

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. The Nanodevices group, co-led by Prof. Luis E. Hueso (Lhueso@nanogune.eu) and Prof. Félix Casanova (f.casanova@nanogune.eu), is currently composed of 30 members including senior and junior researchers. It has extensive research facilities for fabrication and characterization of devices and several active research lines spanning from nanofabrication to 2D electronics and spin transport. More information can be found at <http://nanodevices.nanogune.eu>

Information

Deadline: 2025-09-30
Category: Academia
Province: Gipuzkoa

Country: Spain
City: Donostia-San Sebastián

Company

CIC nanoGUNE



Main functions, requisites & benefits

Main functions

The research topic encompasses a new direction in the field of spintronics: the generation and detection of orbital angular momentum currents, in analogy to spin transport. Phenomena that allows us to generate and detect orbital currents will be studied, such as the orbital Hall effect in light metals and the orbital Rashba-Edelstein effect at interfaces, as well as the interconversion between orbital and spin currents in materials with spin-orbit coupling. The project foresees the integration of working systems into functional nanodevices. The research to be performed will require the the nanofabrication of devices (thin film deposition, electron-beam lithography, etching) in cleanroom, materials characterization, and magnetotransport measurements (high magnetic fields and low temperatures). The following is a selection of publications related to our team's recent work on this research topic: M. Aguilar-Pujol et al., arXiv:2506.06546 (2025); D.C. Vaz et al., Nature Communications 15, 1902(2024); V. T. Pham et al., Nature Electronics 3,309–315 (2020).

Requisites

The candidate must have a M.Sc. in Physics, Materials Science or similar field. Proficiency in spoken and written English is also required. Although not compulsory, the following points will be considered: Experience in any of these experimental techniques: e-beam lithography, materials growth and characterization, etching, electrical transport measurements; Previous knowledge in spintronics; Publication track record; Self-motivated and a team player willing to coordinate the research in a particular topic.

Benefits

We offer an international and competitive environment, state-of-the-art equipment, and the possibility to perform research at the highest level. 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 1 December 2025 and for a total length of up to 4 years in the Nanodevices group.