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Turbulent boundary layer over flexible plates. PARAND ROSTAMI, TINDARO IOPPOLO, Southern Methodist University — This research describes the structure of a turbulent boundary layer flow with a zero pressure gradient over elastic plates. The elastic plates made of a thin aluminum sheets with thickness between 50 and 500 microns were placed on the floor of a subsonic wind tunnel and exposed to a turbulent boundary layer flow with a free stream velocity between 20m/s and 100m/s. The ceiling of the test section of the wind tunnel is adjustable so that a nearly zero pressure gradient is obtained in the test section. Hot-wire anemometry was used to measure the velocity components. Mean, fluctuating velocities and Reynolds stresses will be presented and compared with the values of a rigid plate.

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