



Mathematisches Kolloquium

Am Freitag, dem 27. November 2015 spricht um 14 Uhr c. t. im Hörsaal IV der Fachrichtung Mathematik (Gebäude E24)

Prof. Dr. Bastian von Harrach
Goethe Universität Frankfurt

über das Thema:

Inverse problems and medical imaging

Abstract: Medical diagnosis has been revolutionized by noninvasive imaging methods such as computerized tomography (CT) and magnetic resonance imaging (MRI). These great technologies are based on mathematics. If the patient's interior was known then we could numerically simulate the outcome of physical measurements performed on the patient. Medical imaging requires solving the corresponding inverse problem of determining the patient's interior from the performed measurements.

In this talk, we will give an introduction to inverse problems in medical imaging, and discuss the challenges in newly emerging techniques such as electrical impedance tomography (EIT), where electrical currents are driven through a patient to image its interior. EIT leads to the inverse problem of determining the coefficient in a partial differential equation from (partial) knowledge of its solutions. We will describe recent advances on this problem that are based on monotonicity relations with respect to matrix (resp. operator) definiteness and the concept of localized potentials.

Der Gast wird von Prof. Dr. Thomas Schuster betreut.

Alle Interessenten sind zum Vortrag herzlich eingeladen.

Kaffee und Tee ab 13.45 Uhr im Konferenzraum der Mathematik (Erdgeschoss, Raum 103)

Die Dozenten der Mathematik