Abstract

Per von Soosten (Technische Universität München)

Non-ergodic delocalization in the Rosenzweig-Porter model

Joint with Simone Warzel

The Rosenzweig-Porter model, which linearly interpolates a random diagonal matrix and the Gaussian Orthogonal Ensemble, has recently received a renewed surge of interest related to the many-body localization transition. In this context, the model provides a very basic example of a non-ergodic delocalized phase, in which eigenfunctions spread to a large number of sites but not uniformly over the entire volume. We prove this phenomenon using martingale estimates along the characteristic curves of a stochastic advection equation satisfied by resolvent.