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Dependence of Compressed Ablator Conditions on the Shell Adiabat in NIF Implosions S.P. REGAN, R. EPSTEIN, T.C. SANGSTER, D.D. MEYERHOFER, Laboratory for Laser Energetics, U. of Rochester, C.A. IGLESIAS, B.G. WILSON, H.S. PARK, L.J. SUTER, H.A. SCOTT, O.S. JONES, B.A. HAMMEL, M.A. BARRIOS, V.A. SMALYUK, B.A. REMINGTON, LLNL, G.A. KYRALA, T.J. MURPHY, J.L. KLINE, P.A. BRADLEY, N.S. KRASHENINNIKOVA, R.J. KANZLEITER, LANL, J.D. KILKENNY, LLNL and General Atomics — The x-ray continuum emitted from the hot spot of an inertial confinement fusion implosion around stagnation provides a probe to diagnose the ρR, n_{e}, and T_{e} of the compressed, Ge-doped CH ablator using the Ge K edge, $1s$–$2p$ and $1s$–$3p$ absorption features. Measured x-ray absorption spectra from a low-adiabat ($\alpha = P_{\mathrm{ablator}}/P_{\mathrm{Fermi}}$), indirect-drive implosion and a high-α, polar-drive implosion are compared. Using the Ge opacity calculations of the *VISTA* code, the inferred quantities are $\rho R \sim 0.5$ g/cm^2, $n_{\mathrm{e}} \sim 0.5 \times 10^{26}$ cm^{-3} and $T_{\mathrm{e}} \sim 200$ eV for the low-α case, while lower compression and higher temperatures are inferred for the high-α case, consistent with radiation–hydrodynamics simulations. This material is based upon work supported by the Department of Energy National Nuclear Security Administration under Award Number DE-NA0001944.

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