

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

Post-doctoral Researcher

to work on

SiGe-based cryogenic amplifiers for quantum computing

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.

We are please to offer a **Postdoctoral position** in the field of **Cryogenic electronics for Quantum Computing** at nanoGUNE. The project is part of a collaborative effort between academic and industrial partners to develop low-noise, low-power cryogenic amplifiers for solid-state qubits. The selected candidate will join a multidisciplinary collaboration between IC designers and Quantum Scientist and Engineers. The candidate will be responsible for agreeing the specifications of the low-noise amplifier (LNA), contributing to the design, test it in isolation at room and deep cryogenic temperatures and demonstrate it operation alongside qubit devices.

Key responsibilities:

- Establish the LNA specifications for best performance with semiconductor spin qubits.
- Build cryogenic test set ups to test the LNAs in isolation and alongside qubit devices.
- Perform S-parameter and noise characterisation of the LNAs (0.1-2 GHz)
- Perform electrical characterization of silicon devices at millikelvin temperatures and high magnetic fields.
- Perform dynamical operations on spin qubits using high frequency electronic equipment.
- Collaborate with interdisciplinary teams, quantum scientist and engineers and IC designers.
- Analyse and interpret experimental data, contributing to scientific publications, patents, and presentations.
- Engage with the wider international research community by participating in conferences, workshops, and collaborative projects.

Qualifications:

- PhD in Physics, Electrical Engineering, or a related field from a top tier university/research centre.
- Background in solid-state physics, semiconductor devices, quantum information, and/or analogue circuits is desirable.
- Experience in data analysis and programming, particularly in the use of Python, Git, and Gitlab.
- Excellent communication skills in English, both written and verbal.
- Ability to work independently and as part of a collaborative research team.

Conditions:

- A postdoctoral salary for (1.5 years) with possibility to extend the contract.
- Access to state-of-the-art cryogenic laboratory facilities including Bluefors Gen2 dilution refrigerators, high end electronics and computational resources.

- Opportunities for research stays at partner academic and industrial institutions, participation in conferences, and involvement at international collaborations.
- Comprehensive health insurance (as per nanoGUNE and EU regulations).

The position is available as early as **01/06/2025**.

Interested candidates should **apply** by filling in the **form** in the link below and by submitting the following documents in a single PDF file:

- A detailed CV, including academic background and relevant experience. We particularly welcome experimental experience in a laboratory setting.
- Contact information for two references.

For informal enquiries, interested candidates are welcome to contact **Prof. M. Fernando Gonzalez Zalba** (f.gonzalez@nanogune.eu).

Candidates will be assessed as they apply and the call will remain open until the suitable candidate is identified.

For updated information about the hosting group, please visit
<https://www.nanogune.eu/en/research/groups/quantum-hardware>

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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.