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Entanglement of two movable mirrors with a single photon superposition state[1] WENCHAO GE, SUHAIL ZUBAIRY, Institute for Quantum Science and Engineering (IQSE) and Department of Physics Astronomy, Texas AM University, College Station, Texas 77843, USA — In this talk, we will discuss a simple scheme to generate deterministic entanglement between two movable end mirrors in a FabryPerot cavity using a single photon superposition state. We will introduce the background of our study and the basic theory of cavity optomechanics. Analytical and numerical results are obtained to show that strong entanglement can be obtained either in the single-photon strong coupling regime deterministically or in the single-photon weak coupling regime conditionally.

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