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Studies of the Combined Effects of Roughness and Reynolds Number in Turbulent Boundary Layers[1] FARAZ MEHDI, JOSEPH KLEWICKI, University of New Hampshire — Mehdi, Klewicki & White [Physica D 239(2010)] provide evidence from existing studies that the prevalent scheme for classifying roughness regimes is likely to be incomplete. To further pursue these findings, more data are required, and for this purpose, additional rough-wall experiments are being performed. We report on our studies of the combined roughness-Reynolds number problem conducted in a 8m long wind-tunnel. The roughness considered is the randomly distributed type and introduced in the form of 24-grit sandpaper and pea gravel. The primary measurement tool is two-component LDV. The basis of the analysis is the mean equation of dynamics. In this regard, the length scale defining where the mean dynamics become dominated by inertia is of central importance.

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