Institute of Engineering and Management of Grenoble Alpes University

Grenoble INP - UGA is a member of **international** engineering and management education and research **networks.** It is widely recognized in national and international rankings**.**

8 schools + **39** laboratories
8300 students
1 300 teaching, research, administrative and technical staff

Grenoble INP - UGA is a renowned public institution of higher education and research, and a major player in the Grenoble ecosystem. It is the engineering and management institute of Grenoble Alpes University, and plays a leading role in the scientific and industrial community.

Atmospheric plasma SALD deposition of functional thin films for application in optoelectronic devices

Applicatio site	https://grenoble-inp.nous-recrutons.fr/poste/97ecbqhpr6-chercheur-en-depot-par-plasma-atmospherique-sald-de-couches-minces-fonctionnelles-pour-application-dans-des-dispositifs-optoelectroniques-fh/
Research field	Functional thin films by Atomic layer deposition
Host laboratory	LMGP (UMR 5628 Grenoble-INP, UGA and CNRS) / Website : https://lmgp.grenoble-inp.fr/
Researcher profile	First stage researcher - doctorate (R1) / **Recognised researcher (R2)** / Established researcher (R3) /Leading researcher (R4)
Location	Grenoble, France
Date of recruitment / contract length	01/10/2023 (13 months)
Contacts	David Muñoz-Rojas david.munoz-rojas@grenoble-inp.fr

Grenoble INP - UGA is a leading public institution accredited with the French label “Initiative d’excellence”. It offers innovative engineering and management programs, with an increasing internationalization of its course offers. The courses are grounded in sound scientific knowledge and linked to digital, industrial, organizational, environmental and energy transitions. The Engineering and Management Institute of Grenoble Alpes brings together more than 1300 staff members (teacher-researchers, lecturers, administrative and technical staff) and 8300 students, located on 8 sites (Grenoble INP - Ense3, Grenoble INP - Ensimag, Grenoble INP - Esisar, Grenoble INP - Génie industriel GI, Grenoble INP - Pagora, Grenoble INP - Phelma, Polytech Grenoble, Grenoble IAE and the INP Prepa). Grenoble INP is also a highly-ranked institution of higher education and research, leading the way in the fields of engineering and management on an international scale. It is a member of a large number of international academic and research networks. It is part of the European University UNITE!.
As part of Grenoble Alpes University, Grenoble INP has associated guardianship of 39 national and international research laboratories and of technological platforms. The research conducted there benefits both its socio-economic partners and its students. Grenoble INP is at the heart of the following scientific fields: physics, energy, mechanics and materials; digital; micronanoelectronics, embedded systems; industry of the future, production systems, environment; management and business sciences.

Grenoble INP - UGA is an equal opportunity employer committed to sustainability. Grenoble INP-UGA celebrates diversity and equity and is committed to creating an inclusive environment for all employees. All qualified applications will be considered without discrimination of any kind.

Research

The candidate will work mainly at the LMGP, Materials and Physical Engineering Laboratory, in the SALD team. The SALD team is a very dynamic group focusing of the development of functional thin films using scalable chemical vapour deposition approaches. Materials of interest include oxides, metals and metallic nanowire networks for different applications including photovoltaics, sensors, antimicrobial coatings, encapsulation of devices, resistive switching, etc. Our activity and recent research outputs can be checked in the following link: sites.google.com/site/workdmr/. We have recently optimized the deposition of Cu_2O thin films with record mobility and conductivity using our SALD deposition system [Nature Communication materials 2021, J. Mater. Chem A 2021, Nature Communications 2022). In the framework of an international France-Germany project, we plan to develop new oxides with superior optical/transport properties using new precursors synthesized by our German partner. The materials developed will be integrated in functional devices such as photovoltaic cells and photoelectrochemical cells. Other applications will also be studied through both national and international (Germany, Spain, UK, Portugal, Canada) collaborations.

Located in the heart of an exceptional scientific environment, the LMGP offers the applicant a rewarding place to work. The laboratory is very dynamic and highly international. The PhD student will perform as well short stays in Germany (Bochum) in the framework of our French-German joint project. The candidate will have the possibility to supervise master students and perform teaching.

LMGP Web Site: http://www.lmgp.grenoble-inp.fr/

Job description :

The candidate will focus on the development and optimization of an atmospheric plasma source and its integration into SALD heads, and the optimization of deposition processes with the plasma activation. The position will also involve materials characterization, presentation of results, redaction of paper drafts, contribution to project meetings and reports, contribution to outreach activities in the lab. The ideal candidate is a highly self-motivated individual of any nationality with a strong experimental background in semiconductor device physics and thin films, ideally with experience in plasma processing.

Specific requirements or conditions (in bold are mandatory)

- **PhD/master thesis in physics, chemistry, chemical engineering or materials science, preferably with a thesis related to thin films**
- **Experience in thin film deposition techniques (CVD, MOCVD, ALD, SALD, MBE)**
- **Experience in processing, developing and characterizing thin films via techniques such as XPS, AFM, KFM, electrical characterization and ellipsometry, XRR, XRD, TEM, SEM, SIMS,**
- **Have a solid understanding of physics of semiconductor devices**
- **Fast learner, hands on and have a flexible attitude**
- Experience with plasma processes, including atmospheric plasmas
- Programming skills (labview/python/matlab/etc)
- 3D drawing and CAD design (Blender/Solid Works/Catia/Fusion 360 etc)
- Have experience in 3D printing
- Knowledge/experience in LCA
- Have experience in building and/or setting up laboratory equipment or simple systems (i.e. Arduino, etc.)
- **Be someone able to and enjoy to solve problems and pushing your research to achieve results**
- **High degree of motivation, responsibility and independence, while collaborating with your team and lab mates, and other laboratory staff.**
- **Good management skills, good presentation skills, excellent written and oral English level (among non-native English speakers, equivalent TOEFL score of 100 or higher).**

How to apply

Applications must be sent through: https://grenoble-inp.nous-recrutons.fr/poste/97ecbqhpr6-chercheur-en-depot-par-plasma-atmospherique-sald-de-couches-minces-fonctionnelles-pour-application-dans-des-dispositifs-optoelectroniques-fh/

For questions regarding the position plese contact david.munoz-rojas@grenoble-inp.fr

Application deadline : 31/08/2025