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Energy Transfer in the Richtmyer-Meshkov instability BEN THORNBER, Cranfield University, UK, YE ZHOU, Lawrence Livermore National Laboratory, Livermore, California 94550 — The variable density spectral kinetic energy budget for the Richtmyer-Meshkov induced turbulent mixing layer is presented using results from a 512^3 Implicit Large Eddy Simulation (ILES). The budget is presented at several time instants and as a function of the inhomogeneous direction as the layer transitions from the initial impulse through to self-similarity. There are clear parallels in the development of the mixing layer with a previous analysis for the Rayleigh-Taylor instability. The transfer spectra are clearly asymmetric, where the majority of the activity is occurring on the spike side. The quadratic and pressure components are of most often of opposite sign and almost cancel each other out in this region. In the core of the layer, the quadratic terms are largely negative in the energy containing scales. The dilatational terms are negligiblein comparison to the difference between the quadratic and pressure transfer. A notable result is that vortex rings are identified as the key source of alternating fields of negative and positive energy transfer within the mixing layer.

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