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

Spin interaction in graphene and modelling Coulomb correlations
H2020 SPRING

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 Nanoimaging Group, led by N. Pascual (ji.pascual@nanogune.eu). The goal of our research is to elucidate the laws of magnetism, optics, and electronics at the scale of atoms and molecules. We use low-temperature Scanning-Probe Microscopy to study the basic quantum phenomena behind the macroscopic behaviour of matter and to manipulate their basic atomic components.

The candidate will join a **research line** studying the emergence of spin states in custom-crafted graphene nanostructures on surfaces and investigating the emergence of magnetic states using low-temperature scanning tunnelling microscopy, under the collaborative European project SPRING. The goal of SPRING is to demonstrate the potential of graphene nanostructures as elementary active components for quantum spintronics devices. More information on our activities can be found at https://www.nanogune.eu/nanoimaging and in https://www.springfetopen.eu/

The aim of this PhD **project** is to study spin spin interaction in graphene and the protection of spin states by insulating layers. In particular, the project will study apparition of hybridization gaps in open-shell systems on insulating layers. The work also includes modelling Coulomb correlations and spin state as a function of charge state.

The research tasks include fabrication of graphene flakes with atomic-scale precision using a method called "on-surface synthesis"□. The research project involves demonstrating the optimal structure and magnetic properties using scanning tunnelling microscopy at low temperatures. The project also involves basic simulation of experimental parameters and direct collaboration with theory and experimental groups of SPRING.

The successful **candidate** will have will have a Master in Physics or related areas. Whenever it is possible, we expect the successful candidates to have some experience on
scanning tunnelling microscopy, Surface Science techniques, and/or programming simulation tools of molecular systems.
Although not compulsory, the following points will be considered:

- Proficiency in spoken and written English.
- 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 01/10/2021 and for a total length of up to 12 months (01/10/2021 - 30/09/2022) in the Nanoimaging Group. The contract will be funded by the EU FET-OPEN Project SPRING.

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

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

The **deadline** for applications is **27/08/2021**.

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.