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The Turbulent/Non-Turbulent Interface in Non-Premixed Reacting Mixing Layers REZA JAHANBAKHSHI, NAVID S. VAGHEFI, CYRUS K. MADNIA, SUNY at Buffalo — The results of the direct numerical simulation (DNS) of temporally evolving reacting mixing layer are used to study the flow characteristics 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 compressible form of the conservation equations for mass, momentum, and energy are solved. The hydrogen-air combustion is mimicked by a one-step global reaction. The infinitely fast chemistry approximation is used. The dynamic viscosity and heat capacities depend on local temperature and species mass fractions. The main objective of this work is to study the effects of heat release and flame location on kinematics and dynamics of the T/NT interface.

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