Abstract Submitted
for the DPP15 Meeting of
The American Physical Society

Application of Laser-Generated Ion Beams for Isochoric Heating to Study Plasma Mix at Interfaces[1] B.J. ALBRIGHT, J.C. FERNÁNDEZ, W. BANG, P.A. BRADLEY, D.C. GAUTIER, C.E. HAMILTON, S. PALANIYAPPAN, M.A. SANTIAGO CORDOBA, E.L. VOLD, L. YIN, Los Alamos National Laboratory, B.M. HEGELICH, G. DYER, R. ROYCROFT, University of Texas, Austin — The evolution and mixing of high-Z/low-Z interfaces in plasma media is of profound importance to high energy density physics and inertial fusion experiments. Recent experiments performed at the LANL Trident laser facility as part of the Plasma Interfacial Mix project have applied novel, laser-generated ion beams created under conditions of relativistic induced transparency to the heating of solid-density, multi-material targets isochorically and uniformly (over a few tens of ps), attaining plasma temperatures of several eV. Measurements have been made of the evolving plasma, including location of the material interface and the time-history of the temperature of the medium. Recent data and associated radiation hydrodynamic modeling from our Trident campaigns will be reported. Complementary kinetic simulations of interface evolution, showing anomalously rapid atomic mixing under conditions relevant to ICF experiments, will also be discussed.

[1]Work performed under the auspices of the U.S. DOE by the LANS, LLC, Los Alamos National Laboratory under Contract No. DE-AC52-06NA25396. Funding provided by the Los Alamos National Laboratory Directed Research and Development Program.

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Date submitted: 24 Jul 2015 Electronic form version 1.4