



Symposium Abbreviations

AD&D	AERO	AMT	AS&M
Aircraft Design & Development	Aerodynamics	Aerospace Manufacturing Technologies	Aerospace Structures & Materials
HF&T	FT&FO	PROP	
Human Factors & Training	Flight Operations & Flight Test	Propulsion	

Rev 16 June

DATE	TIME	ACTIVITY	Parallel Session A		Parallel Session B		Parallel Session C		Parallel Session D		
AERO 2021 Program 16 June	12:00 - 12:20	Welcome	Welcoming and Opening Remarks								
	12:20 - 13:15	Plenary Panel	'Enabling Electric Flight' - Chair, Malcolm Imray, NRC								
	13:15 - 13:30	Break	Networking in the 'Lobby'								
	13:30 - 15:00	Tech Session 1	A	AERO	B	AD&D/FT&FO/PROP	C	AD&D/FT&FO/PROP	D	AS&M/AMT	
				Computational Methods 1		Hybrid Electric Aircraft 1		Hybrid Electric Aircraft - Drones		Additive Manufacturing 1	
	15:00 - 15:15	Break	Networking in the 'Lobby'								
	15:15 - 16:45	Tech Session 2	A	AERO	B	AD&D/FT&FO/PROP	C	AD&D/FT&FO/PROP	D	AS&M/AMT	
				Optimization Methods 1		Hybrid Electric Aircraft 2		Environmentally-friendly Design		Additive Manufacturing 2	
	16:45 - 17:15	Meet & Greet	Forge / renew acquaintances with colleagues in the 'Lobby'								
Tues 15 June	12:00 - 12:20	Award	Presentation of the 2018 McKee Trophy to Kevin Horton								
	12:20 - 13:15	Keynote	'National Centre for Flight Research' of the National Research Council Kirk Shaw, Director Research and Development, Aerospace, NRC								
	13:15 - 13:30	Break	Networking in the 'Lobby'								
	13:30 - 15:00	Tech Session 3	A	AERO	B	AD&D	C	PROP	D	AS&M/AMT	
				Aeroelasticity		Unmanned Aerial Systems Design & Applications		Inlet Design		Composites 1	
	15:00 - 15:15	Break	Networking in the 'Lobby'								
	15:15 - 16:45	Tech Session 4	A	AERO	B	AD&D	C	PROP	D	AS&M/AMT	
			Mesh Adaptation		Product Development & Operations		Combustion		Materials & Manufacturing		
Wed 16 June	12:00 - 13:15	Plenary Panel	'Certification by Analysis' - Chair, Dany Paraschivoiu, NRC								
	13:15 - 13:30	Break	Networking in the 'Lobby'								
	13:30 - 15:00	Tech Session 5	A	AERO	B	AD&D	C	PROP	D	AS&M	
				Propulsion & Rotorcraft Aerodynamics		Unmanned Aerial Systems: Flight Dynamics		Modeling & Testing		Experimental Characterization & Monitoring	
	15:00 - 15:15	Break	Networking in the 'Lobby'								
	15:15 - 16:45	Tech Session 6	A	AERO	B	AS&M	C	FT&FO/HF&T	D	AMT	
			Fluid Dynamics & Modelling		Topology Optimization		Flight Performance		Intelligent Manufacturing		
Thurs 17 June	12:00 - 13:15	Keynote	'Enabling Improved Aircraft Performance through Floating Folding Wing Tips' Dr Jonathan Cooper FRAES, Airbus Sir George White Professor of Aerospace Engineering University of Bristol								
	13:15 - 13:30	Break	Networking in the 'Lobby'								
	13:30 - 15:00	Tech Session 7	A	AERO	B	AERO	C	FT&FO/HF&T	D	AMT	
				Computational Methods 2		Applied Aerodynamics		Human Factors Considerations in Aviation		Integrated Air Mobility	
	15:00 - 15:15	Break	Networking in the 'Lobby'								
	15:15 - 16:45	Tech Session 8	A	AERO	B	AERO	C	FT&FO/HF&T	D	AS&M	
			Optimization Methods 2		Supersonic & Hypersonic Modelling		Human & Flight Dynamics		Modelling & Simulation		
Fri 18 June	12:00 - 12:20	Award	Presentation of the 2020 McKee Trophy to 415 Squadron								
	12:20 - 13:15	Turnbull Lecture	'The Evolving Regulatory Environment for UVS Operations' Dr John Maris FCASI, McKee Trophy Laureate, President Marinvent Corporation								
	13:15 - 13:30	Break	Networking in the 'Lobby'								
	13:30 - 15:00	Tech Session 9	A	AERO	B	AMT	C	AMT	D	AS&M	
				Icing & Heat Transfer		Additive Manufacturing 3		Composites 2		Certification & Validation	
	15:00 - 15:15	Break	Networking in the 'Lobby'								
	15:15 - 16:45	Tech Session 10	A	AS&M	B	AS&M/AMT	C		D		
				Dynamic Analysis & Testing		Additive Manufacturing 2					
	16:45 - 17:15	Wrap-up	Acknowledgments and a Look Ahead in the 'Lobby'								

Technical Session 1		Mon 13:30 - 15:00	
AERO	AD&D/FT&FO/PROP	AD&D/FT&FO/PROP	AS&M/AMT
Computational Methods 1	Hybrid Electric Aircraft 1	Hybrid Electric Aircraft - Drones	Additive Manufacturing 1
Chair: Hong Yang, Bombardier Aviation	Chair: Billy Allan, Royal Military College	Chair: Jonathan Liscouet, Concordia University	Chairs: Marjan Molavi-Zarandi, NRC/ Sheida Sarafan, NRC
1A-01 Hybridized flux reconstruction schemes for convection problems Carlos Pereira Concordia University	1B-01 Development of the NRC Hybrid Electric Aircraft Testbed (HEAT) Patrick Zdunich National Research Council	1C-01 Evaluation of drone safety and reliability Edwina Arthur Concordia University	1D-01 In-situ material production: multi-material 3D manufacturing by pressing and cooking deposited powders layer-by-layer Antoine Missout Kilncore Inc.
1A-02 Implementation of communication hiding parallel scaled-additive multigrid for implicit solvers Syam Vangara et al McGill University	1B-02 Development of a hybrid-electric aircraft simulation tool for safety analyses Alexander Crain et al National Research Council	1C-02 CREATEv: An evaluation of the solar charging optimization for ultra-long endurance flight Korbin Mallette Ryerson University	1D-02 In-envelope additive and subtractive manufacturing for a maraging steel Sheida Sarafan National Research Council
1A-03 Frequency domain method in CFD: from linear to nonlinear dynamics Frederic Plante Polytechnique Montreal	1B-03 Performance and qualification testing of an electric propulsion system Pervez Canteenwalla et al National Research Council	1C-03 Comparison of sizing methodologies for high-reliability multicopters Robin Warren Concordia University	1D-03 Microstructure and mechanical properties of β -21S Ti alloy fabricated through laser powder bed fusion Maria Macias-Sifuentes et al McGill University
1A-04 High-order spectral element method simulation of low Reynolds Number flow past a 30P30N high lift configuration Mayank Vadsola et al University of Ottawa	1B-04 A study of aircraft classification approaches for the certification of Unmanned Aircraft Systems Nicolas Vincent-Boulay Royal Military College	1C-04 Performance prediction analysis for Aero-Naut CAM folding propellers and its application into CREATEv solar aircraft Hyunwoo Kim Ryerson University	1D-04 Additively-manufactured TPMS structures for transpiration cooling Kevin Zhang University of Waterloo
AD&D	AERO	AMT	AS&M
Aircraft Design & Development	Aerodynamics	Aerospace Manufacturing Technologies	Aerospace Structures & Materials
HF&T	FT&FO	PROP	
Human Factors & Training	Flight Operations & Flight Test	Propulsion	

Technical Session 2		Mon 15:15 - 16:45	
AERO	AD&D/FT&FO/PROP	AD&D/FT&FO/PROP	AS&M/AMT
Optimization Methods 1	Hybrid Electric Aircraft 2	Environmentally-friendly Design	Additive Manufacturing 2
Chair: David W. Zingg, University of Toronto	Chair: Malcolm Imray, NRC	Chair: Susan Liscouet-Hanke, Concordia University	Chairs: Michael Jakubinek, NRC/Julietta Barroeta Robles, McGill University
<p>2A-01 Non-stochastic robust design of airfoils through the imposition of constraints on second-order sensitivities</p> <p style="text-align: right;">Almir Tricic et al Clarkson University</p>	<p>2B-01 Performance analysis of a hydrogen fuel cell-powered general aviation aircraft</p> <p style="text-align: right;">Germain Jaillier Université de Sherbrooke</p>	<p>2C-01 Prediction of aero-propulsive performance using adaptive lookup tables – application on the Cessna Citation X business aircraft</p> <p style="text-align: right;">Anca Stepan École de technologie supérieure</p>	<p>2D-01 Mechanical evaluation of additively-manufactured composite materials</p> <p style="text-align: right;">Julietta Barroeta Robles National Research Council</p>
<p>2A-02 Dynamic geometry control for more automated aerodynamic shape optimization</p> <p style="text-align: right;">Gregg Streuber University of Toronto</p>	<p>2B-02 Preliminary feasibility analysis on the use of hydrogen fuel cells for a hybrid-electric aircraft testbed</p> <p style="text-align: right;">Evan Gibney National Research Council</p>	<p>2C-02 Systems radiation consideration for thermal risk assessment in conceptual design</p> <p style="text-align: right;">Tanmay Bhise Concordia University</p>	<p>2D-02 Effect of infill density on the mechanical properties of additive manufactured parts made from PLA</p> <p style="text-align: right;">Hayat El Fazani Carleton University</p>
<p>2A-03 Full-space approach to constrained aerodynamic shape optimization</p> <p style="text-align: right;">Doug Shi-Dong et al McGill University</p>	<p>2B-03 Electrically-powered flight-safe ceramic</p> <p style="text-align: right;">Shuo Yan et al University of Ottawa</p>	<p>2C-03 Improvement of the regional jet CRJ700 winglet design based on morphing wing principles</p> <p style="text-align: right;">Marine Segui École de technologie supérieure</p>	<p>2D-03 An insight into process-structure-property relationships in laser powder bed fusion of aerospace alloys</p> <p style="text-align: right;">Mohamed Balbaa McMaster University</p>
<p>2A-04 Aerodynamic optimization of unsteady chaotic flows</p> <p style="text-align: right;">Hamid Karbasian Concordia University</p>	<p>2B-04 Mission profile performance analysis of an on-ground serial hybrid-electric drivetrain for aircraft propulsion</p> <p style="text-align: right;">Madeline McQueen Ryerson University</p>	<p>2C-04 Aerodynamic design optimization of a transonic strut-braced-wing regional jet class aircraft</p> <p style="text-align: right;">Timothy Chau University of Toronto Institute for Aerospace Studies</p>	<p>2D-04 Surface post-processing for additive manufactured parts: reducing surface roughness and improving fatigue life with electrospark deposition</p> <p style="text-align: right;">Pablo Enrique University of Waterloo</p>
AD&D	AERO	AMT	AS&M
Aircraft Design & Development	Aerodynamics	Aerospace Manufacturing Technologies	Aerospace Structures & Materials
HF&T	FT&FO	PROP	
Human Factors & Training	Flight Operations & Flight Test	Propulsion	

Technical Session 3		Tues 13:30 - 15:00	
AERO	AD&D	PROP	AS&M/AMT
Aeroelasticity	Unmanned Aerial Systems: Design & Applications	Inlet Design	Composites 1
Chair: Dominique Poirel, Royal Military College	Chair: Stephane Dufresne, Bombardier Aerospace	Chair: James Crone, Pratt & Whitney Canada	Chair: Hadi Nazaripoor, University of Alberta
3A-01 Numerical simulation on gust response of a 1-DOF wing in stall flutter Xiaoyang Zhang Royal Military College	3B-01 Design lessons from Concordia's 2020-20201 AERO490 Capstone on the design of an autonomous UAV for transplant organ transportation Nicolae Rogojina Concordia University	3C-01 Automation scheme implementing passive flow control in numerical S-duct analysis Courtney Rider Royal Military College	3D-01 Structural design optimization for CFRP in a personal aerial vehicle propulsor boom Andrew Hardman Queen's University
3A-02 Gust performance predictions of flexible aircraft Michael Melville Ryerson University	3B-02 Low-speed computational aerodynamics and design optimization of fuselage enlargements in support of autonomous cargo aircraft Jeremy Wang University of Waterloo	3C-02 Performance evaluation of internal flow in a Y-duct intake at high subsonic Mach number Asad Asghar Royal Military College	3D-02 Reliability evaluation of manual and automated tap testing for disbond detection in honeycomb structures Muzibur Khan National Research Council
3A-03 Viscous and transonic dynamic aeroelastic simulations of wings using non-linear frequency domain potential solvers Matthieu Parenteau Polytechnique Montréal	3B-03 Autonomous strategic defence: An adaptive clustering approach to the n-Invader Capture Order Problem Noah Zepp et al University of Toronto Institute for Aerospace Studies	3C-03	3D-03 Effect of residual stress due to low-velocity impact damage on the in-plane compressive strength in aluminum honeycomb sandwich panels Tony Badaea Royal Military College
3A-04 A model-order reduction approach for flutter analysis Brandon Lowe University of Toronto	3B-04	3C-04	3D-04
AD&D	AERO	AMT	AS&M
Aircraft Design & Development	Aerodynamics	Aerospace Manufacturing Technologies	Aerospace Structures & Materials
HF&T	FT&FO	PROP	
Human Factors & Training	Flight Operations & Flight Test	Propulsion	

Technical Session 4		Tues 15:15 - 16:45	
AERO	AD&D	PROP	AS&M/AMT
Mesh Adaptation	Product Development & Operations	Combustion	Materials & Manufacturing
Chair: Charles Tatossian, Bombardier Aviation	Chair: Pat Piperni, Clarkson University	Chair: Billy Allan, Royal Military College	Chairs: Ehsan Toyserkani, University of Waterloo/ Vladimir Pankov, NRC
<p>4A-01 Automatic mesh optimization of direct simulation Monte Carlo methods for hypersonic flows</p> <p style="text-align: right;">Shrutakeerti MV McGill University</p>	<p>4B-01 Using semantic modelling to provide insight into the aircraft modification product development process</p> <p style="text-align: right;">Andrea Cartile Concordia University</p>	<p>4C-01 Computational framework for the prediction of radiative heat transfer in sooting turbulent diffusion flames with tabulated chemistry</p> <p style="text-align: right;">Joachim Sarr et al University of Toronto Institute for Aerospace Studies</p>	<p>4D-01 Bioinspired strategies to design tough ceramics</p> <p style="text-align: right;">Hamidreza Yazdani Sarvestani National Research Council</p>
<p>4A-02 Dynamic load balancing for a HP-adaptive discontinuous Galerkin Wave Equation solver</p> <p style="text-align: right;">Catherine Mavriplis University of Ottawa</p>	<p>4B-02 Turboprop design analysis in regional route networks considering carbon pricing economics</p> <p style="text-align: right;">Stewart Reid Royal Military College</p>	<p>4C-02 RANS-based Two-Equation Model with tabulated chemistry for the prediction of soot formation in turbulent non-premixed flames</p> <p style="text-align: right;">Clinton Groth et al University of Toronto Institute for Aerospace Studies</p>	<p>4D-02 Machine learning algorithms in accelerating the design of architected ceramic materials</p> <p style="text-align: right;">Erfan Fatehi National Research Council</p>
<p>4A-03 Industrial-scale mesh adaptation based on a point cloud size-field</p> <p style="text-align: right;">Siva Nadarajah et al McGill University</p>	<p>4B-03 Far-field aero-acoustic prediction using high-order implicit large eddy simulation</p> <p style="text-align: right;">Mohsen Hamedi Concordia University</p>	<p>4C-03 Eulerian-based maximum-entropy moment closures for modelling polydisperse liquid fuel sprays</p> <p style="text-align: right;">Kevin Brooks et al University of Toronto</p>	<p>4D-03 Fabrication of coatings with enhanced wear and impact resistance using a duplex approach</p> <p style="text-align: right;">Vladimir Pankov National Research Council</p>
<p>4A-04 A dynamically load-balanced vorticity-based polynomial adaptation for moving and deforming domains</p> <p style="text-align: right;">Ramin Ghoreishi Concordia University</p>	<p>4B-04 Single event upset characterization of Microsemi RISC-V softcores on Polarfire FPGAs</p> <p style="text-align: right;">Devin Ramaswami et al University of Saskatchewan</p>	<p>4C-04 Eulerian-Lagrangian CFD-microphysics modeling of ground-level aircraft-emitted aerosol formation</p> <p style="text-align: right;">Sébastien Cantin École de technologie supérieure</p>	<p>4D-04 Ultra-durable icephobic coatings for passive ice protection of leading edge surfaces</p> <p style="text-align: right;">Naiheng Song National Research Council</p>
AD&D	AERO	AMT	AS&M
Aircraft Design & Development	Aerodynamics	Aerospace Manufacturing Technologies	Aerospace Structures & Materials
HF&T	FT&FO	PROP	
Human Factors & Training	Flight Operations & Flight Test	Propulsion	

Technical Session 5		Wed 13:30 - 15:00	
AERO	AD&D	PROP	AS&M
Propulsion & Rotorcraft Aerodynamics	Unmanned Aerial Systems: Flight Dynamics	Modeling & Testing	Experimental Characterization & Monitoring
Chair: Mark Cunningham, Pratt & Whitney Canada	Chair: Ruxandra Botez, École de technologie supérieure	Chair: Asad Asghar, Royal Military College	Chairs: Marc Genest, NRC/ Ali Bonakdar, Siemens Canada
<p>5A-01 Aerodynamic shape optimization of a boundary layer-ingesting S-Duct</p> <p>Christopher Chiang University of Toronto</p>	<p>5B-01 UAS-S4 flight dynamics model prediction based on data augmentation and support vector regression</p> <p>Seyed Mohammad Hashemi École de technologie supérieure</p>	<p>5C-01 Development of a low-bypass turbofan real degraded-engine model</p> <p>Juan Angulo Reyes Royal Military College</p>	<p>5D-01 Experimental study of the hybridization effect on bolt-hole elongation of multi-bolted single-lap composite joints using DIC</p> <p>Masoud Mehrabian Polytechnique Montréal</p>
<p>5A-02 Actuator line method for helicopter rotors Computations in various flight conditions</p> <p>Reda Merabet Polytechnique Montréal</p>	<p>5B-02 Longitudinal swing angle control for a fixed-wing UAV with a slung load</p> <p>Seyedreza Fattahi Massoum University of Toronto Institute for Aerospace Studies</p>	<p>5C-02 An accurate generic turbofan aerothermodynamic model for design trade-off studies</p> <p>Manuel Gurrola-Arrieta École de technologie supérieure</p>	<p>5D-02 Online monitoring of laser powder bed fusion based process on acoustic emission signatures and machine learning</p> <p>Dalia Mahmoud McMaster University</p>
<p>5A-03 Progress towards rapid non-linear potential flow method for rotary-wing aerodynamics</p> <p>Vincent Proulx-Cabana Polytechnique Montréal</p>	<p>5B-03 Neural network-based robust dynamic soaring</p> <p>Eric Kim Royal Military College</p>	<p>5C-03 System integration and engine test of a 22KN oxidiser-rich staged combustion rocket engine</p> <p>Sadben Khan C6 Launch Systems</p>	<p>5D-03 An instrumented shot peening test rig for single and repeated controlled impact conditions</p> <p>Simon Breumier Polytechnique Montréal</p>
<p>5A-04 Simulating the perturbation effects within an under-expanded supersonic jet</p> <p>Yang Gao North Carolina A&T State University</p>	<p>5B-04 Aerodynamic effect in 3D multi-UAV cooperative hunting</p> <p>Shichen Fan University of Toronto Institute for Aerospace Studies</p>	<p>5C-04 General Electric CF34-8C5B1 turbofan parameter estimation: new approach using artificial neural networks and flight tests</p> <p>Rojo Princy Andrianantara École de technologie supérieure</p>	<p>5D-04 Deep learning for defect detection and characterization in composite laminates inspected by pulsed thermography</p> <p>Mohammadhossein Ahmadi et al Université Laval</p>
AD&D	AERO	AMT	AS&M
Aircraft Design & Development	Aerodynamics	Aerospace Manufacturing Technologies	Aerospace Structures & Materials
HF&T	FT&FO	PROP	
Human Factors & Training	Flight Operations & Flight Test	Propulsion	

Technical Session 6		Wed 15:15 - 16:45	
AERO	AS&M	FT&FO/HF&T	AMT
Fluid Dynamics & Modelling	Topology Optimization	Flight Performance	Intelligent Manufacturing
Chair: François Bisson, Airbus Canada		Chair: Priti Wanjara, NRC	
Chair: Malcolm Imray, NRC		Chairs: Rachid Guiassa, Pratt & Whitney Canada/ Sam Gerges, Omnirobotic	
6A-01 A correlation-based algebraic transition model for flow over rough surfaces Mehrdad Noei Yazdian École de technologie supérieure	6B-01 Efficient heat management via topology optimization: a diffuse and a sharp method Marc-Etienne Lamarche-Gagnon National Research Council	6C-01 Development of microgravity flight sciences regime recognition software Marc Alexander National Research Council	6D-01 3D perception: the gateway to autonomous robotic manufacturing François Simard Omnirobotic
6A-02 Effects of surface imperfections on the stability of boundary layers Ming Teng Queen's University	6B-02 Topology optimization for the design of additively-manufactured cooling channels Farshad Navah et al National Research Council	6C-02 Preparation for and first flight of the Celerä 500 Bjarni Tryggvason MILAD Technology Inc	6D-02 Realtime unmanned cyber-physical system to improve productivity, part quality and tool life in drilling processes Mahmoud Hassan National Research Council
6A-03 An extended assessment of camber morphing analysis for the aerodynamic performance of the UAS-S45 airfoil Musavir Bashir École de technologie supérieure	6B-03 Multi-material topology optimization of an eVTOL PAV wing considering additive manufacturing Tim Sirola et al Queen's University	6C-03 Aircraft takeoff performance Bjarni Tryggvason MILAD Technology Inc	6D-03 Closed-door metrology in multi-axis machining center Rachid Guiassa Pratt & Whitney Canada
6A-04 Sideslip effects on a square plate under freestream turbulence Stephanie Hartlin McGill University	6B-04 Topology optimization for DfAM with build area constraints Rosalie Morin et al Queen's University	6C-04 Multiple L-band LEO satellites based doppler shift/INS Integrated Navigation System with flight test demonstration Hamza Benzerrouk et al École de technologie supérieure	6D-04 Model-based prediction of robot's behavior in milling operations of aeronautic parts Christopher Lapointe École de technologie supérieure
AD&D	AERO	AMT	AS&M
Aircraft Design & Development	Aerodynamics	Aerospace Manufacturing Technologies	Aerospace Structures & Materials
HF&T	FT&FO	PROP	
Human Factors & Training	Flight Operations & Flight Test	Propulsion	

Technical Session 7		Thurs 13:30 - 15:00	
AERO	AERO	FT&FO/HF&T	AMT
Computational Methods 2	Applied Aerodynamics	Human Factors Considerations in Aviation	Integrated Air Mobility
Chair: Brian Vermeire, Concordia University	Chair: Götz Bramesfeld, Ryerson University	Chair: Malcolm Imray, NRC	Chairs: Bruno Monsarrat, NRC/ Amir Hajzargarbashi, NRC
7A-01 Low-Reynolds Number direct numerical simulation of an iced NLF-0414 airfoil Catherine Mavriplis University of Ottawa	7B-01 Unsteady aerodynamic performance of a tethered autogyro Aditya Agarwal et al Concordia University	7C-01 Development of a real-time desktop flight simulator for stratospheric airships Mohsen Rostami et al Ryerson University	7D-01 Keynote: Integrated aerial mobility program status update Charles Vidal National Research Council
7A-02 Towards detached eddy simulation of massively separated flows in high-lift configurations Hong Yang Bombardier Aviation	7B-02 Experimental study of the aerodynamic loads on the airframe of a multirotor UAV Devin Barcelos Ryerson University	7C-02 Development and evaluation of flight deck using augmented reality Pratik Pradhan et al Ryerson University	7D-02 Keynote: Integrated aerial mobility program status update Charles Vidal National Research Council
7A-03 CHAMPS: CHApel Multi-Physics Simulation software Matthieu Parenteau et al Polytechnique Montréal	7B-03 CRJ 700 Stall Dynamics: Identification using Neural Networks Yvan Tondji École de technologie supérieure	7C-03 Visualization of multi-functional aircraft cabin Aditya Venkatesh et al Ryerson University	7D-03 Robust tracking for UAV using Dempster-Shafer theory based on continuous-discrete Gauss Hermite H_{∞} filtering under uncertainties Abulasad Elgamoudi École de technologie supérieure
7A-04 Asynchronous point-block smoothers for computational fluid dynamics on graphics processing units Siva Nadarajah McGill University	7B-04 Extending the parameters for the performance evaluations of leading edge tubercles Satpreet Singh Sidhu et al Royal Military College	7C-04 National Research Council and International Test Pilot School Canada: An overview of professional Canadian rotary-wing flight test aircrew training Marc Alexander National Research Council	7D-04
AD&D	AERO	AMT	AS&M
Aircraft Design & Development	Aerodynamics	Aerospace Manufacturing Technologies	Aerospace Structures & Materials
HF&T	FT&FO	PROP	
Human Factors & Training	Flight Operations & Flight Test	Propulsion	

Technical Session 8		Thurs 15:15 - 16:45	
AERO	AERO	FT&FO/HF&T	AS&M
Optimization Methods 2	Supersonic & Hypersonic Modelling	Human & Flight Dynamics	Modelling & Simulation
Chair: Pat Piperni, Clarkson University	Chair: François Bisson, Airbus Canada	Chair: Joon Chung, Ryerson University	Chairs: Marjan Molavi-Zarandi, NRC/ Naiheng Song, NRC
<p>8A-01 Adjoint solver for large-scale high-speed aerodynamics cases on multi-element unstructured meshes</p> <p>Syam Vangara et al McGill University</p>	<p>8B-01 Finite element modeling of gas-surface interactions in hypersonic flight</p> <p>John Huang McGill University</p>	<p>8C-01 A historical and technical survey of flight research of the NRC Bell 206 research aircraft</p> <p>Marc Alexander National Research Council</p>	<p>8D-01 Numerical simulation of thermo-mechanical behavior of CFRP composite laminate subjected to laser paint removal process using varying beam profiles</p> <p>Rahul Shah Carleton University</p>
<p>8A-02 High-fidelity gradient-free optimization of low-pressure turbine cascades</p> <p>Anthony Aubry et al Concordia University</p>	<p>8B-02 Numerical study of the transition from regular to mach reflection on smooth wedges and semicircular cylinders</p> <p>Marcel Grzeszczyk et al University of Toronto Institute for Aerospace Studies</p>	<p>8C-02 Multi-phase trajectory optimization for airliners' formation flight considering TCAS constraints</p> <p>Shirin Dolatabadi University of Toronto Institute for Aerospace Studies</p>	<p>8D-02 Damage modelling of a laminated composite panel subjected to low velocity impact</p> <p>Gang Li et al National Research Council</p>
<p>8A-03 Toward aerodynamic shape optimization for the design of natural-laminar-flow wings</p> <p>Michael Piotrowski University of Toronto</p>	<p>8B-03 Input/output analysis of hypersonic boundary layers using the One-Way Navier-Stokes (OWNS) equations</p> <p>Omar Kamal California Institute of Technology</p>	<p>8C-03 Applications of geometric deep learning to flight dynamics modelling</p> <p>Oreoluwa Ajayi NeuralVol Aeronautics Inc</p>	<p>8D-03 Practical formulation of Kane's Method for finite element representation of rigid-flexible systems</p> <p>Alexander Schock Carleton University</p>
<p>8A-04 Assessment of interpolation-based model-reduction approaches for the transonic flow regime</p> <p>Donovan Blais et al McGill University</p>	<p>8B-04</p>	<p>8C-04 Canadian air travel during a pandemic: the past, present, and the future</p> <p>Paul Lebbin National Research Council</p>	<p>8D-04</p>
AD&D	AERO	AMT	AS&M
Aircraft Design & Development	Aerodynamics	Aerospace Manufacturing Technologies	Aerospace Structures & Materials
HF&T	FT&FO	PROP	
Human Factors & Training	Flight Operations & Flight Test	Propulsion	

Technical Session 9		Fri 13:30 - 15:00	
AERO	AMT	AMT	AS&M
Icing & Heat Transfer	Additive Manufacturing 3	Composites 2	Certification & Validation
Chair: François Morency, École de technologie supérieure	Chairs: Irina Garces, University of Alberta/ Hamid Akbarzadeh, McGill U	Chairs: Micheal Jakubinek, NRC/Yadienka Martinez-Rubi, NRC	Chair: Dany Paraschivoiu, NRC
9A-01 Development of an aircraft icing suite using chapel programming language Hélène Papillon Laroche Polytechnique Montréal	9B-01 Aerostructures design-to-additive manufacturing using novel powder- metal fabrication procedure Nabil Saad Inno-Centre	9C-01 Keynote: Carbon and boron nitride nanotube composites for structural materials and functional coatings Yadienka Martinez-Rubi National Research Council	9D-01 Certification by Analysis for Structures Dany Paraschivoiu National Research Council
9A-02 Numerical modeling of thermal protection systems ablation in hypersonic flight Guangwei Liu McGill University	9B-02 The effect of crystallographic orientation on the mechanical properties of laser-powder-bed- fusion-processed Hastelloy X Oscar Sanchez-Mata et al McGill University	9C-02 Keynote: Carbon and boron nitride nanotube composites for structural materials and functional coatings Yadienka Martinez-Rubi National Research Council	9D-02 On measuring interface loads in structural full-scale testing - planning, calibration and data processing Calista Biondic National Research Council
9A-03 On the impact of internal heat sources in high-speed vehicles using conjugate heat transfer analysis Imthiaz Syed Abid Hussain University of Waterloo	9B-03 Heat source modelling for multiscale laser powder bed fusion additive manufacturing Yohann Vautrin National Research Council	9C-03 Advanced composite forming: an alternative forming technology Meysam Rahmat National Research Council	9D-03
9A-04	9B-04 High-temperature 3D printing and electrolysis of lunar regolith: challenges and solutions Antoine Missout Kilncore inc.	9C-04 Integrated design optimization scheme for fiber reinforced additive manufacturing Noah Ray Queen's University	9D-04
AD&D	AERO	AMT	AS&M
Aircraft Design & Development	Aerodynamics	Aerospace Manufacturing Technologies	Aerospace Structures & Materials
HF&T	FT&FO	PROP	
Human Factors & Training	Flight Operations & Flight Test	Propulsion	

Technical Session 10	Fri 15:15 - 16:45		
AS&M	AS&M/AMT		
Dynamic Analysis & Testing	Additive Manufacturing 2 (repeat presentations)		
Chairs: Ahmed Damir, NRC/ Gabriel Côté, NRC	Chair: Michael Jakubinek, NRC	Chair:	Chair:
10A-01 Piezoelectric (PE) technology and multicomponent force measurement for landing gear drop testing William Zwolinski et al Kistler Canada	10B-01 Effect of infill density on the mechanical properties of additive manufactured parts made from PLA Hayat El Fazani Carleton University	10C-01	10D-01
10A-02 Explicit dynamic modeling of a composite aircraft seat concept subject to dynamic certification tests Logan Kupchanko Queen's University	10B-02 Surface post-processing for additive manufactured parts: reducing surface roughness and improving fatigue life with electrospark deposition Pablo Enrique University of Waterloo	10C-02	10D-02
10A-03 An efficient Bayesian model selection algorithm for a pitching airfoil model undergoing limit cycle oscillations Brandon Robinson et al Carleton University	10B-03	10C-03	10D-03
10A-04 Structural dynamics of a tethered kite used for harnessing high-altitude winds Amar Fayyad K. Akberali Concordia University	10B-04	10C-04	10D-04
AD&D	AERO	AMT	AS&M
Aircraft Design & Development	Aerodynamics	Aerospace Manufacturing Technologies	Aerospace Structures & Materials
HF&T	FT&FO	PROP	
Human Factors & Training	Flight Operations & Flight Test	Propulsion	