



Einladung

Es spricht: **Dr. Andreas Nunnenkamp**
University of Cambridge

Zeit: **Mittwoch, 18. November 2015, 15:00Uhr**

Ort: **Technische Universität Berlin
Institut für Festkörperphysik
Hardenbergstraße 36, 10623 Berlin
Raum EW 431**

Thema: **"Quantum science and technology with
cavity optomechanical systems"**

Abstract:

Cavity optomechanics is a rapidly-growing field in which mechanical degrees of freedom are coupled to modes of the electromagnetic field inside optical or microwave resonators. Adapting laser-cooling techniques from atomic physics several experiments have recently observed mechanical motion close to the quantum ground-state. This paves the way to exploit these systems for the engineering of phonon and photons at the nanoscale with exciting, novel applications for science and technology [Phys. Today 65, 29 (2012)].

Along this line of thought, I will give an overview of some recent research highlights and an outline of future directions. First, I will show how to employ cavity optomechanics to study synchronization in the simple quantum-mechanical scenario of one self-sustained oscillator coupled to an external drive [PRL 112, 094102 (2014)] and two coupled self-oscillators [Ann. Phys. 527, 131 (2015)]. As an example of how to use mechanical systems in quantum technology, I will present results of a collaboration with experimentalists in Basel demonstrating that cantilever motion can strongly drive a single Nitrogen-Vacancy center spin [Nat. Phys. 11, 820 (2015)].

Gäste sind herzlich willkommen!
Prof. Dr. S. Reitzenstein