Abstract Submitted
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Spectroscopy of Mid-Z Shell Additives in Implosions at the National Ignition Facility R. EPSTEIN, S.P. REGAN, R.L. MCCRORY, D.D. MEYERHOFER, T.C. SANGSTER, Laboratory for Laser Energetics, U. of Rochester, B.A. HAMMEL, L.J. SUTER, H. SCOTT, D.A. CALLAHAN, C. CERJAN, N. IZUMI, M.H. KEY, O.L. LANDEN, N.B. MEEZAN, B.A. REMINGTON, LLNL, I.E. GOLOVKIN, J.J. MACFARLANE, Prism Computational Sciences, R.C. MANCINI, U. of Nevada, Reno, K.J. PETERSON, SNL — Ge and Cu dopants are added to CH ablators of NIF implosions to absorb x-ray preheat. K-shell spectral line emission from these dopants provides a core/shell-mix diagnostic.[1] A model of the He-like line and satellite emission is fit to measured spectra to assay the mix mass. The underlying atomic model is appropriately complete for the anticipated temperature range, self-consistent with regard to radiation coupling, and detailed for the available spectral resolution. The high-temperature spectral components are fit well by the model, indicating low levels of hot-spot mix masses. Spectrally distinct satellite emission from lower-ionization species provides new measurements of doped shell material associated with mix close to the inner shell surface. This work was supported by the U.S. Department of Energy Office of Inertial Confinement Fusion under Cooperative Agreement No. DE-FC52-08NA28302.

[1]S.P. Regan, "Hot-Spot Mix and Compressed Ablator ρR Measurements in Ignition-Scale Implosions," this conference.

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