Abstract Submitted
for the MAR16 Meeting of
The American Physical Society

Characterizing and reducing microfabrication-induced loss in superconducting devices, Part II: Xmon qubits ANTHONY MEGRANT, Google, Santa Barbara, A. DUNSWORTH, C. QUINTANA, UC Santa Barbara, J. KELLY, R. BARENDS, Google, Santa Barbara, B. CAMPBELL, UC Santa Barbara, Y. CHEN, Google, Santa Barbara, Z. CHEN, B. CHIARO, UC Santa Barbara, A. FOWLER, E. JEFFREY, J. MUTUS, Google, Santa Barbara, C. NEILL, P.J.J. O'MALLEY, UC Santa Barbara, P. ROUSHAN, D. SANK, Google, Santa Barbara, A. VAINSENCHER, J. WENNER, UC Santa Barbara, T. WHITE, Google, Santa Barbara, J.M. MARTINIS, University of California and Google, Santa Barbara — Microfabrication-induced loss has previously been shown to limit the coherence times of both planar and 3-D superconducting qubits. Energy loss in these qubits arises from interactions with two-level state defects which are located in thin lossy surface dielectrics. More recently, we have identified a major source of this loss and then substantially improved this decoherence channel using a novel resonator structure for characterization and improvement. I will report on recent measurements of Xmon qubits with substantially improved coherence times due to our new fabrication process.

Anthony Megrant
Google Inc - Santa Barbara

Date submitted: 06 Nov 2015 Electronic form version 1.4