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High mixing efficiencies in buoyancy-driven flows MEGAN DAVIES WYKES, University of Cambridge — The concept of a mixing efficiency is widely used to relate the amount of irreversible diabatic mixing to the amount of energy available in a stratified flow. In this talk, I will present the results of laboratory experiments that show that high mixing efficiencies ($\eta > 0.75$) can occur when Rayleigh–Taylor instability develops at an interface between two otherwise stably stratified layers. I will also highlight examples of 'buoyancy-driven' mixing to demonstrate that the mixing efficiency depends not only on the specific characteristics of the turbulence in the region of the flow that is mixing, but also on the density profile in regions remote from where mixing physically occurs.

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