

The mission of the Catalan Institute of Nanoscience and Nanotechnology (ICN2) is to achieve the highest level of scientific and technological excellence in Nanoscience and Nanotechnology. Its research lines focus on the newly-discovered physical and chemical properties that arise from the behaviour of matter at the nanoscale. ICN2 has been awarded with the Severo Ochoa Center of Excellence distinction for three consecutive periods (2014-2018 and 2018-2022 and 2023-2026). ICN2 comprises 19 Research Groups, 7 Technical Development and Support Units and Facilities, and 2 Research Platforms, covering different areas of nanoscience and nanotechnology.

Job Title: Postdoctoral Researcher

Research area or group: Advanced Electronic Materials and Devices

Description of Group/Project:

The Advanced Electronic Materials and Devices (AEMD) group focuses on the material sciences and technology aspects of novel electronic materials, with a strong emphasis on graphene as well as other 2D materials (MoS₂). The group also works towards the development of technological applications based on these materials such as electronics, bioelectronics and biosensing, neural interfaces, etc.

The activities cut across different scientific aspects, from the fundamentals (the physics of devices and semiconductors) to materials (growth of graphene and MoS₂ materials by CVD and MOCVD, surface functionalisation, advanced characterisation), through to devices (fabrication technology, nanofabrication) and applications (neural implants and biomedical technologies, biosensors, flexible electronics).

Main Tasks and responsibilities:

The successful candidate will give support to the research team in the following topics: i) growth of MoS₂ by metal-organic vapor deposition (MOCVD), ii) structural, optical and electrical characterization of MoS₂ films, iii) development of other 2D materials and iv) integration in thin film technology.

The tasks will also involve the maintenance of MOCVD reactors as well as the implementation of upgrades in these reactors.

The research activity of the candidate will be part of the NEURO2FAB project (PDC2023-145866-I00) financiado por MCIU/AEI /10.13039/501100011033 y por la Unión Europea NextGenerationEU/ PRTR. The main objective of the NEURO2FAB project is to demonstrate a pre-industrial prototype of a hybrid graphene/MoS₂ sensor array based on 2D materials and thin-film technology. Such an array is expected to be at the core of the next generation of braincomputer interfaces (BCIs) which will be used for the monitoring and treatment of neurological disorders.



Requirements:

- **Education:** PhD in Materials Science, Nanotechnology, Engineering, Chemistry, Physics, or equivalent degrees.
- **Knowledge and Professional Experience:** Extensive experience in MOCVD of TMDs.

Experience in characterization of bidimensional materials, including XPS, Raman, SEM, AFM and XRD
Experience with micro/nanofabrication.

- **Personal Competences:**
Teamwork skills
Fluent English (both spoken and written)

Summary of conditions:

- Full time work (37,5h/week)
- Contract Length: Temporary (2 years)
- Location: Bellaterra (Barcelona)
- Salary will depend on qualifications and demonstrated experience.
- Support to the relocation issues.
- Life Insurance.

Estimated Incorporation date: as soon as possible

How to apply:

All applications must be made via the ICN2 website <https://jobs.icn2.cat/job-openings/614/postdoctoral-researcher-advanced-electronic-materials-and-devices> and include the following:

1. A cover letter.
2. A full CV including contact details.
3. 2 Reference letters or referee contacts.

Applications will be continuously reviewed. Shortlisted candidates will be invited for interview.

Equal opportunities:

ICN2 is an equal opportunity employer committed to diversity and inclusion of people with disabilities. ICN2 is following the procedure for contract of people with disabilities according with article 59 of the Royal Decree 1/2015, of 30 of October.