Simulation and flow physics of a shocked and reshocked high-energy-density mixing layer

Movie captions

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Movie 1: Evolution of the instantaneous $M_H$ mass fraction $Y_H$ in the $M_H$–$M_L$ mixing layer of the finest-resolution baseline simulation. The left frame depicts evolution of the three-dimensional field $Y_H(x, y, z)$ near the mixing-layer centre-plane $x = x_c$. Zones with $Y_H < 0.05$ are not shown. The right frame depicts evolution of the two-dimensional cross-section $Y_H(x_c, y, z)$.

Movie 2: In the left frame, evolution of the instantaneous $M_H$ mass fraction $Y_H$ in the $M_H$–$M_L$ mixing layer of the finest-resolution baseline simulation. The same contours shown in the left frame of movie 1 are reproduced here. In the right frame, evolution of the mixing-layer centre-plane coordinate $x_c$ in the finest-resolution baseline simulation and the axial main-shock and reshock positions in a corresponding one-dimensional simulation.

Movie 3: Evolution of the base-10 logarithm of the local density-weighted turbulent kinetic energy $\rho I = \frac{1}{2} \rho u_i'' u_i''$ at the mixing-layer centre-plane $x = x_c$ in the finest-resolution baseline simulation (Base) and the finest-resolution cold-Péclet-number variation (CPV).

Movie 4: Evolution of the base-10 logarithm of the density-weighted enstrophy $\rho \Omega = \frac{1}{2} \rho \omega_i \omega_i$ at the mixing-layer centre-plane $x = x_c$ in the finest-resolution baseline simulation (Base) and the finest-resolution cold-Péclet-number variation (CPV).

Movie 5: Evolution of the spanwise gradient inverse scale length of density $\rho$ at the mixing-layer centre-plane $x = x_c$ in the finest-resolution baseline simulation (Base) and the finest-resolution cold-Péclet-number variation (CPV). The main paper defines the spanwise gradient squared magnitude operator $G_{yz}^2$.

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