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Low frequency oscillations in shock/boundary layer interactions¹ SUMAN MUPPIDI, KRISHNAN MAHESH, University of Minnesota — Shock wave/boundary layer interactions are observed frequently in high–speed flight, and can significantly impact aerodynamic and thermal loads. The interaction is characterized by boundary layer separation, shock oscillation, shock–shock interaction and unsteadiness. The objective of our work is to use Direct Numerical Simulations to study the origin and behavior of low–frequency unsteadiness observed in shock wave/boundary layer interactions. Results from supersonic ramp flow and incident shock flow simulations will be presented. We will discuss the effects of Reynolds number and Mach number, and the importance of appropriate numerical technique, computational domain and mesh.

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