Donostia International Physics Center

DIPC PhD STUDENT GRANTS

The Donostia International Physics Center DIPC is currently accepting applications for PhD students. This is a unique opportunity for highly motivated students, recently graduated from the University in physics or related fields, to develop a research career joining some of the DIPC high-profile research teams.

DIPC PhD grants last for just 12 months. An extension of the grant may be accepted just in some exceptional cases. DIPC PhD grants are intended to support the student during the first steps of his/her research career. Further financial aid to continue the PhD research project after this period should be obtained from other institutions.

Interested candidates please send an updated CV including an academic transcript with the obtained marks, a brief statement of interest, and contact information to phd@dipc.org. Reference letters are welcome but not indispensable. The particular PhD position(s) to which the candidate is applying should be stated as well.

Applicants are advised to hold, or be in the final year of a master's degree in physics, chemistry or material science.

Next review of applications is scheduled for December 11th 2015. Applications will be evaluated by a Committee designed by the DIPC board on the basis of the following criteria (with point weights indicated in parentheses):

- CV of the candidate (60%)
- Adequacy of the candidate's scientific background to the project (20%)
- Statement of interest and reference letters (10%)
- Others: 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.

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PhD OPENINGS

- Relativistic corrections and spinorial structure of the the response function in 2D systems.

Contact person: Dr. A. Eiguren (asier.eiguren@ehu.eus). Reference: 2015/8

The objective of this project is to develop a computational approach for describing the fine structure details of the response function in presence of strong spin-orbit interaction. Special attention will be paid to the physical effects directly related to the non-collinear structure of the wave functions. The candidate will work in the framework of all-electron methods and Wannier functions.

- Theoretical study of the dynamics of nitrogen atoms and molecules interacting with iron surfaces.

Contact person: Dr. R. Díez Muiño (rdm@ehu.eus). Reference: 2015/10

This research project is devoted to the theoretical study of elementary reactive processes taking place in the interface between nitrogen gas and iron solid. The theoretical description of the interaction energy will be obtained from density functional theory (DFT) calculations. Probabilities of occurrence of the different physico-chemical processes at the iron surface (molecular adsorption, dissociative adsorption, reflection, etc.) will be calculated using a statistical approach. The dynamics of the gas-phase incident species will be treated classically. Final theoretical results should be compared to available experimental measurements in order to extract further information about the processes. The PhD student in charge of this project should be able to perform all these tasks. In particular, the student would be responsible of the DFT calculations as well as of the classical dynamics simulations.

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- Plasmonics of metallic nanoparticles and hybrid nanostructures

Contact person: Dr. N. Zabala (nerea.zabala@ehu.eus). Reference: 2015/11

We are looking for one PhD student to work on the theoretical study of the optical excitations of hybrid nanostructures composed of plasmonic nanoantennas of different geometries in contact with oxides which exhibit interesting properties, as dielectric-metal transitions, ferroelectricity or ferromagnetism.

These studies will be performed in close collaboration with experimental groups, with the aim of contributing to the design and development of novel devices as optical switches, plasmonic interconnects for photonic circuits, non-reciprocal plasmonic devices, sensors, etc

Candidates should be motivated students with experience (or willingness) in the use of numerical methods to solve mathematical equations arising from the physical descriptions of a problem. In particular, experience in solving Maxwell equations in complex environments with the use of different available software packages is welcome.