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Hot-Spot Mix and Compressed Ablator ρR Measurements in Ignition-Scale Implosions S.P. REGAN, R. EPSTEIN, D.D. MEYERHOFER, T.C. SANGSTER, Laboratory for Laser Energetics, U. of Rochester, B.A. HAMMEL, L.J. SUTER, J. RALPH, H. SCOTT, M.A. BARRIOS, D.K. BRADLEY, C. CERJAN, T. DOPPNER, S.H. GLENZER, S.W. HAAN, O. JONES, O.L. LANDEN, H.S. PARK, B.A. REMINGTON, V.A. SMALYUK, P. SPRINGER, LLNL, J.D. KILKENNY, LLNL and General Atomics, I.E. GOLOVKIN, J.J. MACFARLANE, Prism Computational Sciences, J.L. KLINE, LANL, R.C. MANCINI, U. of Nevada, Reno — Cu and Ge dopants placed at different radial locations in the plastic ablator of indirect-drive cryogenic DT implosions are used to study the origin of hot-spot mix via He_α + satellite emission spectroscopy, and to probe the compressed ablator ρR using K-edge absorption spectroscopy. Hot-spot mix is dominated by the ablation front instability. Low neutron yields correlate with hot-spot mix mass in excess of 75 ng. Hydrodynamic simulations of the implosion are consistent with the measured compressed ablator ρR of 0.35 to 0.5 g/cm^2. This work was supported by the U.S. Department of Energy Office of Inertial Confinement Fusion under Cooperative Agreement No. DE-FC52-08NA28302.

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