

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 candidate will be working in the development and testing of sensor arrays and electronic systems for neural recording applications. Specifically, the researcher will be involved in (1) clean-room upscaling and maturing of graphene and MoS₂ thin-film technologies for neural interfaces, (2) developing electronic infrastructure to control and operate the sensor devices, (3) assessing the performance of prototypes of sensor arrays based on the 2D materials.

The research activity of the candidate will be part of the NEURO2FAB project (PDC2023-145866-I00)

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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:**
Master in Electronic Engineering, Nanoelectronics, Materials Science, Physics or equivalent degrees
- **Knowledge and Professional Experience:**
Hands-on experience in clean-room microfabrication (thin-film technology)
Solid knowledge of device physics, in particular transistors
Hands-on experience in electronic simulation, design, and testing

Experience in programming (LabView, Python, C++, Matlab)
Experience in neurotechnology will be valued

- **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 and <https://jobs.icn2.cat/job-openings/624/postdoctoral-researcher-advanced-electronic-materials-and-devices> 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.

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.