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Carmen Cristina Surdu-Bob

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WORK EXPERIENCE

10/2008 – CURRENT Bucharest, Romania

HEAD OF RESEARCH GROUP, LOW TEMPERATURE PLASMA LABORATORY NATIONAL INSTITUTE FOR LASERS, PLASMA AND RADIATION PHYSICS (INFLPR)

Management of the **Plasma Coatings research group** (www.plasmacoatings.ro).
Writing of proposals and research papers, managing of national and international research projects on deposition of thin films and synthesis of novel materials using low temperature plasma.
Experience on: corrosion protection thin films, lubricant films, synthesis of X-ray mirrors based on multilayers, medical materials (therapy of osteomyelitis, therapy of cancer, improvement of medical sutures, protection materials against nosocomial infection, antibacterial textiles).
Development of **new plasma sources** for stability, reproducibility and broadening range of applications; plasma diagnosis.
Research on **plasma deposition of thin films** of metals, diamond-like carbon (DLC), nitrides, oxides and nanometric mixtures of metals using original low temperature plasma sources.
Experience on providing R&D solutions for industry (Michelin Romania, Amplo srl, Computer Power srl, Luxurymanagement GmbH, Biointerfaces GmbH etc).
Plasma-synthesis of spherical particles made of metals (pure and alloys).
Material characterization using standard techniques (XPS, AFM, SEM, Raman, XRD etc).
Lab courses and training for students (from elementary school to university), occasional supervision and co-supervision of master and PhD thesis.
Expert consultant for the Romanian Ministry of Research (research strategy, reviewing national and international projects) and also expert evaluator for the Research Executive Agency of the European Commission - Expert ID: EX2015D244226. Expert consultant for the Ministry of Education and Science of the Russian Federation.

04/2016 Bucharest, Romania

RESEARCH FELLOW (CS II) NATIONAL INSTITUTE FOR LASERS, PLASMA AND RADIATION PHYSICS (INFLPR)

Research on surface-plasma interactions and on plasma diagnosis.
Thin film coatings of: metals, DLC, mixtures of metals with DLC.
Writing up proposals, papers and patents.

01/1999 – 04/2003 Birmingham, United Kingdom

PHD STUDENT ASTON UNIVERSITY

Research on surface compositional and topographical changes of GaAs subjected to capacitively coupled RF plasma.

10/1996 – 01/1999 Bucharest, Romania

RESEARCH ASSISTANT NATIONAL INSTITUTE FOR LASERS, PLASMA AND RADIATION PHYSICS (INFLPR)

Research activities on plasma processes and applications using glow discharge, dielectric barrier and also corona discharges.

EDUCATION AND TRAINING

30/09/2010 – 02/10/2010 Brasov, Romania
CERTIFICATE ON GRADUATION OF THE MANAGEMENT OF RESEARCH COURSE Transilvania Business Center

National classification Manager of research

01/06/2010 – 31/05/2011 Bucharest, Romania
POST-DOCTORAL SPECIALIZATION - MATERIALS WITH APPLICATIONS IN MEDICINE Institute of Biochemistry of the Romanian Academy

Subjects: Biomaterials, nanostructures, advanced material synthesis for medical applications.

04/2006 – 03/2008 Magurele - Bucharest, Romania
POSTDOCTORAL SPECIALIZATION - HIGH TEMPERATURE RESISTANT COATINGS Host institution: National Institute for Lasers, Plasma and Radiation Physics

01/1999 – 04/2003 Birmingham, United Kingdom
PHD IN PHYSICS - SURFACE SCIENCE Aston University, School of Engineering & Applied Physics

Plasma processing and surface science: RF plasma etching, plasma diagnostics, surface - plasma interactions, surface analytical techniques: XPS, AFM, SEM, XRD, TEM, tribology, ellipsometry

10/1991 – 07/1996 Bucharest
BSC IN PHYSICS University of Bucharest, Faculty of Physics

Optoelectronics, Spectoscopy, Plasma and Lasers

LANGUAGE SKILLS

Mother tongue(s): **ROMANIAN**

Other language(s):

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken production	Spoken interaction	
ENGLISH	C2	C1	C1	C2	C1
FRENCH	B1	B2	A1	A2	A1
SPANISH	B1	B2	A1	A1	A2

Levels: A1 and A2: Basic user; B1 and B2: Independent user; C1 and C2: Proficient user

PUBLICATIONS

Publications

ResearcherID: A-9158-2015

NETWORKS AND MEMBERSHIPS

Memberships

ISPM (International Society for Plasma Medicine)
Member of Low Temperature Plasma Forum (*Plasmafroids*) - France
Expert project evaluator for the European Comission (Horizon 2020)
Projects evaluator for the Romanian Ministry of Research
Project evaluator for the Directorate of the Program of Megagrants - Russia

HONOURS AND AWARDS

Honours and awards

- 1999-2003. PhD fellowship award from Aston University - UK.
- Dec. 2007. Prize for the best paper presented at the 13th Conference on Fusion Reaction Materials (ICFRM13), Nice-France. The paper was selected from the 165 papers of the Section.
- May 2011. Prize for the best image at the Art Moment at the Clinical Nano-medicine Conference, Basel.
- July 2016. Prize for the best image at Image Competition session of the International Symposium on Energy Challenges and Mechanics - NSCJ
- two Gold medals - EUROINVENT 2024
- two Silver medals - EUROINVENT 2024

ORGANISATIONAL SKILLS

Organisational skills

- **Head of research group** at National Institute for Lasers, Plasma and Radiation Physics - Bucharest, since 2008.
- **Project director** of a series of national, institutional and international projects:

- ESA Contract (2021 - 2024): DLC coating device for the ATHENA mission telescope
- ESA Contract 4000128573/19/NL/CBi (2019-2022); Title: ***DLC-based coatings for lubrication in vacuum***
- NATO SCIENCE FOR PEACE SFP 982829 - 1st stage (2007)*; Title:* ***Development of a technology for the synthesis of antibacterial silver nanolayers***
- NUCLEU (2008-2014); Title: **Thin film X-ray filters**
- PNII-42129 (2008-2011); *Title:* ***Antimicrobial thin films and their application against nosocomial infections***;
- FSE POSDRU/89/1.5/S/60746 (2010-2011); Title: ***Cellular and molecular biotechnologies with applications in medicine***;
- IDEI-3-0953 (2011-2016) Title: ***Evaluation of an original alternative to treat osteomyelitis using an animal experimental model***;
- NUCLEU (2016-2017) Title: **Improvement of medical sutures by coating**
- TE-269 (2015-2017); Title: ***Multi-layered nanostructures for X-ray reflectivity syntheiszed using an anodic arc plasma***;
- NUCLEU (2018-2021); Title: **Plasma deposition of nitride films using a novel plasma source**
- Innovation Check (2018); Title: **Improvement of electromagnetic shielding and environmental protection capabilities of electronic circuit boxes**

- **Certified Project Manager**, Diploma issued by Transilvania Business Centre, Oct. 2010.

JOB-RELATED SKILLS

Job-related skills

- Ability to design and tailor plasma sources to obtain higher performance in terms of plasma stability and quality of deposited films. Strong knowledge of the Thermoionic Vacuum Arc (TVA) plasma source and of derivative plasma sources.
- Complex-material design and synthesis for interdisciplinary research
- Thin film tailoring for improving surface properties of parts for industrial use.
- Knowledge on surface analytical techniques and data interpretation: XPS, AFM, SEM, TEM, Ramana Spectroscopy, Ellipsometry etc.
- Synthesis of: metallic thin foils, metal spherical particles
- Interdisciplinary research project design and management.
- Talks on promotion of science, lab courses for students of all ages

PATENTS

Patents

Awarded patent: *Equipment for thin film deposition from gas precursors using a hot cathode arc plasma*, Authors: G.Musa, C. Surdu-Bob, Patent No. 123002-RO/30.06.2010;