

Kolloquium des SFB/TR 49 gemeinsam mit Theoretisch-Physikalischem Kolloquium

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Lindbladians with multiple steady states: theory and applications

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The theory of Lindbladians, one of the simplest extensions of Hamiltonian-based quantum mechanics, is used to describe decay and decoherence of a quantum system induced by that system's environment. Traditionally, an environment is viewed as detrimental to fragile quantum properties. Nevertheless, it offers the ability to drive the system toward exotic phases of matter, which may be difficult to stabilize in nature, or toward protected subspaces, which can be used to store and process quantum information. The latter case (and sometimes the former case) requires the Lindbladian to have more than one steady state. Such Lindbladians (while not generic) are dissipative analogues of Hamiltonian systems with degenerate ground states. However, while Hamiltonians with degenerate ground states have been well-understood for some time, a corresponding treatment of Lindbladians is still underway. In this talk, I aim to provide a snapshot of such a general treatment, reviewing Lindbladian extensions of topics commonplace to Hamiltonian systems as well as presenting some new results in this direction.

Gäste sind herzlich willkommen.

Die Dozenten der Theoretischen Physik