

Abstract Submitted
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Correction of Pressure Data Close to the Wall in Turbulent Boundary Layer YOSHIYUKI TSUJI, Nagoya University, YOSHINOBU YAMAMOTO, Yamanashi University — We have developed a small pressure probe and measured both static pressure and wall pressure simultaneously in turbulent boundary layers up to Reynolds numbers based on the momentum thickness 44000. Experimental data were obtained by the same person using the same techniques at the three large facilities. We find that the measured pressure data are contaminated by the artificial background noise induced by test section and are also affected by the flow boundary conditions. By analyzing data from different wind tunnels acquired at the same Reynolds number, we evaluate the effect of background noises and boundary conditions on the pressure statistics. We also compare the experimental results with results of direct numerical simulations and discuss differences in boundary conditions between real and simulated wind tunnels. The results have already been reported in TSFP7. In the present paper, we are interested in the interaction with pressure probe and the wall. It is very difficult to measure the pressure fluctuation close to the wall. We discuss the effect of solid wall on the pressure data and suggest the method how to correct the data. The measured data are compared with those of DNS.

Yoshiyuki Tsuji
Nagoya University

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