Post-Doctoral Researcher

Endoscopic OCT/Raman Multi-modal Imaging for *in situ* Colorectal Cancer Diagnosis

Gisela and Erwin Sick
Chair of Micro-Optics
Prof. Hans Zappe

Research Area
Endomicroscopy
Medical Imaging

Relevant Tasks
☒ Optical experiments
☒ Test setup development
☒ Device characterization
☐ Material characterization
☒ Optical simulations
☐ FEA simulations
☒ Clean room fabrication
☒ CAD/CAM
☒ 3D Micro/Nano printing
☐ Polymer fabrication
☐ Programming
☒ Analytical analysis / Theory
☒ Literature research
☒ Teaching

Eligible Departments
☒ Microsystems technology
☒ Mechanical engineering
☒ Process engineering
☐ Chemistry
☒ Physics
☐ Electronics and IT
☐ Computer science
☐ Industrial engineering

Starting Date
01.04.2020

Contact Person
Dr. Çağlar Ataman
Room: 102 02-075
Tel: 0761/203-7572
caglar.ataman@imtek.de

We are looking for a talented and motivated post-doctoral researcher to work in the field of multi-modal endoscopic imaging systems targeting optical detection of tissue pathologies without the need of traditional biopsy. The project will be carried out in coordination with a large consortium comprising leading European academic, clinical and industrial partners, with funding provided by the Horizon2020 program. The final goal of the project is the development and clinical validation of a radially imaging multi-modal endomicroscope capable of Optical Coherence Tomography and Raman Spectroscopy measurements.

In the initial phase of the project, the candidate is expected to perform a detailed optical and mechanical system design in collaboration with the project partners. In addition to the endoscopic imaging optics, accompanying image acquisition and processing methods will also be developed within the project. A biocompatible and autoclavable endoscope packaging strategy will be implemented with a medical device manufacturer to ensure compatibility with the related medical device standards. Once the endoscope system is completed, the candidate will also take part in the documentation on medical device regulations and clinical experiments to demonstrate the performance of the entire system in a clinical environment.

University of Freiburg offers a competitive and international research environment at the epicentre of the beautiful Black Forest region. Here you will find a friendly work environment with state-of-the-art infrastructure, and a rich social life of traditional German University City. The duration of the position is 2 years with 100% employement following the DFG guidelines.

Qualifications:
Candidates with a PhD degree (or equivalent) in electrical or microsystems engineering, alternatively physics or mechanical engineering with a background in optics are welcome. Proven proficiency in written and spoken English is a must; German is a strong plus.

Application procedure:
The application should be sent by e/mail and be attached as pdf-files, as below:

- CV: (Please name the document: CV_Family name)
  - CV
  - Two references that we can contact.
- Cover letter: (Please name the document as: Cover letter_Family name)
  - 1-2 pages where you introduce yourself and present your qualifications.
  - Previous research fields and main research results.
  - Future goals and research focus.
- Other documents (if available):
  - Copies of MSc and PhD theses.
  - Attested copies and transcripts of completed education and other certificates, eg. TOEFL test results.