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Shock-driven Turbulent Mixing in Spherically Confined Geometries. ISMAEL BOUREIMA, PRAVEEN RAMAPRABHU, Univ of North Carolina - Charlotte — We report results from detailed numerical simulations of turbulent mixing generated by shock passage through a material interface separating two gases in a spherical configuration. The problem definition is similar to the spherical implosion defined by [1]. In this configuration, a spherical shock converges on a perturbed interface between gases with differing properties. During the implosion, perturbations at the interface are subjected to growth due to the RM instability, the RT instability, as well as Bell-Plesset effects. We report on several quantities of interest to the turbulence modeling community, including the turbulent kinetic energy, the anisotropy tensor, density self-correlation, atomic mixing etc. The simulations were performed using the FLASH code [2], at a resolution of 3072 x 1024 x 1024 in the radial, azimuthal and polar directions. We also report preliminary results from a study in which the convergence ratio of the implosion is varied by modifying the adiabatic index of the inner material. [1] Youngs, D. L., and Williams R. J., Intl. J Num. Meth. Fluids, 56 (8), 1597 (2008). [2] Fryxell, B. et al., Astrophys. J. Suppl., 131 (1), 273 (2000).

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