

Group Seminar

Inverse Problems and Mathematical Imaging

Parameter identification for the Landau-Lifshitz-Gilbert equation in Magnetic Particle Imaging

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Abstract

Magnetic particle imaging is a new imaging modality for medical applications. The technique takes advantage of the response of the nanoparticles to an oscillating magnetic field to construct their spatially dependent concentration. Aiming at determining a sufficiently accurate model for the system function to avoid slow calibration process, we use a model from micromagnetism governed by the Landau-Lifshitz-Gilbert equation and consider parameter identification in it. The problem is investigated in two different settings: An all-at-once and a reduced version.

Authors: Barbara Kaltenbacher, Tram Thi Ngoc Nguyen, Anne Wald, Thomas Schuster