Abstract Submitted
for the DFD13 Meeting of
The American Physical Society

**Experimental measurements of velocity and density statistics in Rayleigh-Taylor instability at High Atwood numbers** DEVESH RANJAN, BHANESH AKULA, TOM FINN, Texas A&M University — Velocity statistics are measured in a Rayleigh-Taylor mixing layer at Atwood number 0.6 using the multilayer gas tunnel facility at Texas A&M University, which is capable of achieving mixing Reynolds numbers around 30000. Particle Image Velocimetry (PIV) and hot wire anemometry are used to measure the instantaneous velocities inside the mixing layer. The techniques are validated for small Atwood number and plane mixing layer experiments. The velocity statistics obtained including $u_{rms}$,$v_{rms}$, $\overline{u'v'}$, $\overline{\rho'v'}$ and $\overline{\rho'^2}$ are presented and their variation across the mixing layer is also discussed. The probability density functions of the velocities, densities and their spectra are also presented.

Bhanesh Akula
Texas A&M University

Date submitted: 01 Aug 2013 Electronic form version 1.4