Abstract Submitted
for the DPP19 Meeting of
The American Physical Society

Mass and charge dependence of ion shock coupling and thermal equilibration in ICF shock phase NEEL V. KABADI, H. SIO, R. SIMPSON, C. PARKER, P. J. ADRIAN, A. BOSE, J. A. FRENJE, M. GATU JOHNSON, C. K. LI, F. H. SEGUIN, R. D. PETRASSON, MIT, C. FORREST, V. GLEBOV, C. STOECKL, D. EDGELL, LLE, S. ATZENI, Sapienza, University of Rome, W. TAITANO, A. SIMAKOV, L. CHACON, LANL, O. LARROCHE, CEA — During the shock-convergence phase of ICF implosions there are steep spatial gradients and the ion mean free path becomes long compared to the system size, indicating that multi-ion and kinetic effects may be important. It has been previously indicated that there is substantial thermal decoupling and possibly other kinetic effects in D^3He plasmas with conditions relevant to the NIF shock-phase. In this presentation I will show recent work conducted on the Omega laser facility recreating these conditions in DT plasmas. Results indicate a system that is better captured by average-ion hydrodynamic simulations than the D^3He case. We are working to understand this behavior. Combined DT and D3He burn averaged observables are consistent with an equilibrating two-temperature model. This has major implications for our understanding of kinetic and multi-ion plasma physics and our modeling of ICF implosions. This work was supported in part by the U.S. DOE, NLUF and LLE.

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Date submitted: 03 Jul 2019 Electronic form version 1.4