Abstract Submitted
for the DPP19 Meeting of
The American Physical Society

Study of Thermal Transport in Magnetized Laser-Produced Plasmas[1] Z. BARFIELD, A.M. HANSEN, J.P. PALASTRO, D.H. FROULA, Laboratory for Laser Energetics, U. of Rochester — Experiments at the Omega Laser Facility are measuring the heat-wave propagation in plasmas where an external magnetic field is scaled to 100 T. Collective Thomson scattering was used to temporally and spatially resolve the plasma conditions within a 2-mm-diam gas-jet plasma. At the highest fields, the magnetic-field pressure is significantly larger than the plasma pressure (B <1). Classical thermal transport models break down when the magnetic field is turned off and the mean free path of the electrons is much larger than the temperature scale length. Initial experimental and simulation results will be presented.

[1]This material is based upon work supported by the Department of Energy National Nuclear Security Administration under Award Number DE-NA0003856.

Zachariah Barfield
University of Rochester

Date submitted: 28 Jun 2019 Electronic form version 1.4