

Abstract Submitted
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Inductive coupling of superconducting qubits to coplanar waveguide resonators¹ J.D. STRAND, M.P. DEFEO, P. BHUPATHI, C. SONG, M. WARE, B. XIAO, B.L.T. PLOURDE, Syracuse University — Superconducting qubits coupled to microwave resonators provide a promising basis for a scalable quantum computing architecture and enable explorations of circuit quantum electrodynamics. One approach for achieving strong coupling between a qubit and resonator involves sharing the kinetic inductance of a narrow superconducting line. We are investigating different designs for inductively coupling qubits, including capacitively shunted flux qubits, to coplanar waveguide resonators. We are working to optimize the coupling while accommodating the space requirements of different qubit types and preserving the performance of the resonator. We present microwave measurements of these structures as well as modeling of the qubit-resonator coupling.

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