

Abstract Submitted
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Investigating decoherence in the transmon qubit using a 3D resonator¹ HANHEE PAIK, D.I. SCHUSTER², L. BISHOP³, A.P. SEARS, G. KIRCHMAIR, L. FRUNZIO, M.H. DEVORET, R.J. SCHOELKOPF, Yale University — We studied the coherence times of transmon qubits using three-dimensional resonators. The three-dimensional (3D) superconducting resonant cavity is machined with aluminum alloy, whose quality factor is higher than 5 million at 10 mK inside a magnetic shield. The transmons are fabricated on sapphire substrates whose internal Q was not lower than 2 million when evaluated in the 3D resonator. We measured the relaxation and dephasing times of the qubits and were able to draw a lower bound on these numbers.

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