

Abstract Submitted
for the DFD06 Meeting of
The American Physical Society

Three-dimensional measurements of scalar dispersion in grid turbulence¹ PAUL DIMOTAKIS, DANIEL LANG, SANTIAGO LOMBEYDA, JAN LINDHEIM, California Institute of Technology — The three-dimensional scalar-dispersion field of a passive Lagrangian-marker contaminant released in grid-generated turbulent flow with an initial Taylor Reynolds number of ~ 40 , was investigated. The experiments were conducted in the GALCIT Free Surface Water Tunnel using laser-induced fluorescence, a two-dimensional galvanometric optical scanner, and recorded with a fast-framing CCD camera and data acquisition system that sustained 10^8 pix/s, at 12 bits/pix. The resulting data frames were processed to compensate for temporal and spatial skewing, and resampled on a Cartesian grid for subsequent processing. The spatial structure of the scalar field downstream of the grid will be presented and discussed.

¹AFOSR, NSF MRI TeraVoxel grant.

Paul Dimotakis
California Institute of Technology

Date submitted: 07 Aug 2006

Electronic form version 1.4