

Abstract Submitted
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Quantum Zeno effect in a strongly measured superconducting qubit D.H. SLICHTER, R. VIJAY, S.J. WEBER, QNL, University of California, Berkeley, C. MUELLER, A. BLAIS, Universite de Sherbrooke, I. SIDDIQI, QNL, University of California, Berkeley — A qubit undergoing strong measurement is continuously projected into an eigenstate of the measured observable. A simultaneous resonant qubit drive will give rise to transitions between qubit states, but the presence of measurement slows the rate of these transitions – a phenomenon known as the quantum Zeno effect. We observe this effect in a transmon qubit using linear circuit QED readout and a near-quantum-limited following amplifier. The experimental measurement record, consisting of a series of quantum jumps between states, is analyzed to extract qubit transition rates. We study the dependence of these rates on measurement strength and qubit drive amplitude and compare with theoretical predictions.

Daniel Slichter
NIST

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