

Abstract Submitted
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Large Eddy Simulation Modeling and Flamelet Analysis of a Jet in Cross Flow WAI LEE CHAN, University of Michigan, HEMANTH KOLLA, Sandia National Laboratories, MATTHIAS IHME, University of Michigan, JACQUELINE CHEN, Sandia National Laboratories — Jet in cross flow (JICF) configurations are frequently used as fuel injection strategies in combustion systems, such as gas turbines, boilers, and high-speed propulsion systems. Recently, direct numerical simulations (DNS) have been performed to investigate flame-stabilization mechanisms in a reactive JICF. By utilizing this DNS-database, fundamental modeling assumptions of flamelet-based large eddy simulation (LES) combustion models for application to JICF are evaluated. To this end, a priori and a posteriori studies are performed using steady and unsteady flamelet models to isolate and model combustion flow processes that control transient ignition events and flame stabilization.

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