

Abstract Submitted
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Bose-Einstein condensate in an all-optical ring trap¹ ANAND RAMANATHAN, SERGIO MUNIZ, KEVIN WRIGHT, WILLIAM PHILLIPS, GRETCHEN CAMPBELL, Joint Quantum Institute UMD/NIST Gaithersburg, KRISTIAN HELMERSON, School of Physics, Monash University, Melbourne, Australia — We demonstrate Bose-Einstein condensation of atoms in an all-optical ring geometry, created by the intersection of a horizontal sheet-like trapping beam and a vertical ring-shaped trapping beam. The BEC is continuous azimuthally around the ring. By tuning the relative intensities of the trapping beams, we can make a continuous transition from an elongated, quasi-1D system to a flat, quasi-2D system. We characterize the system by watching the BEC expansion in time-of-flight. We plan to use the system to study persistent currents and the effects of geometry and of a Josephson-like tunnel barrier on superflow.

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