

Abstract Submitted
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Numerical and experimental study of rotating jet flows¹ SEUNG-WON SHIN, Hongik University, Republic of Korea, ZHIZHAO CHE, LYES KAHOUADJI, OMAR MATAR, Imperial College London, JALEL CHERGUI, DAMIR JURIC, LIMSI-CNRS — Rotating jets are investigated through experimental measurements and numerical simulations. The experiments are performed on a rotating jet rig and the effects of a range of parameters controlling the liquid jet are investigated, e.g. jet flow rate, rotation speed, jet diameter, etc. Different regimes of the jet morphology are identified, and the dependence on several dimensionless numbers is studied, e.g. Reynolds number, Weber number, etc. The breakup process of droplets is visualized through high speed imaging. Full three-dimensional direct numerical simulations are performed using BLUE, a massively parallel two-phase flow code. The novel interface algorithms in BLUE track the gas-liquid interface through a wide dynamic range including ligament formation, break up and rupture.

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