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Generating entangled photon pairs from a cavity QED system BO SUN, Georgia Tech, DUANLU ZHOU, LI YOU — We propose a scheme for the controlled generation of Einstein-Podosky-Rosen (EPR) entangled photon pairs from an atom coupled to a high-Q optical cavity, extending the prototype system¹ as a source for deterministic single photons. A thorough theoretical analysis confirms the promising operating conditions of our scheme as afforded by currently available experimental setups. Our result demonstrates cavity QED system as an efficient and effective source for generating entangled photon pairs, and shines new light on its important role in quantum information science.

¹C. K. Law and H. J. Kimble, J. Mod. Opt. **44**, 2067 (1997)

Bo Sun Georgia Tech

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