ESR 8 Information Sheet

Project title: Multimodal nonlinear imaging for clinical diagnosis in combination with laser tissue ablation for selective tissue removal

Host institution/company: GRINTECH GmbH Jena (Germany).

Supervisors
- *Academic:* Prof. Dr. Juergen Popp, Scientific director Leibniz-Institute of Photonic Technology (Leibniz-IPHT) and head of research department Spectroscopy / Imaging at Leibniz-IPHT.
- *Industrial:* Dr. Bernhard Messerschmidt, Grintech GmbH (Germany)

Type of contract: 36-months full-time research grant within the PHAST-ETN project.

Brief description of the project: The micro-optics company GRINTECH focuses on research and development of innovative micro-optical imaging systems, especially endomicroscopic probes for multimodal imaging in clinical diagnostics and preclinical research. These modalities include optical coherence tomography, fluorescence microscopy, multiphoton and CARS endomicroscopy as well as Raman spectroscopy. The ESR project will work on the conception, optical and mechanical design of micro-optical modules for multimodal endomicroscopy and spectroscopy. Beside this, the studies will include optical qualification of the developed micro-optical components by confocal imaging tests, interferometry, Shack-Hartmann sensors, and assembly technologies of the micro-optical imaging systems and their optical qualification close or in the final application. Assisting partner will be Leibniz-IPHT (ESR7) in the final assembly of a clinically usable endomicroscopic and spectroscopic probes.

Planned secondments at Leibniz-IPHT Jena (Germany) and Medical University Vienna (Austria)

Qualifications
Essential
- Applicants should hold or expect to attain, as a minimum an MSc in Physics, Chemistry, Optics/Photonics or related area.

Knowledge and Experience
Essential
- A demonstrated knowledge of at least two of the following: optical spectroscopy / microscopy and their application in biomedicine, photonics / optics, laser physics, optical design, nonlinear optics, electronics, technical programming language (Labview, Python or R), image analysis.

Desirable
- Research project carried out in at least one of the above disciplines.

Skills and Competencies
Essential
- Applicants whose first language is not English must submit evidence of competency in English,
- Evidence of interest, aptitude and research experience in the above disciplines.

Further information
For any informal queries, please contact Dr. Bernhard Messerschmidt by email at messerschmidt@grintech.de.

For queries relating to the application and admission process please contact phast-etn@unipr.it. Website: http://www.phast-etn.eu