Abstract Submitted
for the MAR15 Meeting of
The American Physical Society

Dephasing of Superconducting Asymmetric Transmon Qubits[1]
MATT HUTCHINGS, MATTHEW WARE, CALEB HOWINGTON, B.L.T. PLOURDE, Syracuse university — Split-junction transmon qubits allow for the tuning of qubit energy levels with a magnetic flux. However, this tunability can lead to excess dephasing due to flux noise. By making the two junctions asymmetric, the modulation range of the qubit energy bands can be reduced along with the sensitivity to flux noise. Such asymmetric transmons have been used previously for demonstrations of flux-modulated first-order sideband transitions between a qubit and cavity. We will describe experiments on asymmetric transmons in a multi-qubit geometry to study the effect of varying the junction asymmetry on qubit dephasing due to flux noise.

[1]We acknowledge support from IARPA under contract W911NF-10-1-0324.

Matthew Hutchings
Syracuse university

Date submitted: 14 Nov 2014 Electronic form version 1.4