

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 18 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 nano-scale thermal transport, phononic crystals, thermoelectricity, acousto-metamaterials, topological bosonics. 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 part of the team being assembled funded by the European Research Council Advanced Grant “Lossless information for emerging information technologies”.

**Main Tasks and responsibilities:**

The tasks associated with the position are mainly experimental research. The job holder will be responsible for experimental and modelling research in methods to launch phonons into a waveguide by using electro-acoustic methods and to modulate phonon transport by strain. An important aspect is the collaboration the team at VTT which contributes state-of-the-art expertise in surface acoustic waves and MEMS/NEMS. The job holder will actively participate in sample design and testing. A second phonon signal modulation approach to be explored is based on optomechanics and Mach-Zender interferometry. Phonon detection by interferometric vibrometry is crucial to detect the overall impact of phonon launching, waveguiding and detection. 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.

The P2N group has a dynamic research life and the job holder is expected to join in the group activities, including the journal club on topological matter and the ICN2-wide Physics@ICN2 seminar series. 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:

### • Education:

- PhD in Physics
- Proficiency in English (spoken, written and reading comprehension)

### • Professional experience:

- Postgraduate level research experience in:
  - Phonons in semiconductor
  - Optomechanics
  - MEMS/NEMS
  - Surface acoustic waves.
- Supervision of master students and or undergraduate students.

### • Competences:

- Very good verbal and written skills
- Ability to marshal arguments and to develop research concepts and or methods
- Good organisation skills
- Ability to work in an international team and on one's own

## Summary of conditions:

- Full time work (37,5h/week)
- Contract Type: Temporary (24 months)

- Location: Bellaterra (Barcelona)
- Life Insurance.

Estimated Incorporation date: January 2021

**How to apply:**

All applications must be made via the ICN2 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.