



OPEN POSITION FOR PHD STUDENT FOR 3 YEARS AVAILABLE! ITN MARIE CURIE

Universitat Politècnica de Catalunya (UPC), Terrassa (Barcelona, Spain) has an open position for an **Early Stage Researcher (ESR) to pursue a PhD degree**, funded for a period of **36 months**.

The project entitled Advanced BiomEdical OPTICAL Imaging and Data Analysis (BE OPTICAL)

provides a unique and structured training programme to 14 ESRs in a wide range of optical imaging technologies and signal processing tools, including fluorescence spectroscopy and microscopy, optical coherence tomography, optogenetics, engineered nanomaterials and signal processing tools.

Comprising 7 leading academic groups and 2 non-academic partners in 5 European countries, the project **BE OPTICAL** brings together an interdisciplinary team of physicists, engineers and medical doctors, with complementary expertise in optical imaging, nanotechnology, computer science, complex systems and data analysis. The non-academic partners are a leading company in fluorescence instrumentation and an internationally recognised ophthalmology clinic, with the most advanced technology and expertise in ocular diseases.

The training programme will provide the ESRs with a broad understanding of how a wide range of optical imaging technologies and data processing tools work, and will open for them a wide range of job opportunities. The ESRs will apply this knowledge to advance the early diagnosis of highly significant diseases. The ESRs will also gain insight into clinical studies of novel imaging technologies and the commercialization process, which will further improve their employability.

Place of Work

The Early Stage Researcher will be registered as a PhD student and **employed at Universitat Politècnica de Catalunya (<http://www.upc.edu>) with full employee benefits**. The ESR will join **Optical Engineering Research Group at CD6 (Centre for Sensors, Instruments and Systems Development) (<http://cd6.upc.edu>)** and will be supervised by **prof. Dr M. Vilaseca and J. Pujol**. He/she will work closely with other BE-OPTICAL researchers at Nicolaus Copernicus University (NCU), Toruń, Poland and Ocular Microsurgery Institute (Spain) with secondment visits to these partners.

The ESR hosted by UPC will **develop a novel fast hyperspectral imaging system based on light-emitting diodes (LEDs) for the dynamic recording of the ocular fundus enabling the detection and follow-up of ocular diseases by means of new diagnostic tools.**

The goal is minimizing the number of shots needed for the whole hyperspectral acquisition to obtain video images of the ocular fundus. Different strategies to speed up the acquisition process will be considered, as a means of decreasing motion artifacts because of the eye movements. An aberrometer and Adaptive Optics elements will be also included to increase lateral resolution. An accurate optical design will be carried out in order to make the system as compact as possible. Software routines will be implemented to control the system developed. Algorithms for the improvement of diagnosis will be implemented. The system will be tested in a clinical setting.

Requirements

The applicant is required to satisfy the eligibility criteria for ITN-ETN - Training Networks Early Stage Researchers, i.e.:

- must be within the first four years (full-time equivalent) of their research career and not have a doctoral degree;
- must not have resided or carried out their main activity (work, studies, etc.) in Spain for more than 12 months in the three years immediately prior to the recruitment.

The applicant will also be expected to have a MSc (or equivalent) undergraduate degree in physics, optics, photonics, electrical engineering or a related discipline.

Applications should include: 1) a CV (publication record is advantageous), 2) scanned copy of Master's degree certificate (or equivalent), 3) a statement of the candidate's research interests, experience and skills, and 4) contact information for at least two references. All materials should be submitted via email to:

Meritxell Vilaseca: meritxell.vilaseca@upc.edu

Do not miss the opportunity! Join us!!