Abstract Submitted
for the MAR08 Meeting of
The American Physical Society

Single photon nonlinearities using arrays of cold polar molecules
T. BRAGDON, R. M. RAJAPAKSE, University of Connecticut, A. M. REY, ITAMP, S. F. YELIN, University of Connecticut, ITAMP — We model single photon nonlinearity via dipole-dipole interaction in cold polar molecules using the protected Dicke-like symmetric manifold for potential optical quantum computation processing. We report on potential decoherences described by phonon dispersion, spontaneous, and stimulated decays. We compare to individually addressed molecules from previous work, and discuss briefly the feasibility in optical quantum computation processing as an element of a controlled-Z gate.

Timothy Bragdon
U. of Connecticut

Date submitted: 27 Nov 2007 Electronic form version 1.4