

Abstract Submitted
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Superconducting Microstrip Resonator for Spin-Based Quantum Processor HAMID REZA MOHEBBI, Institute for Quantum Computing, University of Waterloo, OLAF BENNINGSHOF, TROY BORNEMAN, IVAR TAMINIAU, Institute for Quantum Computing, University of Waterloo, GUO-XING MIAO, Institute for Quantum Computing, University of Waterloo, DAVID G. CORY, Institute for Quantum Computing, University of Waterloo — We report the design and results of a novel superconducting microstrip line resonator for pulsed ESR experiments of thin films. The resonator generates a homogeneous in-plane microwave magnetic field. This resonator consists of an array of superconducting half-wave microstrip transmission lines to achieve high-Q resonance. They are driven via an in-phase splitter and so maintain a resonance at one single frequency. In addition the resonator has a relatively small mode. The performance, sensitivity and small mode volume are demonstrated through our observation of strong coupling and ESR spectroscopy.

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