Abstract Submitted
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Collisions of plastic and foam laser-driven foils studied by orthogonal x-ray imaging.[1] Y. AGLITSKIY, N. METZLER, Science Applications International Corporation, M. KARASIK, V. SERLIN, S.P. OBENSCHAIN, A.J. SCHMITT, A.L. VELIKOVICH, S.T. ZALESAK, J.H. GARDNER, J. WEAVER, J. OH, Plasma Physics Division, Naval Research Laboratory, Washington, DC, E.C. HARDING, University of Michigan — We report an experimental study of hydrodynamic Rayleigh-Taylor and Richtmyer-Meshkov-type instabilities developing at the material interface produced in double-foil collisions. Our double-foil targets consist of a plastic foil irradiated by the 4 ns Nike KrF laser pulse at $\sim$50 TW/cm^2 and accelerated toward a stationary plastic or foam foil. Either the rear side of the front foil or the front side of the rear foil is rippled. Orthogonal imaging, i. e., a simultaneous side-on and face-on x-ray radiography of the targets has been used in these experiments to observe the process of collision and the evolution of the areal mass amplitude modulation. Its observed evolution is similar to the case of the classical RM instability in finite thickness targets first studied by Y. Aglitsky *et al.*, Phys. Plasmas **13**, 80703 (2006). Our data are favorably compared with 1D and 2D simulation results.

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