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**Non-equilibrium Effects of a Hypervelocity Flow over a Double Wedge Geometry** NELSON YANES, JOANNA AUSTIN, Caltech — Hypersonic flow over a double wedge geometry is a canonical example of a shock-boundary layer interaction. At higher stagnation enthalpies (>5MJ/kg) with an air free-stream, real gas effects become significant in influencing the shock interaction. To uncover the role of thermochemistry effects in a shock-boundary layer system, spectroscopic measurements of nitric oxide (NO) vibrational temperature are made. The Hypervelocity Expansion Tube (HET) is used to generate high Mach number, high enthalpy flow over a 30-55 degree double wedge. The UV portion of the NO gamma band is captured in the range of 220-255 nm. Vibrational temperature measurements are taken at various flow locations and free-stream conditions, where type IV and V shock configurations are investigated.

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