



CALL FOR APPLICATIONS - October 2022

Post-doctoral Position

Donostia International Physics Center (DIPC) is currently accepting applications for Post-doctoral positions. This is a unique opportunity for junior researchers with a recent PhD degree in Physics or related fields to join one of DIPC's high-profile research teams. A description of each of the available openings, contact information and deadlines can be found on the following pages.

Openings with a duration of more than one year are for a 1-year contract, renewable based on performance and availability of funding.

Although candidates are welcome to contact the project supervisors to know further details about the proposed research activity, please be aware that the application will be evaluated only if it is submitted directly to the email address listed as "application email".

Applications received by the deadline will be evaluated by a Committee designed by the DIPC board on the basis of the following criteria:

- CV of the candidate (40%)
- Adequacy of the candidate's background to the project (40%)
- Reference letters (10%)
- Other: Diversity in gender, race, nationality, etc. (10%)

Evaluation results will be communicated to the candidates soon after. Positions will only be filled if qualified candidates are found.

The DIPC may revoke its decision if the candidate fails to join by the appointed time, in which case the position will be awarded to the candidate with the next highest score, provided it is above 50 (out of 100).

However, the selected candidate may keep the position if, in the opinion of the Selection Committee, the candidate duly justifies the reasons why he or she cannot join before the specified deadline, and as long as the project allows it.

Ref. 2022/66
Spin physics in graphene-based nanostructures

Supervisor(s):

Thomas Frederiksen (thomas_frederiksen@ehu.eus)

Geza Giedke (geza.giedke@dipc.org)

Duration*: 1 year

Application Deadline: 21/10/2022

Application Email: jobs.research@dipc.org

Graphene and related materials have emerged as an ideal solution to combine spin localization and diffusion. These atomically thin materials can be fabricated with atomic precision, opening the door to fabrication of designer structures with precise shape, composition, spin arrangement, and interconnected by graphene electrodes for electrostatic or quantum gates.

In the framework of the EU-funded research project “SPin Research IN Graphene” (SPRING) under the Horizon 2020 research and innovation programme FET Open (grant agreement No 863098), we are looking for a postdoctoral researcher to develop a theoretical framework to propose ways for electrical detection and manipulation of localised spins in open-shell graphene nanostructures. The analysis could initially focus on a measurement protocol for a single electron spin and subsequently be extended to systems with spin-spin interactions (electron spin chains) and/or nuclear spins.

The work will be carried out at the Donostia International Physics Center (DIPC) in collaboration with the experimental partners of the SPRING consortium from CIC nanoGUNE, Technical University of Delft, University of Santiago de Compostela, IBM Research, and University of Oxford.

Candidates should be highly motivated researchers with a PhD degree and a strong background in theoretical solid-state physics, excellent communication skills and English knowledge. Previous experience with spin systems, electronic structure theory, quantum transport, quantum information theory, and MPS/DMRG/tensor network methods would be an advantage.

Interested candidates should submit an updated CV and a brief statement of interest to the application email listed above. Reference letters are welcome but not indispensable. The reference of the specific opening to which the candidate is applying should also be stated in the subject line.

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