Abstract Submitted
for the NEF07 Meeting of
The American Physical Society

Nonlinear Photon Interference in Polar Molecular Gases R. RAJAPAKSE, T. BRAGDON, A. REY, S. YELIN, University of Connecticut — We explore nonlinear photon interference in cold polar molecular gases. This nonlinearity gives us a resultant phase shift in a geometry of trapped polar molecules. The phase shift thus obtained is an interesting tool in the design of a phase gate in the field of quantum computation. We model and characterize dispersion curves of such gases. We also calculate decoherence rates and how they affect the photon nonlinearities in 1D and 2D dipolar gases.

R. Rajapakse
University of Connecticut

Date submitted: 11 Oct 2007 Electronic form version 1.4