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Experimental study of hohlraum dynamics and inner cone beam transport[1] NOBUHIKO IZUMI, D. A. LIEDAHL, T. WOODS, N. MEEZAN, C. V. HOULDIN HATALA, M. BRUHN, O. JONES, O. L. LANDEN, S. F. KHAN, J. J. KROLL, S. VONHOF, A, NIKROO, Lawrence Livermore Natl Lab, M. YAMAGUCHI, H. HUANG, General Atomics, R. PJ. TOWN, S. NAGEL, D. K. BRADLEY, A. MOORE, C. YOUNG, D. B. THORN, M. B. SCHNEIDER, J. D. MOODY, Lawrence Livermore Natl Lab — Hohlraums with lower fill pressure (<0.6 mg/cc) have been used frequently because of their improved energy coupling. However, because of less tamping, plasma ablated off the hohlraum wall and the capsule fills the interior of the hohlraum at the later stage of the pulse. The inner cone beams are absorbed by inverse Bremsstrahlung, which has a steep temperature and density dependence. This change of power delivery can interfere with the uniform compression of the capsule. The plasma conditions of this hohlraum and ablator plasma strongly depends on heat transport. To validate the heat transport models used in out simulations, we measure the electron temperature of the wall plasma using mid-Z dopants in a part of the hohlraum wall. X-ray line spectrum produced is compared with simulations. We also developed a semi-empirical model of inner cone beam obscuration. This model facilitates understanding how the hohlraum fill pressure affects the time transport of the inner cone beams.

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