A Comparative Study of Particle Image Velocimetry (PIV) and Particle Tracking Velocimetry (PTV) for Airflow Measurement

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Abstract : Among modern airflow measurement methods, Particle Image Velocimetry (PIV) and Particle Tracking Velocimetry (PTV), as visualized and non-instructive measurement techniques, are playing more important role. This paper conducts a comparative experimental study for airflow measurement employing both techniques with the same condition. Velocity vector fields, velocity contour fields, voticity profiles and turbulence profiles are selected as the comparison indexes. The results show that the performance of both PIV and PTV techniques for airflow measurement is satisfied, but some differences between the both techniques are existed, it suggests that selecting the measurement technique should be based on a comprehensive consideration.

Keywords : airflow measurement, comparison, PIV, PTV

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