Job Title: Postdoc

Position available from: April 2020

Using a novel integrated sensor platform for multimode fiber-based endoscopy.

The SuperPixels project revolves around developing and using an integrated sensor platform that allows us to detect and fully transform an optical field. In the SuperPixels project, the integrated photonics device is based on a mesh of several hundred Mach-Zehnder interferometers, which can be used to dynamically map phase and polarization, with the ability to fully transform any optical field incident on the device.
See https://www.superpixels.org/

We are seeking a post-doc to join a strand of the SuperPixel project that works on developing imaging methods for multimode fiber endoscopes for minimally invasive deep tissue imaging. Such fiber endoscopes are traditionally based on adaptive optics approaches, but here we will test the use of the SuperPixel sensor platforms for tasks such as fiber calibration, particle tracking and image recovery. For more information about the fiber endoscopy efforts see http://isibrno.cz/en/complex-photonics

The complex photonics group is based in the Institute of Scientific Instruments (ISI) of the CAS in Brno, Czech Republic. The group combines expertise in wave-front shaping technologies, fibre optics, and bio-imaging with expertise in neuroscience in an effort to introduce new imaging modalities deep inside living organisms. The research is carried out by a team of, currently, 14 people. The group is located in newly refurbished premises of the ISI, featuring a spacious optics laboratory, access to mechanical workshops, and a small-animal facility. The institute additionally carries out research in the fields of electron microscopy, microphotonics, high power laser applications (cutting, welding), biomedical imaging (NMR, signal processing) and coherent optics for metrology.

Candidates should have research experience in the general area of photonics, preferably with experience in optical imaging or spectroscopic methods and instrument construction. In addition to the experimental (optics related) lab work, the candidate must be willing to program for both instrument control and simpler modelling tasks.

Essential:
- PhD in physics/engineering or similar with a focus on experimental optics or imaging
- Very good experimental skills
- Experience with building optical setups
- Ability to work independently as well as in teams
- Good communication skills
- Very good English in speech and understanding.

Desirable:
- Experience with complex instrument construction
- Knowledge of programming for instrument control (Labview / Matlab / Python /…)

The postdoc position is offered for the duration of 2.5 years.

Responsibilities:
- Undertake assigned research activities
- Contribute to publications in high quality research journals
- Present work at local and international conferences.
- Assist with project administration such as report writing.

Application Requirements:
Applicants must include with their application:
- Cover letter outlining the candidate's suitability for the role.
- Curriculum Vitae, including overview of past research activities, and list of publications
- Names and contact details of two referees. If you prefer us not to contact the referees until after a potential interview, please indicate this.

Contacts: Informal inquires can be directed to Johanna Trägårdh, johanna@isibrno.cz .