World Academy of Science, Engineering and Technology
International Journal of Aerospace and Mechanical Engineering
Vol:9, No:01, 2015

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

Authors : Sijie Fu, Pascal-Henry Biwolé, Christian Mathis

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
Conference Title : ICFDT 2015 : International Conference on Fluid Dynamics and Thermodynamics
Conference Location : London, United Kingdom
Conference Dates : January 19-20, 2015