



# GEMaC

Groupe d'Étude  
de la Matière Condensée

## POSTDOC - GA<sub>2</sub>O<sub>3</sub> FOR FUTURE HIGH POWER ELECTRONIC DEVICES (H/F)

PosDoc scientist's work will be a part of the project “Accelerating the demonstration of Gallium Oxide's outstanding potential for Energy application” (GOPOWER), funded by ANR. Project objective is design and elaboration of p-type conducting epitaxial Ga<sub>2</sub>O<sub>3</sub> epilayers and in-depth investigation of their electronic properties - required for their application in high power bi-polar Normally-OFF-devices. Project consortium consist with 5 partners: GEMaC(coordinator); INL; INSP labs from France, ICN2, Spain and Swansea University,UK.

### Activities

- Different type of experimental measurements for Ga<sub>2</sub>O<sub>3</sub> thin films study: Electrical contacts (Ohmic/Schottky) preparation by lithography and characterization; C-V measurement; Hall effect measurements; EPR spectroscopy measurements for point defects identification; X-ray characterization; proton irradiation effect on electrical properties; Schottky diode, p-n junction structure processing/ characterization;
- Instrumental development: Photoconductivity measurement set up; upgrading Hall

Effect set up;

- Data analysis/interpretation
- Very strong involvement in scientific communication: consortium meetings/conferences /publications
- Valorization of scientific results: patents (if any)/looking for industrial partnership
- Training/knowledge sharing with PhD and Master students
- Participation/initiation of different scientific proposal writing

## **Skills**

- PhD in experimental physics related to materials
- Extremely good communication (scientific and with team members) skill
- French (highly appreciated) and English languages: oral and writing
- Deep knowledge of physics of wide band gap semiconductors: Electronic and optical properties; point defect identification; Power device simulation/ fabrication /characterization;
- Expertise in several of following experimental techniques and instrumentations: Electrical contacts deposition/characterization; Electrical transport measurements (I-V;C-V;Hall Effect); Photoconductivity; EPR characterization; X-ray diffraction; Radiation effects;
- C++ language and labwindows knowledge highly appreciated
- Ability to respect deadlines and strong willing to share results/knowledge

## **Work Context**

The activities of the Condensed Matter Study Group (GEMaC, <http://www.gemac.uvsq.fr>) are based on a common expertise in physics and material sciences in the fields of wide bandgap semiconductors, nanoscale optics, functional oxides and switchable molecular materials.

PosDoc scientist's main affiliation will be GEMaC laboratory in Versailles. He/She will work be under supervision of Ekaterine Chikoidze. He/She will have part of activity /experimental work to carry out in INSP laboratory, Paris under supervision of J. von Bardeleben. He/She will be in very tight relation with colleagues /teams working for the project and other foreign collaborators.

## **Application**

Deadline : 27 January 2022 on <https://bit.ly/330Opeh>