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Richtmyer-Meshkov Experiments on a Reshocked, Low Atwood Number Interface CHRIS WEBER, NICHOLAS HAEHN, JASON OAKLEY, MARK ANDERSON, RICCARDO BONAZZA, University of Wisconsin-Madison — Low Atwood number ($A = (\rho_2 – \rho_1)/(\rho_2 + \rho_1) = 0.29$) Richtmyer-Meshkov instability (RMI) experiments are presented for a near single mode, sinusoidal interface accelerated by an incident and a reflected shock wave. The interface is created by flowing a 50-50% mixture of He+Ar from above and pure Ar from below. Slots at the interface location allow for a stagnation plane to form. A pair of pistons embedded in the shock tube walls force a near sinusoidal, linear ($\eta/\lambda = 0.01$), standing wave, which is accelerated by a $M = 1.3$ planar shock wave. The setup at the Wisconsin Shock Tube Laboratory allows for the interface development to be observed for a long period (∼8 ms) after the interface is reshocked by the shock wave reflecting off the end wall and before the expansion wave reflected from the driver section end wall reaches the interface. The interface is visualized with planar Mie scattering. The additional vorticity deposited on the interface during reshock causes the spike and bubble to invert phase and grow at a substantially higher rate than before reshock. The experimental results are compared to numerical simulations using the Eulerian AMR code *Raptor* (LLNL).

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