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Effects of Initial Conditions on Shock Driven Flows. ADAM A. MARTINEZ, SWATHI M. MULA, JOHN CHARONKO, KATHY PRESTRIDGE, Los Alamos National Laboratory — The spatial and temporal evolution of shock-driven, variable density flows, such as the Richtmyer Meshkov (RM) instability, are strongly influenced by the initial conditions (IC's) of the flow at the time of interaction with shockwave. We study the effects of the IC's on the Vertical Shock Tube (VST) and on flows from Mach =1.2 to Mach=9. Experiments at the VST are of an Air-SF6 (At=0.6) multimode interface. Perturbations are generated using a shear layer with a flapper plate. Planar Laser Induced Fluorescence (PLIF) is used to characterize the IC's. New experiments are occurring using the Powder Gun driver at LANL Proton Radiography (pRad) facility. Mach number up to M=9 accelerate a Xenon-Helium (At=0.94) interface that is perturbed using a membrane supported by different sized grids. This presentation focuses on how to design and characterize different types of initial conditions for experiments.

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