

OpenQMBP2023: New perspectives in the out-of-equilibrium dynamics of open many-body quantum systems



ID de Contribution: 70

Type: Non spécifié

Dynamics of scrambling of information, from shock waves to Fisher-KPP

Quenched disorder slows down the scrambling of quantum information. I will explain how conventional tools of quantum transport theory can be adapted to derive an effective field theory of scrambling. Specifically, I'll focus on realistic metals with both inelastic and elastic scattering, due to interaction and disorder. I will demonstrate that disorder drives a phase transition in the scrambling dynamics, from shock-wave dynamics to dynamics belonging to the Fisher-KPP class. More generally, this approach can be used to gain insight into the mysterious relationship between transport properties and chaos.

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