QUANTUM SENSORS FOR ULTRALIGHT DARK MATTER SEARCHES

The Institut de Ciència de Materials de Barcelona (ICMAB-CSIC) offers a position to develop **_superconducting quantum sensors working at very low temperatures_** for ultralight dark matter search.

This opportunity is supported by the Severo Ochoa Program for Centres of Excellence (FUNFUTURE, CEX2019-000917-S). Additional positions will be soon available in the framework of the Next Generation Europe funds, through the CSIC PTI+ on Quantum Technologies, in close collaboration with the Institut de Microelectrònica de Barcelona (IMB-CNM).

Superconducting cryogenic detectors such as Transition-Edge Sensors and Single Photon Nanowires are extremely sensitive sensors working at temperatures much below 1K. They are capable of detecting single photons or phonons, and are thus essential for a new generation of instruments in astrophysics and particle physics. Also, they are developed for quantum communications.

The research work will focus on the development of materials to constitute these innovative sensors, including fabrication and characterization of materials for the fine tuning of their superconducting properties, as well as on device design, fabrication and testing.

The student will be integrated within a multidisciplinary team constituted by experts in materials science, superconductivity, nanotechnology, cryogenics and particle physicists.

For more information:
https://www.annualreviews.org/doi/pdf/10.1146/annurev-nucl-101916-123130
https://newscenter.lbl.gov/2019/06/10/small-dark-matter-experiments-broaden-hunt/
https://www.sciencedirect.com/science/article/pii/S0370269318306816

How to apply

We are looking for excellent candidates with a background in solid state physics, materials science or nanotechnology. PhD candidates should be highly motivated and interested in multidisciplinar projects.

Interested candidates should send an email to:
Dr. Lourdes Fàbrega lourdes@icmab.es, or
Dr. Gemma Rius gemma.rius@imb-cnm.csic.es

Applications should include:
• A **cover letter**, explaining the personal motivation to apply
• **CV** and **academic record**

Deadline for application is 22nd September 2021