PERSONAL INFORMATION

Felix Sima

National Institute for Laser, Plasma and Radiation Physics

WORK EXPERIENCE

01/2024 – present — **Head of CETAL Department (INFLPR)**

National Institute for Laser, Plasma and Radiation Physics (INFLPR) – 409 Atomiștilor St., Măgurele, Ilfov County, Romania, https://cetal.inflpr.ro/

Department: Centre for Advanced Laser Technologies (CETAL)

- Management and administrative attributes
- National Interest Infrastructure (IOSIN) Responsible of CETAL Department – INFLPR

09/2016 – present — **Scientific Researcher 1st degree**

National Institute for Laser, Plasma and Radiation Physics (INFLPR) – 409 Atomiștilor St., Măgurele, Ilfov County, Romania, https://cetal.inflpr.ro/

- Research on high-intensity laser-driven acceleration of very high energy electrons (VHEE) for FLASH radiotherapeutic applications
- Leader of applied research projects regarding ultrafast laser-based technologies and photonic systems for cancer research
- Development of optical localized characterisation methods of biochip devices for microfluidic and tissue engineering applications

07/2017 – present — **Scientific Secretary**

National Institute for Laser, Plasma and Radiation Physics (INFLPR) – 409 Atomiștilor St., Măgurele, Ilfov County, Romania, www.inflpr.ro

- Management and administrative attributes

08/2015 – present — **Visiting Scientist**

- **RIKEN** – Saitama, Japan, https://www.riken.jp/en/research/labs/rap/adv_laser_process/index.html
- Ultrafast laser processing of transparent materials for lab-on-a-chip applications in cancer research

10/2016 – 07/2017 — **Head of PhIL Laboratory, CETAL Department (INFLPR)**

National Institute for Laser, Plasma and Radiation Physics (INFLPR) – 409 Atomiștilor St., Măgurele, Ilfov County, Romania, www.inflpr.ro

Department: Centre for Advanced Laser Technologies (CETAL)

Laboratory: Photonics Investigations Laboratory (PhIL)

- Management and administrative attributes

08/2014 – 09/2016 — **Scientific Researcher 2nd degree**

National Institute for Laser, Plasma and Radiation Physics (INFLPR) – 409 Atomiștilor St., Măgurele, Ilfov County, Romania, www.inflpr.ro

- Leader of applied research projects regarding laser processing of different materials and their characterisation for the development of biomimetic configurations in applications in implantology

07/2014 – 07/2015 — **Postdoctoral Internship JSPS**

RIKEN – Saitama, Japan

- Applied research in laser processing of photosensitive glasses and hybrid polymer-glass for biochips fabrication with applications in cancer research

01/2011 – 08/2014 **Scientific Researcher 3rd degree**

National Institute for Laser, Plasma and Radiation Physics (INFLPR) – 409 Atomiștilor St., Măgurele, Ilfov County, Romania, www.inflpr.ro

- Applied research regarding laser-based method (C-MAPLE) to obtain thin organic films in gradient of composition on solid substrates

06/2006 – 01/2011 **Scientific Researcher**

National Institute for Laser, Plasma and Radiation Physics (INFLPR) – 409 Atomiștilor St., Măgurele, Ilfov County, Romania, www.inflpr.ro

- Development of organic – inorganic multilayer thin films obtained by laser ablation with applications in implantology

07/2007 – 07/2011 **Visiting Scientific Researcher**

The Mulhouse Materials Science Institute– Mulhouse, France

- Physical, chemical and biochemical characterization of biocompatible films and evaluation of their cellular adhesion, proliferation and differentiation potential

05/2005 – 06/2006 **Scientific Research Assistant**

National Institute for Laser, Plasma and Radiation Physics (INFLPR) – 409 Atomiștilor St., Măgurele, Ilfov County, Romania, www.inflpr.ro

- Professional development in the field of pulse laser deposition of thin biocompatible films for biomedical applications

12/2003 – 05/2005 **Scientific Research Assistant**

National Institute of Materials Physics (INCDFM) – 405A Atomiștilor St., Măgurele, Ilfov County, Romania

- Professional development in the field of compositional and structural characterization of PZT materials

EDUCATION AND TRAINING

06/2007 – 10/2011 **PhD studies**

Replace with EQF (or other) level if relevant

Bilateral: University of Bucharest, Faculty of Physics, Romania & University Haute-Alsace, Mulhouse, France

- PhD thesis: Synthèse de nanostructures hybrides biomimétiques (phosphates de calcium + protéines) par technique laser avancées: études structurales, biochimiques et biologiques

10/2004 – 03/2015 **Internship**

National Institute of Applied Sciences (I.N.S.A.), Strasbourg, France

10/2003 – 06/2005 **Master studies**

University of Bucharest, Faculty of Physics, Romania

- Master thesis: Structural investigation methods of PZT materials

10/2002 –09/2001 **Internship**

Hirosaki University, Japan

- Physics of radiations

10/1998 – 06/2003 **Bachelor studies**

Hyperion University, Bucharest, Romania

- Bachelor thesis: Advanced piezoceramic materials with medical applications

PERSONAL SKILLS

Mother tongue(s) Romanian

Other language(s)

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
English	C1	C2	C1	C2	C1
French	C1	C2	C1	B2	C1
Japanese	B1	A2	A2	A1	A1

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

Organisational / managerial skills

Manager experience achieved as:
- Group leader (currently responsible for a team of 7 people)
- CETAL Department, Manager (since Jan. 2024)
- Chairman of the Lasers4EU Activity Board (since Oct. 2024)
- CORE Project Responsible of INFLPR (2023 – 2026) (https://inflpr.ro/ro/node/11806)
- Scientific Secretary (since 2017)

Digital competence

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

Levels: Basic user - Independent user - Proficient user
Digital competences - Self-assessment grid

Replace with name of ICT-certificate(s)

Other computer skills.
- good command of Microsoft Office suite (word processor, spread sheet, presentation software)
- good command of image processing packages: ImageJ, GIMP
- good command of scientific data analysis: OriginLAB
- good command of design software: SketchUP

Driving licence B

ADDITIONAL INFORMATION

Selected publications

2025 Orobeti S., Porosnicu I., Bran A., Tiseanu I., **Sima F.**, Petrescu S. M., and Sima L. E., "Streamlined Quantification of p-γ-H2AX Foci for DNA Damage Analysis in Melanoma and Melanocyte Co-cultures Exposed to FLASH Irradiation Using Automated Image Cytometry", Bio-protocol 15(4): e5208, **IF=1.**

2024 Orobeti, S., Sima, L. E., Porosnicu, I., Diplasu, C., Giubega, G., Cojocaru, G., ... & **Sima, F.*** "First in vitro cell co-culture experiments using laser-induced high energy electron FLASH irradiation – potential for anti-cancer therapeutic strategies ", Scientific Reports 14.1: 14866, **IF=4.6.**

2024 Ionel, L., Jipa, F., Bran, A., Axente, E., Popescu-Pelin, G., **Sima, F.***, & Sugioka, K., "Effect of varied beam diameter of picosecond laser on Foturan glass volume microprocessing". *Optics Express*, *32*(11), 20109-20118, **IF=3.2**

2022 Staicu, C.E., Jipa, F., Porosnicu, I., Bran A., Stancu E., Dobrea C., Radu B.M., Axente E., Tiseanu I., **Sima F.***, Sugioka, K. "Glass lab-on-a-chip platform fabricated by picosecond laser for testing tumor cells exposed to X-ray radiation". Appl. Phys. A **IF=2.7**

2020 **Sima F.**, Kawano H., Hirano M., Miyawaki A., Obata K., Serien D., Sugioka K. "Mimicking Intravasation–Extravasation with a 3D Glass Nanofluidic Model for the Chemotaxis-Free Migration of Cancer Cells in Confined Spaces". Adv. Mater. Technol; **IF=6.8**

2018 **Sima F.**, Sugioka K., Martínez Vázquez R., Osellame R., Kelemen L., Ormos P. "Three-dimensional femtosecond laser processing for lab-on-a-chip applications" Review, Nanophotonics; **IF=6.014**

2017 **Sima F.**, Xu J., Wu D., Sugioka K., "Ultrafast Laser Fabrication of Functional Biochips: New Avenues for Exploring 3D Micro-and Nano-Environments", Review, Micromachines 8 (2), 40; **IF=2.222**

2017 Axente E., Sopronyi M., Ghimbeu CM, Nita C., Airoudj A., Schrodj G., **Sima F.**, "Matrix-Assisted Pulsed Laser Evaporation: A novel approach to design mesoporous carbon films", Carbon 122, 484; **IF=7.082**

2015 **Sima F.**, Davidson PM, Dentzer J, Gadiou R, Pauthe E, Gallet O, Mihailescu IN, Anselme K, "Inorganic-organic thin implant coatings deposited by lasers", ACS Applied Materials & Interfaces, 7(1):911; **IF=7.145**

2014 **Sima F.**, Axente E., Iordache I., Luculescu C., Gallet O., Anselme K., Mihailescu I.N., Combinatorial Matrix Assisted Pulsed Laser Evaporation of a biodegradable polymer and fibronectin for protein immobilization and controlled release, Applied Surface Science, 306, 75; **IF=3.15**

2012 **Sima F.**, Axente E., Sima L.E., Tuyel U., Eroglu M.S., Serban N., Ristoscu C., Petrescu S.M., Toksoy Oner E., Mihailescu I.N., "Combinatorial Matrix-Assisted Pulsed Laser Evaporation: single-step synthesis of biopolymer compositional gradient thin film assemblies", Applied Physics Letters,101, 233705; **IF=3.142**

2011 **Sima F.**, Davidson P., Pauthe E., Sima L.E., Gallet O., Mihailescu I.N., Anselme K. Fibronectin layers obtained by matrix assisted pulsed laser evaporation from saline buffer based cryogenic targets, Acta Biomaterialia, 7 (10), 3780; **IF=6.008**

2011 **Sima F.**, Mutlu E.C., Eroglu M.S., Sima L.E., Serban N, Ristoscu C, Petrescu S.M., Toksoy Oner E., Mihailescu I.N., Levan Nanostructured Thin Films by MAPLE Assembling, Biomacromolecules, 12, 2251; **IF=5.583**

Selected book chapters

2018 **Sima F.**, Xu J., Sugioka K., Chapter "Ultrafast laser-induced phenomena inside transparent materials" in "Pulsed Laser Ablation: Advances and Applications in Nanoparticles and Nanostructuring Thin Films", Ion N. Mihailescu and Annapaola Caricato, Pan Stanford Publishing, p1-39

2016 **Sima F.**, Axente E., Ristoscu C., Gallet O., Anselme K., Mihailescu I.N., Chapter 12 "Bioresponsive Surfaces and Interfaces Fabricated by Innovative LaserApproaches", in "Advanced Materials Interfaces", Ashutosh Tiwari, Hirak K. Patra and Xuemi Wang (eds.), WILEY Scrivener Publishing LLC, USA, ISBN 9781119242451, p. 427-462

Projects

2024 – 2027 ELI National Project, IFA: "Understanding FLASH irradiation effect on cancer cells using laser-induced very high energy electrons and in vitro tumor-on-chip assays / FLASH CANCELLS"; ***Project Leader***

2024 – 2028 HORIZON EUROPE, grant agreement n. 101131771, Lasers4EU: A central platform for accessing European laser research infrastructures, ***Romania Responsible***

2023 – 2027 CA22153 - European Curvature and Biology Network (EuroCurvoBioNet) COST Project ***Romania Responsible***

2022 – 2024 PED National Project, UEFISCDI: " Optoelectric microfluidic system for tumor cells characterization and separation according to their malignancy grade" (TUMOSIGN) PED_596; ***Project Leader***

2021 – 2023 PCE National Project, UEFISCDI: "Transparent material processing by nanophotonic technologies for Lab-on-Chip applications" (nanoLOC) PCE_8/ 2021; ***Project Leader***

2020 - 2024 HORIZON 2020, LASERLAB ALTIS joint research project (JRA), ***Romania Responsible***

2020 – 2023 ELI National Project, IFA: " Laser-driven very high-energy electron beam FLASH irradiation: real-time dosimetry-on-chip and biological effects" (FLASH-on-chip) ELI-RO 01/2020; ***Project Leader***

2018 – 2020 Young Team National project, UEFISCDI: "Biophotonic micro-opto-fluidic platform for innovative cellular analyses" TE07/2018 (450.000 RON); ***Project Leader***

2017 – 2019 ELI National Project, IFA: "On-line measurement of laser-driven proton beams effect on human cells" – ONLINEBIORAD, ELI23/2017 (315.000 RON) ***INFLPR Responsible***

2017 – 2018 National Project, R.O.S.A, "In vitro evaluation of potential biomedical strategies aimed to prevent bone loss during spaceflight (SPACEBONE)" ROSA148/2017 (80.000 RON); ***INFLPR Responsible***

2017 – 2018 PED National Project, UEFISCDI, "Microfluidic assay of FGF2 therapeutic administration for bone regeneration"-μFGF2bone P.E.D.148/2017 (250.000 RON); *INFLPR Responsible*

2015 – 2017 Young Team National project, UEFISCDI: "Laser assembling of miniaturized lab-on-a-chip devices for single cell guiding, trapping and analysis" (LAMINILAB) – project TE 187 / 2015; PNII-RU-TE-2014-4-1273 (550.000); ***Project Leader***

2015 – 2016 Bilateral Romania-France Project, UEFISCDI, PN-II-CTRO-FR-2014-2, with IS2M (Mulhouse, France, Dr. Camelia Ghimbeu) "Synthèse et fonctionnalisation de matériaux nanostructurés carbonés par des techniques laser"; ***Project Leader***

2014 – 2015 Bilateral Romania-Japan Project, UEFISCDI, RIKEN-SIOM Joint Research Unit, RIKEN Center for Advanced Photonics, Wako, Saitama, Japan; ***Project Leader***

2011 – 2013 Postdoc National Project, UEFISCDI: "Laser induced clean transfer of protein nanostructures for biomimetic applications" –PD 101/2012; PN-II-RU-PD-2011-3- 0147; ***Project Leader***

Patents

2024 Tivig I.*, Jipa F.*, Bran A.., Besleaga C., Moisescu M., Axente E., Stan G., Savopol T., **Sima F.**, "Dispozitiv microfluidic opto-electric pentru captarea si separarea celulelor tumorale cu ajutorul pensetei laser si dielectroforezei", OSIM A/00408/2024

2023 Jipa F., Staicu C.E., Dinca (Porosnicu) I., Bran A., Stancu E., Dobrea C., Axente E.,. Tiseanu I., **Sima F.**, "Dispozitiv microfluidic din sticla fotosensibila pentru testarea celulelor tumorale la radiatii ionizante si element de dozimetrie in-situ", OSIM, A/00235/2023

2022 Jipa F., Butnaru C., Staicu C.E., Orobeti (Iosub) S., Axente E., **Sima F.**, "Procedeu de fabricare a unor dispozitive microfluidice tridimensionale in sticla fotosensibila prin procesare substractiva cu fascicul laser cu pulsuri de ordinul picosecondelor", OSIM, A/00723/2022.

Metrics h-index = 23 (WoS), 25 (Scopus), 27 (Google Scholar)

Citations 1775 (WoS); 1919 (Scopus); 2564 (Google Scholar)

ANNEXES

02.07.2025