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Characteristics of the Turbulent/Non-Turbulent Interface in Compressible Shear Layers NAVID S. VAGHEFI, CYRUS K. MADNIA, SUNY at Buffalo — Direct numerical simulation (DNS) of temporally evolving compressible turbulent shear layer at varying convective Mach numbers are used to assess the dynamics of the flow across the turbulent/non-turbulent (T/NT) interface separating the turbulent and the irrotational regions. This interface is detected by using a certain threshold for the vorticity norm. The conditional flow statistics based on the normal distance from the T/NT interface plane are compared for different convective Mach numbers. It is shown that the T/NT interface thickness for compressible cases examined is of order of the Taylor microscale, similar to the previous studies for incompressible flows with mean shear. Various terms in kinetic energy and vorticity transport equations are examined in order to determine the effects of compressibility on the transport mechanisms across the T/NT interface.

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