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Experimental study of hohlraum dynamics with x-ray spectroscopy of mid-Z tracer dopants on hohlraum wall[1] N. IZUMI, D. A. LIEDAHL, T. WOODS, N. B. MEEZAN, S. JOHNSON, B. N. WOODWORTH, O. JONES, O. L. LANDEN, S. F. KHAN, J. J. KROLL, Lawrence Livermore Natl Lab, S. VONHOF, General Atomics, A. NIKROO, Lawrence Livermore Natl Lab, J. CALLEJA-AGUIRRE, J. JAQUEZ, General Atomics, R. PJ. TOWN, S. NAGEL, D. K. BRADLEY, A. MOORE, C. YOUNG, Lawrence Livermore Natl Lab, D. B. THORN, General Atomics, M. B. SCHNEIDER, J. D. MOODY, Lawrence Livermore Natl Lab — Achieving good control of symmetry is essential for the indict drive implosion experiments at NIF. Because of their longer path in the hohlraum, transport of the inner cone beams changes later in time. This late time reduction of inner cone power delivery is explained by absorption of the beam's power in the under-dense plasma ablated off the hohlraum wall and the capsule surface. However, experiments at lower hohlraum gas-fill show enhanced wall blow-in but less inner cone beam attenuation. We developed a new hypothesis that the plasma conditions in the reduced gas-fill allow greater beam transmission. To test this hypothesis we added time-resolved x-ray spectroscopy to the experiments to measure the electron temperature of the hohlraum plasma. We will present the experimental results and compare to the temperature predicted by radiation-hydrodynamic simulations.

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