Abstract Submitted
for the MAR17 Meeting of
The American Physical Society

Single photon devices in superconducting circuits using an atom in front of a mirror SANKAR RAMAN SATHYAMOORTHY, GRAN JOHANSSON, Department of Microtechnology and Nanoscience, MC2, Chalmers University of Technology, Gothenburg, SE-41296. — In circuit QED, artificial atoms made of superconducting circuits interact with microwave photons routed via superconducting transmission lines. The transmission line acts as a bath to which the atoms are coupled and leads to relaxation among other effects. Terminating the transmission line at one end (by grounding for example) is analogous to having a mirror for the field. This boundary condition can be used to change the local density of states of the field with which the atom interacts, so much so that a particular transition of the atom can be completely decoupled from the transmission line. The "mirror" can be also made movable by using a SQUID at the terminating point, providing additional degree of freedom. In this talk, we present recent results on how to use these effects to make efficient single photon devices such as photon sources in the microwave regime.

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Date submitted: 20 Nov 2016 Electronic form version 1.4