

PERSONAL INFORMATION



Mihai Cosmin Cotruț

📍 313 Independetei Street, District 6, Bucharest, 060042, Romania



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Sex Male | Date of birth 14/10/1977 | Nationality Romanian

OCCUPATIONAL FIELD

Education and Research

WORK EXPERIENCE

October 2015 – present

Associate Professor

University Politehnica of Bucharest, Faculty of Material Science and Engineering, Department of Metallic Materials Science, Physical Metallurgy, 313, Splaiul Independenței street, Building J, 060042 - Bucharest, Romania

Tel.: +4 021 402 96 24; +4 021 402 95 86

E-mail: decanat@sim.pub.ro; Website: <http://www.sim.pub.ro>

▪ Teaching activities:

- Courses: *Surface engineering, Nanomaterials and Nanotechnologies, Materials Design with Preset Properties*
- Laboratories and seminars: *Surface engineering, Medical Informatics, Applied Modelling and Simulation in Engineering, Applied Statistics in Medical Engineering, Image analysis and computerized processing*
- Bachelors and Master Thesis Supervisor

▪ Research activities:

- Reactive deposition methods of hard, anticorrosive and biocompatible thin films
- Electrochemical assisted deposition methods and surface modification
- Surface characterization in terms of morphology, chemical, mechanical and corrosion resistance
- Experimental data processing
- Processing scientific papers
- Scientific events participation

Business or sector Higher Education and Scientific Research

May 2018

Invited Professor

Ecole Polytechnique Universitaire de Lille – Polytech Lille, Department of Materials Science, Lille, France,

Cité Scientifique, avenue Paul Langevin, 59655 Villeneuve d'Ascq

Phone: +33 (0)3 28 76 73 00; Fax: +33 (0)3 28 76 73 00

E-mail: contactuniv-lille.fr; Website: <http://www.polytech-lille.fr>

Business or sector Higher education and Research

December 2015 – present

Visiting Professor

Tomsk Polytechnic University, Department of Theoretical and Experimental Physics, Tomsk, Russia, 634050, Tomsk, Lenin Avenue, 30

Phone: +7 (38-22) 56-34-70; Fax: +7 (38-22) 56-38-65

E-mail: tpu@tpu.ru; Website: <http://tpu.ru/>

Business or sector Higher education and Research

October 2012 – present

Head of Electrochemistry & Surface Functionalization Laboratory and Dental Laboratory

University Politehnica of Bucharest, Faculty of Material Science and Engineering, Department of Metallic Materials Science, Physical Metallurgy, 313, Splaiul Independenței street, Building J, 060042 - Bucharest, Romania

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- Research and teaching activities

Business or sector Higher Education and Scientific Research

October 2012 – October 2015

Lecturer

University Politehnica of Bucharest, Faculty of Material Science and Engineering, Department of Metallic Materials Science, Physical Metallurgy, 313, Splaiul Independenței street, Building J, 060042 - Bucharest, Romania

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- Teaching activities:

- Courses: *Surface engineering* in the Medical Engineering and Materials Science majors
- Laboratories and seminars: *Surface engineering, Medical Informatics, Applied Modelling and Simulation in Bioengineering, Applied Statistics in medical engineering, Image analysis and computerized processing*
- Bachelors and Master Thesis Supervisor

- Research activities:

- Reactive deposition methods of hard, anticorrosive and biocompatible thin films
- Advanced surface characterization of surfaces in terms of morphological, chemical, structural and mechanical thin layers, corrosion resistance
- Data processing and the rigorous interpretation of scientific measurements
- Processing scientific papers
- Scientific events participation

Business or sector Higher Education and Scientific Research

October 2008- February 2012

Assistant Professor

University Politehnica of Bucharest, Faculty of Material Science and Engineering, Department of Metallic Materials Science, Physical Metallurgy, 313, Splaiul Independenței street, Building J, 060042 - Bucharest, Romania

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- Teaching activities:

- Courses: *Surface engineering* in the Medical Engineering major
- Laboratories and seminars: *Surface engineering, Introduction to biomaterials field, Medical Informatics, Applied Modelling and Simulation in Bioengineering, Applied Statistics in medical engineering, Image analysis and computerized processing, Unconventional heat treatments, Corrosion and protection of metallic materials*

- Research activities:

- Reactive deposition methods of hard, anticorrosive and biocompatible thin films
- Advanced surface characterization of surfaces in terms of morphological, chemical, structural and mechanical thin layers, corrosion resistance
- Data processing and the rigorous interpretation of scientific measurements
- Processing scientific papers
- Scientific events participation

Business or sector Higher Education and Scientific Research

October 2007 - February 2008

Assistant Professor (substitute)

University Politehnica of Bucharest, Faculty of Material Science and Engineering, Department of Metallic Materials Science, Physical Metallurgy, 313, Independenței street, Building J, 060042 - Bucharest, Romania

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- Teaching activities:

- Laboratories and seminars: *Alloys system thermodynamics, Unconventional heat treatments, Unconventional thermic/heat treatments, Computer assisted design technology, Physical Metallurgy*

- Research activities:

- Reactive deposition methods of hard, anticorrosive and biocompatible thin films
- Advanced surface characterization of surfaces in terms of morphological, chemical, structural and mechanical thin layers, corrosion resistance
- Data processing and the rigorous interpretation of scientific measurements
- Processing scientific papers
- Scientific events participation

Business or sector Higher Education and Scientific Research

EDUCATION AND TRAINING

November 2002 – April 2011

Doctoral degree in Material Science and Engineering

ISCED 6

University Politehnica of Bucharest, Faculty of Material Science and Engineering, Department of Metallic Materials Science, Physical Metallurgy, 313, Independenței street, Building J, 060042 - Bucharest, Romania

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- Elaboration of the Doctor thesis entitled: "*Preparation of the multicomponent thin films by the magnetron sputtering for biofunctionalization of the metallic surfaces*"

- Teaching activities:

- laboratories and seminars: *Materials Science, Physical Metallurgy, Corrosion and protection of metallic materials*

- Research activities in *Corrosion Laboratory and Surface Engineering Laboratory*

October 1997 – July 2002

Engineer/ Bachelor degree

ISCED 5

University Politehnica of Bucharest, Faculty of Material Science and Engineering, Metallic Materials Science, Physical Metallurgy Department, 313, Independenței street, Building J, 060042 - Bucharest, Romania

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Able to gather and synthesize information

September 2014

Specialized stage

Dokuz Eylul University, Izmir, Turkey,

Corrosion techniques on biocompatible metallic materials and coatings

May 2007

Specialized stage

PX-Group, Neuchatel, Switzerland

Investigation of corrosion resistance of biocompatible thin layers deposited by PVD methods

2006

Specialized stage

Nuova University, Lisbon, Portugal

Training for Biomaterials Integration in Computer-aided Medicine Paradigm, Leonardo Da Vinci

June - July 2005

Specialized stage

Royal Institute of Technology (KTH), Stockholm-Sweden

International Summer Course in Materials Processes

2005 Specialized stage
 University of Physics, Bucharest, Romania
 Physics and Engineering of Surface

PERSONAL SKILLS

Mother tongue(s) Romanian

Other language(s)	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
English	C1	C2	C2	C1	C2
French	B1	B1	A1	A1	A1

Levels: A1/2: Basic user - B1/2: Independent user - C1/2 Proficient user
 Common European Framework of Reference for Languages

Communication skills ▪ Good abilities for synthetic and global views over concrete situations; Ability to establish and maintain good working relations with people of different national and cultural backgrounds; Attitude problem-solving

Organisational / managerial skills ▪ Availability and ability to coordinate different administrative, didactic or research activities;
 ▪ Organizing committee member of national and international conferences;
 ▪ Member in the Director Board of the Romanian Society for Biomaterials (December 2014 – present);
 ▪ Member in the "Metallic Materials Science, Physical Metallurgy Department" Council Committee (March 2016 – present);
 ▪ Member in the "Materials Science and Engineering Faculty" Council Committee (March 2016 – present).

Job-related skills ▪ Coaching ability, initiative, diplomacy and job knowledge competency;
 ▪ Bachelors and Master Thesis Supervisor;
 ▪ Reviewer for scientific journals (non-indexed and ISI indexed);
 ▪ Editorial activities:
 ▪ Book Editor
 ▪ Editor (Heliyon - Elsevier) and Guest Editor (Frontiers in Materials - Frontiers) in scientific international journals

Computer skills Proficiency in all Microsoft operating systems, MS Office software package, many specialized software for data acquisition and processing. Easy and fast adaptation to use new software.

Other skills Creativity; Analytical and negotiation skills

ADDITIONAL INFORMATION

Publications ▪ Books (5), book chapters (3), articles published in non-indexed and ISI indexed scientific journals (53), papers published in the proceedings of international conferences (125)

Projects

Research projects (selective list):

- *Novel multifunctional coatings with improved bioactive, anticorrosive and degradation features, PNIII 117PED/2017*
- *Fabrication and investigation of new hybrid scaffolds with the controlled porous hierarchy for bone tissue engineering, INTELBIOCOMP, ERA.Net RUS Plus projects, RUSPLUS_S&T-58, 2016 – Project manager – Romanian partner from UPB*
- *Biocompatible coatings for enhanced bond strength of ceramic to metal in dental restorations, PNCDII 175/2012– Project coordinator*
- *Multifunctional coatings for load bearing implants made of a novel titanium-based alloy PNCD II 212/2014– Project manager*
- *Medical device to treat joint based on nanomaterials and magnetic field effects, PNCDII 42-132/2008*
- *Absorbable implants made of biomaterials used in arthroscopy biomimetics, PNCDII 72-192/2008*
- *Nanostructured functionalized coatings for low wear artificial joints, PNCDII 72-180/2008*
- *Novel biofunctional polymer scaffolds and techniques for the regeneration and repair of degenerate intervertebral disc, acronym Disc Regeneration; Collaborative Project; Large-scale integrating project; Work program topics addressed: NMP-2007-2.3-1*
- *Modelling physical and chemical processes in the development of new methods, ecological, obtaining titanium, CNCSIS Grant 39GR/2007*
- *Complementary methods for testing the biomaterials used in arthroplasty, in the limitations of in vivo tests, CEEEX-RELANSIN, 269/2006*
- *Development of innovative techniques based on the use of abdominal surgery biointegrable structures and developing new methods to evaluate their biodegradability – MEBIOS CEEEX, VIASAN; nr.165/2006*
- *Biofunctionality surface implants for osteosynthesis - OSTEOSURF, CEEEX - 235/2006*
- *Study of structural transformations that occur in the superficial layers of stainless steels subjected to laser radiation action, CERES-4-184*
- *Integrated research network technology advanced biocompatible structures for dental implants, CEEEX 46/2005*
- *Modern technologies of production and processing of metallic biomaterials for dental implants, RELANSIN 1717/2003*

Honours and awards

- Award for "Best poster presentation" at the following conferences:
 - International Conference on Biomaterials & Medical Devices BiomMedD'2006, 9 – 11 November, 2006, Iasi, Romania
 - 39th Annual Conference of the European Prosthodontics Association, September 2015, Prague, Czech Republic
 - E-MRS 2015, Mai 2015, Lille, France
- Travel grant to "Swiss 13th Conference on Biomaterials - SCSB 2007 - Neuchatel, Switzerland"
- SRB Grant, November 2011, Bucharest Romania

Memberships

Member of the Romanian Society for Biomaterials,
Member of the Romanian Society of Metallurgy

Annexe 1 – List of selected papers and books

Annexe 1 – List of selected papers and books

Books selection:

1. R. Surmenev, A. Vladescu, M. Surmeneva, A. Ivanova, M. Braic, I. Grubova, **C.M. Cotrut**, *Modern Technologies for Creating the Thin-film Systems and Coatings*, , Cap. *Radio Frequency Magnetron Sputter Deposition as a Tool for Surface Modification of Medical Implants*, ISBN 978-953-51-3003-1, Ed. InTech, 2017
2. Alina Vladescu, Maria A. Sumeneva, **Cosmin M. Cotrut**, Roman A. Sumenev, Iulian V. Antoniac, *Handbook of Bioceramics and Biocomposites*, Cap. *Bioceramic Coatings for Metallic Implants*, ISBN 978-3-319-12459-9, Ed. Springer, 2015
3. Iulian Antoniac, Dan Laptiou, Diana Popescu, **Cosmin Cotrut**, Radu Parpala, *Biologically Responsive Biomaterials for Tissue Engineering*, Volume 1, Cap. 6 - *Development of Bioabsorbable Interference Screws: How Biomaterials Composition and Clinical and Retrieval Studies Influence the Innovative Screw Design and Manufacturing Processes*, ISBN: 978-1-4614-4327-8, Ed. Springer, 2013

List of selected papers:

1. M.A. Sumeneva, A. Vladescu, C.M. Cotrut, A.I. Tyurin, T.S. Pirohkova, I.A. Shuvarin, B. Elkin, C. Oehr, R.A. Surmenev, Effect of parylene C coating on the antibiocoorsive and mechanical properties of different magnesium alloys, *Applied Surface Science*, 427 617-627, 2018
2. A. Vladescu, **Cosmin M. Cotrut**, F.A. Azem, M. Bramowicz, I. Pana, V. Braic, I. Birlik, A. Kiss, M. Braic, R. Abdulgader, R. Booyesen, S. Kulesza, T.K. Monsees, *Sputtered Si and Mg doped hydroxyapatite for biomedical applications*, *Biomedical Materials* 13 (2) 2018
3. **Cosmin M. Cotrut**, A. Vladescu, M. Dinu, M.D. Vranceanu, *Influence of deposition temperature on the properties of hydroxyapatite obtained by electrochemical assisted deposition*, *Ceramics International*, 44 (1) 669-677, 2018
4. A. Vladescu, D.M. Vranceanu, S. Kulesza, A. N. Ivanov, M. Bramowicz, A.S. Fedonnikov, M. Braic, I.A. Norkin, A. Koptuyug, M. Kurtukova, M. Dinu, I. Pana, M.A. Sumeneva, R.A. Surmenev, **Cosmin M. Cotrut**, *Influence of the electrolyte's pH on the properties of electrochemically deposited hydroxyapatite coating on additively manufactured Ti64 alloy*, *Scientific reports*, 7(1) (2017)
5. M. Dinu, T. Hauffman, C. Cordioli, A. Vladescu, M. Braic, A. Hubin, **Cosmin M. Cotrut**, *Protective performance of Zr and Cr based silico-oxynitrides used for dental applications by means of potentiodynamic polarization and odd random phase multisine electrochemical impedance spectroscopy*, *Corrosion Science* 115, 118-128 (2017)
6. M. Dinu, M. Cojocar, V. Braic, M. Tarcolea, M. Braic, F. Miculescu, A. Vladescu, **Cosmin M. Cotrut**, *Improvement of the tribological performance in corrosive environment of CoCr alloy by TiSiON coatings*, *Applied Surface Science*, 332, p. 295-299, 2015
7. A. Vladescu, M. Dinu, M. Braic, C. Vitelaru, M. Balaceanu, M. Tarcolea, V. Braic, F. Baci, **Cosmin M. Cotrut**, *The effect of TiSiN interlayers on bond strength of dental ceramic to NiCr and CoCr alloys*, *Ceramics International*, 41, p. 8051–8058, 2015
8. **Cosmin M. Cotrut**, C. Vitelaru, M. Dinu, T. Petreus, A. Vladescu, *Synthesis and characterization of TiSiON biocompatible thin films used in biomedical applications*, *Science of Advanced Materials*, 7, p. 1351-1360, 2015
9. **Cosmin M. Cotrut**, V. Braic, M. Balaceanu, M. Braic, A.C. Parau, *Corrosion resistance, mechanical properties and biocompatibility of Hf-containing ZrCN coatings*, *Thin Solid Films*, 538, p. 48-55, 2013
10. **Cosmin M. Cotrut**, M. Balaceanu, I. Titorencu, V. Braic, M. Braic, *ZrNbCN thin films as protective layers in biomedical applications*, *Surface & Coatings Technology*, 211, p. 57-61, 2012