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Mach number and particle size effects on the unsteady drag of shocked micro-droplets KYLE HUGHES, ADAM MARTINEZ, JOHN CHARONKO, Los Alamos National Laboratory — Experiments of shock-accelerated micro-droplets show high drag coefficients when the particles are tracked from initial acceleration through the relaxation times. An eight-pulse particle tracking diagnostic measures individual particle positions, and a shadowgraph system measures shock location, with pressure transducers providing shock speed at the test section. These diagnostics give us detailed measurements of particle positions versus time for Mach 1.2, 1.3 and 1.4 experiments, allowing us to calculate accelerations and drag. Comparison is made to previous experiments conducted on solid Nylon particles in similar flow regimes.

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