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Laser imprint suppression using high-Z layers at high foot intensities MAX KARASIK, Y. AGLITSKIY[1], V. SERLIN, J.L. WEAVER, J.W. BATES, L.S. PHILLIPS[2], Plasma Physics Division, NRL — Laser imprint experiments are carried out on the Nike KrF laser with induced spatial incoherence (ISI) smoothing. Most of the imprint occurs during the initial low-intensity ("foot") part of the pulse, which is necessary to compress the target to achieve high gain. It has been found previously that a thin high-Z overcoat on the laser side of the target can be effective in suppressing imprint [S. P. Obenschain et al. Phys. Plasmas 9, 2234 (2002)]. The present experiments are designed to extend this method to higher foot intensities ($\sim 10^{13} W/cm^2$), approaching those of the current high gain pellet designs. Measurements of Raleigh-Taylor (RT) amplified areal mass non-uniformity are made by face-on x-ray radiography using Bragg reflection from a curved crystal coupled to an x-ray streak camera. X-ray flux from the high-Z layer is monitored using absolutely calibrated time-resolved x-ray spectrometers. Simultaneous side-on radiography using a curved crystal allows target trajectory measurement for comparison with simulations. The effect of the high-Z layers of varying thicknesses on ISI imprint as well as re-imposed ripple growth will be presented for two different materials (Au and Pd). This work is supported by US DOE/NNSA.

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