

CFD2017 Conference Papers

Alphabetical Listing by First Author Name

June 6, 2017 (subject to final revision)

PLENARIES	TITLE	
Vincent Chu	Capturing Discontinuities in Computational Fluid Dynamics	Professor and Director, Fluids and Hydraulics Lab, Dept. of Civil Engineering and Applied Mechanics, McGill U, Montreal, Canada
Nikolay Sakharnykh	High Performance Multigrid with GPU Acceleration	Senior Developer Technology Engineer, NVIDIA Corporation, USA
Kumar Srinivasan	Vehicle Aerodynamics and Thermal Management CFD Overview	Manager, Vehicle CFD Group, FiatChrysler Automobiles, Auburn Hills, MI, USA
Markus Rumpfkeil	CFD in Undergraduate Engineering Education	Associate Professor, Dept. of Mechanical and Aerospace Engineering, U Dayton, Dayton, OH, USA
CONTRIBUTED PAPERS		
Paper No.	Title	Authors
CFD2017-209	Effects of Blade Pitch Angle on Aerodynamic Characteristics of a Small-Scale Darrieus Vertical Axis Wind Turbine with Straight Blades (H-type VAWT)	Abdalrahman, G., Lien, F.-S., Melek, W. U Waterloo, Waterloo, Canada
CFD2017-207	Assessing the Accuracy of Nusselt Number Used in Overhead Conductor Codes Using LES	Abdelhady, M., Wood, D. U Calgary, Calgary, Canada
CFD2017-319	Shear Layer Instability of the Wake of a Square Cylinder	Agbaglah, G., Mavriplis, C. U Ottawa, Ottawa, Canada
CFD2017-112	The Influence of Rotor-Stator Axial Gap on the Unsteady 3D Flow Field in a Single Stage Axial Compressor	Ali, S., Savory, E., Zhang, C. Western U, London, Canada
CFD2017-322	An Air Cooled Thermal Management System for Lithium-Ion Battery under Electric Vehicle Driving Cycles	¹ Bahiraei, F., ¹ Fartaj, A., ² Nazri, G.-A. ¹ U Windsor, Windsor, Canada; ² Wayne State U, Detroit, USA
CFD2017-420	A Unified Finite Difference Scheme for CFD Simulations: From Cartesian Mesh to Meshless	Barron, R., Ostoic, S., Smith, A., Elmizari, M. U Windsor, Windsor, Canada
CFD2017-332	CFD-DEM Investigation of Seed Clustering in an Air Seeder with the Immersed Boundary Method	Bayati, M., Johnston, C. Radix Innovation Corporation, Grande Prairie, Canada

CFD2017-325	Computational Fluid Dynamics Modeling of Human Coughs	Bi, R., Ali, S., Savory, E., Zhang, C. Western U, London, Canada
CFD2017-337	Effects of Surface Roughness on Aerodynamic Performance of Horizontal Axis Wind Turbines	^{1,2} Bouhelal, A., ¹ Smaili, A., ² Masson, C., ³ Guerri, O. ¹ École Nationale Polytechnique, Alger, Algeria; ² Ecole de Technologie Supérieure, Montreal, Canada; ³ Centre de Développement des Énergies Renouvelables, Alger, Algeria
CFD2017-111	Towards Accurate Simulation of Aircraft High-Lift Droplet Impingement using Eulerian Approach	¹ Bourgault-Côté, S., ² Yang, H., ² Vafa, S., ¹ Laurendeau, É. ¹ Polytechnique Montreal, Montreal, Canada; ² Bombardier Aerospace, Dorval, Canada
CFD2017-101	Evaluation of Three-Dimensional Effects on Transitional Flow on a NACA 0018 Airfoil via Direct Numerical Simulation	Brinkerhoff, J. U British Columbia - Okanagan, Kelowna, Canada
CFD2017-323	DNS Study of the Effect of Leading-Edge Bluntness on Transition of a Separating Laminar Boundary Layer	Brinkerhoff, J. U British Columbia - Okanagan, Kelowna, Canada
CFD2017-302	Prediction of Turbulent Flow in a Rough Pipe using a Near-Wall RANS Model	Chu, M., Bergstrom, D. U Saskatchewan, Saskatoon, Canada
CFD2017-206	Kelvin-Helmholtz Mixing in Gravity-Current Head	Chu, V., Altai, W. McGill U, Montreal, Canada
CFD2017-110	The Effect of Incoming-Air Angle Influences on Soot Emission	¹ Darbandi, M., ¹ Ghafourizadeh, M., ² Schneider, G. ¹ Sharif U of Technology, Tehran, Iran; ² U Waterloo, Waterloo, Canada
CFD2017-330	Comparing Eulerian and Lagrangian Approaches for Modeling Multiphase Flow Through Venturi-Scrubbers	¹ Darbandi, M., ¹ Ashrafi-Habibabadi, A., ¹ Barezban, M.-B., ² Schneider, G., ¹ Sharif U of Technology, Tehran, Iran; ² U Waterloo, Waterloo, Canada
CFD2017-306	Rotating Compressible Flow in a Straight Duct	Dyck, N., Straatman, A. Western U, London, Canada
CFD2017-208	CFD Simulation of Air-Water Dynamics in the Raiser of an Underwater Compressed Air Energy Storage System	¹ Ebrahimi, M., ² McGillis, A., ¹ Ting, D. S.-K., ¹ Carriveau, R. ¹ U Windsor, Windsor, Canada; ² Hydrostor, Toronto, Canada
CFD2017-307	Numerical Simulation of Gas Respiration Processes in Produce Storage Applications.	Elhalwagy, M., Dyck, N., Straatman, A. Western U, London, Canada

CFD2017-409	Dynamic Phase Coupling of Heat and Mass Transfer in Porous Media: An Unstructured CFD Framework	Elhalwagy, M., Straatman, A. Western U, London, Canada
CFD2017-305	Novel Models for Multi-Phase Particle Flows Coupled to a Background Gas	Forgues, F., Ben Dhia, Z., M ^c Donald, J. U Ottawa, Ottawa, Canada
CFD2017-414	High-Order Finite-Volume Scheme with Anisotropic Adaptive Mesh Refinement: Efficient Inexact Newton Method for Steady Three-Dimensional Flows	¹ Freret, L., ¹ Groth, C., ² Nguyen, T., ² De Sterck, H. ¹ UTIAS, U Toronto, Toronto, Canada; ² Monash U, Melbourne, Australia
CFD2017-333	Effects of Grid Size in Low Pressure Sub-cooled Flow Boiling	Fukuda, K., Iqbal, O., Barron, R., Balachandar, R. U Windsor, Windsor, Canada
CFD2017-211	CFD Modelling of Hydrodynamics in Bubble Column Equipped with Internals	Gaurav, T., Prakash, A., Zhang, C. Western U, London, Canada
CFD2017-316	Vorticity Criterion for the Entrainment of Multi-Plume Sprays	Ghasemi, A., Li, X. U Waterloo, Waterloo, Canada
CFD2017-401	A Low-Mach-Number Preconditioner for the Ten-Moment, Gaussian Moment Closure of Gas Dynamics	Giroux, F., M ^c Donald, J. U Ottawa, Ottawa, Canada
CFD2017-335	Numerical Simulation of Heat Transfer in Vertical Fuel Bundles of 37-element Canadian SCWR	Han, H., Zhang, C., Jiang, J. Western U, London, Canada
CFD2017-315	A Numerical Study of Natural Convective Heat Transfer from a Horizontal Isothermal Element with an Elliptical Wavy Surface	¹ Hussain, S., ² Oosthuizen, P. ¹ Al-Imam Muhammad Ibn Saud Islamic U, Riyadh, Saudi Arabia; ² Queen's U, Kingston, Canada
CFD2017-107	Optimum Morphing Airfoil Design Using Evolutionary Algorithm and CFD Solver	Jahangirian, A., Nemati, M. Amirkabir U of Technology, Tehran, Iran
CFD2017-411	Fourteen-Moment Bi-Gaussian Closure for Non-Equilibrium Rarefied Gaseous Flows	Laplante, J., Groth, C. UTIAS, U Toronto, Toronto, Canada
CFD2017-108	Evaluation of an Eulerian-Lagrangian Spray Atomization (ELSA) Model for Nozzle Flow: Modeling of Coupling Between Dense and Disperse Regions	¹ Leung, T., ¹ Groth, C., ² Hu, J. ¹ UTIAS, U Toronto, Toronto, Canada, ² Pratt & Whitney, Mississauga, Canada
CFD2017-212	Numerical Simulation of Impulse Waves Generated by Landslide	¹ Li, H., ¹ Chen, Z., ¹ Jin, Y.-C., ² Tai, Y.-C. ¹ U Regina, Regina, Canada; ² National Cheng Kung U, Tainan, Taiwan
CFD2017-417	CFD Expert System for Steam Simulation	Li, L., Ma, Y., Lange, C. U Alberta, Edmonton, Canada

CFD2017-109	Unsteady RANS Analysis on the Oscillation of Stall Cells over a NACA 0012 Aerofoil	Liu, D., Delafin, P.-L., Nishino, T. Cranfield U, Cranfield, U.K.
CFD2017-216	Numerical Simulation of the Liquid-Solid Two Phase Flows in Circulating Fluidized Beds	Luo, H., Zhang, C., Zhu, J. Western U, London, Canada
CFD2017-338	Evaluation of Air Distribution Techniques for Coating Applications	McKinnon, M., Samara, F., Johnson, D. U Waterloo, Waterloo, Canada
CFD2017-324	CFD Analysis of Inflow Control Devices Used in SAGD	Miersma, M., Lange, C. U Alberta, Edmonton, Canada
CFD2017-407	A New Moment Model For Radiative-Transport Prediction	Morin, W., M ^c Donald, J. U Ottawa, Ottawa, Canada
CFD2017-421	A Thickened Flame Model (TFM) for Simulation of Premixed Propane-Air Tulip Flame	Movahedi, Z., Gallage, I., Sobiesiak, A. U Windsor, Windsor, Canada
CFD2017-419	A Mesh-less Method for Viscous Flow Simulation	Namvar, M., Jahangirian, A. Amirkabir U of Technology, Tehran, Iran
CFD2017-412	Block-Based Anisotropic AMR with A Posteriori Adjoint-Based Error Estimation for Three-Dimensional Inviscid and Viscous Flows	Narechania, N., Freret, L., Groth, C. UTIAS, U Toronto, Toronto, Canada
CFD2017-327	Conjugate Effect on the Heat Transfer Coefficient	Nasif, G., Barron, R., Balachandar, R. U Windsor, Windsor, Canada
CFD2017-402	Anisotropic Block-Based Adaptive Mesh Refinement with Adjoint-Based Error Estimation for Three-Dimensional Inviscid Flows	Ngigi, C., Freret, L., Groth, C. UTIAS, U Toronto, Toronto, Canada
CFD2017-336	Effects of Surface Tension on Curved Jets for Nanofiber Formation Applications	Noroozi, S., Taghavi, S. U Laval, Quebec City, Canada
CFD2017-403	A CELESTE Based Curvature Reconstruction Method for Simulation of Contact Lines on Immersed Boundaries	O'Brien, A., Bussmann, M. U Toronto, Toronto, Canada
CFD2017-201	Continued Development of An Advanced Wind Turbine Actuator Line Model	O'Dea, M., Guessous, L. Oakland U, Rochester, USA
CFD2017-314	Numerical Study of the Convective Heat Transfer from the Inner Surface of Recessed Non-Rectangular Window	Oosthuizen, P., Rahmatmand, A. Queen's U, Kingston, Canada
CFD2017-317	Natural Convective Heat Transfer from a Heated Upward Facing Recessed Isothermal Horizontal Two-Dimensional Surface with and without Heated Side Walls	Oosthuizen, P. Queen's U, Kingston, Canada
CFD2017-416	High-order, Multi-parameter Flow Sensitivity Analysis	Pelletier, D., Garon, A. Polytechnique Montreal, Montreal, Canada

CFD2017-405	Uncertainty Quantification of Tabulated Supercritical Thermodynamics for Compressible Navier-Stokes Solvers	Praneeth, S. U Waterloo, Waterloo, Canada
CFD2017-304	A First Principles-Based and Numerical Design Approach for Fluid Flow Systems with Application to an Open-Loop Wind Tunnel	Ramrukheea, K., Defoe, J. U Windsor, Windsor, Canada
CFD2017-415	An Optimized A-Stable SSP Runge-Kutta IMEX Scheme for Atmospheric Applications	Rokhzadi, A., Mohammadian, A. U Ottawa, Ottawa, Canada
CFD2017-321	Effect of Free Stream Turbulence on Smooth Flat Plate Heat Transfer	Sarkar, D., Graat, K., Savory, E. Western U, London, Canada
CFD2017-404	Evaluation of Moment Closures for Predicting Radiation Transport Phenomena	Sarr, J., Groth, C. UTIAS, U Toronto, Toronto, Canada
CFD2017-217	Numerical Study of the Effects of Inlet Boundary Conditions on Gas-Solids Flows in Circulating Fluidized Bed Risers	Sun, Z., Zhang, C., Zhu, J. Western U, London, Canada
CFD2017-303	Coupled Conjugate Heat Transfer for Prediction of Laminar Diffusion Co-Flow Flames Using a Partitioned Approach	Syed, W., Groth, C. UTIAS, U Toronto, Toronto, Canada
CFD2017-106	An Efficient Mutation Strategy for Inverse Design of Airfoil Shape Optimization with Genetic Algorithm	Timnak, N., Jahangirian, A. Amirkabir U of Technology, Tehran, Iran
CFD2017-309	Numerical Study of the Impact of Multi-layering on the Permeability and Capture Efficiency of Fibrous Air Filters	¹ Tucny, J.-M., ¹ Vidal, D., ² Drolet, F., ¹ Bertrand, F. ¹ Polytechnique Montreal, Montreal, Canada; ² FPInnovations, Pointe-Claire, Canada
CFD2017-413	Recent Progress Towards Next-Generation Computational Aerodynamics: High-Order Flux Reconstruction at Petascale	Vermiere, B. Concordia U, Montreal, Canada
CFD2017-203	Direct Numerical Simulation of Three-Dimensional Plume Dispersion Released from a Pair of Ground-Level and Elevated Point Sources	Wang, B.-C., Oskouie, S. U Manitoba, Winnipeg, Canada
CFD2017-326	Model Order Reduction and Boundary Control of Incompressible Boussinesq Flow	Wang, Z., Flynn, M., Koch, C. U Alberta, Edmonton, Canada
CFD2017-205	Flood Wave Force on Infrastructure	Xie, P., Chu, V. McGill U, Montreal, Canada
CFD2017-334	A Simple Hybrid Numerical Model of a Supersonic Fluidic Oscillator	Xu, S., Martins, J.-P., Rankin, G. U Windsor, Windsor, Canada
CFD2017-406	Efficiency Enhancement of an Unstructured CFD Solver with Grid Renumbering and Code Optimization	Yang, H., Castonguay, P., Raiesi, H. Bombardier Aerospace, Dorval, Canada.
CFD2017-103	An Investigation into Multi-Point Compressor Blade Design for Operation in Distorted Flow	Younkie, M., Defoe, J. U Windsor, Windsor, Canada

CFD2017-408	Edge-Based FEM of Electromagnetic Effects in Hypersonic Flows	¹ Zhang, W., ¹ Habashi, W., ² Ben Salah, N., ³ Fossati, M., ⁴ Isola, D., ⁴ Baruzzi, G. ¹ McGill U, Montreal, Canada; ² U Tunis, Tunis, Tunisia; ³ U Strathclyde, Glasgow, UK; ⁴ ANSYS Inc., Montreal, Canada
CFD2017-210	Large Eddy Simulation of Rough Surface Turbulent Flow in Open Channel	Zhang, Z., Li, S. Concordia U, Montreal, Canada

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