

Abstract Submitted
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Pinning and manipulation of vortex cores in Bose-Einstein condensates¹ KALI WILSON, E. CARLO SAMSON, ZACHARY NEWMAN, BRIAN P. ANDERSON, University of Arizona — We demonstrate the ability to reproducibly generate, pin, and then manipulate vortex cores in highly oblate Bose-Einstein condensates (BECs). Piezoelectric transducer-controlled mirrors are used to swipe two blue-detuned laser beams across the BEC such that two vortices of opposite circulation are generated, with each pinned to a laser beam. The beams are then used to position the cores within the condensate. Using additional pinning potentials, this procedure may be scaled to larger numbers of pinned vortices and will be useful for generating arbitrary vortex distributions for studies of superfluid dynamics and vortex interactions.

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