

Abstract Submitted
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Zeno effects from controlled bath interactions¹ JONATHAN MONROE, PATRICK HARRINGTON, KATER MURCH, Washington University, St. Louis — The Zeno and anti-Zeno effects are features of measurement-driven quantum evolution where frequent measurements inhibit or accelerate the decay of a quantum state. Either type of evolution can emerge depending on measurement method and the system-environment interaction. Zeno and anti-Zeno effects are basic examples of quantum control that can arise from dissipative reservoir engineering. In this experiment, we use a superconducting qubit to map out both types of Zeno effects in the presence of structured thermal noise baths and variable measurement rates. We observe both the suppression and acceleration of qubit decay as repeated dephasing measurements modulate the qubit spectrum causing it to sample different portions of the bath.

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