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 September 15th. 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

- ***Electron-phonon interaction in surfaces with strong spin-orbit interaction***

  Contact person: Dr. Asier Eiguren (asier.eiguren@ehu.es) and Dr. I. Garcia de Gurtubay (idoia.gurtubay@ehu.es) *Reference: 2013/9*

  The objective of this project is to develop a computational approach for describing the fine structure details of the electron phonon in surfaces -and thin layers- with strong spin-orbit interaction considering a Wannier function approach. The motivated candidate should demonstrate a strong background in Solid State Physics and numerical analysis.

- ***Electron transport in nanostructures***

  Contact person: Dr. Aran Garcia-Lekue (wmbgalea@lg.ehu.es) *Reference: 2013/10*

  In the last years, quantum electron transport through nanostructures has attracted great interest as nanoscale junctions or molecular devices may create a molecular electronics technology in the future. The current flowing through a nanostructure can be measured using scanning tunneling microscopy (STM) and breakjunction techniques.

  The objective of this project is to simulate electron transport in nanostructures, from single molecules to self-assembled monolayers, sandwiched between metallic electrodes. Such calculations are aimed aimed at the prediction and/or understanding of experimental observations.

  We will consider elastic transport, as well as inelastic transport due to the excitation of vibrational modes of the molecule. We will start by looking at the geometry and structure of different nanostructures on metallic surfaces, then continue studying fine spectroscopic details. First principles methods based on density functional theory (DFT) will be employed for the structural optimization, electronic structure characterization and calculation of vibrational modes. For the electron transport simulation, either non-equilibrium Green's function formalism or scattering-states method will be used.