Institute of Microelectronics of Barcelona IMB-CNM CSIC

PhD Position: Deterministic growth of graphene nanoribbons and their implementation into transistor-like nanodevices Nanofabrication and Nanomechanical Systems Group (NANONEMS)

The **IMB-CNM** is the largest institute in Spain dedicated to the research and development of Micro and Nano Technologies and Microsystems and with unique capabilities in silicon technology. It belongs to CSIC since its foundation in 1985 and is distinguished as a María de Maeztu Unit of Excellence.

IMB-CNM aims to contribute to the advancement of knowledge and to the economic and social development of society, as well as to the training of researchers and engineers and to the advice to public and private entities.

The research activities of IMB-CNM are dedicated to Micro/Nano Integrated Systems: miniaturized electronic systems which include sensing and/or actuating capabilities in addition to electronic information processing, power management and external interfaces.

The IMB-CNM is located on the Autonomous University of Barcelona (UAB) Campus and contains the largest clean room facilities in Spain with full capability to process its own CMOS technologies and laboratories.

Job Summary:

The Institute of Microelectronics of Barcelona (IMB-CNM, CSIC) is seeking a highly motivated **PhD candidate** to join the research project *GTRONICS*, focused on new methods to integrate graphene in next-generation electronic devices.

GTRONICs aims to develop innovative strategies for the growth of GNRs with controlled structure, morphology and position on a substrate and to explore micro and nanofabrication methods to enable the corresponding transistor-like devices.

The selected candidate will work on the methodologies for the deterministic growth, explore nanodevice fabrication methods, evaluate the materials, and benchmark the corresponding device characteristics.

This position offers the opportunity to conduct cutting-edge research in nanomaterials and nanoelectronics within an internationally recognised scientific environment.

Who we are looking for:

- ✓ Background in Nanoscience and Nanotechnology, Materials Science, Physics, Chemistry, or related Engineering fields.
- ✓ Capacity to perform experiments independently, with the support and scientific guidance of the project's principal investigator.
- ✓ Ability to collaborate effectively with group members, cleanroom staff, and technical personnel (the project involves collaboration with the University of Valladolid, University of Hamburg and additional collaborations may also be established).

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- ✓ Strong motivation for science, with a genuine interest in problem-solving, a commitment to contributing to society, and a willingness to continuously learn and develop new skills.

What will you do:

- The selected student will actively contribute to the achievement of the main objectives of the project.
- A specific work plan will be established in accordance with the candidate's skills and will be periodically reviewed to ensure progress and alignment with the project goals.
- The planned activities include, among others:

  - ➢ Deterministic growth of graphene nanoribbons.
  - ➢ Structural characterisation of the synthesized materials.
  - ➢ Micro- and nanofabrication of electronic devices.
  - ➢ Electrical characterisation of the fabricated devices.

What we offer:

- ✓ A dynamic international research environment located in Barcelona (UAB Campus).
- ✓ Access to Spain's largest clean room facilities for micro/nano fabrication.
- ✓ Work hand in hand with experienced researchers and multidisciplinary teams.
- ✓ PhD Training Contract and a tailored Career Development Plan designed to support your growth in this specific position, along with access to CSIC's wide range of professional development resources and career advancement opportunities.

Minimum requirements:

- ❖ Technical Knowledge on the growth of graphene-related materials. Hands-on experience in CVD and/or bottom-up related methods. Desirable hands-on experience in CVD and/or bottom-up related methods for graphene-related materials.
- ❖ Technical knowledge and Hands on experience in characterization of graphene-related materials. Hands-on experience in techniques for material characterization. Desirable hands-on experience in techniques such as Raman, AFM or electrical will.
- ❖ Competence in Micro and Nano-fabrication, desirable hands-on experience on methods relating to graphene growth and processing.
- ❖ Competence in data analysis is required, particularly in the handling and interpretation of data arising from physical experiments or computational models relevant to nanoscience.
- ❖ Teamwork; Critical thinking and problem solving; Scientific writing and oral presentations; Research Ethics & Integrity; Managing deadlines and completing responsibilities; Flexibility in scientific approaches and collaboration; Seeking feedback and continuous improvement

Language Requirements:

- ➢ English, Full working competence.
- ➢ Knowledge of Spanish and Catalan will be positively considered.

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Interested in joining us?

Complete this **form** and **send your CV*, Motivation Letter and Academic Transcripts**** to **Talent@imb-cnm.csic.es**, with the **subject: "PhD GTRONICS".**
Incomplete or non-eligible applications will be automatically rejected.

*Applicants are kindly advised to ensure that their CVs clearly demonstrate compliance with the requirements of the position. CVs should include precise dates, relevant skills, and notable achievements that evidence the candidate's suitability and distinction in the selection process.

**Provisional academic transcripts can be obtained at https://sede.educacion.gob.es/sede/login/inicio.jjsp?idConvocatoria=818

Deadline: October 10th, 2025

Shortlisted candidates will be contacted by October 17th, 2025 to be informed of next steps.

Check our website for more information about the IMB-CNM and our research activities

https://www.imb-cnm.csic.es/en

Take the next step in your research career with us!

- By applying, you accept our data protection policy.
- IMB-CNM (CSIC) adheres to the European Charter and Code of Conduct for Researchers, ensuring full alignment with their principles and requirements, including equal opportunity, transparency, merit and ability, caring for an open, fair, and excellence-based hiring processes.
- IMB-CNM holds the HR Excellence in Research award, which acknowledges CSIC's commitment to continuous improvement in HR strategies for researchers.

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