Abstract Submitted
for the DPP16 Meeting of
The American Physical Society

Preliminary results of the redesigned *Reshock* experiment at the OMEGA laser facility TIFFANY DESJARDINS, CARLOS DI STEFANO, ELIZABETH MERRITT, FORREST DOSS, KIRK FLIPPO, JOHN KLINE, Los Alamos National Labs — The redesigned LANL OMEGA *Reshock* campaign is exploring the effects of turbulent mixing due to the Richtmyer-Meshkov (RM) instability as part of an ongoing effort to assess the LANL radiation-hydrocode the BHR mix model in the high-energy density regime. Platform improvements have been made to increase the precision of the instability growth measurements. The experiments are conducted in similar geometry to the previous *Reshock* campaigns. A cylindrical beryllium tube is filled with a low-density CH-foam ($\rho \approx$100-150 mg/cc) and a higher density tracer layer that is displaced from an endcap. Two tracer materials have been tested: a low-density plastic (ρ_0 =1.5 g/cc) layer 40m thick, and an HDC layer (ρ_0 =3.2 g/cc) 15 m thick. The tracer layers have been ρr matched to the previously used aluminum tracer (ρ_0 =2.43 g/cc). In this platform two shockwaves are generated from opposite ends of the shock tube by a $\approx$5 kJ laser pulse, with time delay Δt$\approx$3-6ns between them. The primary shockwave generates the initial mixing between the tracer layer and surrounding foam. The second shock leads to a compression of the initial mix layer and to increased turbulence. We will present both initial design simulations for shock timing and tracer choice and preliminary data from the first shot day.

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Date submitted: 14 Jul 2016 Electronic form version 1.4