

Abstract Submitted
for the DFD15 Meeting of
The American Physical Society

Image-processing method for near-wall PIV measurement around a moving interface LICHAO JIA, YIDING ZHU, HUIJING YUAN, CUNBIAO LEE, Peking University — This paper presents a PIV (particle image velocimetry) image processing method for the near-wall measurement when the interface is moving. Based on the successful interface tracking and precise determination of the velocity of the interface, the optimal synthetic particles with the kinetic information of the interface are added into the original particle image. The performance of the velocity estimation near the wall is then improved by the effective restriction of the particles from both sides of the interface. Quantitative evaluations of this method have been performed by applying it to Monte Carlo simulations and experimental tests. The improved method could help to provide more reliable results for the measurement of the flows around a rotating blade.

Lichao Jia
Peking University

Date submitted: 15 Jul 2015

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