Abstract Submitted
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Mode growth experiments using single-mode initial conditions in a counter-propagating shear experiment on OMEGA[1] E.C. MERRITT, C.A. DI STEFANO, F.W. DOSS, K.A. FLIPPO, E.N. LOOMIS, J.L. KLINE, Los Alamos National Laboratory — Counter-propagating (CP) shear experiments conducted on OMEGA are evaluating the effect of target initial conditions, specifically the characteristics of a tracer foil at the shear boundary, on shear instability evolution in the high-energy-density (HED) regime. Experiments are designed to both examine the dependence of the model initial turbulent parameters in turbulence models of k-ε type on competing physical instability seed lengths as well as develop a path toward turbulent HED experiments. Previous experiments [1,2] focused on instability growth from multi-mode initial conditions due to the natural roughness of an un-perturbed tracer foil. Recent observation of emergent coherent structures in the NIF CP shear experiments [3] emphasize the need to understand the mode growth dynamics of this type of shear system, one with an initially stationary separation layer between the flows. To this end, we will present results of recent single-mode mode growth studies on OMEGA using sinusoidal tracer layers at several different wavelengths.

[1] Doss *et al.*, Phys. Plasmas **20**, 012707 (2013)
[2] Merritt *et al.*, Phys. Plasmas **22**, 062306 (2015)
[3] Doss *et al.*, Phys. Plasmas **22**, 056303 (2015).

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Elizabeth Merritt
Los Alamos National Laboratory

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