

Abstract Submitted
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50 kHz PIV of a Swept-Ramp Shock-Wave Boundary-Layer Interaction at Mach 2.¹ LEON VANSTONE, The University of Texas at Austin, MUSTAFA NAIL MUSTA, Necmettin Erbakan University, SERDAR SECKIN, MOHAMMAD SALEEM, NOEL CLEMENS, The University of Texas at Austin — The interaction from a 30° sweep, 22.5° compression ramp in a Mach 2 flow is examined using wide-field 5Hz and 50 kHz PIV. The high-speed PIV is fast enough to resolve the large-scale unsteady motions of the SWBLI and can be band-pass filtered to investigate the driving mechanisms of unsteadiness and the widefield PIV allows comparisons with mean flow-fields. Preliminary investigation looked at three distinct frequency bands: 10-50 kHz ($0.025-0.25 U_\infty/\delta_{99}$), 1-10 kHz ($0.025-0.25 U_\infty/\delta_{99}$), and 0-1 kHz ($0-0.025 U_\infty/\delta_{99}$). The unsteadiness associated with 10-50 kHz shows no correlation with the upstream boundary layer and accounts for 40

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