

## DIPC research assistantship

The Donostia International Physics Center DIPC is currently accepting applications for a six months research assistantship under the title ***“Generation of 1D/2D/3D optically active nano-microstructures by femtosecond-laser-induced processing of high quality rare earth-doped glasses: spectroscopic characterization and performance”*** (Ref. 2018/5). The successful candidate will join the research group of Dr. Joaquín Fernández and Dr. Rolindes Balda.

The aim of this project is to obtain optically active vitroceraamic photonic structures by laser-writing in high quality rare-earth-doped glasses for optoelectronic and biomedical applications (low coherence emitters, sensors,..). The study includes the characterization of the induced structural changes as well as the investigation of the optical properties of the native and laser treated samples including time-resolved spectroscopy of both bulk glass and nano-micro structures, emission efficiencies and guidance.

**We are looking for a motivated candidate with high expertise in physical properties of materials and strong background in femtosecond-laser-writing and conventional and ultrafast spectroscopies.**

Interested candidates please send an updated CV including an academic transcript with the obtained marks, a brief statement of interest, and contact information to [postdoc@dipc.org](mailto:postdoc@dipc.org). Reference letters are welcome but not indispensable

Next review of applications is scheduled for January 26<sup>th</sup> 2018. 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 (40%)
- Adequacy of the candidate's scientific background to the project (40%)
- 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. The position will only be filled if a qualified candidate is found.

## DIPC research assistantship

The Donostia International Physics Center DIPC is currently accepting applications for a six months research assistantship under the title “**TDDFT modelling of the optical response of plasmonic systems**” (Ref. 2018/8). The successful candidate will work under the supervision of Prof. Javier Aizpurua and Dr. Ruben Esteban.

The candidate will study the optical response of metallic particles separated by subnanometer gaps. This system supports strong plasmonic resonances that are modified by any charge currents flowing through the gap. The interaction between the plasmonic modes and these currents have important consequences for spectroscopic measurements, coupling with molecules and for the design of optoelectronic nanodevices. The study of these phenomena typically requires to go beyond classical treatments, and the candidate will develop codes based on the Time-Dependent Density Functional Theorem (TDDFT) to be able to incorporate the quantum nature of the free electrons in the metallic dimer. The candidate will use these codes to investigate new linear and non-linear quantum phenomena that characterize the plasmonic dimers

The work will be theoretical, but the group works with numerous experimentalists and theoretical groups and the candidate is expected to contribute to such collaborations, as well as to interact with the other members of the group. The candidate is expected to have a strong background on the TDDFT treatment of plasmonic systems.

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Evaluation results will be communicated to the candidates soon after. The position will only be filled if a qualified candidate is found.

## DIPC research assistantship

The Donostia International Physics Center DIPC is currently accepting applications for a six months research assistantship under the title “Thermal and dielectric properties of cement-based materials” (*Ref. 2018/9*).

**The aim of this project is to obtain new cement clinkers starting from MW active raw materials along with the development of a new theoretical framework for the description of the complex dielectric function of ceramic and cements at high temperatures.**

The study includes the characterization of the induced structural changes that take place in the samples heated by MWs heating along with the investigation of the reactivity of the eventually formed cement clinkers. In parallel, a theoretical approach will be carry out to predict by atomistic simulations and coarse-grained models, the thermal and dielectric properties of the cementitious phases.

**We are looking for a motivated candidate with high expertise in physical properties of materials and strong background in cement modelling and characterization. Previous experience on MW clinkerization procedures will be very much appreciated.**

Interested candidates please send an updated CV including an academic transcript with the obtained marks, a brief statement of interest, and contact information to [postdoc@dipc.org](mailto:postdoc@dipc.org). Reference letters are welcome but not indispensable.

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- Adequacy of the candidate’s scientific background to the project (40%)
- 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. The position will only be filled if a qualified candidate is found.