

Abstract Submitted  
for the DFD12 Meeting of  
The American Physical Society

**Simulation of Homogeneous Turbulence Subjected to Plane Strain**<sup>1</sup> CHRIS ZUSI, J. BLAIR PEROT, University of Massachusetts, Amherst — Direct numerical simulation is used at a resolution of  $512^3$  to investigate the behavior of turbulence subjected to rotation, as well as plane and axi-symmetric strain. The initial isotropic turbulence is generated by the stirring action of many small randomly placed cubes, rather than imposed as an initial condition. Anisotropic turbulent structure is then generated by rotation, dimensionless plane strain or axi-symmetric strain. Multiple simulations are used to investigate the influence of initial conditions, rotation rate, strain rate and Reynolds number on the strained turbulence structure and its subsequent anisotropic decay.

<sup>1</sup>This work is support by the National Science Foundation.

Chris Zusi  
University of Massachusetts, Amherst

Date submitted: 10 Aug 2012

Electronic form version 1.4