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 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: 'Thermal Properties of Nanoscale Materials' (GTNaM).

Description of Group/Project:

The Thermal Properties of Nanoscale Materials group (GTNaM), active at the UAB since 2000, has become affiliated to the ICN2 in January 2021. Its activities mainly revolve around the study of thermal properties of disordered and nanoscale materials, with special focus on the ultrathin film limit and low-dimensional solids. Most of GTNaM senior members are university professors or lecturers with a 50% affiliation to ICN2 in research. GTNaM has been working for many years now on nanocalorimetry and thermal transport and thermoelectricity of disordered and low-dimensional solids. In the area of thermal transport, the group is looking for a deeper understanding of nanoscale heat transport with the aim of manipulating heat and controlling thermal fluxes, in order to develop new thermally-driven devices and technologies. To this purpose, we investigate phonon transport and thermoelectric-related phenomena in low-dimensional or disordered materials, with special interest in understanding mixed effects between electrons, phonons, photons and/or plasmons. This know-how is further used to design and develop thermoelectric devices that can operate as energy harvesters or thermal sensors in a variety of environments. In particular in ATTHENOS Project we will dessign new experiments to uncover the multi-physics of combined light-thermal-electrical effects in low-dimensional thermoelectric materials.

Main Tasks and responsibilities:

We are looking for highly motivated candidates interested in physics and nanotechnology, characterization of nanomaterials and its applications in energy solutions. The student should have a bias towards experimental research to work on a project that seeks to **advance in our understanding of phonon transport and thermoelectric-related phenomena**, including mixed effects between electrons, phonons and/or photons, in low-dimensional or disordered materials **to develop thermally-driven new devices and technologies.**

- During the PhD the candidate will become an expert in the use and **development of state-of-the-art electrical-based techniques** to measure heat capacity, thermal and electronic properties.
- Design of new experiments to uncover **uncover the multi-physics of combined light-thermal-electrical effects coupling photovoltaic, thermoelectric and photobolometric effects.**

Requirements:

- **Education**
  Have obtained a degree in Physics, Nanoscience, Material Science Engineering or related topics and a Master in any of those disciplines.

- **Competences**
  Strong commitment and independence, together with good communication skills and ability to work in multidisciplinary teams and interact effectively with other researchers.

Summary of conditions:

- The Group of Thermal Properties of Nanoscale Materials (GTNaM UAB-ICN2) offers a FPI contract (4 years) in the framework of the Project ATTHENOS funded by the Spanish Ministry of Science
- Full-time working contract as a PhD researcher.
- Relocation support.
- The PhD funding includes the possibility to perform short research stays in reputed research centers during the grant period.

Estimated Incorporation date: Summer 2022

How to apply:

Before the next **7th of November 2021**, applicants should submit to the email address javier.rodriguez@uab.cat a short motivation letter and a copy of the curriculum vitae outlining the required qualifications and with a list of publications (if any).

Equal opportunities:
ICN2 is an equal opportunity employer committed to diversity and inclusion of people with disabilities.