

## Einladung zum Sonderseminar

**Donnerstag, 24.08.2017, um 10:00 Uhr**

**Raum 46-387/388**

**Dr. Anna Persson**

University of Lund, Schweden

### **Time-resolved x-ray diffraction of nanostructured samples**

The presentation will be focused on the work I did as a PhD-student. Samples based on single crystalline indium antimonide (InSb) were studied in a pump-probe configuration using short laser pulses as the pump and x-rays as the probe. Laser excitation leads to the formation of a strain pulse that propagates through the sample. The strain pulse gives rise to coherent longitudinal, acoustic phonons, which were probed with the x-rays. For the first study I was involved in, the generation of coherent acoustic phonons was used to study the speed of sound in InSb nanowires, but my main projects were based on an optoacoustic transducer (a 150 nm nickel film deposited on bulk InSb). It was used to modify the acoustic phonon spectrum by laser excitation of the nickel film that led to a train of strain pulses in the InSb. This type of sample was also used to study electron diffusion in nickel (and to some extent gold). The strain pulse generated in the metal film was studied as it entered the InSb. The shape of the strain pulse is sensitive to how far the electrons diffuse before the electron-phonon system reaches equilibrium and by simulations the electron-phonon constant could be deduced. The time-resolutions in the experiments were between 3 and 20 ps.

Der Gast wird betreut von JProf. Dr. B. Stadtmüller

**GÄSTE SIND HERZLICH WILLKOMMEN!**