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FAKULTÄT FÜR MATHEMATIK

Dekan:

Univ.-Prof. Dr. Harald Rindler

Einladung zur öffentlichen Defensio von

Dipl.-Math. Dominik Bayer

Thema der Dissertation:

Bilinear Time-Frequency Distributions and Pseudodifferential Operators

Abstract:

First, an attempt is made to generalize well-known time-frequency distributions, such as the short-time Fourier transform or the Wigner distribution, and integrate them into a unified framework. In particular, the associated pseudodifferential calculi and their properties are investigated and compared to already existing calculi, such as the Kohn-Nirenberg correspondence or the Weyl calculus. The guiding question is which of the rather nice properties of the mentioned calculi carry over to the more general situation.

Second, based on the first part, a specific type of pseudodifferential operators, namely the time-frequency localization operators, are analyzed more closely. Their basic properties, in particular mapping properties of the symbol, are reviewed in a unified way. The connection with the Berezin transform allows to prove new density results of the set of localization operators as subsets of larger classes of operators, for different symbol classes and with respect to different topologies.

Prüfungssenat:

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