CFD2021 Conference Program

12:00PM – 4:50PM, July 27, 2021 (Time Zone: NDT)		
12:00PM-12:20PM	**Welcome and Opening Remarks** Dr. Dennis Peters, Acting Dean, Faculty of Engineering and Applied Science, Memorial University Dr. François Morency, President of CFDSC	
	Session 1: Turbulence Modelling A Session Chair: Marlène Sanjosé (École de Technologie Supérieure)	**Session 2: Aeroacoustics** Session Chair: Clinton Groth (University of Toronto)
12:20PM-12:40PM	CFD2021-040 Statistical Analysis of the Role of Vortex Stretching in Large Eddy Simulation Mohammed Khalid Hossen (Memorial University), Asokan Variyath (Memorial University), Jahrul Alam (Memorial University)	CFD2021-038 The Third Golden Age of Aeroacoustics Stéphane Moreau (Université de Sherbrooke)
12:40PM – 1:00PM	CFD2021-042 Construction of an Energy Spectrum in a Synthetic Turbulence Generator Nikita Holyev (McMaster University), M.F. Lightstone (McMaster University), S. Tullis (McMaster University)	CFD2021-004 Computational Schema for Wind Turbine Noise Prediction Zhi Cheng (University of Waterloo), Fue-Sang Lien (University of Waterloo), Eugene Yee (University of Waterloo), Hang Meng (North China Electric Power University)
1:00PM-1:20PM	CFD2021-022 Improved Tensor Basis Neural Network for Turbulence Modelling Ryley McConkey (University of Waterloo), Eugene Yee (University of Waterloo), Fue-Sang Lien (University of Waterloo)	CFD2021-009 Far-Field Aero-Acoustic Prediction Using High-Order Implicit Large Eddy Simulation Mohsen Hamedi (Concordia University), Brian Vermeire (Concordia University)
1:20PM - 1:40PM	CFD2021-002 Non-equilibrium Turbulent Boundary Layer with Adverse Pressure Gradient and Convex Wall Curvature Saurabh Pargal (Université de Sherbrooke), Hao Wu (Université de Sherbrooke), Junlin Yuan (Michigan State University), Stéphane Moreau (Université de Sherbrooke)	CFD2021-016 On the Perturbation Signal Tracking Techniques for Unsteady Compressible Flows Kameswara Aditya Bharadwaj Nemana (McGill University), Evgeny Timofeev (McGill University)
1:40PM - 2:00PM	**Break**	
2:00PM - 3:00PM	**Keynote: Numerical Simulations of Complex Multiphase Flows by Dr. Gretar Tryggvason** Session Chair: François Morency (École de Technologie Supérieure)	
3:00PM - 3:10PM	**Break**	
	Session 3: Algorithm Session Chair: Stéphane Moreau (Université de Sherbrooke)	**Session 4: Turbulence Modelling B** Session Chair: Rajeev Jaiman (University of British Columbia)
3:10PM - 3:30PM	CFD2021-017 Output-Based Anisotropic Adaptive Mesh Refinement for the Prediction of Three-Dimensional Inviscid and Viscous Laminar Flows Christopher. N. Ngigi (University of Toronto), C. P. T. Groth (University of Toronto)	CFD2021-036 Validation of Compressible Nozzle Modelling using Experimental Results from Supersonic Ejectors Jean-Luc Olsen (University of Alberta), Carlos F. Lange (University of Alberta)
3:30PM - 3:50PM	CFD2021-025 On Hybridized Flux Reconstruction Schemes Carlos A. Pereira (Concordia University), Brian C. Vermeire (Concordia University)	CFD2021-010 Influence of Nozzle Inlet Initial Turbulence Level on the Development of an Axisymmetric Turbulent Jet Nimesh Virani (University of Windsor), Vesselina Roussinova (University of Windsor), Ram Balachandar (University of Windsor)
3:50PM - 4:10PM	CFD2021-041 Proper Orthogonal Decomposition and Velocity Correlations of Flow Over a Backward-Facing Step Hanieh KhaliliParam (University of Windsor), Vesselina Roussinova (University of Windsor), Ram Balachandar (University of Windsor)	CFD2021-033 Dynamic Modelling of Near-surface Turbulence in Large Eddy Simulation of Wind Farms Jagdeep Singh (Memorial University), Jahrul Alam (Memorial University)
4:10PM - 4:30PM	CFD2021-037 Extended Hydrodynamics Using the Discontinuous-Galerkin Hancock Method Willem Kaufmann (University of Ottawa), Lucian Ivan (University of Ottawa), James McDonald (University of Ottawa)	CFD2021-045 Hyperbolic Equivalent k-e and k-w Turbulence Models for Moment-Closures Chao Yan (University of Ottawa), James G. McDonald (University of Ottawa)
4:30PM - 4:50PM	CFD2021-039 Low-dimensional Representation of Fluid Flows Using Proper Orthogonal Decomposition Jahrul Alam (Memorial University), Asokan Variyath (Memorial University)	CFD2021-046 Tip Leakage Flow Characterization in A Rectilinear Cascade at Various Angle of Attack Marlène Sanjosé (École de Technologie Supérieure), Regis Koch (Université de Sherbrooke), Ahmadou Bamba Drame(École de Technologie Supérieure), Steven Hakizimana (École de Technologie Supérieure)

	Session 5: Application	Session 6: Multi-phase Flow A
12:00PM-5:10PM, July 28, 2021 (Time Zone: NDT)		
	Session Chair: Kevin McTaggart (DRDC Atlantic)	Session Chair: Jahrul Alam (Memorial University)
12:00PM-12:20PM	CFD2021-055 Experimental and CFD Study of KCS Hull-Propeller-Rudder Interaction for Steady Turning Circles Yugo Sanada (University of Iowa), Sungtek Park (University of Iowa), Dong Hwan Kim (University of Iowa), Zhaoyuan Wang (University of Iowa), Hironori Yasukawa (Hiroshima University), Frederick Stern (University of Iowa)	CFD2021-011 High-Order Maximum-Entropy Moment Closures for Modelling Polydisperse Polykinetic Liquid Sprays Kevin A. Brooks (University of Toronto), C. P. T. Groth (University of Toronto), H. Xu (Pratt & Whitney Canada), J. T. C. Hu (Pratt & Whitney Canada)
12:20PM-12:40PM	CFD2021-049 Simulation of Planing Hull Motions in Calm Water and Waves with Overset Grid Shanqin Jin (Memorial University), Ruosi Zha (Memorial University), Heather Peng (Memorial University), Wei Qiu (Memorial University), Ryan Hunter (MetalCraft Marine), Sean Thompson (MetalCraft Marine)	CFD2021-015 Extension of SU2 CFD Capabilities to 3D Aircraft Icing Simulation Kevin Ignatowicz (École de Technologie Supérieure), François Morency (École de Technologie Supérieure), Héloïse Beaugendre (University of Bordeaux)
12:40PM-1:00PM	CFD2021-043 A Solid-Solid Parallel Overset Method Using Chapel Michael Gagnon (Polytechnique Montreal), Frederic Plante (Polytechnique Montreal), Simon Bourgault-Cote (Polytechnique Montreal), Eric Laurendeau (Polytechnique Montreal)	CFD2021-018 Eulerian-Based Moment Closure Method for Predicting Polydisperse, Polykinetic, Liquid Sprays Tim F. Leung (University of Toronto), Clinton P. T. Groth (University of Toronto)
1:00PM-1:20PM	CFD2021-026 High-Fidelity Geometry, Fault-Tolerant Meshing, Resolving Runtime Errors in Motorsport CFD Applications Mark Lin (San Jose State University), Periklis Papadopoulos (San Jose State University)	CFD2021-021 A Positivity-Preserving Scheme for the Aircraft Icing Droplet Equations within SU2 Thomas Vigier (University of Bordeaux), Héloïse Beaugendre (University of Bordeaux), François Morency (École de Technologie Supérieure)
1:20PM - 1:40PM	CFD2021-053 Developing Best Modelling Practices for RANS Simulations of Propeller-Hull Interaction Ruosi Zha (Memorial University), Shanqin Jin (Memorial University), Heather Peng (Memorial University), Wei Qiu (Memorial University), Chad Oldfield (Vard Marine Inc.), Barton Stockdill (Robert Allan Ltd.)	CFD2021-024 IBM-VoF Simulation of Wet Particle Collision Dynamics Erfan Pirmorad (University of Toronto), Markus Bussmann (University of Toronto)
1:40PM – 2:00PM	Break	
2:00PM - 3:00PM	**Keynote: CFD Insights Ship Flows and Structural Interaction by Dr. Frederick Stern** Session Chair: Wei Qiu (Memorial University)	
3:00PM - 3:10PM	Break	
	Session 7: Atmospheric and Environmental Flow	**Session 8: Multi-phase Flow B**
	Session Chair: Heather Peng (Memorial University)	Session Chair: Carlos Lange (University of Alberta)
3:10PM-3:30PM	CFD2021-005 Modelling Turbulence in Landfill Gas Flow: Ingress into a Horizontal Well Abhishek Baral (Thompson Rivers University), Yana Nec (Thompson Rivers University)	CFD2021-034 Investigation of the Multi-Particle Arch Performance at the Sand Filter Opening under Transient Condition of the Flow Fatemeh Razavi (University of Alberta), Alexandra Komrakova (University of Alberta), Carlos F. Lange (University of Alberta)
3:30PM-3:50PM	CFD2021-051 Comparison of 2-D and 3-D RANS Studies on Effects of Leading-Edge Propeller Manufacturing Defects on Cavitation Performance Shanqin Jin (Memorial University), Ruosi Zha (Memorial University), Heather Peng (Memorial University), Wei Qiu (Memorial University)	CFD2021-056 A Coarse-Grained DEM study. Part I: Taking Care of Missed Contacts Yann Dufresne (University of Sherbrooke), Micaël Boulet (Enerkem), Stéphane Moreau (University of Sherbrooke)
3:50PM - 4:10PM	CFD2021-006 Outlet Loss in Archimedes Screw Generators Scott Simmons (University of Guelph), Amir Aliabadi (University of Guelph), William David Lubitz (University of Guelph), Guilhem Dellinger (ICube Laboratory)	CFD2021-057 A Coarse-Grained DEM Study. Part II: The Influence of Coarse Graining on the Onset of Instabilities in HCS Yann Dufresne (University of Sherbrooke), Micaël Boulet (Enerkem), Stéphane Moreau (University of Sherbrooke)
4:10PM - 4:30PM	CFD2021-013 Numerical Simulation of Dam-Break Flood Flows on Sloping Beds Mostafa Bigdeli (University of Ottawa), Abdolmajid Mohammadian (University of Ottawa)	CFD2021-032 A Multi-Region CFD Model for Aircraft Ground Deicing by Dispersed Liquid Spray Sami Ernez (École de Technologie Supérieure), François Morency (École de Technologie Supérieure)
4:30PM - 4:50PM	CFD2021-050 3D Comparable Studies on Effects of Leading-Edge Propeller Manufacturing Defects on Cavitation Performance Ruosi Zha (Memorial University), Shanqin Jin (Memorial University), Heather Peng (Memorial University), Wei Qiu (Memorial University)	CFD2021-044 Surface-Weighted Gaussian Moment Method for Polydisperse Multiphase Flow Mathieu Marchildon (University of Ottawa), Lucian Ivan (Canadian Nuclear Laboratories), James McDonald (University of Ottawa)

4:50PM – 5:10PM	CFD2021-027 Simulating Water-in-oil Emulsions in OpenFOAM Mingze Gao (University of Alberta), Stanley John (University of Alberta), Carlos F. Lange (University of Alberta)	CFD2021-001 Comparison of Phase Change Models in OpenFOAM to Simulate Flashing of Steam Stanley John (University of Alberta), Carlos F. Lange (University of Alberta)

12:00PM – 5:15PM, July 29, 2021 (Time Zone: NDT)	
	Session 9: Aerospace	**Session 10: Heat and Mass Transfer**
	Session Chair: Marlène Sanjosé (École de Technologie Supérieure)	Session Chair: Xili Duan (Memorial University)
12:00PM - 12:20PM	CFD2021-008 Sequential Data Assimilation of One-Dimensional MHD Flows Jose H. Arnal (University of Toronto), Clinton P. T. Groth (University of Toronto)	CFD2021-054 Preferential Concentration of Polydispersed Particles in Gas Phase Ahmed Saieed (University of Waterloo), Mustafa Rahman (University of Waterloo), Jean-Pierre Hickey (University of Waterloo)
12:20PM - 12:40PM	CFD2021-014 Numerical Study of the Transition from Regular to Mach Reflection in Air on Smooth Wedges and Semicircular Cylinders Marcel Grzeszczyk (University of Toronto), J. J. Gottlieb (University of Toronto), C. P. T. Groth (University of Toronto)	CFD2021-020 A Second-Order Maximum-Entropy-Inspired Interpolative Moment Closure Technique for the Prediction of Radiative Heat Transfer in Non-Gray Participating Media Joachim A. R. Sarr (University of Toronto), Clinton P. T. Groth (University of Toronto)
12:40PM - 1:00PM	CFD2021-028 Aerodynamics of a Cascaded Airfoil Wind Turbine (CAWT) Rotor Harvard M. Farrant (Laurentian University)	CFD2021-031 Methodology for Simulating Ablative Polymer Mass Transport with Very Large Schmidt Numbers for Polymer Drag Reduction Joshua. J. White (University of New Brunswick) A. G. L. Holloway (University of New Brunswick), T. L. Jeans (University of New Brunswick)
1:00PM - 1:20PM	CFD2021-030 Advances in Multi-Disciplinary PDE-Constrained Optimization Hamid R. Karbasian (Concordia University), Brian C. Vermeire (Concordia University)	CFD2021-035 RANS-Based Two-Equation Model with Tabulated Chemistry for the Prediction of Soot Formation in Turbulent Non-Premixed Flames Ken Miura (University of Toronto), Jacques Y. Xing (University of Toronto), Joachim A. R. Sarr (University of Toronto), Clinton P. T. Groth (University of Toronto), Hang Xu Pratt (Whitney Canada), John T. C. Hu (Pratt & Whitney Canada)
1:20PM - 1:40PM	CFD2021-052 Uncertainty Analysis for CFD Simulations of Flow over Plate and Foil with OpenFOAM Shanqin Jin (Memorial University), Ruosi Zha (Memorial University), Heather Peng (Memorial University), Wei Qiu (Memorial University)	CFD2021-047 A 2D Axisymmetric CFD Model of a Rotary Lime Kiln Jarod Ryan (University of Toronto), Markus Bussmann (University of Toronto), Nikolai DeMartini (University of Toronto)
1:40PM - 2:00PM	**Break**	
2:00PM - 3:00PM	**Keynote: Multiscale Simulations of Liquid Crystalline Materials by Dr. Dana Grecov** Session Chair: Carlos Lange (University of Alberta)	
3:00PM - 3:15PM	**Break**	
3:15PM - 4:15PM	**Panel Discussions: CFD for Marine Application – Challenges and Ways Ahead** Panelists: Dr. Kevin McTaggart (DRDC Atlantic), Barton Stockdill (Robert Allan Ltd.), Chad Oldfield (Vard Marine Inc.) and Dr. Rajeev Jaiman (University of British Columbia) Session Chair: David Molyneux (Memorial University)	
4:15PM - 5:15PM	**AGM and Student Paper Awards**	

Presenters are underlined.