

The Nanoscience Cooperative Research Center, CIC nanoGUNE, located in Donostia / San Sebastian, Basque Country (Spain), is currently looking for a

PRE DOCTORAL RESEARCHER

to work on

Coherent Control of Spins in Graphene Nanostructures

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.

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.

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. The contract will be **funded by the European Research Council grant CONSPIRA (ERC-AdG 101097693)**.

Candidates should **apply** by completing the **form below** and attaching the following documents grouped in a single PDF file:

- A complete CV
- A cover letter, stating research interests, and at least two reference letters

The **deadline** for applications is **31/03/2025**.

NOTES:

(i) All applicants will receive an answer after the end of the selection process; but please note that due to the large number of submissions that are expected, we cannot provide individual feedback.

(ii) Additional information about nanoGUNE's commitment towards [HR excellence in Research and Gender Equality](#) are available on our website.

(iii) We encourage you to subscribe to our [HR mailing list](#) to receive information related to nanoGUNE's open positions and open calls for different training and talent attraction programs.