DYNAMICAL RENORMALIZATION GROUP

Volker Bach, Jacob Schach Møller, **Matthias Westrich**

Technische Universität Braunschweig, Aarhus University, McGill University

In this talk we discuss a systematic analysis of the long time dynamics of the massless Spin-Boson Model at zero temperature and restricted to initial states of low field energies. Assuming dilation analytic coupling functions and using an operator theoretic renormalization group - due to [Bach + Chen + Fröhlich + Sigal 2003] - an effective generator on a given timescale for the restricted dynamics is obtained as the unique solution of an implicit operator equation. We provide quantitative bounds on the approximation of the full dynamics. In the weak coupling limit regime, our result reproduces the well known results by Davies. For larger timescales, we discuss how to set up an iteration based on a renormalization of the effective generator.

Keywords: Feshbach Map; operator theoretic Renormalization Group; Resonance Theory