

Einladung zur öffentlichen Defensio

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Thema der Dissertation
**Phaseless sampling of the short-time Fourier
transform**

Abstract: We explore the so-called short-time Fourier transform (STFT) phase retrieval problem, a nonlinear inverse problem that has recently gained considerable attention in both mathematical research and practical applications. The main results of 9 recent research papers are outlined. A central theme revolves around the uniqueness problem when dealing with phaseless samples. Specifically, it addresses the question of whether phaseless samples of the STFT carry enough information to determine functions within infinite-dimensional function spaces. A thorough investigation into this problem is conducted, focusing on five key areas: 1. Examining the limitations of phaseless sampling on lattices; 2. Investigating lattice-based uniqueness within particular function spaces and the numerical techniques for stable reconstruction; 3. Analyzing irregular phaseless sampling and the advantage of employing perturbation of lattices; 4. Exploring the use of multiple windows as an approach to the phase retrieval problem; 5. Investigating the principles of holomorphic phase retrieval and the concept of rigidity in this context.

Prüfungssenat

Univ.-Prof. Mag. Dr. Andreas Cap
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Zeit und Ort

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Morgenstern-Platz 1, 1090 Wien