Abstract Submitted
for the DPP17 Meeting of
The American Physical Society

Optical conductivity of magnetized warm dense matter using
time-dependent density functional theory\textsuperscript{1} DANIEL JENSEN, ANDREW BACZEWSKI, ATILLA CANGI, STEPHANIE HANSEN, Sandia Natl Labs — In magnetized liner inertial fusion (MagLIF), matter is subjected to 10-30 T magnetic fields that are then flux compressed to strengths greater than 1 kT [Slutz et al, Phys. Rev. Lett. 108, 025003 (2012)]. The determination of transport properties in such extreme fields and the warm dense regime are of vital importance to experimental design. We show how time-dependent density functional theory (TDDFT) can be used to extract optical conductivities in and beyond the linear response regime. Building on work studying scalar linear perturbations to warm dense matter [Baczewski et al., Phys. Rev. Lett. 116, 115004 (2016)], we present the necessary theoretical modifications as well as some preliminary results.

\textsuperscript{1}Sandia National Laboratories is a multimission laboratory managed and operated by National Technology and Engineering Solutions of Sandia LLC, a wholly owned subsidiary of Honeywell International Inc. for the U.S. Department of Energys National Nuclear S

Daniel Jensen
Sandia Natl Labs

Date submitted: 13 Jul 2017

Electronic form version 1.4