

Abstract Submitted
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Non-Rayleigh-Taylor Variable Density Turbulence DANIEL ISRAEL, Los Alamos National Laboratory — The canonical test case for variable density turbulence is the unstable Rayleigh-Taylor mixing layer, in which heavy fluid above mixes with light fluid below. Turbulent production is due to the baroclinic instability as the pressure and density gradients are aligned. For many flows of interest, however, other mechanisms can play a role. For example, in buoyant jets and plumes, the pressure and density gradients are not aligned, and there is also significant shear. Homogeneous turbulence can inform our understanding of the interplay of these different mechanisms. This presentation will survey different cases of homogeneous turbulence and how they inform modeling in different regimes. The cases considered will include both those for which experimental or DNS data exists, and some possibly novel cases for which data is needed.

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