

Abstract Submitted  
for the MAR09 Meeting of  
The American Physical Society

**Two Cavity Circuit QED** BLAKE JOHNSON, Yale University, ANDREW HOUCK, Princeton University, JAY GAMBETTA, University of Waterloo, ALEXANDRE BLAIS, University of Sherbrooke, STEVEN GIRVIN, MICHEL DEVORET, ROBERT SCHOELKOPF, Yale University, YALE CIRCUIT QED TEAM — The circuit QED architecture has proven useful for dispersive manipulation and measurement of superconducting qubits. Previous experiments have shown how to use the AC-Stark shift to spectroscopically extract information about the photon number in the cavity[1]. Here we will show how to extend this toward building a photon statistics analyzer by adding a second cavity to the circuit QED architecture. The second cavity allows for decoupling of the preparation and readout of the cavity field state, opening the way for a measurement of the full photon statistics and reconstruction of the Wigner distribution.

[1] Resolving photon number states in a superconducting circuit. D. I. Schuster, et. al. Nature (London) 445 515 (2007).

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Date submitted: 07 Jan 2009

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