

## **Doctoral Thesis on Quantum Measurement of Temperature using Nanophotonic Devices**

A PhD position for a Doctoral Thesis is open at the INM (<http://www.imn.cnm.csic.es/es>) in Madrid, Spain, under the EU project “PhotoQuant” with the objective of design and fabricate nanophotonic devices to measure temperature in the classical and quantum regime using light-matter interaction. A particularly exciting new development is the possibility of using nano-photonic devices in combination with nano-mechanical systems (opto-mechanical sensors) to produce quantum primary standards that will use the scale of quantum energies determined by Planck’s constant to measure the size level of thermal motion. This Thesis aims at developing photonic and optomechanical sensors for nanoscale and quantum metrology. The primary goal will be to fabricate diamond-based nanophotonic devices in order to investigate the optical and mechanical performance and their influence in the measurement of temperature using light. The final goal is to design and fabricate quantum mesoscopic optomechanical resonators for the measurement of the temperature.

The PhD work will include design and modeling, clean room fabrication, and experimental characterization. Starting date will be September 2018.

The candidate should be a Physicist or Engineer, ideally with a strong background in physics, with particular emphasis on experimental skills. Previous experience in quantum optics and/or nanofabrication will be appreciated.

The candidate may send a CV and/or request further information to:

Pablo A. Postigo (IMN): [pabloaitor.postigo@imm.cnm.csic.es](mailto:pabloaitor.postigo@imm.cnm.csic.es)