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Thermally driven unsteadiness of Shock Boundary Layer Interaction SANG LEE, BRIAN ROMERO, University of New Mexico, TONGHUN LEE, University of Illinois at Urbana-Champaign — Deficiencies still remain in understanding the unsteadiness associated with the shock interacting with the incoming turbulent boundary layer flow exposed to thermal variation which is caused by the difference in the wall temperature and that of the ambient flow. The present study examines the effects of wall temperature on the dynamics of the unsteady separation bubble in a shock boundary layer interaction region at various Mach numbers. High order numerical simulations of a compression ramp are validated with existing experimental and numerical data at low Mach numbers, then various ratios of wall temperature to recovery temperature are investigated for increasing Mach numbers.

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