Direct numerical simulation of a hypersonic shock wave/turbulent boundary layer interaction¹

STEPHAN PRIEBE, PINO MARTIN, University of Maryland — The direct numerical simulation of a hypersonic shock wave/turbulent boundary layer interaction generated by a 33-degree compression ramp is presented. The fully-turbulent inflow boundary layer is at Mach 7.2, and the Reynolds number based on momentum thickness is $Re_\theta = 3500$. The evolution of the mean and fluctuating field through the interaction region and the properties of the low-frequency unsteadiness are investigated.

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