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.

Next review of applications is scheduled for August 17th. 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

- ***Electro-phonon interaction and non-adiabatic processes in nano-structures***

PhD position, contact person: A. Eiguren (asier.eiguren@ehu.es);I. Garcia de Gurtubay (idoia.gurtubay@ehu.es) Reference: 2012/10.

The main objective of this research project is to understand the non-adiabatic processes by means of non-perturbative techniques.

It is well known that the electron-phonon interaction dominates the physics of transport at low temperatures. Although many body theory applied to this problem has progressed very significantly over the last decades, there has been no substantial progress in understanding the called non-adiabatic processes, where the so called Oppenheimer-Bor approximation is not valid.

Tasks:
- Generalization of the electron-phonon lambda parameter for systems with small Fermi surface.

- Construction of theoretical models and implementation of computational tools to address the possibility of "flashing" Fermi surface. Quantum treatment of vibrational states.

- We will address this problem with various non-perturbative methods: exact diagonalization, Wilson renormalization group, and principally the quantum Monte Carlo method.

Candidates should certify a Master degree related to material physics. As an important component of the research project is mathematical, candidates must be motivated to analytical work.