

VEDRAINE Sylvain

Associate Professor HDR
University of Limoges
XLIM, RF-ELITE Axis
place/date of birth: Papeete (France), 1986

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Education and Positions:

- Since sept. 2013:** *Associate Professor* at the **University of Limoges and XLIM Institute** (Limoges, France)
- 2012 - 2013:** *Post-doctoral Fellow* at **Western University, Francois Lagugné-Labarthet group** (London, Canada)
- 2009 - 2012:** *PhD Student* at the **Institut Matériaux Microélectronique Nanosciences de Provence (IM2NP), Optoelectronics and Photovoltaics Team** (Marseille, France)
Co-Directors: Pr. François Flory, Dr. Philippe Torchio
End: 26th October 2012
- 2007 – 2009:** *Master Research (5-year university degree) on Micro and Nanoelectronic, specialty: nanoelectronic devices*, at the **Université Paul Cézanne** (Marseille, France)
Valedictorian (Ranking: 1st/17)
Master Responsible: Pr. Jean-Luc Autran; Specialty Responsible: Dr. Daniela Munteanu
- 2004 – 2007:** *Licence (equivalent to Bachelor's degree) (electronic and computer on industrial systems), Mention: Microelectronics and Microsystems*, at the **IUT of Marseille, Université Paul Cézanne** (Marseille, France).

Work Experience and Diplomas:

- 2025**
Since sept. 2013: *HDR* on “Towards a New Generation of Optoelectronic Devices”
Assistant Professor at the **University of Limoges and XLIM Institute** (Limoges, France)
Research topics:
 - **Transparent electrode for solar cells** (especially multilayered electrode and metallic nanowires)
 - **Plasmonics** (modeling and realization)
 - **Perovskite solar cells** (on the interfacial layers and inkjet printing)Teaching:
 - **University Institute of Technology of Limoges** (192h/y) in optics (26h), renewable energy (55h), transducer (14h), signal processing (30h), algorithm and programming (46h), digital electronics (15h), metrology (6h)
- 2012 - 2013:** *Post-doctoral Fellow* at **Western University** (London, Canada) focusing on the plasmonic, Raman spectroscopy and atomic force microscopy
- 2009 - 2012:** *PhD* at the **IM2NP** (Institut Matériaux Microélectronique Nanosciences de Provence) (Marseille, France)
"Integration of plasmonic nanostructures in organic photovoltaic devices: numerical and experimental study"
Focusing on the following topics:
 - **theoretical study of photonic structures** (plasmonic structures, thin film devices)

- optical modeling (FDTD) of photonic structures, organic solar cells and transparent electrodes
- optical, physicochemical and electrical characterization of thin film devices and organic solar cells
- experimental realization of plasmonic structures, plasmonic organic solar cells, self-organization of polystyrene particles and synthesis of metal nanoparticles

Teaching (64 h) at the **Aix-Marseille University** (digital electronics, experimental methodology, photovoltaics) and (8 h) at the **Ecole Centrale Marseille** (FDTD for nanophotonics).

March-sept. 2009: *Master thesis* at the **IM2NP** (Institut Matériaux Microélectronique Nanosciences de Provence) (Marseille, France)
“Improvement of solar cells absorption by localized plasmon effect on metal nanoparticles”
 Supervisor: Dr. Philippe Torchio; Co-supervisor: Pr. François Flory

April-june 2008: *Master internship* at the **IM2NP** (Institut Matériaux Microélectronique Nanosciences de Provence) (Marseille, France)
“Simulation / Analysis of Ballistic and Quasi-Ballistic Transport in multi-gate nanotransistors MOS and Associated Circuits”
 Supervisor: Dr. Daniela Munteanu

March-june 2007: *Licence work experience* at the **Northumbria University** (Newcastle Upon Tyne, United Kingdom)
“Measurement techniques for antennas”
 Supervisor: Pr. David Smith

Administrative responsibilities related to research:

2026	<u>Future Co-Leader of the ELITE Research Team at XLIM</u>
2026	<u>Associate editor for Plasmonics (IF 4.8) - Springer Science</u>
Since 2025	<u>Alternate Representative for the SmartPower Competitiveness Cluster</u>
Since 2023	<u>Member of the XLIM Scientific Council</u>
Since 2023	<u>Roadmap coordinator for XLIM</u>
Since 2022	<u>Member of the Scientific Committee of the GDR OERA</u>
Since 2019	<u>Member of the XLIM Laboratory Council</u>
2016 - 2020	<u>Member of the organizing committee for the XLIM student workshop</u>

