Abstract Submitted
for the DAMOP10 Meeting of
The American Physical Society

Persistent flow in a toroidal BEC with a tunable barrier KEVIN WRIGHT, SERGIO MUNIZ, ANAND RAMANATHAN, WILLIAM PHILLIPS, GRETCHEN CAMPBELL, JQI, NIST, and U. of Maryland — We are investigating the stability of persistent flow in a toroidal BEC. The BEC is held in a red-detuned optical trap formed by two beams: a tightly focused "sheet" of light providing tight vertical confinement, and a Laguerre-Gaussian beam confining the BEC to a ring in the radial direction. To this trap we have added a blue-detuned light sheet to create a variable "weak link" in the ring. The geometry of this BEC system is analogous to that of a superconducting quantum interference device (SQUID). We will present results of our investigation of this system, and discuss prospects for realizing an atomic analog of a SQUID.

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Date submitted: 25 Jan 2010 Electronic form version 1.4