europass Curriculum Vitae

PERSONAL INFORMATION

Aurelian Marcu



National Instituite for Laser Plasma and Radiation Physics -NILPRP
Center for Advanced Laser Technology - CETAL

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Sex M | Nationality Romanian

WORK EXPERIENCE

2019 - present
Scientific Researcher I
National Institute for Lasers, Plasma and Radiation Physics, Atomistilor Street No 409, Magurele, 077125, Ilfov, Romania
Business or sector Research

2011 - **2019**
Scientific Researcher II
National Institute for Lasers, Plasma and Radiation Physics, Atomistilor Street No 409, Magurele, 077125, Ilfov, Romania
Business or sector Research

2007-2011
Scientific Researcher III
National Institute for Lasers, Plasma and Radiation Physics, Atomistilor Street No 409, Magurele, 077125, Ilfov, Romania
Business or sector Research

1993-1997
Researcher
National Institute for Lasers, Plasma and Radiation Physics, Atomistilor Street No 409, Magurele, 077125, Ilfov, Romania
Business or sector Research

1992-1993
Research Assistent
National Institute for Lasers, Plasma and Radiation Physics, Atomistilor Street No 409, Magurele, 077125, Ilfov, Romania
Business or sector Research

INTERNATIONAL STAGIES

16-30 August 2023
POLICLINICO DI SANT'ORSOLA
Medical Physics Department
Activities within innovative dosimetry for radiotherapy technologies

2006 - 2008
ISIR-Sanken
Laboratory of Advanced Materials, Osaka University, Osaka, Japan
Nanostructure fabrication by Laser techniques

1996-1998
Laboratory of Beam Technology

Nagaoka University of Technology, Nagaoka, Niigata-ken, Japan

Special laser deposition techniques

Apil 1995 **Electricite de France**

Electricite de France, Lille, France

Electromagnetic Fields Modelling

EDUCATION AND TRAINING

2023 **Habilitation Thesis**

Title: Laser-matter interactions in 'nano-science' and 'nano-scale' applications

University "Politehnica" from Bucharest, Physics Department

2010 - 2013 **Post Doctoral studies**

Biochemistry Institute of Academy / University of Bucharest / University of Timisoara, / University of Cluj / NILPRP-Magurele

Nanostructures for Drug Delivery

2006-2008 **Post Doctoral studies**

Institute of Scientific and Industrial Research, Osaka University,, Japan

Oxide nanostructure fabrication by Laser techniques

2000-2002 **PhD**

University "Politechnica" from Bucharest, Physics Department

Thesis title: "Special Laser Deposition Techniques"

1993 - 1995 **Post-universitary studies**

University "Politechnica" from Bucharest, Electrotechnics Faculty

Thesis title: "Vectorial-Statistic Stoner-Wolfhart Modelling for Magnetic Hysteresis"

1987 - 1992 **Bachelor + Master**

University "Politechnica" from Bucharest, Physics Department, Electro-Physics section

Thesis title: "Study on Excimer Laser Excitation"

1982 - 1986 **Bacalaureat**

"Mihai Viteazu" Lycee, Bucharest, Electrotechnics section.

Thesis title: "Bistable Touch Switch"

SECIAL TRAININGS

27-Mai -2-June 2010 **Advanced X-ray studies and sample preparation**

European Training School of the synchrotron analysis,

Synchrotrone SOLEIL, Saint-Aubin, France

27-Han – 28 Feb 2011 **Transmission Electron Microscopy**

IEMAT winter Workshop on Electron Microscopy,

Antwerp, Belgium

22 Nov – 25 Nov 2010 **Drug Design**

Faculty of Chemistry, University of Bucharest, Romania

October 2010 **Drug Delivery Systems**

University of Medicine and Pharmacy, "Victor Babes", Timisoara, Romania

PERSONAL SKILLS

Communication skills

- Experience of work in international teams and international stagies
- Participant in more than 20 national and international projects

Mother tongue(s) Romanian

Other language(s)

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
English	C1	C1	C1	C1	C1
	Replace with name of language certificate. Enter level if known.				
Japaneese	B1	A2	B1	B1	A1
	Replace with name of language certificate. Enter level if known.				
Russian	B1	B1	B1	B1	B1
	Replace with name of language certificate. Enter level if known.				

Levels: A1/A2: Basic user - B1/B2: Independent user - C1/C2 Proficient user
Common European Framework of Reference for Languages

Organisational / managerial skills

- *Project Coordinator in 4 national projects*
  (ELI-RO 17/2016, STAR 189/2017, PCE 93/2021, ELI-RO 30/2024)
- *Project Team Leader in 2 national projects*
  (PCCF 18/2016, PS 10/2017 and ELI-RO 30/2025)
- *Project management curse* Transilvania Business School, Bucharest, Romania, 31 Sept – 2 Oct 2010

Driving licence B

ADDITIONAL INFORMATION

Skills and Competences

- Laser-matter interaction processes and laser induced modiffications
- *Nanostructure fabrication using Pulsed Laser Deposition and Vapor-Liguid-Solid technique*
- *EMP and electromagnetic fields*
- *Plume filtering techniques*
- *Special Pulsed Laser Deposition techniques*
- *Plasma expansion in special geometry systems*
- *Thin films deposition and quality surface control*
- *Photonic impulse transfer*
- *Computer assisted laser systems*

Computer related skills

- ***Hardware*** *– interfaces, computer assisted processes*
- ***Software*** *– programming C/C++, Pascal/TurboPascal, Basic/Visual Basic, Python, Blender.*
- ***Databases*** *– MySQL,*
- ***Operating systems*** *DOS/Windows/Linux*

Member of profesional organisations

- *Head of "Laser, Plasma, Radiation – Science and Technology" Association*
- *Material Research Society (2013-2015, 2020-2021)*
- *SPIE-RO Board (2003-2004)*

Books

- *Mihai Stafe, Aurelian Marcu, Niculae N. Puscas, "Pulsed Laser Ablation of Solids", Springer Series in Surface Science* ***53****, Springer-Verlag Berlin Heidelberg ISBN 978-3-642-40977-6, (2014)*

Books Chapters

- R. Vladoiu, C. Porosnicu, A. Mandes, I. Jepu, V. Dinca, A. Marcu, M. Lungu, G. Prodan, L. Avotina, chapter: "DLC Thin Films and Carbon Nanocomposites Growth by Thermionic Vacuum Arc (TVA) Technology" , in the book: "Diamond and Carbon Composites and Nanocomposites", INTECH, ISBN 978-953-51-2453-5, (2016)
- A. Marcu, C. Viespe, *Nanostructures Fabricated by Laser Techniques for Sensors Applications*, Book title: „Science and applications of tailored nanostructures", ISBN 978-1-910086-18-6, Editor Prof. Paolo Di Sia, One Central Press, Str. Northampthon road, Mancester M40 5BP, UK (OCP), (2016) pag. 29-38, (Ebook:ISBN-978-1-910086-19-3, HardBook: ISBN -978-1-910086-18-6)

Selected Publications

- A.Marcu, T.Yanagida, Kazuki Nagashima, Keisuke Oka, Hidekazu Tanaka and Tomoji Kawai, "Crucial Role of Inter-diffusion on Magnetic Properties of In-situ Formed MgO/$Fe_{3-\square}O_4$ Heterostructured Nanowires", Appl. Phys. Lett. **92** (2008) pp. 173119.1 – 173119.3
- A.Marcu and C. Viespe, "Laser-grown ZnO Nanowires for Room-temperature SAW-sensor Applications", Sensors & Actuators: B. Chemical, Sensors and Actuators, B: Chemical, **208**, (2015), pp. 1-6
- A.Marcu, T.Yanagida, K.Nagashima, H.Tanaka and T.Kawai, "Effect of ablated particle flux on MgO nanowire growth by pulsed laser deposition" , Jurnal of Applied Physics, 102 (2007) pp.016102
- A.Marcu, C.Grigoriu and K.Yatsui, "Particles Interaction with Obstacles in Pulsed Laser Deposition", Applied Surface Science, Vol **248** (2005), pp. 466-469.
- A.Marcu, T.Yanagida, K.Nagashima, H.Tanaka and T.Kawai, "Transport Properties of $ZnFe_2O_{4-\square}$ Thin Films", Jurnal of Applied Physics, **102**,(2007) pp. 023713
- T. Yanagida, A.Marcu, H.Matsui, K.Nagashima, K.Oka, K.Yokota, M.Taniguchi and T.Kawai, "Enhancement of Oxide VLS Grow by Carbon on Substrate Surface", J. Phys. Chem C **112** pp.18923 – 18926 (2008)
- A.Marcu, T.Yanagida and T.Kawai, "Nanochannels Fabrication using Kikendal Effect", Solid State Science **12** pp.978-981 (2010),
- A.Marcu, C. Grigoriu, C.P.Lungu, T.Yanagida and T.Kawai "Ablation Particles Parameters Influences on VLS Oxide Nanowire Growing", Physica E, Phys. E **44,** (2012) pp. 1071-1073 .
- A.Marcu, L. Trupina, R.Zamani, J.Arbiol, C. Grigoriu and J. R. Morante, "Catalyst Size Limitation in Vapor-Liquid-Solid ZnO Nanowire Growth using Pulsed Laser Deposition", Thin Solid Films **520** (2012), pp. 4626 – 4631
- A. Marcu, S. Pop, F. Dumitrache, M. Mocanu, C.M. Niculite, M.Gherghiceanu, C.P. Lungu, C. Fleaca, R.Ianchis, A. Barbut, C.Grigoriu, I. Morjan, "Magnetic Iron Oxide Nanoparticles as Drug Delivery System in Breast Cancer", Applied Surface Science, App. Surf. Sci. **281** (2013), pp. 60–65
- A. Marcu, I. Nicolae and C. Viespe, "Active Surface Geometrical Control of Noise in Nanowire-SAW Sensors", Sensors & Actuators: B. Chemical **231** (2016), pp. 469-473,
- A. Marcu, M. Stafe, M. Barbuta, R. Ungureanu, M. Serbanescu, B. Calin and N. Puscas, "Photon energy transfer on titanium targets for laser thrusters", High Power Laser Science and Engineering, **10** (2022) pp. 1 – 14