

Abstract Submitted
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Conditional Analysis of a Shock Wave and Turbulent Boundary Layer Interaction¹ JUSTINE LI, STEPHAN PRIEBE, M. PINO MARTIN, University of Maryland, College Park — The characterization of the aperiodic cycle of unsteadiness in shock wave and turbulent boundary layer interaction (STBLI) is presented for a 24° compression ramp configuration with a fully turbulent incoming boundary layer at Mach 2.9. In previous work on the direct numerical simulation (DNS) at similar conditions, Priebe and Martn (JFM 2012) found that the aperiodic low-frequency unsteady shock motion is related to the phase of separation bubble growth and collapse. At a reduced computational cost as compared to the DNS, the large eddy simulation (LES) enables the generation of data covering a sufficiently long sampling time to converge the conditional statistics on the phases of the cycle.

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