Abstract Submitted
for the MAR12 Meeting of
The American Physical Society

Quantifying distributable and unconditional entanglement at microwave frequencies H.S. KU, W.F. KINDEL, JILA and University of Colorado at Boulder, S.C. GLANCY, E. KNILL, L.R. VALE, G.C. HILTON, K.D. IRWIN, NIST, K.W. LEHNERT, JILA, NIST and University of Colorado at Boulder — Unconditional and distributable entanglement can be created by combining a squeezed state and a vacuum state at a beam splitter. We create a single integrated circuit designed to pursue this strategy at microwave frequencies. The squeezed state is created with a Josephson Parametric Amplifier and then combined with a vacuum state in a hybrid (microwave beam splitter) producing entanglement of the output modes. In this talk, we will present the measurement and quantification of entanglement between separate microwave transmission lines. We quantify the entanglement and estimate the fidelity when applying this entangled state as a quantum teleportation channel.

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Date submitted: 12 Dec 2011 Electronic form version 1.4