

Abstract Submitted
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All-metal superconducting planar microwave resonator¹ MATT HORSLEY, SERGEY PEREVERZEV, JONATHON DUBOIS, STEPHAN FRIEDRICH, DONGXIA QU, STEVE LIBBY, VINCENZO LORDI, GIANPAOLO CAROSI, WOLFGANG STOEFFL, GEORGE CHAPLINE, OWEN DRURY, Lawrence Livermore National Laboratory, QUANTUM NOISE IN SUPERCONDUCTING DEVICES TEAM — There is common agreement that noise and resonance frequency jitter in superconducting microwave planar resonators are caused by presence of two-level systems, or fluctuators, in resonator materials- in dielectric substrate, in superconducting and dielectric layers and on the boundaries and interfaces. Scaling of noise with device dimensions indicate that fluctuators are likely concentrated around boundaries; physical nature of those fluctuators remains unclear. The presence of dielectrics is not necessary for the superconducting device functionality, and one can ask question about properties of all-metal device, where dielectric substrate and oxide films on metal are absent. Resonator made from of thin conducting layer with cuts in it is usually called slot line resonator. We report on the design, fabrication and initial testing of multiple split rings slot line resonator made out of thin molybdenum plate.

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