



Seminar: Optics/Photonics SoSe 2017

Hot Topics in Theory and Experiment

P32, Advanced Optical Sciences (2SWS, **MSc Optical Sciences**)

P24.4c Optik/Photonik: Projekt und Seminar

(1SWS, **MSc Physik**, Spez. Optik/Photonik, SO 2016)

In this seminar, we introduce and discuss modern concepts in optics and photonics. Each talk will focus on a recently published research highlight. All presentations are in English, but we allow for German as exceptions as well.

Time and date: Mondays 13-15 Uhr in NEW 15, 3'101.

The first meeting with introduction and distribution of the topics is Monday, 24.04., 13:15 Uhr in NEW 15, 3'101.

Selection of possible topics :

- Calculating photoionization spectra of atoms and molecules using non-hermitian quantum mechanics
- Quantum simulators based on ultracold atoms in optical lattices
- Accelerator based sources for soft and hard x-rays
- X-ray methods for mapping ultrafast structural dynamics
- Entangling solid-state quantum systems for quantum interfaces
- Strong coupling to surface plasmon polariton
- Forces between objects immersed in the quantum vacuum
- Effects due to the motion through the quantum vacuum
- Discontinuous Galerkin Methods in Nano-Photonics
- Noise-assisted quantum transport
- Integrated photonic quantum walks
- Fundamentals and Applications of Induced Quantum Coherence
- Microresonator Sources of Photon Pairs
- Laser Induced Breakdown Spectroscopy for Planetary Exploration
- High Resolution Terahertz Spectroscopy with Quantum-Cascade Lasers
- High harmonic generation in atoms and molecules
- High harmonic generation in transparent solid state materials