

Abstract Submitted  
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**Nike Experiments on Acceleration of Planar Targets Stabilized with a Short Spike Pulse**<sup>1</sup> J.L. WEAVER, NRL, A.L. VELIKOVICH, M. KARASIK, V. SERLIN, S. OBENSCHAIN, A.J. SCHMITT, Plasma Physics Division, NRL, N. METZLER, SAIC,NRCN, Y. AGLITSKIY, SAIC, J. OH, Research Support Instruments, A.N. MOSTOVYCH, Enterprise Sciences, J.H. GARDNER, LCP & FD, NRL — Theoretical work has shown that a low energy spike pulse in front of the drive laser pulse can help mitigate the growth of hydrodynamic instabilities in targets for inertial confinement fusion.[1] While other experiments [2] used higher spike pulse energies, this study reports the influence of a lower energy spike and longer spike-main pulse delay on the acceleration of planar CH targets. Time evolution of preimposed sinusoidal ripples on the target surface was observed using a monochromatic x-ray imaging system. Delayed onset and/or suppression of mode growth was found for the spike prepulse shots compared to those with a low intensity foot, in good agreement with predictions from FAST2D simulations. The propagation velocity of the decaying shock wave from the spike pulse was measured with VISAR and was also in good agreement with an analytical prediction.[3] [1] Metzler *et al.*, Phys. Plasmas **6**, 3283 (1999); **9**, 5050 (2002); **10**, 1897 (2003); Goncharov *et al.*, Phys. Plasmas **10**, 1906 (2003) ;Betti *et al.*, Phys Plasmas **12**, 042703 (2005) ;[2]Knauer *et al.*, Phys. Plasmas **12**, 056306 (2005) ; [3]Velikovich *et al.*, Phys. Plasmas **10**, 3270 (2003). <sup>1</sup>Work supported by U. S. Department of Energy

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