

Abstract Submitted  
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**Statistical velocity-density measurements in Rayleigh-Taylor mixing** WAYNE KRAFT, Texas A&M University, MALCOLM ANDREWS, Los Alamos National Laboratory — A gas channel facility using helium and air is used to perform statistical measurements of both velocity and density in a Rayleigh-Taylor mixing layer. In the experiment, two gas streams of different densities (heavy over light) flowing parallel to each other are initially separated by a thin splitter plate. At the end of the splitter plate the two fluids are allowed to mix and the Rayleigh-Taylor instability develops. The gas channel facility uses two streams of different gases (air above a air/helium mixture). By changing the helium content in the second stream the density stratification is modified. Instantaneous velocity and density measurements inside the mixing layer are obtained using a combined hot-wire / cold-wire anemometry technique where temperature is used as a fluid marker. Both anemometers are used to yield simultaneous velocity and density measurements which allows for determination of Reynolds stresses and their spectra.

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