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Optical conductivity of magnetized warm dense matter using time-dependent density functional theory[1] DANIEL JENSEN, ANDREW BACZEWSKI, ATTILA 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.

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