

DC 6: Development of a modular optical system for multiphoton microscopy with light structured illumination and computational adaptive compressive strategies.



Project Description: the main objective of the DC will be to develop a modular optical system for multiphoton microscopy with light structured illumination and computational adaptive compressive strategies. In collaboration with other doctoral candidates of the network, the candidate will integrate adaptive optics techniques in the illumination stage of the optical system, will integrate machine learning approaches for data analysis and adaptive measurements and will apply the system for imaging of biological tissues by using phantoms.

Expected Results: Prototype of an optical system for wide-field multiphoton microscopy with optimized light structured illumination and computational adaptive compressive strategies. New algorithms for adaptive sampling with light structured illumination and image reconstruction providing high resolution in short measurement times. Performance assessment and validation of the system with phantoms adapted for multiphoton microscopy mimicking the optical properties of biological tissues.

Requirements

- Internationally recognised master-equivalent degree in fields of science or engineering related with optics or photonics. The degree must be completed by the start of the PhD at UJI.
- Degrees issued within the European Higher Education Area (EHEA) must have an equivalent to 300 ECTS, out of which a minimum of 60 ECTS must have been obtained in postgraduate studies.
- Excellent academic record, previous research experience, and a strong commitment for scientific research.
- English working knowledge

Host Institution: UJI (Castellón de la Plana, Spain)

Supervisor: Prof. Jesus Lancis

Estimated gross allowance: 30,876 €/year (3.5% increase on an annual basis)

PhD awarding institution: UJI

Secondment 1

Partner: VIALUX
Supervisor: Dr. Jens Kümmel

Secondment 2

Partner: CNR
Supervisor: Dr. Stefano Bonora

Secondment 3

Partner: CWI
Supervisor: Dr. Felix Lucka

Secondment 4

Partner: FYLA
Supervisor: Dr. P. Pérez Milan

Planned Starting Date: 01/11/2023 **Application Deadline:** 15/05/2023

Contact: lancis@uji.es