

# INVESTIGATION ON COMPRESSIBLE BI-CONVEX CORNER FLOWS

K.M. Chung<sup>1</sup>, K.C. Chang<sup>2</sup> and P.H. Chang<sup>2</sup>

<sup>1</sup> *Aerospace Science and Technology Research Center;* <sup>2</sup> *Institute of Aeronautics and Astronautics,*  
*National Cheng Kung University, Tainan 711, Taiwan, Republic of China*

## Abstract

This study addressed the shock-wave and turbulent boundary layer interactions of bi-convex corner flows. The experimental data were conducted at freestream Mach number of 0.64, 0.70, 0.83 and 0.89. A row of flush-mounted, high frequency pressure transducer was used to measure the mean and fluctuating pressures. In comparison with a single convex corner flows, a bi-convex corner tends to alleviate shock induced boundary layer separation and the location of peak pressure fluctuations moves downstream. The surface pressure fluctuation and local Mach number could be scaled with a similarity parameter  $\beta$ . In addition, the hypersonic similarity was also used to correlate the experimental data. Generally, the correlation is reasonably good.