

Abstract Submitted  
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**Excitations in a spin-orbit coupled stripe phase**<sup>1</sup> SEAN MOSSMAN, Washington State University, M. K. H. OME, Washington State Univ, JUNPENG HOU, CHUNWEI ZHANG, University of Texas at Dallas, PETER ENGELS, Washington State University — Recent advances in the preparation and manipulation of supersolid-like states with ultracold atoms have opened new lines of inquiry into the dynamics of this novel state of matter. By employing synthetic spin-orbit coupling (SOC) and a weak optical lattice which couples the SOC dispersion minima, we produce a ground state configuration which exhibits characteristics of a supersolid state. In this work, we explore the excitations of such a state by manipulating the phase and amplitude of the optical lattice. These investigations shed light on the degree to which this dressed system simulates a supersolid state as well as other interesting phenomena.

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