Abstract Submitted
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Ablative Richtmyer-Meshkov instability with indirect drive.[1] A. L. VELIKOVICH, Plasma Physics Division, Naval Research Laboratory, D. S. CLARK, V. A. SMALYUK, O. L. LANDEN, K. O. MIKAELIAN, H. F. ROBEY, Lawrence Livermore National Laboratory, J. G. WOUCHUK , E.T.S.I. Industriales, Universidad de Castilla-La Mancha, Spain — Ablative Richtmyer-Meshkov (ARM) instability develops while a strong radiation pulse, rapidly rising to its constant peak intensity, drives a constant-strength shock wave from the rippled irradiated surface of a solid target into its volume. For the direct laser irradiation, the theory, experiment, and simulations have demonstrated that the development of the ARM results in decaying oscillations of the areal mass/optical thickness modulation amplitude. Much less is known about the ARM with the indirect drive. This effect causing oscillations of the ablation front is the physical basis of the recently proposed [D. S. Clark *et al.*, Phys. Plasmas **21**, 112705 (2014)] and successfully demonstrated [H. F. Robey *et al.*, Phys. Plasmas **23**, 056303 (2016)] adiabat-shaping approach to improving the NIF target performance. We report a theoretical and numerical stability analysis of the indirectly-driven shock-piston flow performed to investigate the physical mechanism of the ablation-front oscillations detected in the simulations and the NIF experiments on adiabat shaping.

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