

As a flagship research center in nanoscience and nanotechnology, our mission is to open and explore new frontiers of knowledge at the nanoscale, and bring value to society in the form of new understanding, capabilities and innovation, while inspiring and providing broad training to the next generations of researchers.

Our 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: PhD Student

Research area or group: Physics and Engineering of Nanodevices Group

Description of Group/Project:

The PEN group develops novel nanodevices specifically designed to gain insight into the physical properties of materials at the nanoscale. We combine state of the art lithographic and chemical methods with magnetic and electrical transport characterisation from room temperature down 0.01 K. Our primary work is fundamental in nature, but we explore methods, device functionalities and measurement techniques that may find applications in industry.

Main Tasks and responsibilities:

Building on recent technological advances in the field of two-dimensional materials (2DMs), van der Waals heterostructures based on graphene and other layered materials are pioneering new paradigms in data storage and computing. The atomically thin nature of 2DMs enables the enhancement and customization of their electrical, optical, and spin properties through proximity effects. This project focuses on engineering the magnetic and electric properties of 2DMs by fabricating and investigating hybrid heterostructures, which include metals, semimetals, semiconductors, and ferromagnets. The tasks will involve manipulating 2DMs, precisely stacking selected van der Waals heterostructures, fabricating nanodevices using lithography, etching, and material deposition techniques, conducting magnetotransport characterization of these devices, and analyzing the results. The student will also present his/her work at international conferences and prepare manuscripts for dissemination of the results in peer-reviewed journals.

Requirements:

Education: A Master (or Licenciatura) degree in Physics, Material Science, Nanotechnology or related discipline is required at the time of joining ICN2

Knowledge and Professional Experience: Applicants must show motivation, excellent disposition towards challenging research problems and a good level of the English language.

A strong background on solid-state physics and experience in experimental methods (e.g. electric transport and manipulation of 2DMs) will be positively valued.

Competences: Teamwork skills, Fluent English (both spoken and written)

Summary of conditions:

- Full time work (37,5h/week)
- Contract Length: 4 years
- Location: Bellaterra (Barcelona)
- Salary will depend on qualifications and demonstrated experience.
- Support to the relocation issues.
- Life Insurance.

Estimated Incorporation date: September

“Financiado por el MICIU con fondos de la Unión Europea-NextGenerationEU(PRTR-C17.I1) y por la Generalitat de Catalunya”.



How to apply:

All applications must be made via the ICN2 website and include the following:

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

Deadline for applications: 28 August 2024

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.