Large Eddy Simulation of Shock / Isotropic Turbulence Interaction NATHAN GRUBE, PINO MARTIN, University of Maryland — We compute large eddy simulations (LES) of shock / isotropic turbulence interactions (SITI) and compare to direct numerical simulation (DNS) results. The inflow turbulence is highly compressible with turbulence Mach numbers of 0.5 to 0.9, and the convective Mach numbers range from 3.5 to 5. The inflow turbulence is strong enough to significantly corrugate the main shock but still lies within the unbroken shock front regime. The Taylor microscale Reynolds numbers of the inflows are approximately constant in the range 22-26. Preliminary LES results show that the turbulence anisotropy created by the interaction is captured very well by the LES. The return of the turbulence to local isotropy (as measured by anisotropy of the vorticity fluctuations) is not yet well captured in the LES.

Nathan Grube
University of Maryland

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