

Fakultät für Mathematik



Mathematisches Kolloquium

EINLADUNG

Prof. Dr. Kim Knudsen

(Denmarks Tekniske Universitet)

**“High Definition Impedance Tomography via
Acoustic Modulation”**

Anschließend vinum cum pane

“High Definition Impedance Tomography via Acoustic Modulation”

Abstract:

The inverse problem in Electrical Impedance Tomography (EIT), mathematically known as the Calderon problem, is known to be extremely ill-posed, and hence any reconstruction from noisy data suffers from low resolution and low contrast. Recently new ideas have emerged that appear to resolve the issues by utilizing interior information that in principle can be computed using so-called hybrid data from other imaging devices. One such combined tomographic modality is known as Acousto-Electric Tomography and makes use of both ultrasonic waves and EIT simultaneously. The combination the physical waves gives rise to new and challenging mathematical questions of both theoretical and computational nature. In this talk the basic difficulties in EIT will be discussed and the mathematical problem of Acousto-Electric Tomography (and similar kinds) will be introduced. The fundamental questions will be posed and (partially) answered. In particular we will through numerical examples discuss some recent results regarding the stability and instability of the reconstruction problem.

**Zeit: Mittwoch, 13. Jänner 2016
15.45 Uhr Kaffeejause,
16.15 Uhr Vortrag**

**Ort: Fakultät für Mathematik,
Oskar-Morgenstern-Platz 1,
Sky Lounge**

Otmar Scherzer
Harald Rindler