

Multimode cavity QED 1: State preparation and readout
(Ravi Naik, Nelson Leung, Srivatsan Chakram, Yao Lu, Nate Earnest, Peter
Groszkowski Jens Koch, David Shuster),
but before a talk named:
Multimode cavity QED 3: Universal quantum gates
(Nelson Leung, Ravi Naik, Srivatsan Chakram, Yao Lu, Nate Earnest, Peter
Groszkowski Jens Koch, David Shuster)
Thank you!

Abstract Submitted

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Multimode cavity QED 2: Parameter dependence and limitations through theoretical modeling PETER GROSZKOWSKI, Northwestern University, NELSON LEUNG, RAVI NAIK, SRIVATSAN CHAKRAM, DAVID SCHUSTER, University of Chicago, JENS KOCH, Northwestern University — Superconducting circuits are well-established as promising building blocks for future quantum information processing devices. While in recent years gate and readout fidelities have improved significantly, superconducting qubits can still benefit greatly from added intrinsic robustness and improved error resilience. In this talk, we present results for qubits based on the modes of a 1d resonator array, where qubit manipulation and readout are achieved by interaction with a parametrically driven superconducting transmon. Through theoretical modeling, we provide insight into mode addressability as well as crosstalk, and their dependence on the system's size in various parameter regimes.

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