

Abstract Submitted
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Quantum vortex microscope for observing two-dimensional vortex dynamics in Bose-Einstein condensates¹ KALI WILSON, JOSEPH LOWNEY, BRIAN P. ANDERSON, University of Arizona — Laboratory measurements of vortex dynamics in Bose-Einstein condensates (BECs) are essential for the development of a clear understanding of many aspects of superfluid dynamics in these systems. Previously we obtained *in situ* images of a two-dimensional vortex distribution in a single-component BEC using an adaptation of dark-field imaging. Achieving these single-shot *in situ* images is a first step towards observing real-time vortex dynamics in a single BEC. This poster presents the development and implementation of the next phase of our quantum vortex microscope, which will enable the acquisition of multiple *in situ* images of vortices in a single highly oblate BEC.

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