

Abstract Submitted
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Wind tunnel experiments on two blunt cones at Ma6 YUNCHI ZHANG, CUNBIAO LI, Peking University, STATE KEY LABORATORY FOR TURBULENCE AND COMPLEX SYSTEMS TEAM — Wind tunnel experiments are performed on two 5° half-angle blunt cones over Mach 6 flow for 0° and 10° angle of attack. The temperature distributions on both windward and leeward sides are obtained by temperature sensitive painting (TSP) technique and the fluctuation pressure is measured by PCB pressure sensors for 7 meridian lines between the central meridian lines of the windward and the leeward by 30° step. Boundary layer transition is implied by the temperature distribution and power spectral evolution of the fluctuation pressure. It is found there exists a streamwise high-temperature strip near the central meridian line of the leeward side and transition is most likely to occur along the strip (earlier than the windward side and 0° angle of attack). Besides, the radius of the cone tip has an effective influence on the transition location. Transition is more likely to occur on the cone with the sharper tip.

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