Abstract Submitted
for the DAMOP18 Meeting of
The American Physical Society

Hydrodynamics in a uniform Fermi Gas[1] XIN WANG, LORIN BAIRD, STETSON ROOF, JOHN THOMAS, North Carolina State University — We are working towards trapping a strongly interacting ultracold Fermi gas of ^{6}Li atoms in a uniform box potential. The potential is created by applying repulsive blue-detuned beams shaped by Digital Micromirror Devices (DMD). The DMDs are more flexible compared to diffractive optics as they are capable of changing the beam shape dynamically. Uniform traps provide advantages over traditional Gaussian beam traps by avoiding averaging over a spatial varying density in light absorption detection. This will allow us to conduct experiments studying quantum hydrodynamic properties in near ideal configurations. We plan to study propagation of supersonic and subsonic shockwaves, sound waves and energy transport in out-of-equilibrium systems.

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Date submitted: 25 Jan 2018 Electronic form version 1.4