Abstract Submitted
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**Three-Dimensional Simulations of Flat-Foil Laser-Imprint Experiments at the National Ignition Facility** A. SHVYDKY, P.B. RADHA, M.J. ROSENBERG, K.S. ANDERSON, V.N. GONCHAROV, J.A. MAROZAS, F.J. MARSHALL, P.W. MCKENTY, S.P. REGAN, T.C. SANGSTER, Laboratory for Laser Energetics, U. of Rochester, M. HOHENBERGER, J.M. DI NICOLA, J.M. KONING, M.M. MARINAK, L. MASSE, LLNL, M. KARASIK, NRL — Control of shell nonuniformities imprinted by the laser and amplified by hydrodynamic instabilities in the imploding target is critical for the success of direct-drive ignition at the National Ignition Facility (NIF). To measure a level of imprint and its reduction by the NIF smoothing by spectral dispersion (SSD), we performed experiments that employed flat CH foils driven with a single NIF beam with either no SSD or the NIF indirect-drive SSD applied to the laser pulse. Face-on x-ray radiography was used to measure optical depth variations, from which the amplitudes of the foil areal-density modulations were obtained. Results of 3-D, radiation–hydrodynamic code *HYDRA*[1] simulations of the growth of the imprint-seeded perturbations are presented and compared with the experimental data. This work was supported by the U.S. Department of Energy National Nuclear Security Administration under Award Number DE-NA0001944 and under the auspices of the Lawrence Livermore National Security, LLC, (LLNS) under Contract Number DE-AC52-07NA27344.

[1]M. M. Marinak *et al.*, Phys. Plasmas **8**, 2275 (2001).

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