

# Universität zu Köln

Department Mathematik/Informatik  
Prof. Dr. Angela Kunoth



## Einladung zum Oberseminar Numerische Analysis

**Am Montag, 15.06.2026 um 12:00 Uhr, im Seminarraum 2 (Raum 204)**  
der Abteilung Mathematik, Weyertal 86–90, 50931 Köln, spricht

**Melissa Lange**

zum Thema Ihrer Masterarbeit

### **On Optimal Transport Applied to Seismic Inverse Problems**

Seismic imaging aims to reconstruct Earth's subsurface by solving an inverse problem from surface measurements. In full waveform inversion (FWI), seismic waves propagate through Earth's layers, where they are refracted and reflected before being recorded at the surface. These measurements are used to estimate the subsurface velocity field, which determines wave propagation. In this talk, the forward problem is modeled by the acoustic wave equation, and FWI is formulated as an optimisation problem for the velocity parameter. A central challenge is the choice of misfit function between simulated and measured data. While the standard  $L^2$ -norm often suffers from local minima, this talk uses the Wasserstein metric from optimal transport theory as an alternative misfit measurement.

Interessenten sind herzlich eingeladen.

Angela Kunoth