

Abstract Submitted
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Engineering Robust Superconducting Qubits NATE EARNEST, THOMAS YU, YAO LU, DAVID MCKAY, University of Chicago, JAY LAWRENCE, Dartmouth University, JENS KOCH, Northwestern University, DAVID SCHUSTER, University of Chicago — The coherence times of superconducting qubits have advanced dramatically within the last few years. This has been primarily achieved by improving the microwave environment and reducing materials loss. Though the qubit parameters have changed significantly over the years, the qubit circuit has remained in the form of a LCJ circuit (flux, charge, and phase qubits). Recently, more sophisticated circuits, such as the 0-pi circuit proposed by Brooks et al.[1] offer the possibility of enhanced protection from dephasing and relaxation. In this talk, we will discuss the implementation of such circuits with realizable parameters, and present preliminary experimental results. [1] Brooks et al. PRA 87, 052306 (2013)

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