Karlsruhe Institute of Technology

CALL FOR PHD POSITIONS

Department/Institute: Institute of Applied Physics (APH)

Research Field: Optics and Photonics/ Fluorescence Imaging/ Biophysics

Contact person/Mail address: Prof. Dr. G. U. Nienhaus, Institute of Applied Physics, Karlsruhe Institute of Technology (KIT), Wolfgang Gaede Strasse 1, 76131 Karlsruhe, Germany

Research Area/Description:

Research in our group focuses on the design, construction and application of most advanced, quantitative fluorescence -based optical imaging techniques to study biomolecular interactions in living systems at the highest achievable spatial and temporal resolutions. A wide range of advanced fluorescence microscopes are available at the institute, including super-resolution STED and localization microscopy (PALM/STORM), digital light sheet microscopy (DSLM), spinning disk confocal as well single-molecule confocal and TIRF microscopes. These setups are mostly home-built and, therefore, can be adapted to the specific requirements of the experiments. We have also utilized fluorescence fluctuation spectroscopy for many years to study fast processes that cannot be captured by imaging. Recently, we have developed STED-RICS, a method to reveal biomolecular dynamics in live cells from raster scanned STED images. All our experimental devices are continually being improved and adapted to the specific needs of our biological imaging experiments. We are also engaged in the development of fluorescence marker technology, fluorescent dye labelling, fluorescent protein engineering and nanocrystal development.
This research is carried out by an interdisciplinary team of physicists, chemists, chemical biologists, biochemists and (biomedical) engineers.

Specific Requirements:

For Ph.D. candidates in quantitative optical microscopy development and application: Master's degree in Physics, biophysics, (bio-)engineering, physical chemistry or related disciplines, with a strong background in quantitative approaches, optics/ photonics and computer programming.

For Ph.D. candidates in biomarker and nanostructure/nanoparticle development: Master's degree in chemistry, biochemistry, nanosciences or related disciplines.

Work Place: Institute of Applied Physics, KIT, Karlsruhe

Earliest Start: Early 2016

Language Requirements: Excellent command of the English language (spoken and written).