

Abstract Submitted
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Cavity-Mediated Matter Wave Bistability in a Spin-1 Condensate¹ LU ZHOU, HAN PU, HONG LING, WEIPING ZHANG

— We study matter wave bistability in a spin-1 Bose-Einstein condensate dispersively coupled to a high-finesse unidirectional ring cavity. A unique feature is that the population exchange among different modes of matter fields are accomplished via the spin-exchange collisions. We show that the interplay between the atomic spin mixing and the cavity light field can lead to a strong matter wave nonlinearity, making matter wave bistability in a cavity at the single-photon level achievable.

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