

Abstract Submitted
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Engineering topological defect patterns of Bose condensates in shaken optical lattices LEI FENG, LOGAN W. CLARK, ANITA GAJ, CHENG CHIN, University of Chicago — Topological defects emerge and play an essential role in the dynamics of systems undergoing continuous, symmetry-breaking phase transitions. Here, we study the topological defects (domain walls) which form when a Bose condensate in a shaken optical lattice undergoes a quantum phase transition and separates into domains of superfluid with finite momentum. Here, we experimentally demonstrate the ability to control the pattern of domain walls using a digital micromirror device. We further explore implementations of this technique to study dynamics near the phase transition and the evolution of topological defects.

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