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High-Z Coating Experiments on Omega EP[1] MAX KARASIK, J. OH, Plasma Physics Division, Naval Research Laboratory, Washington DC, C. STOECKL, Laboratory for Laser Energetics, U of Rochester, A. J. SCHMITT, Y. AGLITSKIY, S. P. OBENSCHAIN, Plasma Physics Division, Naval Research Laboratory, Washington DC — Previous experiments on Nike KrF laser (λ=248nm) at NRL found that a thin ($400 - 800\mathring{A}$) high-Z (Au or Pd) overcoat on the target is effective in suppressing broadband imprint[Obenschain, et al, PoP 2002, Karasik, et al, PRL 2015]. Implementation of this technique on the tripled Nd:glass (351nm) NIF would enable higher uniformity direct-drive experiments there. To this end, we are carrying out experiments using the NIF-like beams of Omega EP. On Nike, a low-intensity, highly smooth prepulse heats and pre-expands the low thermal mass metallic coating to $\sim$ 100um scale length. This likely improves imprint reduction for longer spatial scales because of increased distance between laser absorption and the ablation surface. The 3ω beams of Omega EP do not have this feature due to nonlinear harmonic conversion. We introduced a means of pre-expanding the high-Z coating to similar length scale on Omega EP using a soft x-ray prepulse, generated by irradiating an auxiliary Au foil 1cm in front of the main target tens of ns prior to the main target drive. Coating dynamics are measured using side-on radiography. The effectiveness of pre-expansion on imprint reduction will be assessed by measurements of the RT-amplified imprint using monochromatic curved crystal radiography.

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