

Abstract Submitted
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Dynamics of Rayleigh-Taylor driven flows at high Atwood numbers¹ MARK MIKHAEL, Georgia Institute of Technology, BHANESH AKULA, THOMAS FINN, Texas A&M University, DEVESH RANJAN, Georgia Institute of Technology — For the first time, detailed simultaneous density and velocity turbulent statistics for Rayleigh-Taylor instabilities at Atwood number of 0.75 are measured. A new density probe capable of measuring gas volumetric concentration directly is used in parallel to a three-wire probe to obtain instantaneous density and velocity components simultaneously. Particle Image Velocimetry (PIV) is also implemented to obtain field-wise measurements. The self-similarity behavior of the velocity statistics, corresponding probability density function (PDF) and spectra are presented. Mie-scattering images taken in both stream-wise and span-wise direction at different instability times have illustrated the turbulent structures visible in the instability.

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Mark Mikhael
Georgia Institute of Technology

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