

Abstract Submitted  
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**Studies of Four Wave Mixing in a Cold Atomic Ensemble for Efficient Generation of Photon Pairs**<sup>1</sup> ANDREW RICHARD FERDINAND, XIJIE LUO, FRANCISCO ELOHIM BECERRA, University of New Mexico — Photon pairs generated by spontaneous four-wave mixing (FWM) in atomic ensembles provide a natural path toward quantum light-matter interfaces due to their intrinsic compatibility with atomic quantum memories. We study the generation of light from a semi-classical FWM process in an elongated ensemble of cold cesium (Cs) atoms. We investigate the generation efficiency as a function of power, detuning, and polarization of the pump fields in the process. This study will allow us to determine the pump-field parameters in our system for the efficient generation of correlated photon pairs from a spontaneous FWM process.

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