Donostia International Physics Center

DIPC POST-DOCTORAL POSITIONS

The Donostia International Physics Center DIPC is currently accepting applications for post-doctoral appointments. This is a unique opportunity for highly motivated junior researchers with a recent PhD degree in physics or related fields to join some of the DIPC high-profile research teams.

Interested candidates please send an updated CV, a brief statement of interest, and contact information to postdoc@dipc.org. Reference letters are welcome but not indispensable. The particular position(s) to which the candidate is applying should be stated as well. Although candidates are encouraged 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 mentioned above (postdoc@dipc.org).

Next review of applications is scheduled for August 18th 2017. Applications must be received before this date and 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 (40%)
- Adequacy of the candidate's scientific background to the project (40%)
- 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.

The DIPC could revoke its decision in case the candidate does not join his/her duties within 6 months after the publication of the list of selected candidates.

The duration of the appointment will be 1 year. The appointment could be renewed for a second year, subject to performance and to the availability of funding.

The salary will be 32000 euros per year before taxes.

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JOB OPENINGS

- ***Magnetic properties of nanostructured surface alloys and interfaces***

  Contact person: E. Ortega (enrique.ortega@ehu.es). Reference: 2017/9.

  This project aims at characterizing (epitaxial growth, electronic states and magnetism) in a variety of monolayer-thick rare-earth/metal alloys and interfaces formed with organic semiconductors. The work implies the use of a full battery of refined Surface Techniques, namely LEED, STM, but mainly demonstrated expertise in angle resolved photoemission (ARPES).

  The successful candidate should hold a PhD in experimental physics, dating not before 2009, and possess a good background on solid-state physics. A preferential prerequisite is the proven ability/experience in ARPES and synchrotron radiation. We are looking for a highly motivated candidate, able to work in a dynamic environment, to manage the use of a complex STM/ARPES system for varied users, and to contribute his/her ideas to the group.

- ***Electronic structure and quantum transport in graphene-based nanostructures and networks***
  Contact person: T. Frederiksen (thomas_frederiksen@ehu.eus). Reference: 2017/10.

  We are looking for one postdoc to develop electronic structure and quantum transport methods optimized to study multi-terminal networks composed of carbon-based constituents such as pristine and doped graphene nanoribbons. The main objectives of the postdoc would be to develop flexible, fast, and reliable atomistic models for large systems and to extend and adapt scientific software codes with the end goal to apply these tools to characterize emergent properties of circuits based on electron beam splitters and quantum dots.

  Candidates should be motivated researchers with a strong background in computational physics, good communication skills and English knowledge. Previous experience with density functional theory and quantum transport methods, in particular the SIESTA/TranSIESTA suite, is preferred. Ideally the candidate would also have a background with graph theory, physical and chemical properties of graphene nanoribbons, electron-phonon interactions, and scanning probe technologies.

- ***Dynamics of elementary reactive processes at surfaces***

  Contact person: R. Díez Muiño (rdm@ehu.eus). Reference: 2017/11.

  Advances in the description of elementary reactive processes at surfaces are largely triggered by the quest for systems and conditions under which reactivity can be controlled, enhanced or inhibited. From this point of view, two-dimensional (2D) layered systems, such as transition metal dichalcogenides or transition metal carbides/nitrides, are receiving increasing attention due to their high activity as catalytic agents. The catalycity of these systems can be also very dependent on the presence of defects as well as on the nanostructural properties when the system is finite (nanoribbons, nanosheets, etc.). The goal of this project is to advance in the theoretical description of physico-chemical processes that involve the interaction between small molecules (H_2, N_2, O_2…) and 2D materials. Ab-initio molecular dynamics (AIMD) based on density functional theory (DFT) will be used to describe the dynamics of adsorption and dissociation processes. Candidates to this position must hold a PhD degree in physics or chemistry and should have experience in first-principles theoretical methods as well as in numerical simulations.

  The research work will be performed in the context of the Theoretical Chemistry and Physics at the Quantum Scale ("*QuantumChemPhys*"), a Transborder Joint Laboratory created by the University of Bordeaux, the Basque Country University, and the Donostia International Physics Center. The selected candidate may therefore need to spend part of his research time in the *Institut des Sciences Moléculaires* in Bordeaux.