

Abstract Submitted  
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**Superconducting Resonators: Protecting Schrodinger's Cat** JOSE CHAVEZ, PHILIP MAUSKOPF, Arizona State University — Over the past decade, superconducting resonators have played a fundamental role in various novel astronomical detectors and quantum information processors. One example is the microwave kinetic inductance detector that is able to resolve photon energies by measuring shifts in its resonant frequency. Similar resonators have been integrated with superconducting qubits, specifically the transmon, to substantially improve quantum coherence times. The purpose of this investigation is to survey various resonant structures within the requirements of circuit quantum electrodynamics giving special attention to quality factors, TLS noise, and quasi-particle generation. Specifically, planar and three dimensional cavities with varying geometries and materials are characterized - primarily focusing on NbTiN and Nb.

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