



Cristian PIRVU

Professor

Faculty of Applied Chemistry and Materials Science

Department of General Chemistry



Contact Details

“Polizu” Campus

1-7 Gh. Polizu Street, S1, 011061 Bucharest, ROMANIA

Building: L

Room: 024

Tel.: +4012 4023930, 4023894

E-mail: c_pirvu@chim.upb.ro

Biography

Date	Role
2014 - present	Professor, Department of General Chemistry, Politehnica University of Bucharest;
2009 - 2014	Associate Professor, Department of General Chemistry, Politehnica University of Bucharest;
2004-2009	Senior Lecturer, Department of General Chemistry, Politehnica University of Bucharest;
2000-2004	Assistant Professor, Department of General Chemistry, Politehnica University of Bucharest;
1997-2000	Ph.D. in Chemical Engineering, Department of General Chemistry, Politehnica University of Bucharest, Thesis Title: "Electrochemical depollution of organic compounds", Thesis Supervisor: Prof. Octavian Radovici;
1996-1997	Postgraduate studies: Marketing and Management, Politehnica University of Bucharest;
1995-1996	M.Sc. (Graduate Engineer/Diplomate engineer), Pharmaceutical and Cosmetic, Faculty of Industrial Chemistry, Politehnica University of Bucharest;
1990-1995	Bachelor's degree, Technology of Organic Substances, Faculty of Industrial Chemistry, Politehnica University of Bucharest;

Research

Research Interests

- Electrochemical deposition and characterization of micro- and nano-structured coatings for biological and other applications;
- Conducting polymers;
- Electrochemical atomic force microscopy;
- Electrochemical surface plasmon resonance;
- Corrosion;



Selected Research Projects

1. **Project PN-II - 253/2014 – NANOCOAT**, New nanostructured multifunctional coatings for orthopaedic implants, **Project Responsible**.
2. **Project no. 296/2013** Bilateral Romania – Argentina.
3. **Project PN-II-ID-PCE 32-106/2008-2012**, Environment friendly products based on polymeric composite conducting covering on nanostructure supports with antifouling affect and the applications in reducing pollution and corrosion., **Project Director**.
4. **Project PN-II-ID-PCE 31-003.2 / 2007-2010**, New advanced products and technologies for environmental friendly, corrosion resistant and low VOC content multilayer coatings,– **PROGREENCOR, Project Responsible**.
5. **Project** Exploratory studies on the mechanism of formation and induction of new properties of modified electrodes with TiO₂ nanotube / polymer composite nanoparticles structural forms, **2008, cod CNCSIS 1712**.
6. **Project** New concepts and strategies for the development of new biocompatible structures in bioengineering, **2008, cod CNCSIS 248**.
7. **Project** Research on electrochemical synthesis of micro and nanostructured composite materials for applications in sustainable development, **CEEX 309/13.09.2006-2008**.
8. **Project** Platform for interdisciplinary bioengineering - biotechnology research, development and training, **2006 - 2008**.
9. **Project** Platform for Engineering Integrated Motor Vehicles - **AutoIntegrIng, 2006 - 2008**.

Academic interests

Teaching activity

Studies	Program Name/Faculty	Code	Title	Activity type
Bachelor	Applied Electronics – Faculty of Electronics, Telecommunications and Information Technology	04.F.01.O.006	Chemistry	Course and Applications
	Informatics Engineering – Faculty of Electronics, Telecommunications and Information Technology	04.F.01.O.006	Chemistry	Course and Applications
	Technologies and Telecommunication systems – Faculty of Electronics, Telecommunications and Information Technology	04.F.01.O.006	Chemistry	Course and Applications
	Aerospace Engineering/ Faculty of Aerospace Engineering	09.F.01.O.006	Chemistry	Course and Applications
	Biomaterials and Medical Devices/Faculty of Medical Engineering	14.F.05.O.201	Electrochemical processes in physiological environments	Course and Practical works
Master	Chemicals, Food, & Materials Expertise/Applied Chemistry & Materials Science	MC6S1C6	Expertise of metallic coating materials, films, varnishes	Course and Applications
	Advanced Technologies in Automotive Electronics - Faculty of Electronics, telecommunications and Information Technology		Chemical engineering for automotive electronics	Course and Applications
	Substances, Materials and Biocompatible	UPB.15.M1.O.01-03	Bioelectrochemistry and Biothermodynamics	Course and Applications



	systems/Faculty of Medical Engineering			
--	--	--	--	--

Honours and Awards

Membership of Professional Bodies

- From 2000: Member of the Romanian Chemical Society
From 2008: Member of the Romanian Society of Electrochemistry
From 2008: Member of the International Society of Electrochemistry
From 2008: Member of the Romanian Society of Biomaterials

Other Significant Activities

- From 2012: Head of General Chemistry Department of Faculty of Applied Chemistry & Materials Science

Reviewer for: Electrochimica Acta, Journal of Electrochemical Society, Progress in Organic Coating, Journal of Applied Polymer Science, Corrosion Science, Materials Science and Engineering C, Environmental Engineering and Management Journal, Synthetic Metals, African Journal of Pure and Applied Chemistry, UPB Scientific Bulletin, Journal of Optoelectronics and Advanced Materials;

Publications

Selected Journal Articles

1. Mîndroiu, M., **Pirvu, 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, **ISSN:** 09475117, WOS:000327742100009.
2. Penta, V., Vornicescu, D., Keusgen, M., **Pirvu, C.**, Understanding the cleaning effect with sodium hypochlorite of *Enterococcus faecalis* endodontic pathogen using electrochemical impedance spectroscopy (EIS), atomic force microscopy (AFM) and surface plasmon resonance (SPR), *Digest Journal of Nanomaterials and Biostructures* 8 (3) , pp. 1205-1214, 2013, **ISSN:** 18423582, WOS:000327816300028.
3. Mîndroiu, M., Ion, R., **Pirvu, C.**, Cîmpean, A., Surfactant-dependent macrophage response to polypyrrole-based coatings electrodeposited on Ti6Al7Nb alloy, *Materials Science and Engineering C* 33 (6) , pp. 3353-3361, 2013, **ISSN:** 09284931, WOS:000320973000033.
4. Mîndroiu, M., Ungureanu, C., Ion, R., **Pirvu, C.**, The effect of deposition electrolyte on polypyrrole surface interaction with biological environment, *Applied Surface Science* 276 , pp. 401-410, **ISSN:** 01694332, WOS:000318979800058.
5. Dumitriu, C., **Pirvu, C.**, Demetrescu, I., The electrochemical formation and shielding mechanism of TiO₂ nanotubes in organic electrolytes with different viscosity, *Journal of the Electrochemical Society* 160 (2) , pp. G55-G60, 2013, **ISSN:**0013-4651, WOS:000313581600066.
6. **Pirvu, C.**, Manole, C.C., Electrochemical surface plasmon resonance for in situ investigation of antifouling effect of ultra thin hybrid polypyrrole/PSS films, *Electrochimica Acta* 89 , pp. 63-71, 2013, **ISSN:**0013-4686, WOS:000315558200009.
7. Ungureanu, C., **Pirvu, C.**, Mîndroiu, M., Demetrescu, I., Antibacterial polymeric coating based on polypyrrole and polyethylene glycol on a new alloy TiAlZr, *Progress in Organic Coatings* 75 (4) , pp. 349-355,



- 2012, ISSN:0300-9440, WOS:000309695700010.
8. Cursaru, D.-L., Andronescu, C., **Pirvu, C.**, Ripeanu, R., The efficiency of Co-based single-wall carbon nanotubes (SWNTs) as an AW/EP additive for mineral base oils, *Wear* 290-291 , pp. 133-139, 2012, ISSN:0043-1648, WOS:000307032800016.
 9. **Pirvu, C.**, Manole, C.C., Stoian, A.B., Demetrescu, I., Understanding of electrochemical and structural changes of polypyrrole/polyethylene glycol composite films in aqueous solution, *Electrochimica Acta* 56 (27) , pp. 9893-9903, 2011, ISSN:0013-4686, WOS:000297399100029.
 10. **Pirvu, C.**, Demetrescu, I., Drob, P., Vasilescu, E., Ivanescu, S., Mindroiu, M., Vasilescu, C., Drob, S.I., Corrosion behaviour of a new Ti-6Al-2Nb-1Ta alloy in various solutions, *Materials and Corrosion* 62 (10) , pp. 948-955, 2011, ISSN: 09475117, WOS:000297742200007.
 11. Lungu, A., Şulcă, N.M., Vasile, E., Badea, N., **Pirvu, C.**, Iovu, H., The influence of POSS substituent on synthesis and properties of hybrid materials based on urethane dimethacrylate (UDMA) and various polyhedral oligomeric silsesquioxane (POSS), *Journal of Applied Polymer Science* 121 (5) , pp. 2919-2926, 2011, ISSN:0021-8995, WOS:000291598100053.
 12. Manole, C.C., **Pirvu, C.**, Surface and electrochemical analysis for the understanding of TiO₂ nanopores/nanotubes changes in post-elaboration treatment, *Surface and Interface Analysis* 43 (7) , pp. 1022-1029, 2011, ISSN:0142-2421, WOS:000291600900003.
 13. Lacatusu, I., Badea, N., Murariu, A., **Pirvu, C.**, Meghea, A., Vegetal nanoclusters in hybrid silica films prepared by sol-gel spin coating technique, *Journal of Non-Crystalline Solids* 357 (7) , pp. 1716-1723, 2011, ISSN:0022-3093, WOS:000290006900018.
 14. Mindroiu, M., **Pirvu, C.**, Ion, R., Demetrescu, I., Comparing performance of nanoarchitectures fabricated by Ti6Al7Nb anodizing in two kinds of electrolytes, *Electrochimica Acta* 56 (1) , pp. 193-202, 2010, ISSN:0013-4686, WOS:000297399100029
 15. Demetrescu, I., **Pirvu, C.**, Mitran, V., Effect of nano-topographical features of Ti/TiO₂ electrode surface on cell response and electrochemical stability in artificial saliva, *Bioelectrochemistry* 79 (1) , pp. 122-129, 2010, ISSN:1567-5394, WOS:000278666300020
 16. **Pirvu, C.**, Demetrescu, I., Drob, P., Vasilescu, E., Vasilescu, C., Mindroiu, M., Stancu, R., Electrochemical stability and surface analysis of a new alkyd paint with low content of volatile organic compounds, *Progress in Organic Coatings* 68 (4) , pp. 274-282, 2010, ISSN:0300-9440, WOS:000279237900003
 17. Comorosan, S, Kappel, W, Constantinescu, I, Gheorghe, M, Ionescu, E, **Pirvu, C.**, Cinca, S, Cristache, L, Green light effects on biological systems: a new biophysical phenomenon, *Journal of Biological Physics*, 35 (3), pp. 265-277, ISSN: 0092-0606, WOS:000268069000006
 18. Radovici, O., Banu, A., **Pirvu, C.**, Micro reactor for chlorophenols electrocatalytic oxidation, *ECS Transactions* 16 (27) , pp. 1-9, 2009, ISSN:1938-5862,
 19. Pigani, L., Musiani, M., **Pirvu, C.**, Terzi, F., Zanardi, C., Seeber, R., Electro-oxidation of chlorophenols on poly(3,4-ethylenedioxythiophene)-poly(styrene sulphonate) composite electrode, *Electrochimica Acta* 52 (5) , pp. 1910-1918, 2007, ISSN:0013-4686, WOS:000243647700010
 20. Heras, M.A., Lupu, S., Pigani, L., **Pirvu, C.**, Seeber, R., Terzi, F., Zanardi, C., A poly(3,4-ethylenedioxythiophene)-poly(styrene sulphonate) composite electrode coating in the electrooxidation of phenol, *Electrochimica Acta* 50 (7-8) , pp. 1685-1691, 2005, ISSN:0013-4686, WOS:000226969600029

Books

1. **C. Pirvu**, *General Chemistry. Fundamentals*, Ed. Printech, 2009, ISBN 978-606-521-241-1, 152 pg.
2. G. Hubca, M. Tomescu, Iuliana Niță, **C. Pirvu**, *Polymers used in electronics, electrical and computer engineering*, Ed. Semne, 2006, ISBN 973-642-363-X, 638 pg.
3. M. Ungureanu, **C. Pirvu**, *Experimental organic electrochemistry*, Ed. Printech, 2004, ISBN 973-652-978-9, 156 pg.



Chapters

4. I. Demetrescu, P. Drob, S.I. Drob, D. Ionita, A. Mazare, **C. Pirvu**, C. Ungureanu, C. Vasilescu, E. Vasilescu, Strategies to improve bio-performance of permanent and temporary metallic implants, in Advances biocompatible structures for prospective bioengineering: concepts and strategies, The Publishing House of the Romanian Academy, Bucharest, 2013, Pages 19 - 46.
5. Ioana Demetrescu, Daniela Ionita, and **C. Pirvu**, Processing Metallic Biomaterials for a Better Cell Response, chapter in Biomaterials and Stem Cells in Regenerative Medicine, edited by Murugan Ramalingam, Seeram Ramakrishna, and Serena Best, CRC Press 2012, Pages 259–280.

Patents

1. CLEAN PROCESS FOR PREPARING A MULTILAYER CORROSION-PROOF COATING for carbon steel, Patent Number: RO127533-A2, 2012.
2. PROCESS FOR MODIFYING THE SURFACE OF TITANIUM WITH POLYMERIC FILMS OF CONTROLLED HUMECTABILITY, Patent Number: RO127065-A2, 2011.
3. ECOLOGICAL SOLUTION FOR BLUE-IRIDESCENT PASSIVATION OF ZINC ELECTRO-CHEMICAL DEPOSITS, Patent Number: RO125234-A2, 2010.
4. ECOLOGICAL SOLUTION FOR WHITE-BLUIISH PASSIVATION OF ZINC ELECTRO-CHEMICAL DEPOSITS, Patent Number: RO125236-A2, 2010.
5. ECO-FRIENDLY SOLUTION FOR YELLOW PASSIVATION OF ELECTROCHEMICAL ZINC DEPOSITS, Patent Number: RO125235-A2, 2010.