

Abstract Submitted
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Driving phase slips in a neutral-atom analog of an RF SQUID
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W.D. PHILLIPS, G.K. CAMPBELL, JQI/NIST/UMD — We can deterministically
control the quantized circulation state of a toroidal atomic Bose-Einstein condensate
by rotating a weak link around the ring above a critical velocity. We vary this
critical velocity by controlling the strength of the repulsive optical dipole potential
creating the weak link. This system is directly analogous to a superconducting loop
in an external magnetic field, where the loop is interrupted by a weak link with a
dynamically tunable current-phase relation.

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