

Dynamics of impacting slot jets

David Lo Jacono

Abstract

I will present some experimental work related to confined impacting jets. The experimental rig consists of a two-dimensional slot jet impacting normally in between two parallel plates. Although slot-jets have been widely studied in the past, we wanted to complete some previous studies with the help of time-resolved particle image velocimetry (TR-PIV). Measurements were conducted for different gap distances between the two parallel plates and for different Reynolds numbers, always laminar. For highly confined configurations and within the range of Reynolds number considered, the flow is found to be steady and with clearly identified recirculation areas. For lesser confined configurations, a self-sustained oscillatory behaviour is observed. After each of these oscillations, an intense vortex dipole is ejected from the wall jet. A spatiotemporal analysis compliment these observations where different frequencies and modulations are highlighted. In addition, I will provide some numerical results inline with the experimental work.