

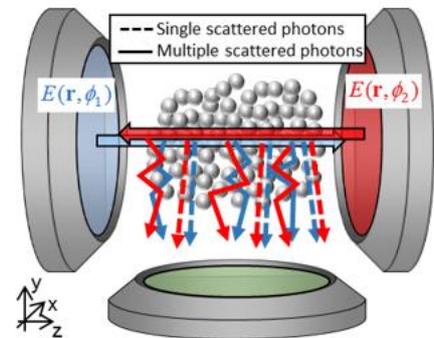
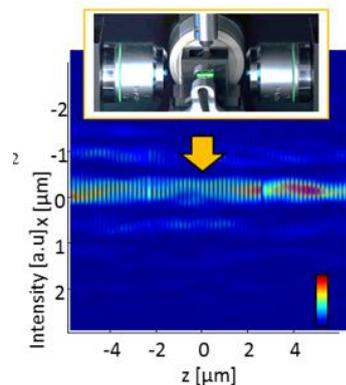
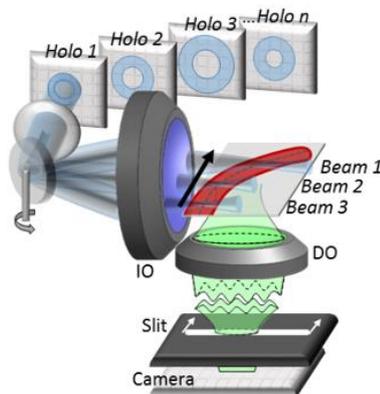
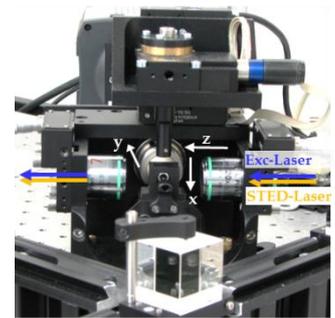
Open PhD or Post-Doc Position

Topic:

Adaptive interferometric light-sheets for resolution enhanced imaging with and without fluorescence

In a project funded by the DFG, we will continue our research on light-sheet microscopy using scan beams which are modulated dynamically by computer holograms.

Goal: The proposal concentrates mainly on novel illumination concepts in space and time and only secondarily on novel detection schemes. The goal is to further improve spatial resolution and contrast of 3D imaging in scattering media. It is designed for two researchers, where one part is based on fluorescence excitation and the other part investigates label-free imaging.



Light-sheet microscope using adapted sectioned Bessel beams, generated by a spatial light modulator. Simulated standing wave of two counter propagating Bessel beams in an inhomogeneous medium. Computer simulations and proof of principle experiments for coherent 90° imaging.

Project A will explore the limits of modulated illumination light-sheet microscopy with counter propagating Bessel beam arrays for fluorescence imaging. **Project B** will transfer the concept of Rotating Coherent Scattering (ROCS) to light-sheet microscopy and explore the limits of 3D image formation with purely scattered light.

Qualifications and Requirements: We seek motivated physicists/engineers with a strong background in experiments and theory in microscopy & optics. The candidates (salary: PhD 3.5 yrs 66% E13, Post-Doc 2.5 yrs 100% E13) will design novel instrumentation, perform advanced experiments, theoretical calculations and computer simulations to better understand complex paths of correlated and uncorrelated photons propagating through scattering media. The candidate will give tutorials and will participate at several scientific conferences. She/he should have an very good MSc in physics or engineering, as well as German or English language proficiency at level B2 or higher.