

Abstract Submitted  
for the DFD09 Meeting of  
The American Physical Society

**Hypersonic Boundary Layer Stabilization Through Chemical Energy Absorption** HEATH JOHNSON, GRAHAM CANDLER, University of Minnesota — A number of studies have been performed looking at the effects of surface blowing or suction on boundary layer stability. This situation can arise in the case of forced mass flow through a porous surface or in the case of an ablative surface material which absorbs energy and releases gas into the boundary layer. Here we investigate the effects of blowing or suction in high-enthalpy, hypersonic flows where the injected gas will not only mix with the free-stream gas, but may also become vibrationally excited and chemically react both in the steady mean flow and in the unsteady disturbances. The effect of chemical and vibrational energy exchange on boundary layer stability is investigated in numerical simulations through application of the parabolized stability equations.

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Date submitted: 08 Aug 2009

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