

Abstract Submitted
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Experimental Pauli-frame randomization on a superconducting qubit MATTHEW WARE, GUILHEM RIBEILL, DIEGO RISTE, COLM RYAN, BLAKE JOHNSON, MARCUS P DA SILVA, Raytheon BBN Technologies — Coherent errors can interfere, and in this manner, conspire to be much more damaging than stochastic errors of similar infidelity. One technique to deal with such errors is *Pauli-frame randomization*^{1 2}, which works by randomizing computational gates so that the effective errors becomes incoherent, and therefore, less damaging. In this talk we describe the practical implementation of Pauli-frame randomization on a transmon qubit (including its automation), as well as how to rigorously test Pauli-frame randomization through the use of gate set tomography. This effort is supported in part by the U.S. Army Research Office under contract W911NF-14-C-0048. The content of the information does not necessarily reflect the position or the policy of the Government, and no official endorsement should be inferred.

¹E. Knill, Nature **434**, 7029 (2005).

²J. Wallman and J. Emerson arXiv:1512.01098 [quant-ph] (2015).

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