

Company Description

NanoGUNE is a Research Center devoted to conducting world-class nanoscience research for a competitive growth of the Basque Country. NanoGUNE is a member of the Basque Research and Technology Alliance (BRTA) and is recognized by the Spanish Research Agency as a María de Maeztu Unit of Excellence.

Information

 Deadline: 2025-03-31
 Category: Academia
 Province: Gipuzkoa

 Country: Basque Country
 City: Donostia-San Sebastián

Company

CIC nanoGUNE



Main functions, requisites & benefits

Main functions

We offer a PhD position in Molecular Quantum Physics, focused on the nanoscale investigation of quantum states of molecules using a combination of low-temperature scanning tunneling microscopy and microwave spectroscopy. The research project will integrate Electron Spin Resonance (ESR) with Scanning Tunneling Microscopy (STM), i.e., ESR-STM, to detect and manipulate individual spins embedded in graphene platforms. The objective is to probe spin coherence time scales, investigate spin interactions, perform basic quantum operations, and demonstrate that atomically precise graphene platforms can serve as elementary units for quantum computation. The PhD student, along with their research team, will develop novel strategies to implement the ESR-STM technique in fully controlled environments.

Requisites

The successful candidate should hold a Master's Degree (or equivalent) in Physics, Materials Science, Nanotechnology, or a related field, and have a demonstrated background in experimental condensed matter physics, nanoscience, or a closely related discipline. Programming skills and experience with scientific software packages (e.g., MATLAB, Python) for data analysis and simulation are also required. Previous experience with scanning tunneling microscopy (STM), low-temperature experimental setups, or single-molecule spectroscopy is highly desirable. Additionally, the candidate should have excellent written and verbal communication skills in English, with the ability to present research findings effectively.

Benefits

We promote teamwork in a diverse and inclusive environment and welcome all kinds of applicants regardless of age, disability, gender, nationality, race, religion, or sexual orientation. The position is expected to start on 01/05/2025 in the Quantum Probe Microscopy Group, led by Prof. Nacho Pascual. More information can be found at: <https://www.nanogune.eu/en/research/groups/quantum-probe-microscopy> The contract will be funded by the European Research Council grant CONSPIRA (ERC-AdG 101097693).