TFSA Conference 2012
Wednesday, February 8
Day 1

9.00 am - 1.00pm **Li Ka Shing Center** **2nd flr., Lobby**	**Registration**

9.00am – 12.00pm
Li Ka Shing Center
2nd flr., Room A

Special Workshop
Noise Prediction in Industrial Design

- Computational Aeroacoustics
  S. Lele

- Aeroacoustics Predictions and Applications in Automotive Industry
  B. Khalighi, GM

- Fan Noise in Automotive Applications
  D. Cook, Bosch

- Computational Aeroacoustics at UTRC
  G. Medic, UTRC

- Acoustic Analysis of Wind Turbines
  U. Paliath, GE

- Sensitivity of Landing Gear Noise Predictions by Large Eddy Simulations to Numerics and Resolution
  P. Spalart, Boeing

12.00pm – 1.00pm
Li Ka Shing Center
2nd flr., Room B

Bonding Session and Light Lunch

1.30pm–2.30pm **Session I** Li Ka Shing Center 2nd flr, Room A	**Welcome and Overview of the TFSA Program** Gianluca Iaccarino New Programs: Computational Investigation of Complex Flows at Small Scales Ali Mani Microfluidics as a platform for reconfigurable optics, diagnostics, and novel materials Sindy Tang

2.30pm - 3.20pm
Session II
Li Ka Shing Center
2nd flr, Room A
	Predictive Science Program
	
	• Predictive Science Program
	  P. Moin
	• Quantification of Margins and Uncertainties
	  G. Iaccarino

3.20pm – 3.45pm Li Ka Shing Center 2nd flr, Room B	**Coffee Break and Poster Session**

3.45pm – 5.00pm
Session III
Li Ka Shing Center
2nd flr., Room A
	Turbulence Simulations
	
	• Explicitly Filtered LES On Unstructured Grids
	  S. Bose, P. Moin, and F. Ham
	• Vortex Roll Breakup in Three-Dimensional Turbulent Boundary Layers
	  C.W. Hamman and P. Moin
	• Transition To Turbulence
	  T. Sayadi, C.W. Hamman, and P. Moin
	• LES Wall Modeling For High-Lift Devices
	  J. Bodart, J. Larsson, and P. Moin
	• Uncertainty Quantification In RANS Models
	  M. Emory and G. Iaccarino

TFSA Conference 2012
Thursday, February 9
Day 2

8am – 8.45am Li Ka Shing Center 2nd flr., Room B	**Light Breakfast**

8am – 8.45am
Li Ka Shing Center
2nd flr., Room B

Light Breakfast

8.45am – 10.00am
Session IV
Li Ka Shing Center
2nd flr., Room A

Combustion Science I

- A Flamelet Model For Premixed Combustion Under Variable Pressure Conditions
  V. Mittal, and H. Pitsch
- Modeling CO Emissions From A Biomass Combustor Using An Unsteady Flamelet Framework
  E. Knudsen and H. Pitsch
- LES of Soot Evolution in an Aircraft Combustor
  M. Mueller and H.Pitsch
- TDL-Based Expansion Tube Flow Facility Characterization
  C. Strand and R. Hanson
- LES of Supersonic Combustion
  J. Larsson and R. Vicquelin

10.00am – 11.00am
Session V
Li Ka Shing Center
2nd flr., Room A

Aeroacoustics

- LES of airfoil self-noise for DU96 airfoil
  W. Wolf, J. Kocheemoolayil, and S. Lele
- Structure of noise sources in turbulent shear layers
  A. Sharma, J. Nichols, and S. Lele
- Simulations of supersonic jet noise
  J. Nichols, F. Ham, S. Lele, and P. Moin
- Computation of Fan Noise
  P. Covington, F. Ham, and P. Moin

11.00am – 11.15am
Li Ka Shing Center
2nd flr. Room B

Coffee Break and Poster Session

11.15am - 12.15pm
Session VI
Li Ka Shing Center
2nd flr, Room A

Combustion Science II

- Flow and Flame Structure in a Model Scramjet Combustor
  V. Miller, M. Gamba, G. Mungal, and R. Hanson
- Chemical Kinetic UQ for Turbulent Nonpremixed Flame Simulations
  M. Mueller, H. Pitsch, and G. Iaccairno
- Kinetics of jet fuel surrogates
  K. Narayanaswamy, and H. Pitsch
- Experimental Database Towards a Kinetic Mechanism for JP-7 Surrogate Fuel
  D.F. Davidson, W. Ren and R.K. Hanson

12.15pm-1.30pm Li Ka Shing Center 2nd flr, Room C	**Luncheon**

1.30pm-2.45pm
Session VII
Li Ka Shing Center
2nd flr. Room A

New Trends in Computational Science

- Multi-Physics Adjoints for Uncertainty Quantification
  K. Duraisamy, and J. Alonso
- Compressive Sensing for Uncertainty Quantification
  G. Tang, D. Schiavazzi, and G. Iaccarino
- Map Reduce QR Factorization for Large Datasets
  P. Constantine, D. Gleich, and G. Iaccarino
- CFD On Heterogeneous Platforms Using Domain Specific Languages (DSL)
  F. Palacios, and J. Alonso
- Uncertainty and Optimization
  J. Axerio-Cilies, G. Petrone, and G. Iaccarino

2.45pm-3.00 pm Li Ka Shing Center 2nd flr., Room B	**Coffee Break and Poster Session**

3.00pm – 4.30pm
Session VIII
Li Ka Shing Center
2nd flr., Room A

Experimental Methodologies

- Turbulent Diffusivity for a Pitched Jet in Crossflow: Effects of Pressure Gradient
  F. Coletti, M. Benson, C. Elkins, and J. Eaton
- Modeling Magnetic Steering of Micron-Scale Drug Particles in the Bloodstream
  E. Cherry, and J. Eaton
- The Effect of Hole Shape on Discrete Hole Film Cooling
  E. Issakhanian, C. Elkins, and J. Eaton
- Sensitivity of Shock Boundary Layer Interaction to Weak Geometrical Perturbations
  L. Campo, D. Helmer, and J. Eaton
- Robust Design of Turbine Exhaust Diffusers
  A. Padilla, and J. Eaton
- Turbulent Coolant Dispersion around Turbine Blade Trailing Edges
  Sayuri Yapa, Julia Ling, Chris Elkins, and John Eaton

4.30pm – 6.00 pm Li Ka Shing Center 2nd flr. Room B	**POSTER SESSION**

6.00pm – 7.00pm	**COCKTAIL HOUR, FACULTY CLUB**

7.00pm – 9.30pm	**DINNER BANQUET, FACULTY CLUB**

TFSA Conference 2012
Friday, February 10
Day 3

8am – 8:45am Li Ka Shing Center 2nd flr., Room B	**Light Breakfast**

8.45am – 10.00am
Session IX
Li Ka Shing Center
2nd flr. Room A

High-Speed Flows – Simulations and Experiments

- LES/RANS of a Normal Shock Train in a Constant-Area Duct
  B. Morgan, K. Duraisamy, and S. Lele
- Unstart induced by Mass Injection
  S. Im, M. Godfrey Mungal, and M. Cappelli
- Shock-Boundary Layer Interaction In A Low-Aspect-Ratio Duct
  I. Bermejo-Moreno, H. Droesbeke, J. Larsson, and G. Iaccarino
- UQ in turbulent mixing models
  C. Gorle, M. Emory and G. Iaccarino
- Mach Number Effects in Shock Accelerated Curtain of Dense Gas
  S. Shankar and S. Lele

10.00am-11.15am
Session X
Li Ka Shing Center
2nd flr., Room A

Low-Speed Flows – Simulations and Experiments

- A novel assay integrating isotachophoresis and affinity gel-capture for micro-RNA profiling
  G. Garcia- Schwarz, and J. Santiago
- Interaction Of Ion-Concentration Shock Waves In Microfluidics
  S. Bahga, R. Chambers and J.Santiago
- On-Chip Integration of Lysis of Malaria-Infected Blood
  L. Marshall, and J. Santiago
- Viscoelastic Flows Past Bluff Bodies
  D. Richter, S. Padhy, M. Rodriguez, G. Iaccarino, and E.S.G. Shaqfeh
- Sedimentation In Visco-Elastic Fluids
  S. Padhy, G. Iaccarino, and E.S.G. Shaqfeh

11.15am-11.30 2nd flr., Room B	**Coffee Break**

11.30pm – 12.45pm
Sesson XI
Li Ka Shing Center
2nd flr., Room A

Multiphase Flows

- Cavitation modeling using compressible Eulerian-Lagrangian DNS
  J. Lee, and S. Lele
- Numerical simulation of a 3D turbulent hydraulic jump: investigation of surface characteristics and bubble generation
  M. Mortazavi, D. Kim, and A. Mani
- Large Eddy Simulation of Cavitating Turbulent Flows
  F. Ham, and P. Moin
- Numerical Simulation of a Round Liquid Jet Using the Refined Level Set Grid Method with Subrid Lagrangian Drop Break Up Model
  D. Kim, and P. Moin
- A Lagrange-Remap Sharp Interface Solver for Stable and Accurate Atomization Computations
  V. LeChenadec, and H. Pitsch

12:45 pm Li Ka Shing Center	**Closing Remarks** **Gianluca Iaccarino**

TFSA Conference 2012

Posters

- Multiphase Flow Phenomena In Liquid-Fueled Combustion
  J. Urzay and H. Pitsch

- Advanced Extended Surfaces for High Effectiveness Heat Exchangers
  K. Ryan, F. Coletti, R. Moffat, and J. Eaton

- Guiding Principles For Design Of Cathode Catalysts For Fuel Cells
  V. Viswanathan and H. Pitsch

- Dynamic Nonequilibrium Modeling Of Subfilter Scalar Variance And Dissipation Rate For Combustion LES
  C. Kaul and H. Pitsch

- Direct Numerical Simulation of Compressible Turbulent Mixing Layer with Finite-rate Chemistry
  A. Saghafian and H.Pitsch

- RANS Simulations of Inlet Unstart
  I. Jang, J. Nichols and P. Moin

- Simulations of Scalar Transport in Urban Environments
  D. Philips, R. Rossi and G. Iaccarino

- Uncertainty Quantification in Reactive Flow Systems
  N. Kseib, J. Urzay and G. Iaccarino

- Transition in High-Speed Compressible Boundary Layers
  S. Ryu, O. Marxen and G. Iaccarino

- Algebraic Structure Based Modeling of Turbulent Separated Flows
  A. Campos, K. Duraisamy and G. Iaccarino

- Plasma Stabilization of Laminar Premixed Methane/Air Flames around the Lean Flammability Limit
  Moon Soo Bak and M. Cappelli