CALL FOR APPLICATIONS - February 2023

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.

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 scientific 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. 2023/39
Magnetism, electronic structure and topology of two-dimensional van der Waals materials

Supervisor(s):
Mikhail Otrokov (mikhail.otrokov@gmail.com)
Andres Arnau (andres.arnau@ehu.es)

Duration*: *3 years*

Application Deadline: *24/02/2023* ***Application Email:*** *jobs.research@dipc.org*

Two-dimensional magnetic van der Waals materials and their heterostructures offer a fertile ground for realisation of novel quantum phenomena that could potentially be used for applications like sensing, data storage or quantum computation. The realisation of those phenomena crucially depends on our ability to engineer and efficiently tune the materials' electronic and magnetic structures that, ultimately, would permit the development of devices based on the dissipationless transport of the spin-polarised electrons across the material.

The aim of this project is to achieve a complete understanding of the electronic and magnetic properties of novel layered van der Waals materials and their heterostructures using first-principles density functional theory calculations. This includes finding and studying new topologically nontrivial magnetic materials.

The candidate should have a PhD degree in Physics or related field. Experience in first-principles studies of the structural, electronic, and magnetic properties of two-dimensional van der Waals materials and topological insulators/semimetals is required for this position. Advanced level of using the computer codes like VASP, Z2Pack, Wannier90 and WannierTools is mandatory, while the proficiency in other DFT packages (Quantum Espresso, etc.) will be highly valued. Additionally, knowledge and experience in Fortran/C and Python programming is required. Good written and oral communication skills in English are also required.

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.

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