

EUROPHOTONICS PhD fellowships at ICFO

The Institute of Photonic Sciences (ICFO) is a center based in Barcelona (Spain), devoted to the research and education of the optical and photonic sciences, at the highest international level.

ICFO is currently participating in the Joint Doctorate Program EUROPHOTONICS in Photonics Engineering, Nanophotonics and Biophotonics together with the following institutions: Institut Fresnel - Paul Cézanne Aix Marseille III University (FRANCE), KSOP-Karlsruhe School of Optics & Photonics – KIT- Karlsruhe Institute of Technology (GERMANY), UPC-Universitat Politècnica de Catalunya (SPAIN) and LENS-European Laboratory for Non-Linear Spectroscopy- Università degli Studi di Firenze (ITALY).

The EUROPHOTONICS PhD program is based on a consortium of excellence research institutes and universities in the field, which goal is to involve doctorate students in cutting-edge research projects profiting from the complementarity between the partners. The trainees will receive a wide range of research training and complementary skills, including fundamental and general sciences, technology, languages and communication, research and industrial management, technology transfer, career exploratory support, international meetings, workshops and conference participation.

In direct co-supervision with Prof. Francesco Pavone (LENS, Italy) ICFO is offering the following project:

PhD project: Effect of hydrodynamic forces in integrin mediated leukocyte arrest and migration

Supervisor: Prof. Maria Garcia-Parajo, Single Molecule Biophotonics group

Project description: Single molecule fluorescence techniques have been used extensively in the last years to study amongst others, spatiotemporal organization of receptors and lipids in living cells. So far, perturbation of the passive system is achieved by biochemical means, i.e., ligand activation, drug perturbations etc. Yet, recent literature in the field indicates that cells are sensitive to mechanical stimuli. For instance, cells of the immune system are subject to constant shear-forces and mechanical stress during their processes of adhesion and migration. The goal of this project is to dissect the role of hydrodynamic forces in integrin-mediated leukocyte adhesion and migration. For this we will apply single molecule fluorescence techniques combined with an *in-vitro* flow chamber to emulate physiological shear-stress conditions. The project will focus on receptor (integrin) and cytoskeleton rearrangement and dynamics as well as potential altered recruitment of intracellular signalling molecules under the influence of external forces.

Eligibility

Candidates must hold an internationally-recognized master's degree (or evidence of its completion in the nearest future) preferably in Biophysics or Photonics. The candidate should have a proven track record of excellence in academics and research. Experience in single molecule detection techniques or applied optics to biophysics is highly desired.

Application (important):

Applications should be performed through the EUROPHOTONICS website: www.europhotonics.org. and to icfojobs@icfo.es

For further information please contact: maria.garcia-parajo@icfo.es

Application Deadline: 23th January 2012