DAMOP18-2018-001059

Abstract for an Invited Paper
for the DAMOP18 Meeting of
the American Physical Society

Davisson-Germer Prize in Atomic or Surface Physics talk: Unitary Strongly Interacting Fermi Gases[1]

JOHN THOMAS, North Carolina State University

Optically-trapped, ultra-cold gases of spin 1/2-up and spin-1/2 down ^{6}Li atoms model high temperature superconductors, neutron matter, and even the quark-gluon plasma that existed microseconds after the Big Bang. A bias magnetic field tunes the gas to a collisional (Feshbach) resonance, where the dilute atomic cloud becomes a strongly interacting, scale-invariant quantum fluid, known as a "Unitary" Fermi gas. I will briefly describe our early work leading to studies of the universal thermodynamic and transport properties of unitary Fermi gases, our recent measurements of quantum viscosity, and our current experiments.

[1]Supported by NSF, ARO, AFOSR, and DOE