

Abstract Submitted  
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**Richtmyer-Meshkov Instability: Effects of Mach Number and Initial Conditions on Turbulent Mixing** GAVIN FRIEDMAN, EXTREME FLUIDS TEAM — Effects of Mach number and initial conditions are studied on a thin Air-SF<sub>6</sub>-Air interface impulsively accelerated by a planar shock wave (Mach 1.2-1.8). A membraneless interface is formed using a nozzle design to create a stable gas curtain. Using particle image velocimetry and planar laser induced fluorescence, velocity and density fields are captured simultaneously to characterize the initial condition and the growth of the instability. To quantify and characterize the turbulent mixing, the evolving structure is reshocked at various times by varying the location of a moveable end wall. Turbulence statistics are compared between a single mode varicose curtain, and a multi-mode curtain. The results are compared with ongoing 3-D numerical simulations of the gas curtain experiment.

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