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[169] Signatures of non-Hermitian Dynamical Topology: From short-range to long-range couplings

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Non-Hermitian topological phases of open quantum many-body systems are fundamentally dynamical in nature. This poses a challenge to identify robust signatures of non-Hermitian topology and to characterize critical behavior at topological phase transitions. We show that non-Hermitian topology of a driven-dissipative Kitaev chain becomes manifest in crossings in the entanglement spectrum after a quench. The time scale of these crossings diverges at the topological phase transition, which can be crossed either by changing parameters of the Hamiltonian of the system or by increasing the strength of dissipation. We analyze how this dynamical criticality of the entanglement dynamics is affected by long-range hopping and pairing.

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