Abstract Submitted
for the MAR14 Meeting of
The American Physical Society

Stabilization of entanglement between remote transmon qubits FELIX MOTZOI, UC Berkeley, MOHAN SAROVAR, Sandia National Laboratories, BIRGITTA WHALEY, UC Berkeley — Entanglement between remote qubits can be a valuable resource for scalable quantum computation and other quantum technologies. Here, we discuss non-unitary methods for generating and stabilizing such entanglement between remote superconducting qubits. While joint measurement of the qubits using a sequential probe allows for post-selected entanglement, adding feedback during the measurement conditioned on the outcome allows for deterministic entanglement. This can be supplemented or substituted for with reservoir engineering techniques, which allow for non-zero concurrence in the steady state even in the presence of dephasing. Both the dispersive and near-resonant regimes of circuit QED are analysed.

Felix Motzoi
Univ of Waterloo

Date submitted: 12 Nov 2013 Electronic form version 1.4