



### Agenda Day 1 | Mon, 27 July 2020

Time	Thrust Area	Title	PI
9:25-10:00	Zoom Login		
10:00-10:10	Welcome and Opening Remarks		Ivett Leyva, AFOSR Eric Marineau, ONR
10:10-10:15	SBLI	New Start Briefing	Program Officers
10:15-10:40	SBLI	Experimental Hypersonic SWBLI and Passive Hypersonic Transition Control	A. Wagner, DLR Goettingen
10:40-11:05	SBLI	Hi-fi simulations of hypersonic 3-D SWBLIs	S. Pirozzoli, Sapienza U of Rome
11:05-11:30	SBLI	Uncertainty estimation in large eddy simulations of realistic hypersonic flows	J. Larsson, U of MD
11:30-11:55	SBLI	Wall-Modeled LES for High-Speed Transitional Boundary-Layers Interacting with Incident Shock Waves	P. Moin, Stanford U
11:55-12:25	LUNCH/BREAK		
12:25-12:50	SBLI	ONR - Experimental Investigation of Unsteadiness in Swept Hypersonic Shock-Wave / Boundary-Layer Interactions	S. Laurence, U of MD
12:50-13:15	SBLI	ONR - Characterization of the Structure and Dynamics of Transitional Shock/Boundary Layer Interactions	J. Schmisser, U of TN R. Glasby, U of TN C. Combs, U of TX
13:15-15:00	MURI REVIEW	Integrated Measurement and Modeling Characterization of Stratospheric Turbulence	B. Argrow, U of Colorado D. Lawrence, U of Colorado G. Rieker, U of Colorado G. Candler, U of Minn. A. Barjatya, ERAU D. Fritts, ERAU
15:00-15:30	LUNCH/BREAK		
15:30-17:35	MURI REVIEW	Integrated Measurement and Modeling Characterization of Stratospheric Turbulence (cont.)	B. Argrow, U of Colorado D. Lawrence, U of Colorado G. Rieker, U of Colorado G. Candler, U of Minn. A. Barjatya, ERAU

			D. Fritts, ERAU.
17:35-18:05	STTR Review	Balloon-Based Disturbance Measurements in the Upper Atmosphere	A. Mangalam, TAO Systems S. Laurence, U of MD
18:05	MEETING ADJOURN FOR THE DAY		

 <b>2020 AFOSR/ONR/HVSI Hypersonic Aerothermodynamics Portfolios Review</b> Drs. Ivett Leyva, Eric Marineau and Russ Cummings   July 27-31, 2020   Virtual			
Agenda Day 2   Tue, 28 July 2020			
Time	Thrust Area	Title	PI
9:25-10:00	Zoom Login		
10:00-10:20	Transition	New Start Briefing	Program Officers
10:20-10:45	Transition	Transition Experiments on BOLT-Modell in H2K	T. Thiele, DLR A. Guelhan, DLR S. Willems, DLR
10:45-11:10	Transition	Instability Free Three-Dimensional Hypersonic Laminar Boundary Layer Steady-States for Linear and Nonlinear Stability Analyses	L. Alves, U Federal Fluminense
11:10-11:35	Transition	Experimental Studies of BL Instability and Transition in the M-6 Quiet Tunnel	S. Schneider, Purdue U
11:35-12:00	Transition	ONR - Towards a mechanism-based procedure for predicting B/L transition on slender models with highly swept fins	S. Schneider , Purdue U
12:00-12:30	LUNCH/BREAK		
12:30-12:55	Transition	ONR - Hypersonic Finned Cones	H. Reed, TAMU
12:55-13:20	Transition	ONR - Numerical Investigations of Particle Interactions with Navy Relevant High-Speed Flows (YIP)	C. Brehm, U of Kentucky
13:20-13:45	Transition	ONR - Predicting hypersonic laminar-turbulent transition with direct numerical simulation	J. Poggie, Purdue U L. Duan, MUS&T


<b>13:45-14:10</b>	Transition	ONR - Adjoint methods for understanding distributed induced transition in hypersonic B/L	J. Nichols, U of MN
<b>14:10-14:35</b>	Transition	ONR - Understanding hypersonic transition mechanisms through interactions between hydrodynamic, acoustic and thermal modes	D. Gaitonde, OSU
<b>14:35-15:00</b>	Transition	Development of 3-D Freestream Receptivity DNS Database for Hypersonic Flow over Spherical and Elliptical Cones	X. Zhong, UCLA
<b>15:00-15:30</b>	<b>LUNCH/BREAK</b>		
<b>15:30-15:55</b>	Transition	Numerical Investigation of Non-linear Transition Stages in Hypersonic Boundary Layers for Wind-Tunnel and Free-Flight Conditions	H. Fasel, U of AZ
<b>15:55-16:20</b>	Transition	ONR - Numerical investigations of the nonlinear transition stages in hypersonic boundary layers for Navy relevant mach numbers and model geometries	H. Fasel, U of AZ
<b>16:20-16:45</b>	Transition	Direct Numerical Simulation of Hypersonic Transition Delay Over Carbon/Carbon Ultrasonically Absorptive Coatings (AFOSR) and Progress on Ultrasonic Benchtop Experiments (ONR)	C. Scalo, Purdue U
<b>16:45-17:10</b>	Transition	ONR - Nonlinear interaction between first and Mack-mode instabilities in high-supersonic flow / Secondary Instabilities of Hypersonic Crossflow Vortices (YIP)	A. Craig, U of AZ
<b>17:10-17:35</b>	Transition	ONR - Input/Output Analysis of Complex Hypersonic Boundary Layers	G. Candler, U of MN J. Nichols, U of MN
<b>17:35-18:00</b>	Transition	ONR - Global stability and sensitivity analysis of a hypersonic slender cone	P. Moin, Stanford U
<b>18:00</b>	<b>MEETING ADJOURN FOR THE DAY</b>		



### Agenda Day 3 | Wed, 29 July 2020

Time	Thrust Area	Title	PI
9:25-10:00	Zoom Login		
10:00-10:25	Transition	ONR - High Reynolds Number Quiet MACH 6 Swept-Fin Cone Experiments: Flow Instabilities and Transition Control	T. Corke, Notre Dame T. Juliano, Notre Dame
10:25-10:50	Transition	High Reynolds Number Quiet Mach 6 Nozzle Fabrication and Natural Transition Experiments	T. Corke, U of ND
10:50-11:15	Transition	Radiative and Dispersive Behavior of Instabilities in a Highly Cooled Hypersonic Boundary Layer	N. Parziale, Stevens I Tech
11:15-11:40	Transition	ONR - Nonlinear optimization in high-speed B/L: The most unstable nonlinear disturbances & robust flow design	T. Zaki, JHU
11:40-12:10	LUNCH/BREAK		
12:10-12:15	TF	New Start Briefing	Program Officers
12:15-12:40	TF	HVSI - Double Cone Experiment in the X3 Expansion Tube	M. McGilvray, Oxford U
12:40-13:05	TF	HVSI - Development of a RANS-Based Wall-Modeled LES Approach for Hypersonic Flows	C. Brehm, U of Kentucky P. Ireland, Oxford U N. Ashton, Oxford U
13:05-13:30	TF	HVSI - Development of Improved RANS and Hybrid LES/RANS Turbulence Models for Hypersonic Flow Applications	J. Edwards, NCSU D. Stefanski, U of Tennessee
13:30-13:55	TF	HVSI - Evaluation of State-of-the-Art Hypersonic Turbulence Modeling Using M = 6 Benchmark Experiments	M. Semper, USAFA J. Seidel, USAFA
13:55-14:20	TF	HVSI - Development of Physics-Based Turbulence Models for Hypersonic Flows	G. Candler, U of MN
14:20-14:45	TF	HSVI - Turbulence Modeling for Hypersonic Flows	J. Komives, AFIT M. Reeder, AFIT K. Gross, AFIT
14:45-15:10	TF	HVSI - Reynolds-Averaged Navier-Stokes Based Turbulence Modeling for High-Speed Configurations	D. Gaitonde, OSU G. Candler, U of MN
15:10-15:40	LUNCH/BREAK		
15:40-16:05	TF	ONR - Simulation and Modeling of Hypersonic Turbulent Boundary Layers	L. Duan, MUS&T

		Subject to Pressure Gradient and Wall Cooling	
16:05-16:30	TF	ONR / HVSI - Hypersonic Turbulent Heat Transfer Prediction and Validation	R. Bowersox, TAMU
16:30-16:55	TF	Enhanced-Fidelity Predictions of Hypersonic Transition: Embedded Measurements and Optimal Sensing	T. Zaki, JHU
16:55-17:20	TF	Collaborative Research: Effects of wall curvature on hypersonic turbulent spatially-developing boundary layers	J. Araya, U of PR K. Jansen, U of Colorado
17:20-17:45	TF	Structure and Modeling of Hypersonic Boundary Layers in Transitional and Turbulent Regimes	P. Subbareddy, NCSU
17:45-18:10	TF / NEE	Examining Growth of Turbulence over Heated Walls in Hypersonic Flows / Rapidly Expanding Non-Equilibrium Hypersonic Flow	A. Veeraragavan, U of Queensland
18:10	MEETING ADJOURN FOR THE DAY		

			
Drs. Ivett Leyva, Eric Marineau and Russ Cummings   July 27-31, 2020   Virtual			
Agenda Day 4   Thu, 30 July 2020			
Time	Thrust Area	Title	PI
9:25-10:00	Zoom Login		
10:00-10:10	DFI	New Start Briefing	Program Officers
10:10-10:35	DFI	Imaging Non-Equilibrium States in Hypersonic Flow by Slow Light Imaging Spectroscopy (SLIS)	R. Miles, Princeton
10:35-11:00	DFI	High-Repetition-Rate Imaging of Hypersonic Flow, Boundary-Layer Structures, and Velocity Profiles	S. Grib, AFRL/RQ
11:00-11:25	DFI	ONR - Advancing transition experiments in high enthalpy flows	J. Austin, Caltech J. Shepherd, Caltech H. Hornung, Caltech
11:25-11:50	DFI	ONR - Arc-Jet Flow Characterization	L. Maddalena, UTA
11:50-12:20	LUNCH/BREAK		

12:20-12:25	Propulsion	New Start Briefing	Program Officers
12:25-12:50	Propulsion	Inlet Isolator and Combustion Physics at Take-Over Region of Scramjet Engines	T. Lee, UIUC
12:50-13:15	Propulsion	ONR - Combustion in Solid Fuel Ramjets	S. Heister, Purdue C. Slabaugh, Purdue
13:15-13:40	Propulsion	ONR - Combustion Behavior Within a Solid-Fuel Ramjet at High Altitudes	D. Kessler, NRL R. Johnson, NRL G. Goodwin, NRL
13:40-13:45	FSI	New Start Briefing	Program Officers
13:45-14:10	FSI	Reduced Order Modeling for Hypersonic Aeroelasticity	P. Tiso, ETH, Switzerland
14:10-14:35	FSI	Structural-Scale Modeling and Experiments for Hypersonic Vehicles	M. Spottswood, AFRL/RQ
14:35-15:00	FSI	An Experimental/Computational Investigation of the Response of a Compliant Panel to Turbulent and Transitional Shock-wave/Boundary-Layer Interactions in Hypersonic Flow	S. Laurence, U of MD D. Bodony, UIUC
15:00-15:30	<b>LUNCH/BREAK</b>		
15:30-16:00	FSI	NCSU- Fluid Structural Thermal Interactions (FSTI) in Hypersonic Flow	V. Narayanaswamy, NCSU E. Dowell, Duke J. Oefelin, Georgia Tech
16:00-16:25	FSI	Dynamics of Interactions Between Turbulent Boundary Layers and Compliant Surfaces	J. McNamara, OSU
16:25-16:50	FSI	ONR - Aero-Thermo-Servo-Elastic Analysis and Optimization for High Speed Vehicles	D. Mavriplis, U of WY
16:50-17:15	FSI	Luminescence-based Pressure and Strain Measurement for Fluid-structure Interactions	P. Hubner, U of AL
17:15-17:40	FSI	Unit Cases to Investigate Hypersonic Fluid-Structure Interaction	A. Neely, UNSW, Australia
17:40	<b>MEETING ADJOURN FOR THE DAY</b>		





### Agenda Day 5 | Fri, 31 July 2020

Time	Thrust Area	Title	PI
9:25-10:00	Zoom Login		
10:00-10:05	NEE	New Start Briefing	Program Officers
10:05-10:30	NEE	Compressing and Expanding Non-Equilibrium Flows	L. Doherty, Oxford
10:30-10:55	NEE	Sensitivity to Model Parameters and Roughness in Finite-Rate Reacting Hypersonic Flows	P. Schmid, Imperial College
10:55-11:20	NEE	Determination of Key Physics for No equilibrium Modeling of Hypersonic Air	I. Wysong, AFRL/RQ
11:20-11:45	NEE	Molecular Energy Transfer Processes in Non-Equilibrium Hypersonic Flows	I. Adamovich, OSU
11:45-12:10	NEE	Characterizing Energy Storage and Exchange Mechanisms for High-Speed ISR Missions	E. Josyula, AFRL/RQ
12:10-12:40	LUNCH/BREAK		
12:40-13:05	NEE	Spectroscopic Measurements and Nonequilibrium Modeling for High-Enthalpy Air	J. Austin, Caltech T. Schwartzenruber, U of MN D. Truhlar, U of MN
13:05-13:30	NEE	Formulation of a General Collisional-Radiative Model for NO to Study Non-Equilibrium, Hypersonic Flows	D. Levin, UIUC
13:30-13:55	NEE	Modeling of Non-Equilibrium Hypersonic Air Flows by means of Multi-Group Maximum Entropy Method	M. Panesi, UIUC
13:55-14:20	NEE	ONR - Hybrid DSMC/CFD Method Development for High Altitude Hypersonic Flows	G. Candler, U of MN T. Schwartzenruber, U of MN
14:20-14:45	NEE	Validation of Hypersonic Flow Simulations via Molecular-Scale Physics	G. Candler, U of MN
14:45-15:15	LUNCH/BREAK		
15:15-15:20	GSI	New Start Briefing	Program Officers

<b>15:20-15:45</b>	GSI	Nonequilibrium Gas-Surface Interactions at High Temperature, VKI Plasmatron facility and MUTATION++ Library	T. Magin, VKI
<b>15:45-16:10</b>	GSI	Nonequilibrium Gas-Surface Interactions at High Temperature	T. Schwartzenruber, U of MN
<b>16:10-16:35</b>	GSI	High-Fidelity Quantitative Measurements of Hypersonic Carbon Ablation (YIP)	F. Panerai, UIUC
<b>16:35-17:00</b>	GSI	ONR - Combined Computational and Experimental Study of UHTCs for Thermal Protection of Hypersonic Vehicles	I. Boyd, U of MI D. Fletcher, U of VT
<b>17:00-17:25</b>	GSI	Carbon Oxidation in A. Martin, U Kentucky Extreme Environments	A. Martin, U Kentucky
<b>17:25</b>	<b>MEETING ADJOURN</b>		