

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 behavior of matter at the nanoscale. ICN2 has been awarded with the Severo Ochoa Center of Excellence distinction for two consecutive periods (2014-2018 and 2018-2022). ICN2 comprises 17 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: Phononic and Photonic Nanostructures Group

Description of Group/Project:

The Phononic and Photonic Nanostructure Group (<https://www.icn2-p2n.eu/>) carries out research in the general area of nanophononics, which includes , phononic crystals, acousto-metamaterials, topological bosonics, nano-scale thermal transport and thermoelectricity. The group is 14-strong and additionally involves several undergraduate project and visiting students. The group participates in several European projects and has acquired national and regional research funding for phononics. The position is related to the EU-FET proactive project TOCHA, specifically on Topological bosonics, to develop the next generation of topological devices and architectures across which information can flow without losses. This conceptually simple yet technologically and fundamentally challenging requirement is crucial to develop technologies in fields ranging from information processing to quantum communication and metrology. This project will harness topological protection in novel materials and nanoscopic structures to empower electrons, phonons and photons to flow with little or no dissipation and, ultimately, crosslink them within a hybrid platform. This entails the design of novel topological photonic/phononic waveguides and the engineering of disruptive heterostructures. Thanks to its high interdisciplinary embodiment involving electronic materials, optics, thermal management and metrology, the project will help advance all levels of the value chain, from fundamental science to engineering and technology.

Main Tasks and responsibilities:

The tasks associated with the position are mainly experimental research with a contribution to simulation work. The job holder will be responsible for research on inelastic light scattering spectroscopy methods of detection of standard and topological phonons. S/He will contribute to experimental work on topological bosonic waveguides and to the simulation efforts of phonon energy band structure. Interaction with the team at the Technical Research Centre of Finland – VTT, will be crucial for sample design and fabrication and the job holder will actively participate in sample design. Research planning, experimental method development, carrying out of planned and new experiments, analysis of data and publication of results are integral part of the activities associated with the position, as well as actively contribute to consortium-level activities.

The P2N group has a dynamic research life and the job holder is expected to join in the group activities. In the group s/he will share responsibility for equipment maintenance and upgrades as well as playing a full role in upholding IT Services and safety regulations.

Requirements:

We look for a highly motivated researcher.

The applicant will have a PhD in solid state Physics and postgraduate level research experience in:

- experimental semiconductor nanophotonics and or nanophononics,
- inelastic light scattering spectroscopy
- phonons in nanostructures.

The essential skills for the position include:

- very good verbal and written communication skills
- proficiency in English (spoken, written and reading comprehension)
- ability to marshal arguments and to develop research concepts and or methods
- good organisational skills
- ability to work in an international team and on one's own.

Summary of conditions:

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

Estimated Incorporation date: 01/09/2022

How to apply:

All applications must be made via the ICN2 website <https://jobs.icn2.cat/job-openings/379/postdoctoral-researcher-phononic-and-photonic-nanostructures-group> and include the following:

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

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.