

Abstract Submitted
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A tunneling assisted, spin-orbit coupled Bose-Einstein condensate exhibiting stripe-phase-like behavior¹ SEAN MOSSMAN, THOMAS BERSANO, PETER ENGELS, Washington State Univ — We investigate a spin-orbit coupled Bose-Einstein condensate in which the two spin-orbit dispersion minima are coupled by additional lattice-assisted tunneling. This system is expected to display stripe-phase-like behavior, such as a pronounced fine-grained density modulation. We observe coherent Rabi oscillations between the relevant momentum states and experimentally verify the ground state phase diagram as a function of tunneling strength and spin-orbit detuning. This arrangement provides a flexible experimental platform for further investigation of the properties of the stripe-phase in the context of a spin-orbit coupled Bose-Einstein condensate.

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