

Abstract Submitted
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Diagnosing T_e of NIF plasmas using the isoelectronic ratios of microdot tracer elements M.A. BARRIOS, LLNL, S.P. REGAN, LLE, K.B. FOURNIER, M.B. SCHNEIDER, D.A. LIEDAHL, G.E. KEMP, J.D. MOODY, G.V. BROWN, H. CHEN, O. LANDEN, D. BRADLEY, O. JONES, LLNL, R. EPSTEIN, LLE, LLNL COLLABORATION, LLE COLLABORATION — Experiments planned on NIF will diagnose the electron temperature (T_e) of the hohlraum in the vicinity of the laser entrance hole (LEH) using x-ray spectroscopy. A microdot consisting of Ti and Cr will be coated on the surface of a CH implosion capsule and centered on the symmetry axis of the hohlraum. As the microdot is ablated it is ionized by the hohlraum plasma and flows into the LEH region. The experimental plan to use the isoelectronic line ratio technique [R.S. Majoribanks, *et al.* Phys. Rev. A 46(4), 1992.] to diagnose T_e of the hohlraum plasma near the LEH will be presented. Exploratory experiments at NIF tested the T_e sensitivity of the technique by recording time resolved K-shell emission of direct-drive spherical targets coated with a CrNiZn alloy. Application of the isoelectronic technique to the coronal plasma of these targets will be presented. This work was performed under the auspices of the U.S. Department of Energy by LLNL under Contract DE-AC52-07NA27344.

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