

Abstract Submitted  
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**Single Photon Nonlinearity in Cold Polar Molecules: Potential Quantum Computing Application** TIMOTHY BRAGDON, University of Connecticut, SUSANNE YELIN, University of Connecticut, ITAMP Harvard-Smithsonian CFA — Assuming storage-retrieval framework of EIT, we investigate dipole-dipole interactions in ensembles of cold polar molecules, and discuss the application of single-photon optical nonlinearity in the context of quantum computation, e.g. controlled phase gate.

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