

Einladung

Würzburger Mathematisches Kolloquium

Julius-Maximilians-Universität Würzburg • Institut für Mathematik

Angkana Rüland

Universität Bonn

On Instability Mechanisms in Inverse Problems

Dienstag, 17. Dezember 2024 • 14:15 Uhr

Seminarraum SE41 • Humboldt-Bau (Emil-Fischer-Straße 41, 97074 Würzburg)

Der Vortrag wird auch als Zoom-Meeting übertragen: go.uni-wue.de/ifmcolloquium-zoom

Abstract. Many inverse problems are notoriously ill-posed, leading to very ill-conditioned reconstruction schemes. In this talk, I will discuss three mechanisms behind the ill-posedness in inverse problems based on mapping properties of the associated forward operators and a robust functional analytic framework based on capacity and entropy numbers. More precisely, I will discuss analytic regularization, a minimal amount of elliptic regularization and only microlocal regularization as underlying mechanisms. Examples include the ill-posedness of the backward heat equation, of the Calderón problem as well as of the (geodesic) X-ray transform. This is based on joint work with Mikko Salo (Jyväskylä) and Herbert Koch (Bonn).

