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Spectroscopic Observations of Ablator Mass Mixed into the Hot Spot of NIF Implosions S.P. REGAN, R. EPSTEIN, T.C. SANGSTER, D.D. MEYERHOFER, Laboratory for Laser Energetics, U. of Rochester, B.A. HAMMEL, H.A. SCOTT, D.K. BRADLEY, D. CALLAHAN, M.J. EDWARDS, M.J. ECKART, S.H. GLENZER, J.D. KILKENNY, O.L. LANDEN, N.B. MEEZAN, R. PRASAD, V.A. SMALYUK, L.J. SUTER, LLNL — Megajoule-class hohlraums at the National Ignition Facility (NIF) were used to implode gas-filled (helium/deuterium) plastic shell inertial confinement fusion targets with a buried Ge-doped shell layer offset from the inner gas–shell interface. Hydrodynamic instabilities and jets seeded by isolated shell-surface mass modulations and the gas-fill tube are predicted to mix ablator mass with the hot spot.[1] The measured Ge K-shell line emission (10 to 13 keV) is direct evidence that the Ge-doped ablator material mixed into the hot spot. Estimates of the ablator mass mixed into the hot spot are inferred from the measured brightness of the Ge K-shell emission lines. This work was supported by the U.S. Department of Energy Office of Inertial Confinement Fusion under Cooperative Agreement No. DE-FC52-08NA28302.

[1]B. A. Hammel et al., *High Energy Density Physics* **6**, 171-178 (2010).

S.P. Regan
Laboratory for Laser Energetics, U. of Rochester

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