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ABSTRACT

Turbulence modifications in an axisymmetric opposed jets flow are experimentally investigated by means of a simultaneous two-phase PIV measurement technique. The measurements are conducted at a Reynolds number of 14500. Glass beads with an averaged diameter of 100 μm (corresponding to a Stokes number of 59.5) are used as dispersed phase. Relatively low mass loadings ratios (0.04) and large nozzle separation (12 times nozzle diameter) are tested. It is found that the presence of the particles can distinctly modify the gas-phase characteristics, including both macroscopic turbulence statistics and mesoscopic turbulence structures. In the present