Invitation to the Doctoral Seminar

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“Monte Carlo Methods for Dynamical Spectra”

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Abstract

Dynamical spectra, such as Lyapunov and dichotomy spectra, are a standard tool in nonautonomous dynamical systems, as they provide the spectral information needed to determine properties such as asymptotic stability of sets. However, as they are defined through limits of geometric mean sequences, they are difficult to compute in practice.

We present an approach for estimating these spectra based on Monte Carlo sampling. The method approximates finite-time growth rates over randomly sampled windows and uses their limiting distributions to estimate the spectra with uncertainty quantification. We close with practical implementation aspects and early numerical results.

Christian Pötzsche and the Department of Mathematics look forward to seeing you at the talk!