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Anti-Kibble-Zurek Behavior in the Quantum Dynamics of Thermally Isolated Systems Driven by a Noisy Control Field ARMIN RAHMANI, Western Washington University, ANIRBAN DUTTA, ADOLFO DEL CAMPO, UMass Boston — We show that a thermally isolated system driven across a quantum phase transition by a noisy control field exhibits anti-Kibble-Zurek behavior, whereby slower driving results in higher excitations. We characterize the density of excitations as a function of the ramping rate and the noise strength. The optimal driving time to minimize excitations is shown to scale as a universal power law of the noise strength. Our findings reveal the limitations of adiabatic protocols such as quantum annealing and demonstrate the universality of the optimal ramping rate.

Armin Rahmani
Western Washington University

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