Abstract Submitted
for the DPP15 Meeting of
The American Physical Society

Measurements of Laser Imprint with High-Z Coated targets on Omega EP MAX KARASIK, J. OH, Plasma Physics Division, Naval Research Laboratory, Washington, DC, C. STOECKL, Laboratory for Laser Energetics, U of Rochester, Y. AGLITSKIY, Leidos, Reston, VA, A. J. SCHMITT, J. W. BATES, S. P. OBENSCHAIN, Plasma Physics Division, Naval Research Laboratory, Washington, DC — Previous experiments on Nike KrF laser ($\lambda = 248\ nm$) at NRL found that a thin (400–800$\mathring{A}$) high-Z (Au or Pd) overcoat on the laser side of the target is effective in suppressing broadband imprint[Obenschain et al., PoP 9, 2234 (2002); Karasik et al.,PRL 114, 085001 (2015)] and reducing ablative Richtmyer-Meshkov growth [http://meetings.aps.org/link/BAPS.2008.DPP.CO5.9]. The overcoat initially absorbs the laser and emits soft x-rays that ablate the target, forming a large stand-off distance between laser absorption and ablation and driving the target at higher mass ablation rate. Implementation of this technique on the frequency-tripled Nd:glass (351 nm) NIF would enable a wider range direct drive experiments there. To this end, we are carrying out experiments using the NIF-like beams of Omega EP. Analogous to experiments on Nike, areal mass perturbations due to RT-amplified laser imprint are measured using curved crystal imaging coupled to a streak camera. High-Z coating dynamics and target trajectory are imaged side-on. First results indicate that imprint suppression is observed, albeit with thicker coatings. Work supported by the Department of Energy/NNSA.

Max Karasik
Plasma Physics Division, Naval Research Laboratory, Washington, DC

Date submitted: 24 Jul 2015 Electronic form version 1.4