

Abstract Submitted
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Efficient mixing in stratified flows: Rayleigh-Taylor instability within a stable stratification MEGAN DAVIES WYKES, STUART DALZIEL, University of Cambridge — Turbulent mixing is generated at the Rayleigh-Taylor unstable interface between two stably stratified layers. Measurements of the density profile in a salt stratified laboratory experiment, before and after this process, show very high mixing efficiencies of 0.6 to 0.8. This is significantly higher than that seen in either shear flows or classical two-layer Rayleigh-Taylor instability. We discuss these startling results and present a simple turbulent diffusion model that captures the essential dynamics of the flow.

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