



### Einladung

Es spricht: **Dr. Mike Smith**  
University of Sydney

Zeit: **Donnerstag, 30. Juni 2016, 10:00 Uhr**

Ort: **Konrad-Zuse-Institut  
Takustraße 7, 14195 Berlin  
Raum 3028**

Thema: **„Finite element method solutions for photoelasticity and Stimulated Brillouin scattering in structured media“**

#### Abstract:

Photoelasticity is an opto-acoustic material response that describes how the permittivity of a material changes in response to an induced mechanical strain. It plays a pivotal role in Stimulated Brillouin scattering (SBS); a nonlinear opto-acoustic process where an incident optical pump field excites an acoustic wave inside the material. All materials exhibit some degree of photoelasticity, however the strength varies from one material to the next (which in turn influences the SBS properties of the material). Despite the fact that numerous procedures exist to describe the linear acoustic and electromagnetic properties of structured materials, there are no established procedures for obtaining the photoelastic tensor of a structured material.

I will outline a conceptually simple theoretical method for determining the photoelastic tensor of a composite material, using a combination of conventional perturbation theory and energy density methods. This tensor is then used to determine the SBS properties of nanostructured materials. A technical discussion of the FEM implementation in COMSOL will be included.

Gäste sind herzlich willkommen!  
Prof. Dr. F. Schmidt