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Apparatus for Spin and Heat Transport in Fermi Gases IAN CRAWLEY, CHRISTOPHER ANGYAL, DADBEH SHADDEL, JOHN GRIFFIN, Lehigh University, MARI MCPHERON, University of Wisconsin, Madison, REBECCA DAVIS, DING ZHANG, ARIEL SOMMER, Lehigh University — Transport properties provide an important tool to characterize many-body systems. We propose measurements of spin transport in strongly interacting Fermi gases that will test a proposed lower bound on diffusivity as well as predicted signatures of a pseudogap phase. Our experimental apparatus will utilize a homogeneous Fermi gas separated into three regions: a sample and two reservoirs. Non-equilibrium initial conditions in the reservoirs will drive a spin current through the sample, enabling detailed measurements of the spin diffusivity. Our experimental approach can be extended to measurements of heat transport and non-equilibrium states.

Ariel Sommer
Lehigh University

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