ICCFD7 Program: Monday, July 9, 2012

07:45 am – 08:00 am	**Opening Remarks by Co-Chairs**	Ballroom I-III
08:00 am – 09:00 am	**Invited Lecture**	Ballroom I-III

01 | Session

ICCFD7-0101

Sparsity and Computational Fluid Dynamics

Prof. Stanley OSHER

University of California, Los Angeles, USA

---

10 | Chairs: Nobuyuki SATOFUKA & Aaron KATZ — **Numerical Methods & Algorithms - I** — Ballroom I

09:30 am – 12:30 pm

09:30 am	10:00 am	10:30 am	11:00 am	11:30 am	12:00 pm
ICCFD7-1001	ICCFD7-1002	ICCFD7-1003	ICCFD7-1004	ICCFD7-1005	ICCFD7-1006
Design and Verification Methodology of Boundary Conditions for Finite Volume Schemes	*High-Order CENO Finite-Volume Scheme for Low-Speed Viscous Flows on Three-Dimensional Unstructured Mesh*	*Improved Finite-Volume Method for Radiative Hydrodynamics*	*Low Dispersion Finite Volume Scheme Based on MDCD Reconstruction*	*Development and Analysis of an Improved Finite Volume Method for Poly-hedral Meshes*	*A New Quasi-3-D Solver for Meandering Channel Flow by CIP/Multi-Moment Finite Volume Method on a Triangular Mesh*
Tong, O., Katz, A., and Sankaran, V.	Charest, M. R. J., Groth, C. P. T., and Gauthier, P. Q.	Wray, A.	Qiuju, W., Yuxin, R., and Zhensheng, S.	Kang, S., and Hur, N.	Akoh, R., and Ishikawa, T.
Utah State University, USA	University of Toronto, Canada	NASA Ames Research Center, USA	Tsinghua University, China	Sogang University, South Korea	Tokyo Institute of Technology, Japan

---

11 | Chairs: Dochan KWAK & Alexander KUZMIN — **Turbulence Physics** — Ballroom II

09:30 am – 12:30 pm

09:30 am	10:00 am	10:30 am	11:00 am	11:30 am	12:00 pm
ICCFD7-1101	ICCFD7-1102	ICCFD7-1103	ICCFD7-1104	ICCFD7-1105	ICCFD7-1106
Vortical Structures and Turbulent Events in Turbulent Shear Flow	*Application of a Lagrangian Particles Method to the Simulation of Passive Scalar Mixing in Isotropic Turbulence*	*Characteristics of Linearly-Forced Scalar Mixing in Homogeneous, Isotropic Turbulence*	*Turbulence and Waves in Transcritical Shear Flow*	*Simulation of Decaying Two-Dimensional Turbulence Using Kinetically Reduced Local Navier-Stokes Equations*	*Stability and Transition in the Near-Field of Pure Planar Plumes*
Alfonsi, G., Ciliberti, S. A., Mancini, M., and Primavera, L.	Attili, A., and Bisetti, F.	Carroll, P. L., Verma, S., and Blanquart, G.	Ghannadi, S. K., and Chu, V. H.	Hashimoto, T., Tanno, I., Morinishi, K., and Satofuka, N.	Hattori, T., Armfield, S. W., Kirkpatrick, M. P., and Norris, S. E.
Università della Calabria, Italy	King Abdullah University of Science and Technology, Saudi Arabia	California Institute of Technology, USA	McGill University, Canada	Kinki University, Japan	The University of Sydney, Australia

Monday, July 9, 2012

12 | Chairs: William CHAN & Andrew WISSINK — Overset Grids & Methods — Ballroom III

09:30 am – 12:30 pm

09:30 am	10:00 am	10:30 am	11:00 am	11:30 am	12:00 pm
ICCFD7-1201	**ICCFD7-1202**	**ICCFD7-1203**	**ICCFD7-1204**	**ICCFD7-1205**	**ICCFD7-1206**
Advances in Domain Connectivity for Overset Grids Using the X-Rays Approach	*Dynamic Overset Grid Computations for CFD Applications on Graphics Processing Units*	*Some Recent Developments and Applications Related to Overset Mesh Aspects of CFD++*	*Wall Distance Search Algorithm Using Rasterized Marching Spheres*	*Domain Decomposition vs. Overset Chimera Grid Approaches for Coupling CFD and CAA*	*An Overset Dual-Mesh Solver for Computational Fluid Dynamics*
Chan, W. M., Noah, K., and Pandya, S.	Chandar, D., Sitaraman, J., and Mavriplis, D.	Kachgal, P., Chakravathy, S., and Akdag, V.	Roget, B., and Sitaraman, J.	Ryan, J., Halpern, L., and Borrel, M.	Wissink, A.
NASA Ames Research Center, USA	University of Wyoming, USA	Metacomp Technologies, USA	University of Wyoming, USA	ONERA, France	U.S. Army Aeroflightdynamics Directorate, USA

13 | Chairs: Christoph BREHM & Janos BENK — Immersed Boundary & Moving Body — Ballroom IV

09:30 am – 12:30 pm

09:30 am	10:00 am	10:30 am	11:00 am	11:30 am	12:00 pm
ICCFD7-1301	**ICCFD7-1302**	**ICCFD7-1303**	**ICCFD7-1304**	**ICCFD7-1305**	**ICCFD7-1306**
The Nitsche's Method of the Navier-Stokes Equation for Immersed and Moving Boundaries	*Local Stability Enhancement of Immersed Boundary/Interface Methods*	*Arbitrarily Shaped Particles in Shear Flow*	*Adaptive Immersed Boundary Method Applied to the Flow of a Rotating Maple Seed*	*A Discrete-Forcing Immersed Boundary Method for a Thin Flexible Body*	*Seamless Immersed Boundary Lattice Boltzmann Method for Incompressible Flow Simulation*
Benk, J., Mehl, M., and Ulbrich, M.	Brehm, C., and Fasel, H. F.	de Tullio, M. D., Pascazio, G., and Napolitano, M.	Hylla, E., and Thiele, F.	Lee, I., and Choi, H.	Nishida, H., and Meichin, Y.
Technical University of Munich, Germany	Science and Technology Corporation, USA	Politecnico di Bari, Italy	Berlin Institute of Technology, Germany	Seoul National University, South Korea	Kyoto Institute of Technology, Japan

12:30 pm – 02:00 pm — Hosted Lunch — Bay Terrace Restaurant

14 | Chairs: Philip ROE & Barry KOREN — Numerical Methods & Algorithms - II — Ballroom I

02:00 pm – 05:00 pm

02:00 pm	02:30 pm	03:00 pm	03:30 pm	04:00 pm	04:30 pm
ICCFD7-1401	**ICCFD7-1402**	**ICCFD7-1403**	**ICCFD7-1404**	**ICCFD7-1405**	**ICCFD7-1406**
Discretization Methods for Extremely Anisotropic Diffusion	*Assessment and Comparison of Discretization Techniques for Global MHD Modeling of the Solar Wind*	*New Explicit Runge-Kutta Methods for the Incompressible Navier-Stokes Equations*	*Deterministic Solver for Steady State Problems of Gases of Arbitrary Statistics Based on the Semiclassical Boltzmann - BGK Equation*	*A Diffusion Model of the Information Preservation Method*	*Spectral Accuracy of Reconstruction on Arbitrary Unstructured Grids*
van Es, B., Koren, B., and de Blank, H.	Ivan, L., de Sterck, H., Jacobs, C., Keppens, R., and Poedts, S.	Sanderse, B., and Koren, B.	Muljadi, B. P., and Yang, J.-Y.	Fei, F., and Fan, J.	Gerolymos, G. A., and Vallet, I.
Centrum Wiskunde & Informatica, The Netherlands	University of Waterloo, Canada	Centrum Wiskunde & Informatica, The Netherlands	National Taiwan University, Taiwan	Chinese Academy of Sciences, China	Université Pierre et Marie Curie, France

Monday, July 9, 2012

15 | Chairs : Xioalin ZHONG & Alain LERAT — Turbulent Boundary Layer & DNS Applications — Ballroom II

02:00 pm – 05:00 pm

02:00 pm	02:30 pm	03:00 pm	03:30 pm	04:00 pm	04:30 pm
ICCFD7-1501	ICCFD7-1502	ICCFD7-1503	ICCFD7-1504	ICCFD7-1505	ICCFD7-1506
DNS of a Spatially Evolving Hypersonic Turbulent Boundary Layer at Mach 8	*Numerical Simulation of Roughness Effect on the Stability of a Hypersonic Boundary Layer*	*Passive Control of a Hypersonic Non-Equilibrium Boundary Layer using Regular Porous Coating*	*Direct Numerical Simulation of Aerosol Growth Processes in a Turbulent Mixing Layer*	*Massively Parallel Simulations of Inertial Particles in High-Reynolds-Number Turbulence*	*A VoF Method for DNS of Droplet-Laden Incompressible Turbulence*
Liang, X., Li, X., Fu, D., and Ma, Y.	Fong, K. D., Wang, X., and Zhong, X.	Wang, X., and Zhong, X.	Zhou, K., Attili, A., and Bisetti, F.	Ireland, P. J., and Collins, L. R.	Baraldi, A., and Ferrante, A.
Chinese Academy of Sciences, China	University of California, Los Angeles, USA	University of California, Los Angeles, USA	King Abdullah University of Science and Technology, Saudi Arabia	Cornell University, USA	University of Washington, Seattle, USA

16 | Chairs: Roger STRAWN & Venkateswaran SANKARAN — Hybrid Methods & Multidisciplinary CFD — Ballroom III

02:00 pm – 05:00 pm

02:00 pm	02:30 pm	03:00 pm	03:30 pm	04:00 pm	04:30 pm
ICCFD7-1601	ICCFD7-1602	ICCFD7-1603	ICCFD7-1604	ICCFD7-1605	ICCFD7-1606
Software Design Strategies for Multidisciplinary Computational Fluid Dynamics	*A Semi-Unstructured Multi-Block Fourth-Order Energy Stable Weighted Essentially Non-Oscillatory Finite Difference Scheme*	*Development of an Agglomeration Multigrid Technique in the Hybrid Solver elsA-H*	*Simulating Flow Past a Circular Cylinder Using a Dual-Mesh Hybrid LES/RANS Framework*	*Moment Base Lattice Boltzmann Approach for Multiphysics Flow Problems*	*Convergence Acceleration of High Order Numerical Simulations using a Hybrid Spectral Difference / Finite Volume Multigrid Method*
Strawn, R. C.	Otis, C. C.	Marmignon, C., Cantaloube, C., Pape, M. C. L., de la Llave Plata, M., Couaillier, V., and Gazaix, M.	Xiao, H., and Jenny, P.	Morinishi, K., and Fukui, T.	Allaneau, Y., Li, L. Y., and Jameson, A.
U.S. Army Aeroflightdynamics Directorate, USA	University of Pittsburgh, USA	ONERA, France	Institute of Fluid Dynamics, Switzerland	Kyoto Institute of Technology, Japan	Stanford University, USA

17 | Chairs: Scott IMLAY & Earl DUQUE — Unsteady Flow Applications — Ballroom IV

02:00 pm – 05:00 pm

02:00 pm	02:30 pm	03:00 pm	03:30 pm	04:00 pm	04:30 pm
ICCFD7-1701	ICCFD7-1702	ICCFD7-1703	ICCFD7-1704	ICCFD7-1705	ICCFD7-1706
Analysis and Optimization of Guide Vane Jets to Decrease the Unsteady Load on Mixed Flow Hydroturbine Runner Blades	*Interaction of Multiple Flapping Filaments for Cylinder Wake Modification Using the Lattice Boltzmann Method*	*IFDT - Intelligent In-Situ Feature Detection, Extraction, Tracking and Visualization for Turbulent Flow Simulations*	*Generalized Box-Plot for Analysis of Unsteady CFD Solutions*	*On the Periodic Flow Past a Circular Cylinder*	**Withdrawn**
Lewis, B. J., Cimbala, J. M., and Wouden, A. M.	Revell, A., Favier, J., and Pinelli, A.	Duque, E. P. N., Hiepler, D., and Stone, C. P.	Imlay, S., Rittenberg, D., and Mackey, C.	Barbeiro, I. C., Meneghini, J. R., and Aranha, J. A. P.	
The Pennsylvania State University, USA	The University of Manchester, UK	Intelligent Light, USA	Tecplot Inc, USA	Escola Politécnica University of São Paulo, Brazil	

06:00 pm – 09:00 pm — **Hosted Reception** — Mauna Lani Bay Beach

ICCFD7 Program: Tuesday, July 10, 2012

08:00 am – 09:00 am	**Invited Lecture**	Ballroom I-III

01 | Session

ICCFD7-0102

Scaling the Complete Simulation Pipeline for Complex FSI Problems

Prof. Rainald LÖHNER

George Mason University, USA

---

18 | Chairs: David ZINGG & Dohyung LEE — **Numerical Methods & Algorithms - III** — Ballroom I

09:30 am	10:00 am	10:30 am	11:00 am	11:30 am	12:00 pm
ICCFD7-1801	ICCFD7-1802	ICCFD7-1803	ICCFD7-1804	ICCFD7-1805	ICCFD7-1806
An efficient Newton-Krylov-Schur Parallel Solution Algorithm for the Steady and Unsteady Navier-Stokes Equations	*Convergence Error Estimation and Convergence Acceleration in Iteratively Solved Problems*	*A Conservative Linearization Procedure for Simulating Hypersonic Nonequilibrium Flows with Residual Distribution Schemes*	*Numerical Dissipation and Wrong Propagation Speed of Discontinuities for Stiff Source Terms*	*An Implicit Algorithm for High-Order Discontinuous Galerkin Methods Based on Newton/Gauss-Seidel Iterations*	*Study on the Computational Efficiency of Three Dimensional Euler Equations by Multi-Resolution Analysis*
Osusky, M., Boom, P. D., Fernández, D. C. D. R., and Zingg, D. W.	Eyi, S.	Mena, J. G., Lani, A., and Deconinck, H.	Yee, H. C., Kotov, D. V., and Sjögreen, B.	Wei, L., Laiping, Z., Xin, H., and Lixin, H.	Park, K., Kang, H., Lee, D., Lee, D., and Kwak, D.
University of Toronto, Canada	Middle East Technical University, Turkey	von Karman Institute for Fluid Dynamics, Belgium	NASA Ames Research Center, USA	State Key Laboratory of Aerodynamics, China	Seoul National University, South Korea

09:30 am – 12:30 pm

---

19 | Chairs: Steven ALLMARAS & Eli TURKEL — **Turbulence Modeling** — Ballroom II

09:30 am	10:00 am	10:30 am	11:00 am	11:30 am	12:00 pm
ICCFD7-1901	ICCFD7-1902	ICCFD7-1903	ICCFD7-1904	ICCFD7-1905	ICCFD7-1906
Use of Evolutionary Computation in the Analysis and Optimisation of Turbulence Models	*Modifications and Clarifications for the Implementation of the Spalart-Allmaras Turbulence Model*	*Improvement of Two-Equation Turbulence Model with Anisotropic Eddy-Viscosity for Hybrid Rocket Research*	*Fast Iterative Methods for Navier-Stokes Equations with a SST Turbulence Model and Dual Time Steps*	*Wavelet Decomposition of Turbulent Velocity and its Application to Subgrid Scale Modeling*	*Detached-Eddy Simulation Based on the v2-f Model*
Fabritius, B., and Tabor, G.	Allmaras, S. R. , Johnson, F. T., and Spalart, P. R.	Mikiro, M., and Shimada, T.	Turkel, E., Peles, O., and Yaniv, S.	Denev, J. A., Falconi, C. J., and Bockhorn, H.	Jee, S., and Shariff, K.
University of Exeter, UK	AeroDynamics Solutions, Inc., USA	University of Tokyo & JAXA, Japan	Tel Aviv University, Israel	Karluhe Institute of Technology, Germany	NASA Ames Research Center, USA

09:30 am – 12:30 pm

Tuesday, July 10, 2012

20 | Chairs: Susan CLIFF & Alaa ELMILIGUI — Design Optimization - I — Ballroom III

09:30 am – 12:30 pm

09:30 am	10:00 am	10:30 am	11:00 am	11:30 am	12:00 pm
ICCFD7-2001	ICCFD7-2002	ICCFD7-2003	ICCFD7-2004	ICCFD7-2005	ICCFD7-2006
Parametric Deformation of Discrete Geometry for Aerodynamic Shape Design	*Parameter Classification using Adjoint Derived Sensitivities for Aerodynamic Shape Optimization for Transonic Aircraft*	*Inverse and Variational Methods for Waverider Geometry Generation and Optimization*	*Numerical Predictions of Sonic Boom Signatures for Straight Line Segmented Leading Edge Model*	*Conceptual Design of Low Sonic Boom Aircraft Using Adjoint-Based CFD*	*Design of Rail Instrumentation for Wind Tunnel Sonic Boom Measurements and Computational-Experimental Comparisons*
Anderson, G. R., Aftosmis, M. J., and Nemec, M.	Wu, W., Fan, Z., Chen, D., Qin, N., Ma, X., and Tang, X.	Morgan, M., and Khaikine, V.	Elmiligui, A., Wilcox, F., Cliff, S., and Thomas, S.	Wintzer, M., and Kroo, I.	Cliff, S., Elmiligui, A., Aftosmis, M., Thomas, S., Morgenstern, J., and Durston, D.
Stanford University & NASA Ames Research Center, USA	State Key Laboratory of Aerodynamics, China	Hampton University, USA	NASA Langley Research Center, USA	Stanford University, USA	NASA Ames Research Center, USA

21 | Chairs: Michael BARAD & Alain BERLEMONT — Immersed Boundary & Multi-Phase & Level-Set — Ballroom IV

09:30 am – 12:30 pm

09:30 am	10:00 am	10:30 am	11:00 am	11:30 am	12:00 pm
ICCFD7-2101	ICCFD7-2102	ICCFD7-2103	ICCFD7-2104	ICCFD7-2105	ICCFD7-2106
Applications of Immersed Boundary Method and Conservative Phase Field Method for Solving the Incompressible Two-phase Flows	*Accurate Sharp Interface Scheme for Multimaterials*	*Boundary in Cell (BIC) Method for Gas-Solid Dynamics Simulations*	*Recent Progress on the LS-STAG Immersed Boundary Method for the Computation of Viscoelastic and non-Newtonian Flows*	*Simulation of Liquid/Gas Interface Break-up with a Coupled Level Set/VOF/Ghost Fluid Method*	*A Level Set Based Method to Simulate Contact Line Motion and Dynamic Contact Angles for Multiphase Flow*
Chiu, P.-H., Lin, Y.-T., Chang, C.-J., and Chan, Y.-K.	Gorsse, Y., Iollo, A., Milcent, T., and Telib, H.	Menshov, I.	Botella, O., and Cheny, Y.	Berlemont, A., Bouali, Z., Cousin, J., Desjonquères, P., Doring, M., Ménard, T., and Noël, E.	Rocca, G. D., and Blanquart, G.
Institute of Nuclear Energy Research, Taiwan	Université de Bordeaux, France	Russian Academy of Sciences, Russia	Nancy-Université, France	CORIA, France	California Institute of Technology, CA.

12:30 pm – 02:00 pm — Hosted Lunch — Bay Terrace Restaurant

22 | Chairs: Antony JAMESON & Meng-Sing LIOU — Numerical Methods & Algorithms - IV — Ballroom I

02:00 pm – 05:00 pm

02:00 pm	02:30 pm	03:00 pm	03:30 pm	04:00 pm	04:30 pm
ICCFD7-2201	ICCFD7-2202	ICCFD7-2203	ICCFD7-2204	ICCFD7-2205	ICCFD7-2206
LES Modeling with High-order Flux Reconstruction and Spectral Difference Schemes	*Improved Flux Formulations for Unsteady Low Mach Number Flows*	*Unresolved Problems by Shock Capturing*	*Dissipation of Upwind Schemes at High Wave Numbers*	*Flux Functions for Reducing Numerical Shockwave Anomalies*	*Effects of Numerical Diffusion and Mass Conservation Errors on Turbulent Transport of High Schmidt Number Scalars*
Lodato, G., and Jameson, A.	Hosangadi, A., Sachdev, J., and Sankaran, V.	Liou, M.-S.	Hannemann, V., Siegmund, A., Oßwald, K., Birken, P., Weinman, K., and Meister, A.	Zaide, D. W., and Roe, P. L.	Verma, S., and Blanquart, G.
Stanford University, USA	CRAFT Tech, USA	NASA Glenn Research Center, USA	DLR, Germany	University of Michigan, USA	California Institute of Technology, USA

Tuesday, July 10, 2012

23 | Chairs: Kozo FUJII & Daniel LIVESCU — **Direct Numerical Simulation Studies** — Ballroom II

02:00 pm – 05:00 pm

02:00 pm	02:30 pm	03:00 pm	03:30 pm	04:00 pm	04:30 pm
ICCFD7-2301	ICCFD7-2302	ICCFD7-2303	ICCFD7-2304	ICCFD7-2305	ICCFD7-2306
DNS Study on Turbulence Generation and Sustenance in Late Boundary Layer Transition	*Direct Numerical Simulation of Particle Dispersion in a Spatially Developing Turbulent Boundary Layer*	*Pressure Statistics from Direct Simulation of Turbulent Boundary Layer*	*Direct Numerical Simulations of Rayleigh-Taylor Instability with Gravity Reversal*	*A High-Order Shock-Fitting Non-Equilibrium Flow Solver for DNS of Strong Shock and Turbulence Interactions*	*Computational Investigation of Supersonic Boundary Layer Transition over Canonical Fuselage Nose Configurations*
Liu, C., Lu, P., Thapa, M., and Yan, Y.	Dodd, M. S., Webster, K., and Ferrante, A.	Gungor, A. G., Sillero, J. A., and Jiménez, J.	Livescu, D., and Wei, T.	Wang, X., and Zhong, X.	Choudhari, M., Tokugawa, N., Li, F., Chang, C.-L., White, J. A., Ishikawa, H., Ueda, Y., Atobe, T., and Fujii, K.
University of Texas at Arlington, USA	University of Washington, USA	Universidad Politecnica de Madrid, Spain	Los Alamos National Laboratory, USA.	University of California, Los Angeles, USA	NASA Langley Research Center, USA & JAXA, Japan

24 | Chairs: Markus RUMPFKEIL & K. SRINIVAS — **Design Optimization - II** — Ballroom III

02:00 pm – 05:00 pm

02:00 pm	02:30 pm	03:00 pm	03:30 pm	04:00 pm	04:30 pm
ICCFD7-2401	ICCFD7-2402	ICCFD7-2403	ICCFD7-2404	ICCFD7-2405	ICCFD7-2406
EGO Method for Diffusing S-duct Shape Design	*GA Optimization Design of Multi-Element Airfoil*	*Adjoint-based Optimization of the Flapping Wing Performance*	*Shock-Free Aerofoil/Wing Design Optimisation via Morphing Technique: Leading and Trailing Edge Deformation*	*A RANS-Based Optimal Design of Bleed System for Supersonic Inlets*	*Optimization Under Uncertainty Using Derivatives and Kriging Surrogate Models*
Bae, H. G., Park, S. H., and Kwon, J. H.	Chen, H., Zhang, Y., Zhang, W., Fu, S., Chen, Y., Li, Y., and Zhou, T.	Jones, M., and Yamaleev, N.	Lee, D. S., Srinivas, K., Periaux, J., and Oñate, E.	Liou, M.-F., and Gea, L.-M.	Rumpfkeil, M. P.
Korea Advanced Institute of Science and Technology, South Korea	Tsinghua University, China	North Carolina A&T State University, USA	CIMNE, Spain & University of Sydney, Australia	NASA Glenn Research Center, USA	University of Dayton, USA

25 | Chairs: Clinton GROTH & Marco CEZE — **Adjoint Methods & Mesh Adaptation** — Ballroom IV

02:00 pm – 05:00 pm

02:00 pm	02:30 pm	03:00 pm	03:30 pm	04:00 pm	04:30 pm
ICCFD7-2501	ICCFD7-2502	ICCFD7-2503	ICCFD7-2504	ICCFD7-2505	ICCFD7-2506
Automatic hp-Adaptation Using Continuous Adjoint and a Discontinuity Sensor	*Discrete Adjoint Error Estimation and Adaptive Refinement in Unsteady Flow Problems*	*Efficiently Modeling Viscous Flow Effects by Means of Regularization Turbulence Modeling and Local Grid Refinement*	*Block-Based Adaptive Mesh Refinement Finite-Volume Scheme for Hybrid Multi-Block Meshes*	*Numerical Simulation of Transient Flow in a Hypersonic Wind Tunnel*	**Withdrawn**
Li, L. Y., and Jameson, A.	Flynt, B. T., and Mavriplis, D. J.	van der Heideny, H. J. L., van der Plasy, P., Veldmany, A. E. P., Luppesy, R., and Verstappen, R. W. C. P.	Zheng, J. Z. X., and Groth, C. P. T.	Bensassi, K., Lani, A., Deconinck, H., and Rambaud, P.	
Stanford University, USA	University of Wyoming, USA	University of Groningen, The Netherlands	University of Toronto, Canada	von Kármán Institute for Fluid Dynamics, Belgium	

ICCFD7 Program: Wednesday, July 11, 2012

08:00 am – 09:00 am	**Invited Lecture**	Ballroom I-III

01 | Session

ICCFD7-0103

*Three Key Components of Today's CFD for Aerodynamic Design Innovation -
LES, Spectral-like Schemes and Data Mining Techniques*

Prof. Kozo FUJII

Japan Aerospace Exploration Agency, Japan

---

26 | Chairs: Stanley OSHER & M. HAFEZ — **Numerical Methods & Algorithms - V** — Ballroom I

09:30 am – 12:30 pm

09:30 am	10:00 am	10:30 am	11:00 am	11:30 am	12:00 pm
ICCFD7-2601	ICCFD7-2602	ICCFD7-2603	ICCFD7-2604	ICCFD7-2605	ICCFD7-2606
Numerical Simulation of Incompressible Flow using a Velocity-Pressure-Vorticity Formulation	*Variational Multiscale Simulation of Flow along a Circular Cylinder with Exact Geometry*	*Efficient Implementation of the CPR Formulation for the Navier-Stokes Equations on GPUs*	*A Simple Two-step Riemann Solver That Separates Acoustic Waves from Contact and Shear Waves*	*Discontinuous Numerical Perturbation Reconstructing Algorithm for Convective-Diffusion Equation*	*Robust Performance Assessment for an Oscillating Airfoil Using a Time-Spectral-Method and Uncertainty Propagation*
Chacón, B, and Hafez, M. M.	Ahn, H. T., Motlagh, Y. G., and Hughes T.	Hoffmann, M., Munz, C.-D., and Wang, Z. J.	Sun, M.	Gao, Z., and Shen, Y.	Congedo, P.M., Corre, C., and Abgrall, R.
University of California, Davis, USA	University of Ulsan, South Korea	Universität Stuttgart, Germany	Tohoku University, Japan	Chinese Academy of Sciences, China	INRIA, France

---

27 | Chairs: Fernando GRINSTEIN & Ashvin HOSANGADI — **Large Eddy Simulation & Detached Eddy Simulation** — Ballroom II

09:30 am – 12:30 pm

09:30 am	10:00 am	10:30 am	11:00 am	11:30 am	12:00 pm
ICCFD7-2701	ICCFD7-2702	ICCFD7-2703	ICCFD7-2704	ICCFD7-2705	ICCFD7-2706
Delayed-Detached Eddy Simulation for Optical Path Control on Backward Step Flow	*Implicit Large-Eddy Simulation of Isotropic Turbulent Mixing*	*LES Study on Vortex Ring-Shock Interaction Behind MVG*	*Towards Petascale LES of Reacting Flow*	*Adaptation-Based Detached Eddy Simulation of Air Flow Through a Short Inlet Duct with/without Coanda Injection*	*Evaluation of Numerical Dissipation Sensitivity of IDDES*
Lee, C. Y., Park, S. H., Cho, S., and Lee, I.	Grinstein, F. F., Wachtor, A. J., and DeVore, C. R.	Yan, Y., Wang, X., and Liu, C.	Yilmaz, S. L., Pisciuneri, P. H., and Givi, P.	Chen, Y., Sahni, O., Jansen, K. E., and Amitay, M.	Liu, J., Xiao, J., and Fu, S.
Konkuk University, South Korea	Los Alamos National Laboratory, USA	University of Texas at Arlington, USA	University of Pittsburgh, USA	Rensselaer Polytechnic Institute, USA	Tsinghua University, China

Wednesday, July 11, 2012

28 | Chairs: Remi ABGRALL & Taku NONAMURA — High-Order Methods - I — Ballroom III

09:30 am – 12:30 pm

09:30 am	10:00 am	10:30 am	11:00 am	11:30 am	12:00 pm
ICCFD7-2801	ICCFD7-2802	ICCFD7-2803	ICCFD7-2804	ICCFD7-2805	ICCFD7-2806
Symmetric-Conservative Metric Evaluations for Higher-Order Finite Difference Scheme with the GCL Identities on Three-Dimensional Moving and Deforming Mesh	*High Order Residual Distribution Scheme for the RANS Equations*	*High-Order Compact-Stencil Summation-By-Parts Operators for the Second Derivative with Variable Coefficients*	*Analysis of High-Order Residual-Based Dissipation for Unsteady Compressible Flows*	*On the High-Order Multidimensional Gas-Kinetic Scheme*	*Optimized Sixth Order Monotonicity-Preserving Scheme*
Abe, Y., Iizuka, N., Nonomura, T., and Fujii, K.	Abgrall, R., de Santis, D., and Ricchiuto, M.	Fernández, D. C. D. R., and Zingg, D. W.	Grimich, K., Cinnella, P., and Lerat, A.	Li, Q., and Fu, S.	Li, X., Leng, Y., and He, Z.
University of Tokyo, Japan	INRIA, France	University of Toronto, Canada	Arts et Métiers-ParisTech, France	Tsinghua University, China	Institute of Mechanics, CAS, China

29 | Chairs: Robert KUNZ & Jeffrey HOUSMAN — Multi-Phase Flows & Porous Media — Ballroom IV

09:30 am – 12:30 pm

09:30 am	10:00 am	10:30 am	11:00 am	11:30 am	12:00 pm
ICCFD7-2901	ICCFD7-2902	ICCFD7-2903	ICCFD7-2904	ICCFD7-2905	ICCFD7-2906
Simulation of Liquid Jet Breakup Process by Three-Dimensional Incompressible SPH Method	*Direct Numerical Simulation of Compressible Multi-Phase Flow with a Pressure-Based Method*	*CFD Analysis of Two-Phase Flow with a Prediction of Torque Demand of a Bi-Lobe Rotor of a Mixing Chamber*	*Integrated Adaptive Numerical Method for Transient Two-Phase Flow in Heterogeneous Porous Media*	*HPC Fluid Flow Simulations in Porous Media Geometries*	*A Discontinuous Galerkin Based Multiscale Method for Compressible Multi-Phase Flow*
Takashima, T., Ito, T., Shigeta, M., Izawa, S., and Fukunishi, Y.	Boger, M., Jaegle, F., Fechter, S., Weigand, B., and Munz, C.-D.	Chetan, C. J., Rajan, N. K. S., Kulkarni, P. S., and Padmanabhan, B.	Chueh, C. C., Bangerth, W., and Djilali, N.	Lieb, M., Mehl, M., and Neckel, T.	Jaegle, F., Fechter, S., Boger, M., Zeiler. C., and Munz, C.-D.
Tohoku University, Japan	University of Stuttgart, Germany	Indian Institute of Science, India	University of Victoria, Canada	Technische Universität Munchen, Germany	University of Stuttgart, Germany

12:30 pm – 02:00 pm — Hosted Lunch — Bay Terrace Restaurant

30 | Chairs: Jean-Jaques CHATTOT & Prakash KULKARNI — Aerothermodynamics, Reacting Flows & Heat Transfer - I — Ballroom I

02:00 pm – 05:00 pm

02:00 pm	02:30 pm	03:00 pm	03:30 pm	04:00 pm	04:30 pm
ICCFD7-3001	ICCFD7-3002	ICCFD7-3003	ICCFD7-3004	ICCFD7-3005	ICCFD7-3006
A Hydrothermal Convective Flow at Extremely High Temperature	*An Efficient Monte-Carlo Radiative Transport Algorithm for Aerothermodynamic Simulations*	*Robust and Accurate Computation of Multifluid Non-Reacting and Reacting Flows Using Discrete Equations Method, Anti-Diffusive Discretization and Upwind Controlled-Downwind Splitting*	*Investigation of Irreversibility in Data Centre Environment*	*Effect of Inlet Jet Injection Angle on a Calandria Based Reactor – An Investigation with Numerical Analysis of Heat & Mass Transfer for an Optimum Reactor Design*	*CFD Simulation of Subcooled Boiling Flow in Nuclear Fuel Bundle*
Komurasaki, S.	Sanna, A., Lani, A., Palomba, C., and Deconinck, H.	Tang, K., Beccantini, A., and Corre, C.	Fakhim, B., Srinarayana, N., Behnia, M., and Armfield, S. W.	Rajan, N. K. S., Kulkarni, P. S., and Reddy, M. V. R.	In, W. K., Shin, C. H., and Lee, C. Y.
Nihon University, Japan	Von Karman Institute for Fluid Dynamics, Belgium	CEA Saclay, France	The University of Sydney, Australia	Indian Institute of Science, India	Korea Atomic Energy Research Institute, South Korea

Wednesday, July 11, 2012

31 — Chairs: David SCHUSTER & Eiji SHIMA — Aeroelastic Predictions, Aeroacoustics, & Jets — Ballroom II

02:00 pm – 05:00 pm

02:00 pm	02:30 pm	03:00 pm	03:30 pm	04:00 pm	04:30 pm
ICCFD7-3101	ICCFD7-3102	ICCFD7-3103	ICCFD7-3104	ICCFD7-3105	ICCFD7-3106
A Summary of Data and Findings from the First Aeroelastic Prediction Workshop	*Towards Hybrid Grid CFD Simulations of the Launch Environment*	*Impact of Spatial and Temporal Resolution on the Aeroacoustic Wave from a Two-dimensional Impinging Jet*	*Analysis of Acoustic Wave from Supersonic Jets Impinging to an Inclined Flat Plate*	*Progress and Challenges in Liquid Rocket Combustion Stability Modeling*	*New Approaches for Efficient Computation of Low Mach Number Unsteady Flows with Sound Propagation*
Schuster, D. M.	Moini-Yekta, S., Barad, M., Sozer, E., Housman, J., Brehm, C., and Kiris, C.	Nonomura, T., Tsutsumi, S., Takaki, R., Shima, E., and Fujii, K.	Tsutsumi, S., Nonomura,T., Fujii, K., Nakanishi, Y., Okamoto, K., and Teramoto S.	Sankaran, V., Talley, D. and Harvazinski, M.	Shima, E.
NASA Langley Research Center, USA	NASA Ames Research Center, USA	Japan Aerospace Exploration Agency, Japan	Japan Aerospace Exploration Agency, Japan	US Air Force, USA	Japan Aerospace Exploration Agency, Japan

32 — Chairs: Spencer SHERWIN & Robert NOURGALIEV — Biological Flows — Ballroom III

02:00 pm – 05:00 pm

02:00 pm	02:30 pm	03:00 pm	03:30 pm	04:00 pm	04:30 pm
ICCFD7-3201	ICCFD7-3202	ICCFD7-3203	ICCFD7-3204	ICCFD7-3205	ICCFD7-3206
Numerical Modeling of Flow in Lower Urinary Tract Using High-Resolution Methods	*Multi-scale Multi-physics Modeling of Cerebral Blood Flow and Embolus Transport*	*Numerical Study of the Thunniform Mode of Fish Swimming with Different Caudal Fin Shapes*	*Numerical Simulation of Blood Flow through a Patient Specific Stented Cerebral Aneurysm Using an Immersed Boundary Approach*	*A Two-Dimensional Model of Blood Plasma Flow with Oxygen Transport and Blood Cell Membrane Deformation*	**Withdrawn**
Brandner, M., Egermaier, J., and Kopincová, H.	Bui, A., Nourgaliev, R., and Dinh, T. N.	Laiping, Z., Xinghua, C., and Xin, H.	Mendina, M., and Usera, G.	Tekleab, Y., and Harris, W.	
The University of West Bohemia, Czech Republic	Idaho National Laboratory, USA	State Key Laboratory of Aerodynamics, China	Universidad de la República, Uruguay	Massachusetts Institute of Technology, USA	

33 — Chairs: Pavel BURDA & David YOUNG — Free-Surface Flows & Analytical Methods — Ballroom IV

02:00 pm – 05:00 pm

02:00 pm	02:30 pm	03:00 pm	03:30 pm	04:00 pm	04:30 pm
ICCFD7-3301	ICCFD7-3302	ICCFD7-3303	ICCFD7-3304	ICCFD7-3305	ICCFD7-3306
Rivulet Evolution in Gravity-Driven Thin-Film Flows	*Viscoplastic Free-Surface Flows: The Herschel-Bulkley Case*	*Manning Friction in Steep Open-Channel Flow*	*Three-Dimensional Thin-Film Flow Over Topography: Full Navier-Stokes Solutions*	*Analytical Solution of Stokes Flow Near Corners and Applications to Solving Navier-Stokes Equations with High Precision*	*Use of Integral Boundary Layer Methods for Separated Flow and Thoughts on Fidelity in CFD*
Slade, D., Veremieiev, S., Lee, Y. C., and Gaskell, P. H.	Vigneaux, P.	Wang, T., and Chu, V. H.	Veremieiev, S., Thompson, H. M., and Gaskell, P. H.	Burda, P., Novotný, J., and Šístek, J.	Young, D. P.
University of Leeds, UK	Ecole Normale Supérieure de Lyon, France	McGill University, Canada.	University of Leeds, UK	Czech Technical University, Czech Republic	The Boeing Company, USA

ICCFD7 Program: Thursday, July 12, 2012

08:00 am – 09:00 am	**Invited Lecture**	Ballroom I-III

01 │ Session

ICCFD7-0104

*Recent Applications of a High-Fidelity Computational
Approach to the Prediction and Control of Complex Unsteady Flows*

Dr. Miguel VISBAL

Air Force Research Laboratory, USA

---

34 │ Chairs: Vadim SMELYYANSKIY & Emre SOZER   **Aerothermodynamics, Reacting Flows & Heat Transfer - II**   Ballroom I

Session time: 09:30 am – 12:30 pm

09:30 am	10:00 am	10:30 am	11:00 am	11:30 am	12:00 pm
ICCFD7-3401	ICCFD7-3402	ICCFD7-3403	ICCFD7-3404	ICCFD7-3405	ICCFD7-3406
Numerical Studies on the Influence of Periodical Flow Forcing on the Mixing Quality and Flow Structure of a Swirl Burner	*Numerical Simulation of the Carbon Combustion Synthesis of Oxides Particles*	*Ultra-Wet Operation of a Hydrogen Fueled GT Combustor: Large Eddy Simulation Employing Detailed Chemistry*	*A Numerical Study of Chaotic Dynamics in Thermal Ignition and Reactive Swirling Flow*	*Effects of P-1 Radiation Model on Heat Fluxes to Rocket Base Surface*	*Overheating Anomalies during Flight Test due to the Base Bleeding*
Schrödinger, C., Moeck, J. P., Paschereit, C. O., and Oevermann, M.	Markov, A., Filimonov, I., and Martirosyan, K.	Krüger, O., Duwig, C., Terhaar, S., and Paschereit, C. O.	Tavernetti, W. E., and Hafez, M. M.	Lee, J. W., Kim, J. G., and Kim, K. H.	Luchinsky, D., Hafiychuck, H., Osipov, V., Ponizhovskaya, E., Smelyanskiy, V., Dagostino, M., Canabal, F., and Mobley, B. L.
Institut für Strömungsmechanik und Technische Akustik, Germany	Russian Academy of Sciences, Russia	Technische Universität Berlin, Germany	University of California, Davis, USA	Seoul National University, South Korea	NASA Ames Research Center, USA

---

35 │ Chairs: Neal CHADERJIAN & Jaw-Yen YANG   **Wind Turbines & Rotorcraft Aerodynamics**   Ballroom II

Session time: 09:30 am – 12:30 pm

09:30 am	10:00 am	10:30 am	11:00 am	11:30 am	12:00 pm
ICCFD7-3501	ICCFD7-3502	ICCFD7-3503	ICCFD7-3504	ICCFD7-3505	ICCFD7-3506
Unsteady Hybrid Navier-Stokes/Vortex Model Applied to Wind Turbine Aerodynamics under Yaw Conditions	*Aerodynamic Analysis of Wind Turbines Rotors with High Lift Airfoils by Using Pre-Conditioned WENO Scheme*	*Numerical Simulation of Horizontal-Axis Wind Turbine (HAWT)*	*Effect of Inflow Conditions for Turbulence Models for Hovering Tilt-Rotor Flows*	*Development of a Coupled CFD-VPM Method*	*Advances in Rotor Performance and Turbulent Wake Simulation using DES and Adaptive Mesh Refinement*
Suzuki, K., and Chattot, J. J.	Huang, J. C., Lin, H., and Yang, J. Y.	Bergmann, M., and Iollo, A.	Kaul, U. K.	Anbarci, K., and Aslan, A. R.	Chaderjian, N. M.
University of California, Davis, USA	National Taiwan Ocean University, Taiwan	INRIA, France	NASA Ames Research Center, USA	Istanbul Technical University, Turkey	NASA Ames Research Center, USA

36 | Chairs: Miguel VISBAL & Z. J. WANG — **High-Order Methods - II** — Ballroom III

09:30 am – 12:30 pm

09:30 am ICCFD7-3601 *Very-High-Order Conservative Discretization of Diffusive Terms with Variable Viscosity* Gerolymos, G. A., and Vallet, I. Université Pierre et Marie Curie, France	**10:00 am** ICCFD7-3602 *High Order SFV Method for the Numerical Simulation of Gas Flows with Uncertainties* Tokareva, S., Mishra, S., and Schwab, C. ETH Zurich, Switzerland	**10:30 am** ICCFD7-3603 *Numerical Simulation with High-Order Scheme for Delta Wing Vortex Breakdown* Wang, G. China Aerodynamics Research and Development Center, China	**11:00 am** ICCFD7-3604 *DNS and ILES of Transitional Flows around a SD7003 using a High-Order Discontinuous Galerkin Method* de Wiart, C. C., and Hillewaert, K. Cenaero, Belgium	**11:30 am** ICCFD7-3605 *High-Order Central ENO Finite-Volume Scheme for MHD on Three-Dimensional Cubed-Sphere Grids* Ivan, L., Susanto, A., Groth, C. P. T., and Sterck, H. D. University of Waterloo, Canada	**12:00 pm** ICCFD7-3606 *High-Order Residual-Based Scheme on Unstructured Grids* Du, X., and Corre, C. Commercial Aircraft Corporation of China, China

37 | Chairs: Charles-Henri BRUNEAU & Michel BORREL — **Multi-Phase Flows, Jets & Cavitation** — Ballroom IV

09:30 am – 12:30 pm

09:30 am ICCFD7-3701 *Efficient Algorithm for Viscous Two-Phase Flows with Real Gas Effects* Abgrall, R., Rodio, M. G., and Congedo, P. M. INRIA, France	**10:00 am** ICCFD7-3702 *Comparative Study of AUSM-Family Schemes in Compressible Multi-Phase Flow Simulations* Kitamura, K., and Liou, M.-S. JAXA, Japan & NASA Glenn Research Center, USA	**10:30 am** ICCFD7-3703 *Numerical Simulations of Two-Dimensional Turbulent Thermal Convection on the Surface of a Soap Bubble* Bruneau, C.-H., Fischer, P., and Xiong, Y.-L. University of Bordeaux, France	**11:00 am** ICCFD7-3704 *A Weighted Essentially Non-Oscillatory Implementation of a Reynolds-Averaged Navier–Stokes Model for Richtmyer–Meshkov Instability-Induced Mixing* Moran-Lopez, J. T., Holloway, J. P., and Schilling, O. University of Michigan, USA	**11:30 am** ICCFD7-3705 *Dynamic Model of Vortex Cavitation based on Axisymmetric Navier-Stokes Equation* Ito, K., Ezure, T., Ohno, S., and Kamide, H. Japan Atomic Energy Agency, Japan	**12:00 pm** ICCFD7-3706 *SPH Simulation of Gas Arc Welding Process* Ito, M., Izawa, S., Fukunishi, Y., and Shigeta, M. Tohoku University, Japan

12:30 pm – 02:00 pm — **Hosted Lunch** — Bay Terrace Restaurant

38 | Chairs: Krzysztof FIDOWSKI & Xiaowen WANG — **Adaptive Methods** — Ballroom I

02:00 pm – 05:00 pm

02:00 pm ICCFD7-3801 *Simulations of Compressible Rayleigh-Taylor Instability Using the Adaptive Wavelet Collocation Method* Reckinger, S. J., Livescu, D., and Vasilyev, O. V. University of Colorado at Boulder, USA	**02:30 pm** ICCFD7-3802 *Parallel Output-Adaptive Solution Strategies for Unsteady Aerodynamics on Deformable Domains* Kast, M., Ceze, M., and Fidkowski, K. University of Michigan, USA	**03:00 pm** ICCFD7-3803 *A Conservation Adaptive Scheme for the Two-Dimensional Airfoil-Vortex Interaction Problem* Guardone, A., Isola, D., and Quaranta, G. Politecnico di Milano, Italy	**03:30 pm** ICCFD7-3804 *Dynamic Mesh Deformation for the Preconditioned Implicit Adaptive Non-Linear Frequency Domain Method (Adaptive NLFD)* Mosahebi, A., and Nadarajah, S. McGill University, Canada	**04:00 - 05:00 pm** **Panel Discussions** in Ballroom II

Thursday, July 12, 2012

39 | Chairs: Rustem ASLAN & Seiji TSUTSUNAMI — Flow Control & Drag Reduction — Ballroom II

02:00 – 05:00 pm

02:00 pm	02:30 pm	03:00 pm	03:30 pm	04:00 - 05:00 pm
ICCFD7-3901	ICCFD7-3902	ICCFD7-3903	ICCFD7-3904	
Study on Drag Reduction of a Ship Due to a Drainage Slit	*Numerical Simulation of the Vortex Dynamics and of the Flow Control Around a Simplified Ground Vehicle*	*Reduced Order Model for Flow Control on a Bluff Body*	*LES and PANS of Passive and Active Control of Flows Around Generic Vehicle Bodies*	**Panel Discussions** in Ballroom II
Aiming, L., Jiamei, W., and Wei, W.	Bruneau, C.-H., Creusé, E., Gilliéron, P., and Mortazavi, I.	Gilka, G., and Thiele, F.	Krajnovic, S.	
Wuhan University of Technology, China	University of Bordeaux, France	Technical University Berlin, Germany	Chalmers University of Technology, Sweden	

40 | Chairs: Rainald LÖHNER & Dmitry LUCHINSKY — Detonation & Explosion — Ballroom III

02:00 – 05:00 pm

02:00 pm	02:30 pm	03:00 pm	03:30 pm	04:00 - 05:00 pm
ICCFD7-4001	ICCFD7-4002	ICCFD7-4003	ICCFD7-4004	
Detonation in Rotating and Deformating Chambers	*Numerical Study on Three-Dimensional Rotating Detonation Wave in Cylinder Tube*	*Numerical Simulation of TNT-Al Explosives in Explosion Chamber*	*Three-Dimensional Phenomenon of Continuously Rotating Detonation Engines*	**Panel Discussions** in Ballroom II
Levin, V. A., Manuylovich, I. S., and Markov, V. V.	Xin-Meng, T., Ye-Tao, S., and Jian-Ping, W.	Togashi, F., Baum, J. D., and Löhner, R.	Zhou, R., Wang, J., and Wu, D.	
Institute of Mechanics of the MSU, Russia	Peking University, China	SAIC, USA	Beijing University of Aeronautics and Astronautics, China	

41 | Chairs: Haecheon CHOI & Marcello NAPOLITANO — Flapping/Pitching Wing Aerodynamics — Ballroom IV

02:00 – 05:00 pm

02:00 pm	02:30 pm	03:00 pm	03:30 pm	04:00 - 05:00 pm
ICCFD7-4101	ICCFD7-4102	ICCFD7-4103	ICCFD7-4104	
High-Fidelity Constrained Optimization of a Pitching and Plunging Airfoil	*Three-dimensional Flows around a Flapping Wing in Ground Effect*	*Large-Eddy Simulation of Unsteady Separation Over a Pitching Airfoil at High-Reynolds Number*	*High-Fidelity Flapping-Wing Aerodynamics Simulations with a Dynamic Unstructured Grid Based Spectral Difference Method*	**Panel Discussions** in Ballroom II
Culbreth, M., Allaneau, Y., and Jameson, A.	Kweon, J., and Choi, H.	You, D., and Bromby, W.	Yu, M., Wang, Z. J., and Hu, H.	
Stanford University, USA	Seoul National University, South Korea	Carnegie Mellon University, USA	Iowa State University, USA	

06:30 pm – 09:30 pm	**Hosted Luau**	Mauna Lani Bay Gardens

16

ICCFD7 Program: Friday, July 13, 2012

08:00 am – 09:00 am	**Invited Lecture**	Ballroom I-III

01	Session

ICCFD7-0105
From h to p Efficiently: What Stops High-Order Codes Running Efficiently at Low-Order and Vice Versa
Prof. Spencer SHERWIN
Imperial College, UK

42	Chairs: Nicholas BURGESS & Chongam KIM	**Discontinuous Galerkin Methods**	Ballroom I

09:30 am – 12:30 pm

09:30 am	10:00 am	10:30 am	11:00 am	11:30 am	12:00 pm
ICCFD7-4201	ICCFD7-4202	ICCFD7-4203	ICCFD7-4204	ICCFD7-4205	ICCFD7-4206
A Runge Kutta Discontinuous Galerkin Approach to Solve Reactive Flows on Structured and Unstructured Grids: The Parabolic and Source Operators	*High-Order Discontinuous Galerkin Methods for Turbulent High-Lift Flows*	*A Hermit WENO Reconstruction-Based Discontinuous Galerkin Method for Compressible Flows on Tetrahedral Grids*	*Multi-Dimensional Limiting Strategy for Arbitrary Higher-Order Discontinuous Galerkin Methods in Inviscid and Viscous Flows*	*An Implicit Reconstructed Discontinuous Galerkin Method on Tetrahedron Grids*	*The Multi-Dimensional Limiters for Discontinuous Galerkin Methods on Unstructured Grids*
Ryan, J., Billet, G., and Borrel, M.	Burgess, N. K., and Mavriplis, D. J.	Luo, H., and Li, S.	Park, J. S., and Kim, C.	Xia, Y., and Nourgaliev, R.	Li, W., and Ren, Y.-X.
ONERA, France	Science and Technology Corporation, USA	North Carolina State University, USA	Seoul National University, South Korea	North Carolina State University, USA	Tsinghua University, China

43	Chairs: Shishir PANDYA & James KLESS	**Fixed Wing Aerodynamics**	Ballroom II

09:30 am – 12:30 pm

09:30 am	10:00 am	10:30 am	11:00 am	11:30 am	12:00 pm
ICCFD7-4301	ICCFD7-4302	ICCFD7-4303	ICCFD7-4304	ICCFD7-4305	ICCFD7-4306
Airfoils Admitting Anomalous Behavior of Lift Coefficient in Descending Transonic Flight	*Characterization and Design of Tubercle Leading-Edge Wings*	*Numerical Study of the Aerodynamic Characteristics of A Winged Slender Body Dynamically Entering High Angles of Attack*	*External Aerodynamics Simulations on the D8 "Double-Bubble" Aircraft Design*	*Numerical Simulations on the 76/40° Double Delta Wing Using RANS/LES Hybrid Method*	*An Inviscid Analysis of Extended Formation Flight*
Kuzmin, A., and Ryabinin, A.	Lohry, M. W., Clifton, D., and Martinelli, L.	Xie, Y. F., Yuan, X. X., Deng, X. B., and Chen, Q.	Pandya, S. A.	Sun, D., Li, Q., and Zhang, H.	Kless, J. E., and Aftosmis, M. J.
St. Petersburg State University, Russia	Princeton University, USA	China Aerodynamics Research and Development Center, China	NASA Ames Research Center, USA	Beijing University of Aeronautics and Astronautics, China	Science and Technology Corporation, USA

Friday, July 13, 2012

44 | Chairs: Steven ARMFIELD & Hyung-Teak AHN — Boundary Layer Stability & Transition — Ballroom III

09:30 am – 12:30 pm

09:30 am	10:00 am	10:30 am	11:00 am	11:30 am	12:00 pm
ICCFD7-4401	ICCFD7-4402	ICCFD7-4403	ICCFD7-4404	ICCFD7-4405	ICCFD7-4406
Numerical Analysis of Stabilizing Effect of Longitudinal Wall-Oscillation for Two Dimensional Channel Flow	*Transition in Conjugate Natural Convection Boundary Layer Flow*	*Numerical Study on Leading Edge Receptivity of the Flat Plate Boundary Layer to Vortical Disturbance*	*Calibration and Application of γ-ReΘ Transition Model*	*Turbulent Thermal Boundary Layers Simulations in Rough Walls via DNS*	*Numerical Study of Instability and Laminar-Turbulent Transition of High-Speed Boundary Layers Using Navier-Stokes Equations and eN-Method*
Atobe, T.	Armfield, S. W., Williamson, N., and Kirkpatrick, M. P.	Nishio, Y., Shigeta, M., Izawa, S., and Fukunishi, Y.	Yuntao, W.	Chen, Y., Araya, G., and Castillo, L.	Soudakov, V. G., Egorov, I. V., and Fedorov, A. V.
Japan Aerospace Exploration Agency, Japan	The University of Sydney, Australia	Tohoku University, Japan	China Aerodynamics Research and Development Center, China	Rensselaer Polytechnic Institute, USA	Central Aerohydrodynamic Institute, Russia

45 | Chairs: Shigeru OBAYASHI & Pavel MOSES — Multi-Physics & Multi-Disciplinary Applications — Ballroom IV

09:30 am – 12:30 pm

09:30 am	10:00 am	10:30 am	11:00 am	11:30 am	12:00 pm
ICCFD7-4501	ICCFD7-4502	ICCFD7-4503	ICCFD7-4504	ICCFD7-4505	ICCFD7-4506
Heat and Fluid Flow Past Non-Spherical Particles at Different Angles of Attack	*Monolithic Solver in ALE Framework for Interaction of Incompressible Fluid and Elastic Structure*	*CFD Simulations of the Wind Environment at Shonai Airport Integrated with Weather Prediction Data*	*Development and Application of Multidisciplinary Coupled Computational Techniques for Projectile Aerodynamics*	*Numerical Study of Gas-Jet Wiping Process for Hot-Dip Galvanizing of Steel Strips*	**Withdrawn**
Richter, A., and Nikrityuk, P. A.	Moses, P.	Shimoyama, K., Nakanomyo, H., and Obayashi, S.	Sahu, J., Costello, M., and Montalvo, C.	Myrillas. K., Rambaud, P., and Buchlin, J.-M.	
Technische Universität Bergakademie Freiberg, Germany	Czech Technical University in Prague, Czech Republic	Tohoku University, Japan	U.S. Army Research Laboratory, USA	von Karman Institute for Fluid Dynamics, Belgium	