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Turbulent mixing in spherically converging Richtmyer–Meshkov flows MANUEL LOMBARDINI, D.I. PULLIN, D.I. MEIRON, California Institute of Technology, R.A. GORE, Los Alamos National Laboratory — We discuss large-eddy simulations of the mixing induced at a perturbed, spherical density interface initially impacted by a spherically converging shock wave of Mach number $\simeq 1.2$. Two configurations are investigated: i) air inside and SF_6 (five times denser than air) outside, i.e. heavy–light configuration; ii) SF_6 inside and air outside, or light–heavy configuration. A superposition of spherical harmonics with given power spectrum is used to prescribe an initially small perturbation at the interface while avoiding the pole singularity. Adaptive mesh refinement is employed in the regions of interest around the density interface and shock waves. Interest is focused on the strong turbulent mixing generated by the re-shock. In particular, from data interpolated over spherical surfaces, the power spectra of velocity and density are computed as well as extensive surface-averaged statistics involved in the budget of turbulent kinetic energy and enstrophy density.

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