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PIV Experimental Investigation of a Bubbly Turbulent shear Layer¹ BIN CHEN, FUDE GUO, ZHIWEI WANG, LIEJIN GUO, XIMING ZHANG, State Key Laboratory of Multiphase Flow in Power Engineering, Xi'an Jiaotong University, P. R. China — In this work bubbly shear layer was investigated by PIV. The velocity ratio is 4:1 and the Reynolds number ranged from 22000 to 158400. PIV results show that almost all the bubbles are trapped by vortex structures. Compared with the single phase case, average vorticity changes little along the streamwise central line, but decreased with the increasement of Reynolds number. The average vorticity distribution along different cross-section of the shear layer is decreased at low Reynolds number but changes little at higher Reynolds number. The results indicate that Reynolds stress along different cross-section of the single phase case is increased with the development of shear layer but decreased with the increasement of Reynolds number, and this tendency is disordered with bubbles injection.

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