

Abstract Submitted
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Investigating the impact of species charge and mass on the manifestation of multi-ion and kinetic effects N. V. KABADI, R. SIMPSON, H. SIO, M. GATU JOHNSON, J. FRENJE, B. LAHMANN, C. PARKER, R. D. PETRASSO, MIT, C. FORREST, V. YU GLEBOV, C. STOECKL, S. REGAN, LLE, H. G. RINDERKNECHT, LLNL, G. KAGAN, LANL — Inertial confinement fusion implosions are almost exclusively modeled as hydrodynamic in nature, with a single average-ion fluid and fluid electrons. However, in the shock convergence phase of virtually all inertial fusion implosions, the mean-free path for ion-ion collisions becomes sufficiently long that both the shock front itself and the resulting central plasma are inadequately described by hydrodynamic modeling. In this regime individual ion species behave separately. Understanding how these multi-ion effects manifest themselves in both the kinetic and hydrodynamic regimes is of fundamental importance. In this presentation, first results from an investigation into the effects of individual species' mass and charge on multi-ion effects in kinetic and hydro-like regimes will be discussed. The work was supported by DOE, NLUF, LLNL and LLE.

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