

Abstract Submitted
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Persistent flow in a Bose-Einstein condensate PIERRE CLADE, CHANGHYUN RYU, MIKKEL ANDERSEN, VASANT NATARAJAN, ANAND RAMANATHAN, KRISTIAN HELMERSON, WILLIAM PHILLIPS, National Institute of Standards and Technology — We will describe experiments on the study of quantized flow of Bose-condensed atoms in a multiply-connected trap. This torus-shaped trap is formed by the combination of an elliptically shaped, magnetic trap with a blue detuned laser beam in the middle to exclude atoms from the center of the magnetic trap. The rotation was initiated by transferring the orbital angular momentum from Laguerre-Gaussian photons to the atoms. We have observed that the rotational flow of atoms persists for several seconds, even when the condensate fraction is less than 10%. We have also observed flow with high angular momentum and its splitting into singly charged vortices when the trap is no longer multiply-connected.

Pierre Clade
National Institute of Standards and Technology

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