Abstract Submitted
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Simulations of high-gain direct-drive inertial confinement fusion targets[1] J.W. BATES, A.J. SCHMITT, S.P. OBENSCHAIN, D. COLOMBANT, S.T. ZALESAK, D.E. FYFE, U.S. Naval Research Laboratory — Using the FAST radiation hydrocode, we report in this presentation on continuing numerical studies of the hydrodynamic stability of inertial-confinement-fusion targets. Our discussion focuses on a particular class of "high-gain" direct-drive targets that are irradiated with approximately 2.5 MJ of KrF laser light, and have fusion energy yields exceeding 100 times that value according to one-dimensional simulations. We model several different temporally-varying laser pulses — including so-called "relaxation" and "decaying-shock" profiles with preceding "spikes" — and examine the two-dimensional stability and gain characteristics for each. Both single-mode and broad-band outer-surface perturbations are considered, and where possible, their evolution is compared to quasi-analytical expressions for ablative Rayleigh-Taylor growth.

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