Abstract Submitted
for the DFD11 Meeting of
The American Physical Society

Simulation of Homogeneous Turbulence Subjected to Plane Strain[1] 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 plane 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 dimensionless plane strain rates Sk/ϵ ranging from 2.2 to 54. Twenty different simulations are used to investigate the influence of initial conditions, strain rate, Reynolds number, and dimensionless strain time on the strained turbulence structure and its subsequent anisotropic decay.

[1]This work is support by the National Science Foundation.

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Date submitted: 03 Aug 2011 Electronic form version 1.4