The *Laboratory of Measurement and Sensor System Technique (MST)* offers a position as

Research Associate: Adaptive Quantum Imaging

+++ Interferometry with non-detected Light +++ Wavefront Manipulation +++ Microscopy +++

The position offers the chance to obtain further academic qualification (Ph.D. / Dr. rer. nat. / Dr.-Ing. / habilitation).

As part of your research, you will investigate the effect of induced coherence in a nonlinear Michelson interferometer towards application in the microscopy of biological samples. Entangled photon pairs of different wavelengths generated by spontaneous parametric down-conversion will be used to illuminate a sample with infrared light, while detection will occur solely with visible photons that do not interact with the sample. You will implement components and methods for wavefront shaping to enable depth-resolved measurements ("point-spread-function engineering"), correct aberrations and investigate the fundamental imaging properties.

Your tasks:

- realization of a nonlinear interferometer using spontaneous parametric down-conversion
- modification of the point-spread function for depth-resolved microscopy
- investigation of strategies for aberration correction using adaptive optical elements
- investigation of imaging and measurement properties
- realization of a microscope platform and application at biological samples
- publication of your research results in international scientific journals

We offer:

- an ambitious, interdisciplinary and burning research issue
- an own research project with equipment and travel funds
- modern laboratories with state-of-the-art equipment
- creative possibilities and room for self-development and own research interests
- an interdisciplinary and international research team
- visits of international conferences
- contacts to excellent partners from research & industry

Your requirements: Above-average university degree in physics or electrical engineering or similar studies; ability for working autonomously and goal-driven; great commitment, analytical thinking and high level of English language; taking joy in practical work and basic research together with cooperation partners.

Please direct topical questions to Lars Büttner (e-mail lars.buettner@tu-dresden.de, phone +49 351 463 35314). Submit your comprehensive application including the usual documents preferably as a single pdf file by mail to: **grp-mst-sekretariat@msx.tu-dresden.de** .

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