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Steady states and dynamics in many-body drivendissipative systems

Many-body systems with both coherent dynamics and dissipation constitute a rich class of models which are nevertheless much less explored than their dissipationless counterparts. The advent of numerous experimental platforms that simulate such dynamics poses an immediate challenge to systematically understand and classify these models. In particular, nontrivial many-body states emerge as steady states under non-equilibrium dynamics. In this talk, I use a systematic approach to study nonequilibrium phases and phase transitions and the dynamics in such models. I show that an effective thermal behavior generically emerges as a result of dissipation. Finally I use this equivalence to make quantitative predictions about the steady-state and dynamical properties of these systems.

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