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, 2018-2022 and 2022-2026). 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 in Spectroscopy of topological phononic structures (LEIT – PD5)

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 and NEOMs. 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 embedded in the team of the European Research Council funded Advanced Grant “Lossless information for emerging information technologies” (LEIT).

“This position has received funding from the European Research Council (ERC) under the European Union’s Horizon 2020 research and innovation programme (Lossless information for Emerging Information Technologies (LEIT)-grant agreement No 885689)”

Main Tasks and responsibilities:

The tasks associated with the position are mainly experimental research with a contribution to simulation of topological band structures and in-gap modes. The job holder will be responsible for research on phonon propagation in phononic crystals probed by Brillouin light scattering, spatial phonon signal modulation and pump-and-probe methods of detection of standard and topological phonons. The job holder will contribute

to experimental work on topological phonon waveguides and to the simulation efforts of anharmonic phonon processes. An important task is to foster collaboration with the theory group of the University of Lille on the design of topological waveguides for phonons and the postdoctoral researcher will be expected to contribute actively to the joint research with the t U. Lille-LEIT theory postdoctoral researcher. Likewise, 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 an 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 the appointee will share responsibility for equipment maintenance and upgrades as well as playing a full role in upholding IT services as well as safety regulations.

Requirements:

- **Education**

  PhD in condensed matter physics

- **Knowledge and professional experience**
  Postgraduate level research experience in: (i) experimental semiconductor nanophotonics and or nanophononics, (ii) inelastic light scattering and (iii) phonons in nanostructures.

- **Competences**
  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, supervision of master students and or undergraduate students, 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 (2years with a possible 1 year extension)
- Salary will depend on qualifications and demonstrated experience.
- Relocation expenses support.
- Life Insurance.

Estimated start date: March 2023

How to apply:
All applications must be made via the ICN2 web page (https://jobs.icn2.cat/job-openings/467/postdoctoral-researcher-in-spectroscopy-of-topological-phononic-structures-leit-pd5-phononic-and-photonic-nanostructures) and include the following:

- Motivation letter
- Curriculum Vitae
- List of Publications

- Title and abstract of the PhD thesis of the applicant
- Three letters of reference or referee contact details. Deadline: 29th December 2022

Closing date: 16.01.2023

Interviews:

Planned to take place online between 25th and 27th January 2023.

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.