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Inductive coupling to the fluxonium qubit¹ N.A. MASLUK, A. KAMAL, I. POP, Z.K. MINEV, Yale University, V.E. MANUCHARYAN, Harvard University, J. KOCH, Northwestern University, L.I. GLAZMAN, M.H. DEVORET, Yale University — Fluxonium is a highly anharmonic artificial atom, which utilizes an inductance formed by an array of large Josephson junctions to shunt the junction of a Cooper-pair box. The first excited state transition frequency is widely tunable with flux, and due to interactions of transitions to the second excited state with the readout cavity, a dispersive readout is possible over the entire five octave range. Previous fluxonium samples relied on a capacitive coupling to the readout cavity, but there is evidence that dielectric losses in these capacitors contributes significantly to relaxation [1]. We present a new method of coupling to the cavity through a mutual inductance, reducing relaxation through dielectric loss.

[1] V. E. Manucharyan et al., arXiv:1012.1928v1 (2010).

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Prefer Oral Session
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Nicholas Masluk
nicholas.masluk@yale.edu
Yale University

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