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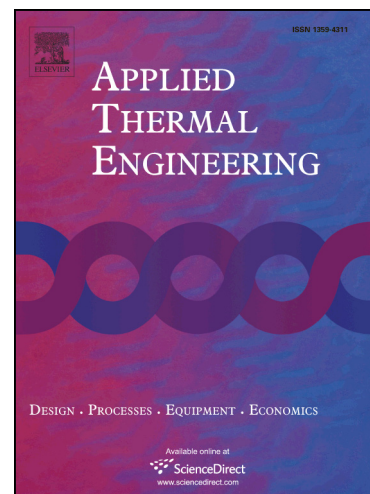
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Numerical Study of Dynamic Response of a Jet Diffusion Flame to Standing Waves in a Longitudinal Tube

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In this work, the dynamic response of a propane-burnt (C_3H_8) jet diffusion flame in a longitudinal tube to acoustic waves produced from a loudspeaker are studied. For this, 2-D numerical simulations are conducted by using FLUENT to investigate the interaction of acoustics-flow-flame. Unsteady RANS simulations with one-step Eddy-Dissipation (ED) combustion model are used in the model. And acoustic fluctuations are generated by using User Defined Functions (UDF). The numerical model is validated first by comparing the numerical results with the experimental measurements in the absence of a flame. Further validation is performed by comparing with flame-involved experimental results available in the literature. It is shown that the jet and the flame characteristics are highly sensitive to its axial location, especially when standing waves are present in the tube. The jet experiences large velocity

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