

Abstract Submitted  
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**Secondary Peak in Nusselt Number for Jet Impinging Flows: LES Study** RABIJIT DUTTA<sup>1</sup>, ANUPAM DEWAN<sup>2</sup>, BALAJI SRINIVASAN<sup>3</sup>, Department of Applied Mechanics, Indian Institute of Technology Delhi, New Delhi-110016 — Jet impingement heat transfer is widely studied because of its industrial and as well as fundamental relevance. A secondary peak in Nusselt number at some distance away from the stagnation point is observed for both round and slot jet impingement flows at a small nozzle-to-plate spacing. Although various researchers have studied the reason behind this secondary peak, it is still an open question in the literature. We present large eddy simulation (LES) of turbulent slot jet impingement heat transfer to gain further insight into the phenomenon of secondary peak in Nusselt number. Profiles of mean velocities, turbulent fluctuating velocities and Nusselt numbers have been analyzed along the impingement plate. A sudden increase in the wall normal turbulence fluctuations have been observed in the region where the secondary peak in Nusselt number occurs. Further, an analysis of vortex structures of the flow showed that the increase in the wall normal turbulence could be associated with the secondary vortex observed near the impingement wall.

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