

Abstract Submitted  
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**In-situ imaging of vortex distributions in Bose-Einstein condensates.**<sup>1</sup> KALI WILSON, ZACHARY NEWMAN, JOSEPH LOWNEY, BRIAN P. ANDERSON, University of Arizona — Experimental measurements of vortex dynamics in Bose-Einstein condensates (BEC) are essential for the development of a clear understanding of quantum fluid turbulence in BECs. One approach towards this goal involves obtaining multiple in-situ images of vortex distributions in a single trapped BEC. As a first step, we have implemented an imaging method capable of in-situ detection of two-dimensional vortex distributions. We have experimentally confirmed that our method can resolve vortex distributions in a single-component BEC held in a magnetic trap. In this talk we will discuss our imaging methods, present results demonstrating in-situ vortex imaging, and discuss prospects for using these methods in measurements of vortex dynamics.

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Kali Wilson  
University of Arizona

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