

Abstract Submitted
for the DFD16 Meeting of
The American Physical Society

Contraction ratio effect on boundary layer separation induced by shockwave boundary layer interactions SEONGKYUN IM, GIOVANNI DI CRISTINA, Univ of Notre Dame, HYUNGROK DO, Seoul National University — Boundary layer separations induced by shockwave boundary layer interaction at various contraction ratios were investigated at a Mach 4.5 flow. Stagnation pressure and temperature condition of 10 bars and 295 K were used, and a high-speed schlieren system visualized the flow features. A shockwave generator with 12 degree wedge generated an impinging shockwave onto a laminar boundary layer on a flat plate. The contraction ratio of the flow was varied by changing the distance between the shockwave generator and the flat plate. The location of the shockwave impingement was fixed while the contraction ratios were changed. Flow visualization showed that the flow separation and its size were influenced by the contraction ratio although overall flow features were similar. At higher contraction ratio, stronger impinging shockwave and more severe flow separation were observed.

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Date submitted: 27 Jul 2016

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