

Abstract Submitted
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Phase coherence properties of two-component BECs under localizing mean-field lattices with an optical lattice¹ HYUNOO SHIM, THOMAS BERGEMAN, SUNY Stony Brook — A binary mixture of interacting Bose Einstein Condensates (BEC) forms interdependent localizing mean-field lattices in the presence of a localization-driving external lattice potential. An equilibrium state exists in the balance between the mean-field dynamic lattices and the external static lattice. We show loss of phase coherence in an unequal mixture of two-component BECs in a gradual ramp of a state-selective optical lattice, and we study effects of localizing mean-field lattices on coherence loss under various states. Numerical calculations are performed for mean-fields with quantum and thermal fluctuations via several phase space representations including the Truncated Wigner Approximation (TWA) and a TWA-positive P hybrid representation, and the comparison of results from these two approaches is also presented.

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