Abstract Submitted
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Rayleigh–Taylor Growth and Spherical Compression Measurements of Silicon-Doped Ablators J.P. KNAUER, P.B. RADHA, V.N. GONCHAROV, I.V. IGUMENSCHEV, R. BETTI, R. EPSTEIN, F.J. MARSHALL, S.P. REGAN, V.A. SMALYUK, D.D. MEYERHOFER, S. SKUPSKY — X-ray emission from coronal photons emitted by high-atomic-number (Z) layers has been proposed to shape the adiabat in the shell and reduce ablative Rayleigh–Taylor (RT) growth rates during shell acceleration.[1] This effect has been studied with planar-foil experiments to measure the RT growth and low-adiabat spherical implosions to measure the total areal density for a mid-Z, silicon (Si), dopant using the OMEGA laser. Growth of perturbations at the ablation interface due to the RT instability is sensitive to the outer-shell adiabat. An implosion target's areal density is sensitive to the inner-shell adiabat and is a sensitive measure of preheat of the inner fuel. Plastic (CH) shells and planar foils are doped with Si with an atomic concentration of 4% to 6%. Experimental data are compared with the hydrodynamic modeling of both the ablation-interface RT growth and the spherical implosion total areal density. This work was supported by the U.S. Department of Energy Office of Inertial Confinement Fusion under Cooperative Agreement DE-FC52-92SF19460.

[1]S. E. Bodner *et al.*, Phys. Plasmas **5**, 1901 (1998).

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