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Persistent Flow in Fermionic Superfluid Rings[1] KEVIN WRIGHT, YANPING CAI, DANIEL ALLMAN, PARTH SABHARWAL, Dartmouth Physics and Astronomy — We have created and detected persistent flow in an ultracold Fermi gas for the first time. We confine the gas to a trapping potential that is overall annular in shape, using time dependent perturbations of the potential such as a moving tunnel junction to realize a "circuit" that allows us to control the circulation state. We have observed that the stability of persistent currents varies with the system geometry and other factors that affect fluctuations and dissipation in the system. We will report on efforts to use this system to obtain useful information about the transport properties of fermionic quantum gases.

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