

Abstract Submitted  
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**Laser imprint measurement and mitigation experiments in spherical geometry on OMEGA and NIF**<sup>1</sup> MAX KARASIK, JAECHUL OH, JAMES WEAVER, ANDREW J. SCHMITT, STEPHEN P. OBENSCHAIN, Plasma Physics Division, Naval Research Laboratory, Washington DC, ALEXANDER SHVYDKY, SAMUEL MORSE, SID SAMPAT, LEON WAXER, HANS RINDERKNECHT, MICHAEL ROSENBERG, Laboratory for Laser Energetics, University of Rochester — NRL in collaboration with LLE is conducting a broad effort in laser imprint measurement and mitigation, with experiments on the Nike KrF laser and Nd:glass lasers Omega and NIF. An experimental platform is being developed on OMEGA to test imprint mitigation in spherical geometry using a high-Z coating technique pioneered in planar experiments on Nike [Obenschain et al. PoP 9, 2234 (2002)]. As demonstrated in our Omega EP experiments [M. Karasik, et al., to be published], a smooth prepulse is required to pre-expand the coating for order-of-magnitude imprint reduction. A low intensity, ISI-smoothed prepulse was used in the original Nike experiments, while an x-ray prepulse was used in the EP experiments. The OMEGA experiments aim to test both pre-expansion methods - an SSD-smoothed, few-ns duration laser prepulse as well as an x-ray prepulse, in spherical geometry. The NIF experiments intend to measure and mitigate laser imprint for direct drive at ignition scale. Areal mass non-uniformity amplified by RM/RT instability is measured using radiography of spherical shells.

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