

Abstract Submitted
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Use of Laser-Generated Ion Beams for Isochoric Heating to Study Plasma-Phase Mix at Heterogeneous Interfaces¹ B.J. ALBRIGHT, J.C. FERNÁNDEZ, W. BANG, P.A. BRADLEY, D.C. GAUTIER, C.E. HAMILTON, C.-K. HUANG, S. PALANIYAPPAN, M.A. SANTIAGO CORDOBA, E. VOLD, L. YIN, Los Alamos National Laboratory, G. DWYER, B.M. HEGELICH, R. ROYCROFT, U. of Texas, Austin — The evolution and mixing of high-Z/low-Z plasma interfaces in high energy density plasmas is a problem of profound importance to understanding plasma-phase mix in settings of thermonuclear burn. Recent experiments at the LANL Trident laser facility have used laser-generated aluminum ion beams created under conditions of relativistic induced transparency to heat solid-density, multi-material targets isochorically to temperatures of several eV and observations have been made of the subsequent evolution of the plasma media. Experiments such as these present a new path for the controlled preparation and study of high energy density physics and warm dense matter. This presentation will discuss recent results from these experiments, including supporting radiation-hydrodynamics and kinetic simulations and theory.

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