Abstract Submitted
for the MAR14 Meeting of
The American Physical Society

Cavity Quantum Electrodynamics with a Rydberg-blocked Atomic Ensemble KYLE ARNOLD, CHERN HUI LEE, MURRAY BARRETT, National University of Singapore — We report our experimental progress towards trapping of a cold ensemble with Rydberg-excited atoms in a high finesse optical cavity. Initial experiments are being performed in a moderate finesse (F=1200) cavity and high finesse (F=100,000) cavity experiment is currently under construction. This system will allow for realization of an optical non-linearity which is both non-dissipative and sufficiently strong to be useful at the single photon level. Such a system has numerous applications for quantum information, in particular, the implementation of a two-photon phase gate.

Kyle Arnold
National University of Singapore

Date submitted: 13 Nov 2013 Electronic form version 1.4