

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

## POST-DOCTORAL RESEARCHER

to work on

### Spectroscopic Characterization of 2D Materials and Perovskites

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.

The **position** is offered in the Nanodevices Group, co-led by Prof. Luis E. Hueso and Prof. FÁ̃lix Casanova. The group counts with extensive research facilities for fabrication and characterization of devices and several active research lines spanning from nanofabrication to 2D electronics and spin transport.

The candidate will join a newly funded **research line** focusing on the investigation of 2D layered materials and low dimensional metal halide perovskites through a combination of electrical and optical characterizations.

Raman spectroscopy and device fabrication/characterization will be employed to reveal a wide variety of physical and chemical phenomena occurring when low dimensional materials are modulated using electrostatic gating and molecular functionalization. A special focus will be given to phase transitions, magnetic ordering and hetero-interface charge transfer.

The final goal is to modulate the 2D materials properties in single flakes and heterostructures, looking for the integration of working systems into functional spintronic and opto-electronic nanodevices.

The research will include the exfoliation and stacking of 2D materials into van der Waals heterostructures, their optical characterization through temperature-dependent micro-Raman/photoluminescence spectroscopy, the chemical functionalization of 2D materials and the fabrication and electrical characterization of devices (thin film deposition, lithography). More information can be found at <https://www.nanogune.eu/nanodevices>.

A selection of recent work on spintronics in 2D materials which our team has led can be found in the following articles:

- Nature Comms. 7, 13372 (2016); Nano Lett. 19, 1074 (2019); Nano Lett. 19, 8758 (2019); Nano Lett. 20, 4573 (2020).

Additionally, the candidate will benefit from the expertise of new member of our team with long standing experience in spectroscopic characterization of 2D materials and metal halide perovskites.

The successful **candidate** will have a Ph.D. in Physics, Chemistry or a related field.

Additionally, the candidate should demonstrate experience in the following experimental techniques:

- Raman and photoluminescence spectroscopy
- Optoelectronics
- Cryostat set-ups
- Mechanical exfoliation of 2D materials
- Lithography techniques

Although not compulsory, the following points will be considered:

- Previous knowledge in magnetism or spintronics
- Strong track record in publications at the highest level
- Self-motivated and a team player willing to coordinate the research in a particular topic

**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 in 01/11/2021 and for a total length of up to 36 months (01/11/2021 - 31/10/2024) in the Nanodevices Group. The contract will be funded by the Ministry of Science, the Innovation and Universities (MCIU), the State Research Agency (AEI) and the European Regional Development Fund (ERDF).

Candidates should **apply** by completing the form below and attaching the following documents:

1. A complete CV
2. A cover letter and at least two reference letters grouped in a single PDF file

The **deadline** for applications is **31/08/2021**.

*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.*