



## Two postdoctoral positions at the Institute of Microelectronics of Barcelona, IMB-CNM-CSIC and the Quantum Computing Technology Group - IFAE

The Institute of Microelectronics of Barcelona (IMB-CNM-CSIC) and the Quantum Computing Technologies (QCT) group at the Institute for High Energy Physics (IFAE) offer ***two postdoctoral positions within the projects Micro-nano fabrication technologies for mitigation of radiation effects (MINARE) and Nanofabrication-Enhanced Superconducting Qubit Quality (NESQQ)***, both funded by the Spanish Ministry of Science and Innovation.

**Project MINARE**, as part of coordinated project IRCQ, aims at overcoming detrimental effects on qubit coherence caused by ionizing radiation by exploring on-chip solutions based on new materials and advanced processing. The project includes establishing the production and consolidation of conventional superconducting circuits based on aluminum thin films, while proposing two unconventional strategies for reducing quasiparticle effects or managing internal losses.

**Project NESQQ** aims at the improvement of superconducting qubit quality by combining nanofabrication and noise filtering techniques. The project will look at improving qubit coherence time and parameter reproducibility by reduction of on-chip microscopic flux and charge noise following state-of-the-art nanolithography and processing techniques. This approach includes reducing the presence of spurious two-level fluctuators and quasiparticles by, on one hand, dedicated surface passivation techniques and, on the other hand, introducing novel materials in the qubit device production.

Interested candidates are expected to:

- Hold a **PhD in Physics, Materials Science, Nanotech, Quantum, HEP, etc.**
- Be experienced in **experimental techniques, in at least two of the following areas:**
  - Superconducting devices,
  - Thin film materials,
  - Micro/nanoelectronic device fabrication,
  - Microwave quantum coherent control,
  - Cryogenics

Applications and requests for further information should be sent to

[gemma.rius@csic.es](mailto:gemma.rius@csic.es) and [pforndiaz@ifae.es](mailto:pforndiaz@ifae.es)

Interested researchers should include an **updated CV** with a **letter of intent or motivation**, and could arrange for **3 letters of recommendation**. The appointments will be for **2 or 3 years terms**.

Proposed start of the appointment: Late Fall 2022 / Early 2023

**Closing date: Open until the positions are filled**

IMB-CNM-CSIC and IFAE are equal opportunity employer committed to diversity in the workplace, and we welcome applications from all qualified candidates. Women are particularly encouraged to apply. Sending CVs to IFAE implies consent to the institute's [legal warning](#). **Publication date: October 25<sup>th</sup>, 2022**

