



NATO STO AVT-240 & RTG-082: Hypersonic Boundary-Layer Transition Prediction

Westward Look Resort □ Tucson, Arizona, United States □
26-27 March 2015

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gratefully acknowledged

Thursday Morning – March 26
Second-Mode Instability Mechanisms
Task Team Lead: Steve Schneider, Purdue

0900-0925 Introductions.

0925-0945 Viola Wartemann, DLR Braunschweig, “Numerical and experimental (HEG) investigations of second modes: stabilization by means of porous surfaces; chemical effects”

0945-0955 Discussion

0955-1020 Eric Marineau, AEDC Tunnel 9, “Mechanism-based transition predictions for hypersonic flow on slender cones with small nose radii at zero angle of attack in conventional tunnels.”

1020-1035 Tom Juliano, Notre Dame U., Update on correlating second-mode transition on sharp cones in various conventional-noise tunnels

1035-1045 Discussion

1045-1100 Coffee Break

1100-1120 Neal Bitter, Caltech, “Receptivity and growth of second mode waves generated by acoustic wavepackets.”

1120-1140 P. Balakumar, NASA Langley, “Receptivity computations for straight and flared cones, sharp and blunt.”

1140-1150 Discussion

1150-1310 Lunch □

1310-1330 J. Bergmann, Arnold AFB, "Overview of HSST BLT Program"

1330-1340 Discussion

1340-1400 Leonardo Salemi, "Numerical investigation of hypersonic conical boundary layer stability: linear and nonlinear regimes"

1400-1420 Discussion

1420-1440 Mike Kegerise, "Unsteady heat-flux measurements of second-mode instability waves" [using ALTP sensors]

1440-1450 Discussion

1450-1500 Hide Tanno, "The latest results of Hiest experiment with HIFIRE-5 model"

1500-1515 Coffee Break

Thursday Afternoon

Crossflow-Instability Mechanisms

Task Team Lead: Tom Corke (Notre Dame U.)

1515-1535 Vassilis Theofilis and Pedro Paredes, "Advanced instability analysis tools in three-dimensional hypersonic flow configurations."

1535-1545 Discussion

1545-1605 Joe Jewell, Progress at AFRL/RQ and Future Plans

1605-1615 Discussion

1615-1635 Alex Craig, "Experimental study of the crossflow instability on a hypersonic yawed cone."

1635-1645 Discussion

1645-1705 Steve Schneider, Brief Summary of Research in the Mach-6 Quiet Tunnel

Friday Morning - March 27

**Passive and Active Tripping and Wind Tunnel Freestream Disturbances
Task Team Lead: Rolf Radespiel, TU Braunschweig**

0830-0850 Eric Marineau, AEDC Tunnel 9, "Standard designs for Pitot probes"

0850-0905 Lian Duan, Missouri U of S&T, "Simulation of Acoustic Radiation from Turbulent Boundary Layers at High Mach Numbers".

0905-0925 Rolf Radespiel, TU Braunschweig, "Freestream measurements in Braunschweig Ludwig tube."

0925-0935 Discussion

0935-0955 Tom Juliano, Notre Dame U, "Plans for a large hypersonic quiet tunnel."

0955-1005 Discussion

1005 -1020 Coffee Break

1020-1050 Helen Reed, TAMU, "Updates on modeling of second mode and crossflow instabilities"

1050-1110 John Schmisser, UTSI, "Plans for a large quiet tunnel."

1110-1130 Alex Wagner, DLR Göttingen, "Freestream disturbance measurements in HEG."

1130-1140 Discussion

| 1140-1155 Neil Sandham, U. Southampton, S. Taylor presenting

1155-1210 Christoph Hader, University of Arizona, "Update on development of new code for DNS of hypersonic transition.

1200-1330 Lunch

Friday Afternoon

Blunt-Geometry Mechanisms

Task Team Lead: Christian Stemmer (TU Munich)

1330-1350, Christian Stemmer, TU Munich, "Three dimensional DNS on the capsule at 24-deg. angle of attack."

1350-1400 Discussion

1400-1420 Rolf Radespiel, TU Braunschweig, "Progress on Ludwig tube experiments on Apollo shape."

1420-1430 Discussion

1430-1450 Theiss et al., DLR Goettingen, "Numerical investigation of laminar-turbulent boundary-layer transition on a blunt generic re-entry." presented by C. Stemmer, TU Munich.

1450-1510 Coffee Break

1510-1530 Richard Morgan, U. Queensland, "Experimental study of laminar and turbulent heating in high enthalpy reentry flows in an expansion tunnel."

1530-1540 Discussion □

1540-1600 Rodney Bowersox, Texas A&M, Blunt body and elliptic cone measurements

1600-1610 Discussion

1610-1700 Planning. Prague meeting, 12-16 Oct. 2015, probably Thurs and Friday. Europe meetings with Panel, US meetings not with panel. In 2016, do we meet with the Panel in the Spring at CMRE La Spezia, or in the Fall in Spain? Prefer the Fall? In 2017, do we meet with the Panel in the Spring in Estonia? Probably prefer Fall in the Netherlands, right? For the non-panel meetings in the USA, probably in Spring, who will host in 2016 and 2017?