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Large scale and small scale interactions of pressure fluctuation in turbulent boundary layers YOSHIYUKI TSUJI, Nagoya University, YOSHINOBU YAMAMOTO, Yamanashi University — We study the interaction between large and small scale motions from the point of pressure fluctuation. Using the small pressure probe, both the static pressure and wall pressure fluctuations were measured inside the zero-pressure gradient boundary layer at relatively high Reynolds numbers. How the large scales in outside affect the small scales near wall is analyzed by means of statistical method. The correlation between pressure and pressure gradient indicates that the small scales distribute uniformly across the boundary layer. High amplitude positive and negative wall pressure fluctuations are also analyzed and found that they are associated with coherent motions inside the boundary layer. Another interesting aspect is the amplitude modulations of pressure and we would like to comment this topic in the presentation.

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