

Veranstaltungen im Sommersemester 2022

Das sechsenddreißigste Treffen des Rhein-Main Arbeitskreises findet

Freitag, den 8. Juli 2022, ab 15:00 Uhr

an der

[Universität Mannheim](#)
[Fakultät für Wirtschaftsinformatik und Wirtschaftsmathematik](#)

B6 26

D-68159 Mannheim

im **Raum B6 A 0.01** (Großer Hörsaal im EG; Zugang über Drehtür und Foyer) statt.

Programm

15:00 Uhr: [Dr. habil. Patrick Mehlitz \(Brandenburgische Technische Universität Cottbus-Senftenberg & Universität Mannheim\)](#)

Theory and numerics for structured nonconvex optimization problems

This talk is concerned with the theoretical and numerical treatment of structured nonconvex optimization problems where a merely lower semicontinuous function has to be minimized over a feasible region modeled by geometric constraints. Such programs represent several prominent real-world applications in the fields of, e.g., low-rank or sparse optimization, robust optimization, disjunctive optimization (covering models with complementarity- or switching-type constraints), and signal processing. We start by showing that despite the potential discontinuity of the objective function, local minimizers of such problems satisfy certain approximate stationarity conditions in terms of some suitable generalized derivatives. This gives rise to the formulation of a comparatively weak qualification condition called asymptotic regularity whose validity even guarantees stationarity of local minimizers in classical sense. Afterwards, an algorithmic application of asymptotic stationarity and regularity in the context of multiplier-penalty-methods is investigated. Results of some numerical experiments addressing cardinality-constrained optimization problems, MAXCUT problems, and low rank matrix restoration illustrate the method.

The talk is based on joint work with Alberto De Marchi (München, Germany), Jia Xiaoxi (Würzburg, Germany), Christian Kanzow (Würzburg, Germany), Alexander Y. Kruger (Ballarat, Australia), and Gerd Wachsmuth (Cottbus, Germany).

15:45 Uhr: Tee/Kaffee

16:15 Uhr: [Dr. Sarah Eberle \(Goethe-Universität Frankfurt am Main\)](#)

Monotonicity-based methods for solving inverse problems of linear elasticity

The main motivation of this problem is the non-destructive testing of elastic structures for material inclusions. In doing so, we deal with the rigorously proven theory of the monotonicity-based methods developed for linear elasticity with the explicit application of the methods, i.e.,

the implementation and simulation of the reconstruction of inclusions in elastic bodies for both artificial and experimental data. More specifically, we give an insight into the monotonicity-based methods and introduce a lab experiment. Further on, we present our reconstructions based on experimental data and compare them with the simulations obtained from artificial data. Finally, we take a look at resolution guarantees.

17:00 Uhr: [Prof. Dr. Christian Rieger \(Universität Marburg\)](#)

Kernel-based surrogate models in Bayesian inverse problems

In this talk we will discuss the interplay between Bayesian inverse problems. Besides the structural similarities, the aspect of surrogate models is often important for practical considerations. Here, we will discuss how kernel based reconstruction methods can be employed in such problems. An important aspect is that those reconstruction methods are supported by rigorous error estimates. Those estimates can be translated in error estimates for the Bayesian reconstruction.

anschließend: Nachsitzung

Informationen zur Anreise finden Sie [auf dieser Seite](#).