistry Laboratory L 026*.

### 2011 – 2014 Assistant Professor

- at University POLITEHNICA of Bucharest, General Chemistry Department, Faculty of Applied Chemistry and Material Science
- Main activities and responsibilities: Practical laboratory work, research projects, seminars, and chemistry courses. Participation at international conferences, research results publishing in international journals in the field.

### 2004 – 2011 Teaching assistant

- at University POLITEHNICA of Bucharest, General Chemistry Department, Faculty of Applied Chemistry and Material Science
- Main activities and responsibilities: Coordination of seminars and practical laboratory work: Physical Chemistry and General Chemistry for non chemistry faculties from University POLITEHNICA of Bucharest; Development of laboratory guide *Experimental General Chemistry*, **Mihaela Mîndroiu**, Cristian Pîrvu, Roxana Popescu, ed. Politehnica Press, ISBN 978-606-515-014-0, 166 pag., **2008**, addressed to students from University POLITEHNICA of Bucharest.  
Participation in the research projects. Presenting of the research results at national and international conferences and publication of the results in ISI papers

## Academic and research interests

1. **Specialty fields:** Electrochemical synthesis and characterization of new micro and nanomaterials based on titanium oxide and conducting polymers by Cycle Voltammetry, Electrochemical Impedance Spectroscopy, Tafel Plots techniques for stability evaluation; Biopolymers synthesis; Physical – chemical characterization of new materials and nanocomposites; Chemical kinetics; Applied spectroscopy: IR, UV – VIS; Surface analysis (Atomic Force Microscopy – AFM, SEM), Wettability test (Contact Angle), Ions release (ICP-MS), Nonlinear optics.
2. **Scientific activity:**
  - Obtaining of TiO<sub>2</sub> micro and nanostructures on Titanium alloy using chemical, laser ablation and electrochemical surface modification methods. The Titanium alloy surface modification by electrodeposition of hybrid composite materials based on conducting polymers with different applications. Characterization of TiO<sub>2</sub> and polymer films obtained on Titanium using electrochemical techniques (CV, EIS, Tafel Plots) and surface analysis (AFM, SEM, Contact Angle, FTIR).
  - Biopolymers synthesis technology, Investigative techniques in the evaluation of biopolymeric materials, Characterization of thin films (UV, VIS, IR spectroscopy).
  - Development of new electrochromic devices based nontoxic biomaterials.
  - Electrochemical synthesis of conductive polymeric films and Titanium Oxide nanotubes for solar cells applications.
  - Publication of **32 papers in ISI journals** (Electrochimica Acta, Applied Surface Science, Materials Science and Engineering C, Ionics, Arabian Journal of Chemistry, Annals of Anatomy, Revista de Chimie, Materiale Plastice, Materials and Corrosion, Molecular Crystal and Liquid Crystal, Progress in Organic Coating, Proc. of SPIE) of which **16 articles as main author**, 2 articles as main author in national circulation papers recognized by CNCSIS and 2 articles published in proceedings of some scientific conferences.
  - **Hirsch index:** 8 (according to Scopus).
  - The CNCSIS (type TD) project manager (2006-2008).
  - Winning a postdoctoral scholarship competition in 2012 at the Institute of Biochemistry of the Romanian Academy, in the project: Interdisciplinary Postdoctoral Program "*Biotechnology applications in cellular and molecular medicine*," POSDRU/89/1.5 / S/60746.
  - Participations in more than 15 international conferences, 4 of which were invited speaker.
  - Participation at 11 research projects in General Chemistry Department group, University POLITEHNICA Bucharest, and in one international project FP7 Type IRSES with research internship in Brazil at IQSC, University of São Paulo, in São Carlos-SP, the period May 12 to June 6, 2014 – for specialization in electrochemical characterization of electrochromic devices.
  - **3 Patents elaboration:** **1.** Pirvu C., Demetrescu I., **Mîndroiu M.**, Popescu S., Manole C., *Method for surface modification of Titanium with hybrid polymer films with controlled wettability*, (RO127065-A2); **2.** Pirvu C., Demetrescu I., **Mîndroiu M.**, Vasilescu E., Drob P., Vasilescu C., *The carbon steel surface preparation process before application of protective coatings*, (RO127533-A2); **3.** Pirvu C, **Mîndroiu M.**, Popescu S. *Electrochemical process for obtaining polymeric coatings with antifouling effect based on polypyrrole doped with polystyrene sulfonate* (RO130770).
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3. **Specialization: main field** – Electro-chemical engineering; Macromolecular compounds chemistry;  
**other fields** – Surface modification methods, Corrosion metallic characterization, Spectral methods for environmental monitoring, Synthesis and spectral characterization of coordination compounds; Bio-membranes prepared from proteins and DNA used as ionic conducting membranes in electrochromic devices like smart windows or solar cells.

## EDUCATION AND TRAINING

**Dates***Title of qualification awarded**Principal subjects/occupational skills covered**Name and type of organisation providing education and training**Level in national or international classification***Dates***Title of qualification awarded**Principal subjects/occupational skills covered**Name and type of organization providing education and training**Level in national or international classification (ISCED 2011)***Dates***Title of qualification awarded**Principal subjects/occupational skills covered**Name and type of organisation providing education and training**Level in national or international classification (ISCED 2011)***September 2004 – May 2010**

PhD in Chemistry

Electrochemical synthesis and characterization of new micro and nano materials based on titanium oxide and conducting polymers by Electrochemical methods (CV, EIS, Tafel Plots) for electro-stability evaluation, Chemical kinetics, FT-IR, and UV – VIS spectroscopy, Surface analysis (AFM, SEM), Wettability test, Ions release (ICP-MS).

Faculty of Applied Chemistry and Materials Science, University POLITEHNICA of Bucharest

Doctoral or equivalent (level 8)

**September 2004 – July 2006**

Degree of Master of Science

Bioelectrochemistry, Controlled release systems, Advanced spectroelectrochemistry methods, Biomechanics, Biothermodynamics, Polymeric biomaterials, Ceramic biomaterials, soft and hard implant engineering

Bioengineer and Biotechnology Department,

University POLITEHNICA of Bucharest

Master or equivalent (level 7)

**September 1999- July 2004**

Bachelor's degree – Chemical engineer

Use of computers and computer graphics, Programming, Pedagogy, Communication techniques, Physical - chemistry, Electrochemistry, Organic and Inorganic chemistry, Physics, Mathematics, Industrial Management, Polymer synthesis technology

Faculty of Industrial Chemistry, University POLITEHNICA of Bucharest

Bachelor or equivalent (level 6)

## PERSONAL SKILLS

Mother tongue(s) Romanian

Other language(s)

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
English	C1/C2	C1/C2	A1/A2	A1/A2	A1/A2

## Communication skills

I participated at practical projects and research conducted in the Department of General Chemistry, University Politehnica of Bucharest, Faculty of Applied Chemistry and Materials Science: “*New concepts and strategies in knowledge development of new biocompatible structure in bioengineering*”- PCCE, CNCSIS, nr. 248/2010, 2010-2013- **Researcher**.

“*Environmentally friendly products based on conductive polymer composite coatings on nanostructured substrates with antifouling effect and with applications in reducing pollution and corrosion*”- ProdCompoCor, PN II Parteneriate, nr. 32.106.2/01.10.2008, 2008-2011 – **Researcher**.

## Organisational / managerial skills

- ✓ Students mentor and scientific leader of the student scientific sessions communications at General Chemistry Department, with students from faculties: Energy; Entrepreneurship, Engineering and Business Management; Electronics and Telecommunications.
- ✓ “*The investigation on degradation process of new Romanian alloy based on TiAlNb*” TD - Human resources program, CNCSIS, Contract Nr GR 18/29.05.2007, Intern Nr. CH 440701, Theme nr 1 cod CNCSIS 6, and Contract nr 49 GR / 2008, Intern Nr. CH 440803, - **Project manager**.
- ✓ Interdisciplinary Postdoctoral Program “*Cellular and Molecular Biotechnologies for Medical Applications*” - POSDRU/89/1.5/S/60746, Programme for Human Resources Development 2007 – 2013 – **POSTDOC researcher**.
- ✓ Graduation certificate of the special research course in management research for Project Manager competency (G Serial, Nr. 00237574).

## Digital competence

SELF-ASSESSMENT				
Information processing	Communication	Content creation	Safety	Problem solving
basic user	basic user	basic user	basic user	basic user

## Other skills

- Member in Admission Committee for Faculty of Applied Chemistry and Materials Science,
- Member of Society of Chemistry (Romania) (SRCh).
- Member of Society for Biomaterials (Romania).
- Graduate Teacher Training Department, University POLITEHNICA of Bucharest, 2004.
- Reviewer at Materials Chemistry and Physics, Vaccum - Surface Engineering, Surface Instrumentation & Vacuum Technology.
- Formator, long-term expert in the POS-DRU project ID 61839: - *Looking forward - training teachers to use modern information resources in effective teaching of chemistry*, Operational Programme for Human Resources Development 2007 – 2013.
- CNCSIS awards: ISI articles

Driving licence B

## ADDITIONAL INFORMATION

## Some Publications

1. Bunoiu, I., **Mîndroiu, M.**, Manole, C.C., Andrei, M., Nicoara, A., Vasilescu, E., Popa, M., Didilescu, A.C., Electrochemical testing of a novel alloy in natural and artificial body fluids. *Annals of Anatomy*, 217, pp. 54-59, 2018.
2. Zgarian R. G., Tihan G. T., Kajzar F., Rau I., Pawlicka A., **Mîndroiu M.\***, *Chromophore doped DNA based solid polymer electrolyte for electrochromic devices*, Arabian Journal of Chemistry, Volume 10, Issue 2, pp.232-239, 2017.
3. Huluba R, Pirvu C, Nicolescu C, Gheorghe M, **Mîndroiu M\***. Counter Electrode Based on PEDOT:PSS - TiO<sub>2</sub> NTs Films for Dye-sensitized Solar Cells. *Mater Plast* 53:130-4, ISSN: 0025-5289, 2016.
4. Pirvu C, **Mîndroiu M\***, Craciunescu O, Constantin D. The Bioactivity and Stability Evaluation of the PPy/Ca-P Hybrid Films on Titanium Alloy Implant. *Mater Plast* 53:722-6, ISSN: 0025-5289, 2016;
5. **Mîndroiu, M.**, Zgârian, R.G., Kajzar, F., (...), Pawlicka, A., Tihan, G.T., DNA-based membranes for potential applications, *Ionics*, 21(5), pp. 1381-1390, 2015
6. **Mîndroiu M.**, Manea A.M., Rau I., Grote J. G., Oliveira H. C. L., Pawlicka A., Kajzar F., *DNA- and DNA-CTMA – novel bio-nanomaterials for application in photonics and in electronics*, ROMOPTO 2012: Tenth Conference on Optics: Micro- to Nanophotonics III, edited by Valentin I. Vlad, Proceedings of SPIE, Vol. 8882, 888202 © 2013.
7. **Mîndroiu M.**, Demetrescu I., *Electrochemical Atomic Force Microscopy in supporting the control of diffusion process*, *Advanced Topics in Optoelectronics, Microelectronics, and Nanotechnologies IV*, edited by Paul Schiopu, Cornel Panait, George Caruntu, Adrian Manea, Proceedings of the SPIE, Vol. 7297, 72970U, 2009.
8. **Mîndroiu M.**, Ungureanu C., Ion R., Pirvu C., *The effect of deposition electrolyte on polypyrrole surface interaction with environment*, Applied Surface Science, 2013, 276, p. 401–410.
9. **Mîndroiu M.**, R. Ion, C. Pirvu, A. Cimpean, *Surfactant-dependent macrophage response to polypyrrole-based coatings electrodeposited on Ti6Al7Nb alloy*, *Materials Science and Engineering C*, 33(6), ISSN: 0928-4931, pp. 3353–3361, 2013
10. **Mîndroiu, M.**, Pîrvu, C., Cîmpean, A., Demetrescu, I., *Corrosion and biocompatibility of PPy/PEG coating electrodeposited on Ti6Al7Nb alloy*, *Materials and Corrosion* 64 (10) , pp. 926-931, 2013.
11. Pîrvu C., Demetrescu I., Drob P., Vasilescu E., Vasilescu C., **Mîndroiu M.**, Stancu R., *Electrochemical stability and surface analysis of a new alkyd paint with low content of volatile organic compounds*, *Progress in Organic Coating*, 2010, 68(4), p. 274-282.
12. **Mîndroiu M.**, Pirvu C., Ion R., Demetrescu I., *Comparing performance of nanoarchitectures fabricated by Ti6Al7Nb anodizing in two kinds of electrolytes*, *Electrochimica Acta*, 2010, 56(1), p. 193–202.
13. **Mîndroiu M.**, Pirvu C., Popescu S., Demetrescu I., *Polypyrrole electrodeposition on Ti6Al7Nb alloy in aqueous and non-aqueous solution*, *Revista de chimie*, 61 (4), ISSN 0034-7752, pp. 390-394, 2010