



## International Workshop on Hypersonic Stability and Transition

**2-4 October 2012, Sedona Az**

**SPONSORED BY;** Raytheon Corporation, Tucson Arizona; Texas Engineering Experiment Station; Texas A&M Department of Aerospace Engineering; Texas A&M Flight Research Laboratory

**Tuesday, 2 October 2012**

**Experimental Results, Instrumentation, and Facilities – Chairs: William Saric, Hans Hornung**

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| 0700 - 0800 | Registration check-in and continental breakfast served   |
| 0800 – 0830 | <b><i>“The AFOSR/NASA National Center for Hypersonic Laminar-Turbulent Transition”</i></b> William Saric, Texas A&M University   |
| 0830 – 0900 | <b><i>“Recent Research on Transition at the T5 Hypervelocity Shock Tunnel”</i></b> H. Hornung, J. Jewell, N. Parziale, J.E. Shepherd, B. Valiferdowski, Caltech  |
| 0900 – 0930 | <b><i>“Geometric Acoustics in a Hypervelocity Boundary Layer”</i></b> Nick Parziale, Joseph Shepherd, Hans Hornung, Caltech  |
| 0930 – 1000 | <b><i>“Transition Within a Hypervelocity Boundary Layer on a 5-Degree Half-Angle Cone in Freestream Air/CO<sub>2</sub> Mixtures”</i></b> Joseph Jewell, Caltech, Ross Wagnild, University of Minnesota |
| 1000 - 1030 | break-refreshments provided  |
| 1030 – 1100 | <b><i>“The Second Mode Instability on a Flared Cone in a Low-Disturbance Mach 6 Tunnel”</i></b> Jerrod Hofferth, William Saric, Texas A&M University   |
| 1100 – 1130 | <b><i>“Experiments on Roughness-Induced Transient Growth in a Hypersonic Boundary Layer”</i></b> Nicole Sharp, Jerrod Hofferth, Edward White, Texas A&M University                                     |
| 1130 – 1200 | <b><i>“Control of Stationary Cross-Flow Modes in a Mach 3.5 Boundary Layer Using Patterned Passive and Active Roughness”</i></b> Chan Schuele, Thomas Corke, Eric Matlis, University of Notre Dame     |
| 1200 - 1400 | Lunch will be provided (Little Italy Lunch Buffet)   |
| 1400 – 1530 | <b>Discussion of Applications and interactions with users of transition data</b>   |
| 1530 – 1600 | break-refreshments provided  |
| 1600 – 1800 | <b>Discussion of Applications and interactions with users of transition data</b>   |
- dinner will not be provided



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**Wednesday, 3 October 2012**

**Analytical Modeling and Simulations – Chairs: Alexander Fedorov, Eli Reshotko**

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|-------------|---|
| 0700 - 0800 | Registration check-in and continental breakfast served  |
| 0800 – 0830 | <b><i>“Towards a Road Map for Using Theory, Simulation and Experiment to Better Estimate Transition in Hypersonic Flight”</i></b> Steven Schneider, Purdue University       |
| 0830 – 0900 | <b><i>“Transition Influences on Vehicle Design”</i></b> Eli Reshotko, National Hypersonic Science Center  |
| 0900 – 0930 | <b><i>“Nonlinear Stability of Hypersonic Flow Over a Cone with Passive Porous Walls”</i></b> Sharon Stephen, Vipin Michael, University of Birmingham, UK                    |
| 0930 – 1000 | <b><i>“Slow and Fast Modes in a Hypersonic Boundary Layer”</i></b> Alexander Fedorov Moscow Institute of Physics and Technology, P. Balakumar, NASA Langley Research Center |
| 1000 - 1030 | break-refreshments provided   |
| 1030 – 1100 | <b><i>“Analysis of Hypersonic Crossflow Instability on a 7-Degree-Half-Angle Cone”</i></b> Eduardo Perez, Helen Reed, Joseph Kuehl, Texas A&M University                    |
| 1100 – 1130 | <b><i>“Three-stage Breakdown of hypersonic boundary layers.”</i></b> Hermann Fasel, University of Arizona   |
| 1130 – 1200 | <b><i>“Stabilizing Influence of Compressibility in High Speed Shear Flows”</i></b> Sharath Girimaji, Texas A&M University   |
| 1200 - 1400 | Lunch will be provided (All American Lunch Buffet)  |
| 1400 – 1430 | <b><i>“Receptivity of High Speed Boundary Layers Including Real Gas Effects”</i></b> Jill Klentzman and Anatoli Tumin, University of Arizona                                |
| 1430 – 1530 | <b>Discussion of Applications and interactions with users of transition data</b>  |
| 1530 – 1600 | break-refreshments provided   |
| 1600 – 1800 | <b>Discussion of Applications and interactions with users of transition data</b>  |
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**Thursday, 4 October 2012**

### Computational Simulations – Chairs: Helen Reed, Xiaolin Zhong, Hermann Fasel

- 0700 - 0800 Registration check-in and continental breakfast served
- 0800 – 0830 ***“Effects of Bow Shock on the Measurement of Acoustic Signal at the Stagnation Point in Hypersonic Flow over a Blunt Cone”*** H.G. Hornung, N.J. Parziale, Caltech, X. Zhong, J. Lei UCLA
- 0830 – 0900 ***“DNS of High-Speed Boundary Layer Transition Including Adverse Pressure Gradients”*** Kenneth Franko, Sandia National Laboratories, Sanjiva Lele, Stanford University
- 0900 – 0930 ***“Second-Mode Instability of Flared Cones in Hypersonic Flows”*** Travis Kocian, Eduardo Perez, Helen Reed, Joseph Kuehl, Texas A&M University
- 0930 – 1000 ***“Numerical Investigation of Transition Delay Using Porous Walls for a Mach 6 Boundary Layer”*** C. Hader, H.F. Fasel, University of Arizona
- 1000 - 1030 break-refreshments provided
- 1030 – 1100 ***“Direct Numerical Simulation of Laminar-Turbulent Transition for a Cone Boundary Layer at Mach 6”*** Jayahar Sivasubramanian, Hermann Fasel, University of Arizona
- 1100 – 1130 ***“DNS Studies of Boundary Layer Receptivity and Transition Affected by Surface Roughness and Thermal and Chemical Nonequilibrium”*** Xiaolin Zhong, Xiaowen Wang, Danny Fong, Clifton Mortensen, UCLA.
- 1130 – 1200 ***“DNS of Small Perturbations in Hypersonic Bounded Shear Flow”*** Zhimin Xie, Sharath Girimaji, Texas A&M University
- 1200 - 1400 Lunch will be provided (South of the Border Lunch Buffet)
- 1400 – 1500 **Discussion of Applications and interactions with users of transition data**

MEETING ADJOURNED