

ICCFD11 Program: Monday, July 11th, 2022

07:30 am – 08:00 am

Speaker's Briefing

08:00 am – 08:15 am

Opening Remarks by Co-Chairs

Ali'i Room

08:15 am – 09:15 am

Invited Lecture

Ali'i Room

01 | Session

ICCFD11-0101

Risks and Rewards of Multiphase Flow Simulations

Prof. Stéphane Zaleski

Sorbonne Université, Paris, France

02 | Chair: Prahalad Iyer

Large Eddy Simulation - I

Lanai Room

09:30 am – 12:00 pm

09:30 am

ICCFD11-0201

Turbulence Development Assessment in a LES Simulation
M. Bove, G. Cazes, M. Draper and M. Mendina

Universidad de la Republica, Uruguay

10:00 am

ICCFD11-0202

Atmospheric Boundary Layer Simulations with a LES Model Nested in a Regional Atmospheric Simulation

M. Bove, A. Vignolo, M. Mendina, G. Usera and G. Cazes
Universidad de la Republica, Uruguay

10:30 am

ICCFD11-2401

Fully-Automated High-Fidelity LES Around High-Lift Aircraft Configuration Near Stall

Hiroyuki Asada and Soshi Kawai
Tohoku University, Japan

11:00 am

ICCFD11-0204

Wall-Modeled LES of Turbulent Flow Over a Two-Dimensional Gaussian Bump

Prahladh S. Iyer and Mujeeb R. Malik
NASA Langley Research Center, USA

11:30 am

ICCFD11-0205

Evaluation of High-Lift Prediction Capability of Wall-modeled LES for a Multielement 30P30N Airfoil

Prahladh S. Iyer, William K. Anderson, Ponnampalam, Balakumar, Li Wang, Eric Nielsen and Mujeeb R. Malik
NASA Langley Research Center, USA

03 | Chair: Eric Ching

Mesh Motion and Adaptation - I

Molokai Room

09:30 am – 12:00 pm

09:30 am

ICCFD11-0301

High-Order Spatial and Temporal Approaches for Overset Applications and AMR Grids

Dylan Jude, Jayanarayanan Sitaraman and Andrew Wissink
U.S. Army Combat Capabilities Development Command, USA

10:00 am

ICCFD11-0302

Output-Based Mesh Adaptation for High-Speed Flows

James G. Coder, Benjamin L. S. Couchman, Marshall C. Galbraith, Steven R. Allmaras and Nick Wyman
University of Tennessee, Knoxville, USA

10:30 am

ICCFD11-0303

Flux Reconstruction Solver for Arbitrarily Unstructured Grids with R-refinement

R. Dhib, F. Ben Ameer, R. Vandenhoeck, A. Lani and S. Poedts
University of Leuven, Belgium

11:00 am

ICCFD11-0304

Effect of Anisotropic Mesh Adaptation on Surface Pressure Predictions for Atmospheric Entry Simulations

D. Ekelschot and J.M. Brock
NASA Ames Research Center, USA

11:30 am

ICCFD11-0305

Anisotropic Mesh Modifications for the Moving Discontinuous Galerkin Method with Interface Condition Enforcement for Robust Simulations of High-Speed Viscous Flows

Eric J. Ching, Andrew Kercher and Andrew Corrigan
Naval Research Laboratory, USA

Monday, July 11th, 2022

04 | Chair: David Zingg

Higher Order Methods - I

Oahu Room

09:30 pm - 12:00 pm	09:30 am ICCFD11-0401 <i>Stable and Non-dissipative Kinetic-Energy and Entropy Preserving (KEEP) Schemes for Compressible Flows</i> Y. Kuya and S. Kawai Tohoku University, Japan	10:00 am ICCFD11-0402 <i>Positivity-Preserving Entropy Stable Spectral Collocation Schemes of Arbitrary Order of Accuracy for the 3-D Navier-Stokes Equations</i> N. K. Yamaleev and J. Upperman Old Dominion University, USA	10:30 am ICCFD11-0403 <i>Stable and Conservative High-Order Methods on Triangular Elements Using Tensor-Product Summation-By-Parts Operators</i> T. Montoya and D. W. Zingg University of Toronto, Canada	11:00 am ICCFD11-0404 <i>Obtaining Accurate Functionals from High-Order Generalized Summation-by-Parts Discretizations in Curvilinear Coordinates</i> D.A. Craig Penner and D.W. Zingg University of Toronto, Canada	11:30 am ICCFD11-0405 <i>Assessment of a High-Order Implicit Residual Smoothing Time Scheme for Multiblock Curvilinear Meshes</i> A. Bienner, X. Gloerfelt and P. Cinnella Arts et Metiers Tech, France
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12:00 pm - 1:15 pm

Hosted Lunch

Hale Piilani Room

05 | Chair: Paola Cinnella

Discrete Galerkin Methods

Lanai Room

01:15 pm - 2:45 pm	01:15 pm ICCFD11-0501 <i>Large-Scale Investigation of 3D Discontinuous-Galerkin-Hancock Method for Hyperbolic Balance Laws with Stiff Local Sources</i> W. Kaufmann and J.G. McDonald University of Ottawa, Canada	01:45 pm ICCFD11-0502 <i>Deneb: An Open-Source High-Performance Flow Solver Based on DRM-DG Method</i> Hojun You, Juhyun Kim and Chongam Kim Seoul National University, S. Korea			
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06 | Chair: Neal Chaderjian

Rotorcraft CFD

Molokai Room

01:15 pm - 2:45 pm	01:15 pm ICCFD11-0601 <i>Wake Breakdown in High-Fidelity CFD Simulations of Rotor-in-Hover: New Tools & Insights</i> Nathan Hariharan, Jennifer N. Abras, and Robert Narducci Department of Defense (DoD) High Performance Computing Modernization Program, USA	01:45 pm ICCFD11-0602 <i>Optimization of Non-Conventional Airfoils for Martian Rotorcraft using Direct Numerical Simulations</i> Lidia Caros, Oliver Buxton and Peter Vincent Imperial College, UK	02:15 pm ICCFD11-0603 <i>Quantitative Approach for the Accurate CFD Simulation of Hover in Turbulent Flow</i> Neal M. Chaderjian NASA Ames Research Center, USA		
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Monday, July 11, 2022

07 Chair: Scott Morton		Multidisciplinary Methods		Oahu Room	
01:15 pm - 2:45 pm	01:15 pm ICCFD11-0701 <i>A Multi-Physics Modeling Framework for Plasma Wind Tunnels</i> A. Munafo, V. Le Maout, S. Kumar, R. Chiodi, F. Panerai, K. Stephani, D. J. Bodony, and M. Panesi University of Illinois, Urbana-Champaign, USA	01:45 pm ICCFD11-0702 <i>A Nonlinear Schur Complement Solver for CFD-Based Multidisciplinary Models</i> Anil Yildirim, Justin S. Gray, and Joaquim R. R. A. Martins University of Michigan, USA	02:15 pm ICCFD11-0703 <i>An Infrastructure for Algorithmic Flexibility in Multi-fidelity and Multi-disciplinary CFD Simulations</i> S. Morton, N. Hariharan, and D. McDaniel Department of Defense High Performance Computing Modernization Program, USA		
	08 Chair: Michel Bergmann		Fluid Structure Interaction & Porosity		Lanai Room
	03:00 pm - 04:30 pm	03:00 pm ICCFD11-0801 <i>Fluid-Structure Interaction with Multi-Body Collision: Application to Collective Fish Swimming in an Impermeable or Porous Enclosure</i> M. Bergmann National Institute for Research in Digital Science and Technology (INRIA), France	03:30 pm ICCFD11-0802 <i>XCOMPUTE: Algorithms and Instruction Sequences for CFD/FEA Multi-Physics</i> G.J. Orr, R.J. Kwan and M. Doudar Xplicit Computing Inc, USA	04:00 pm ICCFD11-0803 <i>Prediction of Permeability for Porous Materials Using a Surrogate Model</i> Vijay B. Mohan Ramu and Savio J. Poovathingal University of Kentucky, USA	
09 Chair: Gerrit-Daniel Stich		Actuator Disk		Molokai Room	
03:00 pm - 04:30 pm		03:00 pm ICCFD11-0901 <i>Propeller Representation in Full- Vehicle CFD: Actuator Disk Versus Body-Force Modeling Approaches</i> Tianbo Xie and Alejandra Uranga University of Southern California-Los Angeles, USA	03:30 pm ICCFD11-0902 <i>Improved Actuator Line Method For Ducted Fan Applications</i> M-A. Breault and G. Dumas Laval University, Canada	04:00 pm ICCFD11-0903 <i>Validation of Actuator Disk, Actuator Line and Sliding Mesh Methods within the LAVA Solver</i> Gerrit-Daniel Stich, Luis S. Fernandes, Gaetan Kenway, Jeffrey A. Housman and Cetin C. Kiris NASA Ames Research Center, USA	
	10 Chair: H. T. Huynh		Higher Order Methods - II		Oahu Room
	03:00 pm - 04:30 pm	03:00 pm ICCFD11-1001 <i>Output-Based h-p Refinement Strategy with Anisotropic AMR and High-Order CENO Finite-Volume Scheme for Three-Dimensional Inviscid Flows</i> C. N. Ngigi and C. P. T. Groth University of Toronto, Canada	03:30 pm ICCFD11-1002 <i>A High-Order Low-Dissipation Euler-Lagrange Method for Compressible Gas-Particle Flows</i> Meet Patel and Jesse Capecelatro University of Michigan, USA	04:00 pm ICCFD11-1003 <i>Discontinuous Galerkin, Implicit Runge-Kutta, and Collocation Methods for Ordinary Differential Equations (or Time Stepping)</i> H. T. Huynh NASA Glenn Research Center, USA	04:30 pm ICCFD11-3503 <i>Recent Development of Entropy Split Methods for Gas Dynamics and MHD</i> H.C. Yee, and Björn Sjögren NASA Ames Research Center, USA
06:00 pm - 08:00 pm		Hosted Reception		Ocean Cottage Lawn	

ICCFD11 Program: Tuesday, July 12, 2022

07:30 am – 08:00 am

Speaker's Briefing

08:15 am – 09:15 am

Invited Lecture

Ali'i Room

11 | Session

ICCFD11-1101

Digital Transformation and Smart Design in Manufacturing Process Realized on the Supercomputer "Fugaku"

Prof. Makoto Tsukobura
Kobe University, Kobe, Japan

12 | Chair: Jeffrey Housman

Acoustics

Lanai Room

09:30 am – 12:00 pm

09:30 am

ICCFD11-1201

Ray Tracing Methodology for Jet Noise Prediction

T. Shanbhag, B. Y. Zhou, C. R. S. Ilário and J. J. Alonso
Stanford University, USA

10:00 am

ICCFD11-1202

A Zonal Direct-Hybrid Aero-acoustic Simulation Framework Using a High-Order Discontinuous Galerkin Spectral Element Method

D. Kempf and C.-D. Munz
Universitat Stuttgart, Germany

10:30 am

ICCFD11-1203

Assessment of Wavelet-based Separation Algorithms on Turbulent Boundary Layer Trailing-Edge Noise Prediction

D.H. Kang and S. Lee
University of California, Davis, USA

11:00 am

ICCFD11-1204

Predicting Orion Launch Abort Acoustics

F. Cadieux, M. Barad, J. Jensen, J. Angel and C. Kiris
NASA Ames Research Center, USA

11:30 am

ICCFD11-1205

Algorithmic Improvements to a High-Order Space Marching Method for Sonic Boom Propagation

J. Housman, J. Jensen, G. Kenway and C. Kiris
NASA Ames Research Center, USA

13 | Chair: Michael Olsen

Mesh Motion and Adaptation - II

Molokai Room

09:30 am – 12:00 pm

09:30 am

ICCFD11-1301

Developing a Modern CFD Framework with Parallel Algorithms and Mesh Adaption

J. McKee, Y. Mileyko, A. Fisher and A. Koniges
University of Hawaii, USA

10:00 am

ICCFD11-1302

A Method for Geometry-Sensitive, CFD Solver Independent Mesh Adaptation

N. Wyman, M. Mirsky, P. Galpin and T. Hansen
Cadence CFD, USA

10:30 am

ICCFD11-1303

Parametrically Uniform Mesh Adaption for Unstructured Grids

M. Lawry and M. Opgenorth
Sierra Space, USA

11:00 am

ICCFD11-1304

Automatic Boundary-Layer Adaptation of Structured Grids in VULCAN-CFD

A. Scholten, P. Paredes, F. Li, J. White, R. Baurle and M. Choudhari
NASA Langley Research Center, USA

11:30 am

ICCFD11-1305

Adaptive Mesh Refinement and Turbulence Modeling

Michael E. Olsen
NASA Ames Research Center, USA

Tuesday, July 12, 2022

14 Chair: Steven Tran		Numerical Methods - I			Oahu Room
09:30 am – 12:00 pm	<p>09:30 am ICCFD11-1401 <i>A Conservative Overset Method for Unstructured Grids</i> Steven Tran, and Jayanarayanan Sitaraman U.S. Army Combat Capabilities Development Command, USA</p>	<p>10:00 am ICCFD11-1402 <i>An Efficient Edge Based Data Structure for a Vertex Based Finite Volume Algorithm on Hybrid Unstructured Meshes</i> S. Akkurt, and M. Sahin Istanbul Technical University, Turkey</p>	<p>10:30 am ICCFD11-1403 <i>Analysis of Edge-Based Method on Tetrahedra for Diffusion</i> Boris Diskin, Hiroaki Nishikawa, and Yi Liu National Institute of Aerospace, USA</p>	<p>11:00 am ICCFD11-1404 <i>Laminar and Turbulent Behavior Captured by A 3-D Kinetic-Based Discrete Dynamic System</i> Xiaoyu Zhang, J. M. McDonough, and Huidan Yu Purdue University, USA</p>	<p>11:30 am ICCFD11-1405 <i>Numerical Simulations of Laminar Separated Flows Based on Compressible & Incompressible Navier-Stokes Equations for Engineering Education</i> A. Chuen, and M. Hafez University of California, Davis, USA</p>
12:00 pm – 01:15 pm		Hosted Lunch			Hale Piilani Room
15 Chair: Cetin Kiris		Applied CFD - I			Lanai Room
1:15 pm – 2:45 pm	<p>01:15pm ICCFD11-1501 <i>Characterising the Standing Wave Airflow Instability in the Print Gap of Inkjet Printers</i> A. F. V. de A. Aquino, S. G. Mallinson, G. D. McBain, G. D. Horrocks, C. M. de Silva, and T. J. Barber University of New South Wales, Australia</p>	<p>01:45 pm ICCFD11-1502 <i>Development of the PISALE Codebase for Simulating Flow and Transport in Large-scale Coastal Aquifer</i> Young-Ho Seo, Jonghyun Lee, Alice Koniges, and Aaron Fisher University of Hawaii, USA</p>	<p>02:15 pm ICCFD11-1503 <i>Simulation Methodology for Quasi-static Conjugate Heat Transfer Approach of Brake Disc</i> H.R. Balaji Wabtec India Industrial Private Limited, India</p>		
16 Chair: James Coder		Shock Capturing			Molokai Room
1:15 pm – 2:45 pm	<p>01:15 pm ICCFD11-1601 <i>Comparative Assessment of Accuracy of Shock-Capturing Schemes in Terms of Local-Truncation-Error</i> Yoonpyo Hong, Soo Hyung Park, and Kwanjung Yee Seoul National University, South Korea</p>	<p>01:45 pm ICCFD11-1602 <i>A Shock Capturing Sub-Filter Scale Legendre Spectral Viscosity (LSV) Closure Applied to High-Order Flux Reconstruction Schemes</i> V. C. B. Sousa, and C. Scalo Purdue University, USA</p>	<p>02:15 pm ICCFD11-1603 <i>Robust, Compact Shock Capturing for High-Order Navier-Stokes Simulations</i> J. G. Coder, R. Holst, and R. G. Glasby University of Tennessee – Knoxville, USA</p>		

Tuesday, July 12, 2022

17 | Chair: Francois Cadieux

Numerical Methods - II

Oahu Room

1:15 pm – 2:45 pm	<p>01:15 pm ICCFD11-1701 <i>Progress in the Usage of Inexact Linearizations in Piggy-Back Iterations for Adjoint Computation</i> E. Padway National Institute of Aerospace, USA</p>	<p>01:45 pm ICCFD11-1702 <i>Improving the Performance of a Compressible RANS Solver for Low and High Mach Number Flows</i> Sabet Seraj, Anil Yildirim, Joshua L. Anibal, Joaquim R. and R. A. Martins University of Michigan, USA</p>	<p>02:15 pm ICCFD11-1703 <i>Level-Set Immersed Boundary Technique for Turbulent Flow Simulations</i> R. Boukharfane, S. Benjelloun, and M. Parsani Mohammed VI Polytechnic University, Morocco</p>		

18 | Chairs: Shishir Pandya & Christoph Brehm

Special Session

Ali'i Room

03:00 pm – 04:30 pm	<p>3:00 pm <i>Memorial Lecture for Dr. Joseph S. Shang</i> D. Gaitonde The Ohio State University, USA</p>	<p>03:30 pm ICCFD11-1802 <i>Progress Toward Realizing the CFD Vision 2030</i> John R. Chawner Cadence CFD, USA</p>	<p>4:00 pm – 5:00 pm <i>Panel Discussion</i> <i>From Joe Shang to Vision 2030: Future of CFD</i></p>		

ICCFD11 Program: Wednesday, July 13, 2022

07:30 am – 08:00 am

Speaker's Briefing

08:15 am – 09:15 am

Invited Lecture

Ali'i Room

19 | Session

ICCFD11-1901

Computational Experiments in Turbulent Flows: From Numerics to Improved Modeling

Prof. Sanjiva K. Lele
Stanford University

20 | Chair: Claudia Parisuana

Applied CFD - II

Lanai Room

09:30 am – 12:00 pm

09:30 am
ICCFD11-2001
A Time-accurate, Fast-running CFD Method for the Prediction of A Full Aircraft Flutter Boundary
H. Q. Yang, and Ben Armstrong
CFD Research Corporation, USA

10:00 am
ICCFD11-2002
UAV Icing: Simulation of Aerodynamic Performance Degradation with CFD
R. Hann
Norwegian University of Science and Technology, Norway

10:30 am
ICCFD11-2003
Application of a CFD Modeling Framework to High Energy Density Regimes
D. Eder, C. Parisuana, M. Gauthier, C. Schoenwaelder, and S. Glenzer
University of Hawaii, USA

11:00 am
ICCFD11-2004
Numerical Investigation of a Bio-Inspired Airfoil with Air-Permeable Holes
E. Tangermann, G. Ercolani, and M. Klein
Universität der Bundeswehr München, Germany

11:30 am
ICCFD11-2005
Influence of Canard on the Longitudinal and Lateral-Directional characteristics of a Delta configuration at Low Speeds
Pathanjali R.J, Praveen Kumar B, Muralidhar M, and Subhendu Saha
Aeronautical Development Agency, India

21 | Chair: Rebecca Barney

Multiphase Flows - I

Molokai Room

09:30 am – 12:00 pm

09:30 am
ICCFD11-2101
Pseudo-Boiling of Supercritical Water
R. Barney, R. McCallen, and J.P. Delplanque
Lawrence Livermore National Laboratory, USA

10:00 am
ICCFD11-2102
All-speed Multi-phase Computational Framework for Simulating the Entire Process of Underwater Explosions: Shocks, Cavitations, and Bubble Pulsations
Kyungjun Choi, and Chongam Kim
Seoul National University, South Korea

10:30 am
ICCFD11-2103
Simulation of Cloud Cavitating Flow in a Venturi Using RANS and DES in OpenFOAM
Dhruv Apte, Mingming Ge, and Olivier Couder-Delgosha
VA Tech., USA

11:00 am
ICCFD11-2104
Moment Closure Description of Polydisperse, Polykinetic and Evaporating Liquid Sprays
T. F. Leung, and C. P. T. Groth
University of Toronto, Canada

11:30 am
ICCFD11-2105
A Polydisperse Gaussian-Moment Method for Extended Statistical Modelling of Multi-phase Flows
M. Marchildon, B. Allard, L. Ivan, and J.G. McDonald
University of Ottawa, Canada

22 | Chair: Thomas Schwartzentruber

Hypersonics - I

Oahu Room

09:30 am – 12:00 pm

09:30 am
ICCFD11-2201
Verification of Nonequilibrium Thermochemistry Models for Hypersonic CFD by First-Principles Simulation
E. Torres, T. Gross, E. Geistfeld, and T.E. Schwartzentruber
University of Minnesota, USA

10:00 am
ICCFD11-2202
Arbitrary Lagrangian Eulerian Simulations of High Speed Particle Impacts Encountered During Hypersonic Flight
Peter Yip, Erik Torres, Ioannis Nompelis, and Thomas E. Schwartzentruber
University of Minnesota, USA

10:30 am
ICCFD11-2203
Effect of Atmospheric Particulates on Hypersonic Boundary Layer Transition
J. B. Habeck, S. Melander, and G. V. Candler
U. of Minnesota, USA

11:00 am
ICCFD11-2204
Property-Preserving Limiters for Discontinuous Galerkin Discretizations of Hyperbolic Problems
D. Kuzmin
Technical University Dortmund, Germany

Wednesday, July 13, 2022

12:00 pm – 01:15 pm

Hosted Lunch

Hale Piilani Room

23 | Chair: Christoph Brehm

Cartesian Grid Methods

Lanai Room

01:15 Pm – 02:45 pm

01:15 pm
ICCFD11-2301
High-Order Cut-Cell Methods for High-Fidelity Flow Simulations
 P. T. Brady and D. Livescu
 Los Alamos National Laboratory, USA

01:45 pm
ICCFD11-2302
Comparison of LBM-RANS and LBM-VLES for 3D Taylor-Green Vortex Problems
 A. Jammalamadaka, Y. Li, R. Zhang, and H. Chen
 Dassault Space Systems, USA

24 | Chair: TBD

High-Lift Systems CFD

Molokai Room

01:15 Pm – 02:45 pm

01:15 pm
ICCFD11-2401
Fully-Automated High-Fidelity LES Around High-Lift Aircraft Configuration Near Stall
 Hiroyuki Asada and Soshi Kawai
 Tohoku University, Japan
Moved to Session 2, Monday, July 11 at 10:30 am

01:45 pm
ICCFD11-2402
RANS Computations of 3D Flows Past JAXA and NASA CRM High Lift Models using Various Turbulence Models
 R. K. Agarwal and K. Hendrickson
 U. of Washington, USA

02:15 pm
ICCFD11-2403
Hybrid RANS-LES Simulations of the NASA High-Lift Common Research Model
 N. Ashton, P. Gatten, and V. Skaperdas
 Amazon Web Services, UK

25 | Chair: Shishir Pandya

Multi-material Flows

Oahu Room

01:15 Pm – 02:45 pm

01:15 PM
ICCFD11-2501
Discontinuous Galerkin Methods for Multi-Material Shock Hydrodynamics
 A. Pandare, W. Li, J. Waltz, H. Luo, and J. Bakosi
 Los Alamos National Laboratory, USA

01:45 PM
ICCFD11-2502
A Moving Discontinuous Galerkin Finite Element Method with Interface Condition Enforcement for Compressible Multi-material Flows
 H. Luo, G. Absillis and R. Nourgaliv
 North Carolina State University, USA

Wednesday, July 13, 2022

26 Chair: Savio Poovathingal		Ablation		Lanai Room
03:00 pm - 4:30 pm	<p>03:00 pm ICCFD11-2601 <i>Effects of Thermochemical Non-Equilibrium in the Boundary Layer of an Ablative Thermal Protection System: A State-to-State Approach</i> F. Bonelli, D. Ninni, L. D. Pietanza, G. Colonna, B. Helber, T. E. Magin, and G. Pascazio Politecnico di Bari, Italy</p>	<p>03:30 pm ICCFD11-2602 <i>Study of Effect of Equilibrium and Finite-Rate Gas-Surface Interactions on Ablation of Graphite Material in Fully-Coupled Simulation between CHAMPS and KATS Solvers</i> Aleksander L. Zibitsker, Joel A. McQuaid, Christoph Brehm, and Alexandre Martin University of Kentucky, USA</p>	<p>04:00 pm ICCFD11-2603 <i>Hinge Method for CFD and Fluid- Ablation Interaction Modeling</i> R. Fu and A. Martin University of Kentucky, USA</p>	
27 Chair: Pedro Paredes		Transition Modeling		Molokai Room
03:00 pm - 4:30 pm	<p>03:00 pm ICCFD11-2701 <i>Receptivity of the BoLT-II Boundary Layer to Freestream Disturbances and Surface Roughness</i> Zachary M. Johnston, Luke J. Melander, and Graham V. Candler University of Minnesota, USA</p>	<p>03:30 pm ICCFD11-2702 <i>The Harmonic Linearized Navier-Stokes Equations for Transition Prediction in Three-Dimensional Flows</i> P. Paredes, M. Choudhari, M. Carpenter, and F. Li NASA Langley Research Center, USA</p>	<p>04:00 pm ICCFD11-2703 <i>Dynamic QSV-Based Large Eddy Simulation of Hypersonic Boundary Layer Transition Delay via an Impedance Boundary</i> V. C. B. Sousa, V. Wartemann, A. Wagner, and C. Scalo Purdue University, USA</p>	
28 Chair: Antonino Ferrante		Direct Navier-Stokes		Oahu Room
03:00 pm - 4:30 pm	<p>03:00 pm ICCFD11-2801 <i>Direct Numerical Simulation of a Turbulent Boundary Layer Separating Over a Curved Wall Using FastRK3</i> A. B. Aithal and A. Ferrante University of Washington, USA Moved to Session 31, Thursday, July 14, 11:00 am</p>	<p>03:30 pm ICCFD11-2802 <i>Direct Numerical Simulation Of Boundary Layer Transition At Mach 6 Over An Ablative Surface Approaching A 95-Degree Compression Ramp</i> B. Vollmer, and D. J. Bodony University of Illinois, Urbana-Champaign, USA</p>	<p>04:00 pm ICCFD11-2803 <i>Direct Numerical Simulation of differentially heated cavity at low Prandtl numbers</i> J. Oder, M. Alami, L. Koloszar, W. Munter, and D. Laubeur von Karman Institute, Belgium</p>	

ICCFD11 Program: Thursday, July 14, 2022

07:30 am – 08:00 am		Speaker's Briefing			
08:15 am – 09:15 am		Invited Lecture		Ali'i Room	
29 Session		<p style="text-align: center;">ICCFD11-2901 Recent Advances and Future Prospects for Hypersonic CFD <i>Prof. Graham Candler</i> <i>University of Minnesota</i></p>			
30 Chair: Jubaraj Sahu		Numerical Methods - III		Lanai Room	
09:30 am – 12:00 pm	<p>09:30 am ICCFD11-3001 <i>An Adaptive Space-Time Hyperbolic Navier-Stokes Solver for Two-Dimensional Unsteady Viscous Flows</i> <i>E. Padway and H. Nishikawa</i> <i>National Institute of Aerospace, USA</i></p>	<p>10:00 am ICCFD11-3002 <i>Time-Accurate Solution of Unsteady Flows in an Implicit Solver Using Block LUSG Method</i> <i>M. R. Nived, Sai Saketha Chandra Athkuri, and Vinayak Eswaran</i> <i>Indian Institute of Technology Hyderabad, India</i></p>	<p>10:30 am ICCFD11-3003 <i>Bound-Preserving and Entropy-Stable Algebraic Flux Correction Schemes for the Shallow Water Equations with Topography</i> <i>H. Hajduk and D. Kuzmin</i> <i>Technical University Dortmund, Germany</i></p>	<p>11:00 am ICCFD11-3004 <i>Advanced CFD-Based Coupled Computational Approach for Prediction of Complex Flight Behaviors</i> <i>Jubaraj Sahu, Bradley Burchett, and Benjamin Gruenwald</i> <i>Oak Ridge Associated Universities, USA</i></p>	<p>11:30 am ICCFD11-3005 <i>Development of Three-Dimensional Ray Tracing Solver for Communication Blackout in Atmospheric Entries</i> <i>Vincent F. Giangaspero, V. Sharma, S. Poedts, and A.Lani von Karmen Institute, Belgium</i></p>
	31 Chair: Aditya Gbate		Turbulent Flows		Molokai Room
09:30 am – 12:00 pm	<p>09:30 am ICCFD11-3101 <i>Dynamic Scale-Resolving Paradigm for Coarse Grained Simulations of Turbulent Mixing</i> <i>Fernando F. Grinstein</i> <i>Los Alamos National Laboratory, USA</i></p>	<p>10:00 am ICCFD11-3102 <i>Direct Numerical Simulation of Turbulent Flow Using Hyperbolic Moment Methods</i> <i>L. Ivan and W. Kaufmann</i> <i>Canadian Nuclear Laboratories, Canada</i></p>	<p>10:30 am ICCFD11-3103 <i>Synthesizing Turbulent Channel Flow</i> <i>John William Poduska, Sr.</i> <i>Massachusetts Institute of Technology, USA</i></p>	<p>11:00 am ICCFD11-2801 <i>Direct Numerical Simulation of a Turbulent Boundary Layer Separating Over a Curved Wall Using FastRK3</i> <i>A. B. Aithal and A. Ferrante</i> <i>University of Washington, USA</i></p>	<p>11:30 am ICCFD11-3105 <i>Flow Field Reconstruction for Inhomogeneous Turbulence Using Data and Physics Driven Models</i> <i>Aditya S. Gbate, and Sanjiva K. Lele</i> <i>Stanford University, USA</i></p>
	32 Chair: Chun Tang		Hypersonics - II		Oahu Room
09:30 am – 12:00 pm	<p>09:30 am ICCFD11-3201 <i>Comparison and Uncertainty Assessment of CFD Codes for Hypersonic Flow Modeling</i> <i>C. N. Onyeador, C. J. Waligura, L. Lopez, D. Hoskins, K. M. Sabo, and W. L. Harris</i> <i>Massachusetts Institute of Technology, USA</i></p>	<p>10:00 am ICCFD11-3202 <i>Reconstructing Arc-Jet Environments Using 2D Material Response Models</i> <i>L.P. Askins and A. Martin</i> <i>University of Kentucky, USA</i></p>	<p>10:30 am ICCFD11-3203 <i>Characterization and Modeling of Spallation in Thermal Protection Systems</i> <i>K. Price, S. Bailey, and A. Martin</i> <i>University of Kentucky, USA</i></p>	<p>11:00 am ICCFD11-3204 <i>A High-Order Scheme for the Numerical Simulation of High-Enthalpy Hypersonic Flows</i> <i>D. Passiatore, L. Sciacovelli, P. Cinnella, and G. Pascazio</i> <i>Politecnico di Bari, Italy</i></p>	<p>11:30 am ICCFD11-3205 <i>Rapid Hypersonic Simulations Using US3D and Pointwise</i> <i>C. Tang</i> <i>NASA Ames Research Center, USA</i></p>

Thursday, July 14, 2022

12:00 pm – 01:15 pm		Hosted Lunch		Hale Piilani Room		
33 Chair: Derek Dalle		Uncertainty Quantification		Lanai Room		
01:15 Pm – 02:45 pm	01:15 pm ICCFD11-3301 <i>Physics-Based Regression vs. CFD for Hagen-Poiseuille and Womersley Flows and Uncertainty Quantification</i> Huiru Li, Md Mahfuzul Islam, Huidan Yu and Xiaoping Du Indiana University–Purdue University Indianapolis, USA	01:45 pm ICCFD11-3302 <i>Uncertainty Quantification of Geometric Uncertainties in Aerodynamic Systems through an Adjoint Approach</i> K. D. Kantanias and G. Papadakis Imperial College, UK	02:15 pm ICCFD11-3303 <i>Distribution of SLS Integrated Load Uncertainty to Surface Pressures and Sectional Loads</i> Derek J. Dalle, Stuart E. Rogers, Aaron C. Burkhead and Jamie G. Meeroff NASA Ames Research Center, USA			
	34 Chair: Luis Fernandez		Wind Turbine		Molokai Room	
	01:15 Pm – 02:45 pm	01:15 pm ICCFD11-3401 <i>Deep Learning for Wake Modeling of Wind Turbines</i> Suraj Pawar, Ashesh Sharma, Ganesh Vijayakumar, Christopher J. Bay, and Shashank Yellapantula Oklahoma State University, USA	01:45 pm ICCFD11-3402 <i>Analysis on the Flow Over a Vertical-Axis Wind Turbine with Varying Tip-Speed Ratio and Solidity</i> Sangwoo Ahnn and Haecheon Choi Seoul National University, South Korea	02:15 pm ICCFD11-3403 <i>An Open-Source Incompressible-Flow Hybrid-Solver Framework for Massively Parallel Blade-Resolved Wind Farm Simulations Under Atmospheric Inflow</i> Ashesh Sharma, Michael J Brazell, Ganesh Vijayakumar, Shreyas Ananthan, Lawrence Cheung, Marc Henry de Frahan, Paul Mullaney, Jon Rood, Philip Sakievich and Michael A. Sprague National Renewable Energy Laboratory, USA		
35 Chair: Leonardo Machado		Magneto-Hydro, and Solar Dynamics		Oahu Room		
01:15 Pm – 02:45 pm		01:15 pm ICCFD11-3501 <i>Discrete Exterior Calculus Based Flow Simulations on a Sphere for the Modeling of Solar Inertial Modes</i> R. Ayoub, P. Jagad, R. Samtaney, J. Philidet, and L. Gizon King Abdullah University of Science and Technology, Saudi Arabia	01:45 pm ICCFD11-3502 <i>A Monolithic Face-Based Discretization of the Incompressible Magnetohydrodynamics Equations</i> K. Ata, and M. Sahin Istanbul Technical University, Turkey	02:15 pm ICCFD11-3503 <i>Recent Development of Entropy Split Methods for Gas Dynamics and MHD</i> H.C. Yee, and Björn Sjögren NASA Ames Research Center, USA Moved to Session 10, Monday, July 11 at 04:30 pm		

Thursday, July 14, 2022

36 Chair: Steve Legensky		Bio-Medical CFD		Lanai Room
03:00 pm - 04:30 pm	03:00 pm ICCFD11-3601 <i>A Numerical Simulation on Hemolysis based on Power-Law Models in the FDA Benchmark Blood Pump</i> J. Choi and Min-yeon Sogang Sogang University, South Korea	03:30 pm ICCFD11-3602 <i>Estimation of the Risk of Airborne Transmission in an Elementary School Classroom through Large Eddy Simulation</i> A. Vignolo, M. Draper, and G. Usera Universidad de la Republica, Uruguay	04:00 pm ICCFD11-3603 <i>Industrial and Biomedical CFD Workflows Enhanced with In Situ Knowledge Capture and Computational Steering</i> Steve M. Legensky, Earl P.N. Duque, Dave A. Amels, Brad Whitlock, Marcus Meyer, Axel Gerstenberger, and Paolo Adami Intelligent Light, USA	
	Withdrawn			
37 Chair: Timothy Chau		Unsteady CFD - I		Molokai Room
03:00 pm - 4:30 pm	03:00 pm ICCFD11-3701 <i>Analysis of a Flapping Blade in Two-Phase Flow</i> A. Viljoen, W. H. Ho and D. J. Chandar University of the Witwatersrand, Johannesburg, South Africa	03:30 pm ICCFD11-3702 <i>Vortex Structure Analysis Method for Separated Shear Flow</i> Takuto Ogawa, Tomoaki Tatsukawa and Fujii Koza Tokyo University of Science, Japan	04:00 pm ICCFD11-3703 <i>Flow Characteristics of the Wandering Blade Tip Vortex</i> Young-Jin Yoon and Haecheon Choi Seoul National University, South Korea	
	Withdrawn			
38 Chair: Nathan Hariharan		Artificial Intelligence		Oahu Room
03:00 pm - 4:30 pm	03:00 pm ICCFD11-3801 <i>Obstacle Location and Identification using Time Reversal and Deep Learning</i> Adar Kahana, Oded Ovadia, Eli Turkel and Dan Givoli Tel-Aviv University, Israel	03:30 pm ICCFD11-3802 <i>Machine Learning-Based Physics Inference from High-Fidelity Solutions: Vortical Features & Flow Separation</i> Nathan Hariharan and Jennifer N. Abras Department of Defense High Performance Computing Modernization Program, USA	04:00 pm ICCFD11-3803 <i>GPU-Based HPC and AI Developments for CFD</i> Steve Oberlin, J. Luitjens and O. Hennigh Nvidia Corporation, USA	04:30 pm ICCFD11-4202 <i>A Large Time Step Numerical Method for the Euler Equations using Deep Learning</i> Oded Ovadia, Adar Kahana, and Eli Turkel Tel-Aviv University, Israel
	Withdrawn			
06:30 pm - 09:30 pm		Hosted Luau		Meet in Lobby

ICCFD11 Program: Friday, July 15, 2022

07:30 am – 08:00 am		Speaker's Briefing		
08:15 am – 09:15 am		Invited Lecture		Ali'i Room
39 Session		<p style="text-align: center;">ICCFD11-3901 Nonlinear Stability, Algorithm Optimization, and Monolithic Methods Prof. David Zingg University of Toronto</p>		
40 Chair: Bruce Crawford		Reacting Flows		Lanai Room
09:30 am – 12:00 pm	<p>09:30 am ICCFD11-4001 <i>Multi-Resolution Analysis of Partially-Stirred Reactor Models for Subgrid Turbulence / Chemistry Interactions</i> J. Edwards, C. Rajath and A. Navratil North Carolina State University, USA</p>	<p>10:00 am ICCFD11-4002 <i>Numerical Simulation of Underwater Explosions Using Unstructured Grids</i> Lingquan Li, Rainald Löhner and Facundo Nicolas Airaud George Mason University, USA</p>	<p>10:30 am ICCFD11-4003 <i>Controlling Spatio-Temporal Evolution of Square and Rectangular Flames via Inlet Conditions</i> J. Stempka, and A. Tyliczszak Czestochowa University of Technology, Poland</p>	<p>11:00 am ICCFD11-4004 <i>Validation of the New Modeling Capabilities of the Ansys Fluent CFD High-Speed Solver for the Simulation of Supersonic Combustion in SCRAMjets and Rotating Detonation Engines</i> Bruce Crawford, Ishan Verma, Stefano Orsino, Jean-Sebastien Cagnone, and Shaoping Li Ansys, USA</p>
	41 Chair: Alexander Zibitsker		Multiphase - II	
09:30 am – 12:00 pm	<p>09:30 am ICCFD11-4101 <i>Multidimensional HLLC Riemann Solver for the Eulerian Droplet Equation System</i> H. Beaugendre, T. Vigier and F. Morency National Institute for Research in Digital Science and Technology (INRIA), France</p>	<p>10:00 am ICCFD11-4102 <i>Direct Numerical Simulation of Droplet Laden Homogeneous Shear Turbulence: Numerical Method and Flow Physics</i> P. Trefftz-Posada and A. Ferrante University of Washington, USA</p>	<p>10:30 am ICCFD11-4103 <i>Droplet Formation Simulations Using Mixed Finite Element Method</i> Darsh K. Nathawani and Matthew G. Knepley The State University of New York, Buffalo, USA</p>	<p>11:00 am ICCFD11-4104 <i>Numerical Study of Particle-Particle Interactions in a High Density Supersonic Flow</i> Raghava S. G. Navuluri, Kaveh A. Tagavi and Alexandre Martin U. of Kentucky, USA</p>
	42 Chair: Cory Stack		Unsteady CFD - II	
09:30 am – 12:00 pm	<p>09:30 am ICCFD11-4201 <i>On the Simulation of Statistically Unsteady Flows with the RANS Equations</i> L. Eca, M. Kerkvliet and S. L. Toxopeus Instituto Superior Tecnico, Portugal</p>	<p>10:00 am ICCFD11-4202 <i>A Large Time Step Numerical Method for the Euler Equations using Deep Learning</i> Oded Ovadia, Adar Kahana, and Eli Turkel Tel-Aviv University, Israel Moved to Session 38, Thursday, July 14 at 04:30 pm</p>	<p>10:30 am ICCFD11-4203 <i>Flow Characteristics of the Wandering Blade Tip Vortex</i> Young-Jin Yoon and Haecheon Choi Seoul National University, South Korea</p>	<p>11:00 am ICCFD11-4204 <i>Influence of Blunt-Body Base Protuberances on Near-Wake Unsteadiness</i> C. Stack, L. Dechant, B. Robbins, Y. Zhang and K. Casper Sandia National Laboratories, USA</p>