

Abstract Submitted
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Progress Toward Modeling Spectroscopic Signatures of Mix on Omega and NIF¹ I.L. TREGILLIS, M.J. SCHMITT, S.C. HSU, F.J. WYSOCKI, J.A. COBBLE, T.J. MURPHY, Los Alamos National Laboratory — Defect-induced mix processes may degrade the performance of ICF and ICF-like targets at Omega and NIF. An improved understanding of the relevant physics requires an experimental program built on a foundation of radiation-hydrodynamic simulations plus reliable synthetic diagnostic outputs. To that end, the Applications of Ignition (AoI) and Defect Implosion Experiment (DIME) efforts at LANL have focused on directly driven plastic capsules containing high-Z dopants and manufactured with an equatorial “trench” defect. One of the key diagnostic techniques for detecting and diagnosing the migration of dopant material into the hot core is Multi-Monochromatic X-ray Imaging (MMI). This talk will focus on recent efforts to model spectroscopic signatures of mix processes in AoI/DIME capsules via simulated MMI-type diagnostic instruments. It will also include data from recent Omega shots and calculations in support of Tier 1 experiments at NIF in FY2012.

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