

Einladung

zum

Mathematischen Kolloquium

Am Donnerstag, dem 1. Juni 2023, spricht

Herr Rami Katz,

Post-doctoral researcher mentored by Prof. Michael Margaliot

Tel Aviv University, Israel

Gast am Lehrstuhl für Nichtlineare Analysis

und Mathematische Physik

bei Herrn Prof. Dr. Thomas Kriecherbauer

und am Lehrstuhl für Angewandte Mathematik

bei Herrn Prof. Dr. Lars Grüne

über das Thema

*On the accuracy of Prony-type methods for stable spike deconvolution
under sparsity constraints*

Abstract

Sparse super-resolution (SR) is the problem of recovering the amplitudes/nodes of an impulse train from a small number of frequency samples. SR is a nonlinear inverse problem and has numerous applications in harmonic analysis and signal processing. Without measurement noise, exact recovery was proved by Prony in 1795. However, in the presence of noise, Prony's Method (PM) is believed to be ill-conditioned. Recently, optimal theoretical recovery rates for the noisy SR were obtained by an "oracle" algorithm. However, the design of a concrete method which achieves the optimal rates has remained open.

In this talk we will show that PM achieves the optimal minmax rates for the noisy SR and remains numerically stable even in finite-precision arithmetic.

Time-permitting, we will discuss a novel algorithm which combines PM with a recently established decimation technique and numerically attains optimal parameter recovery.

Joint with D. Batenkov and N. Diab from the School of Mathematics at Tel Aviv University.

Beginn: 16.30 Uhr (Kaffee/Tee ab 16.00 Uhr im Seminarraum 748)

Ort: Hörsaal H 19, Gebäude Naturwissenschaften II, Universitätsgelände

gez. J. Rambau