

Abstract Submitted  
for the DPP12 Meeting of  
The American Physical Society

**Comparing Simulated and Observed Spectroscopic Signatures of Mix in Omega Capsules**<sup>1</sup> I.L. TREGILLIS, R.C. SHAH, P. HAKEL, J.A. COBBLE, T.J. MURPHY, N.S. KRASHENINNIKOVA, S.C. HSU, P.A. BRADLEY, M.J. SCHMITT, S.H. BATHA, Los Alamos National Laboratory, R.C. MANCINI, Physics Department, University of Nevada, Reno — The Defect-Induced Mix Experiment (DIME) campaign at Los Alamos National Laboratory uses multi-monochromatic X-ray imaging (MMI)<sup>2</sup> to detect the migration of high-Z spectroscopic dopants into the hot core of an imploded capsule. We have developed an MMI post-processing tool for producing synthetic datasets from two- and three-dimensional Lagrangian numerical simulations of Omega and NIF shots. These synthetic datasets are of sufficient quality, and contain sufficient physics, that they can be analyzed in the same manner as actual MMI data. We have carried out an extensive comparison between simulated and observed MMI data for a series of polar direct-drive shots carried out at the Omega laser facility in January, 2011. The capsule diameter was 870 microns; the 15 micron CH ablaters contained a 2 micron Ti-doped layer along the inner edge. All capsules were driven with 17 kJ; some capsules were manufactured with an equatorial “trench” defect. This talk will focus on the construction of spectroscopic-quality synthetic MMI datasets from numerical simulations, and their correlation with MMI measurements.

<sup>1</sup>This work is supported by US DOE/NNSA, performed at LANL, operated by LANS LLC under contract DE-AC52-06NA25396.

<sup>2</sup>T. Nagayama, R.C. Mancini, R. Florido, et al, J. App. Phys. 109, 093303 (2011)

Ian Tregillis  
Los Alamos National Laboratory

Date submitted: 18 Jul 2012

Electronic form version 1.4