

Abstract Submitted  
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**Round and Plane, Turbulent, Twin Jets** TAYE MELAKU TADDESSE, JOSEPH MATHEW, Indian Institute of Science — Multiple jets are found in several applications such as fuel injection, smoke stacks, jets engines of aerospace vehicles, etc. Even a pair of round jets can have a distinctive development because, after the inevitable merging, there can be axis witching. While plane jet pairs may be expected to behave like a single plane jet after merger, significant differences have been observed in experiments. LES of parallel, twin jets, round and plane, reveal the structure and mechanisms of these two types. The LES is by an explicit filtering method. The twin round jets are at a Reynolds number  $Re$  of  $2.3 \times 10^5$ , based on diameter and mean velocity at exit. Distance between jet centers was 5 diameters. Close quantitative agreement with experiment was found on the development of mean profiles and spreading. Velocity fluctuations between the jets are weaker than those on the outer boundaries. Axis switching was observed. Twin plane jets were at  $Re = 8.75 \times 10^3$  based on jet width, spaced 12 jet widths apart were also simulated. The enhanced growth rate of twin jets has been captured in the simulations.

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