

ASTRO 2022 Technical Program

Day	Time Room	Concerto	Vivaldi	Tchaikovsky
Mon 31/10	18:00 - 19:30	Earlybird Meet-and-Greet		
		Light Reception/Cash Bar		
Tues 1/11	08:15 - 08:30	Welcome and Opening Remarks		
	08:30 - 09:00	Lisa Campbell - President Canadian Space Agency - Keynote - Topic TBC		
	09:00 - 10:00	Plenary 1 - Panellists and Topic TBC		
	10:00 - 10:15	Coffee and conversation		
	10:15 - 11:45	Session 1A	Session 1B	Session 1C
		<i>Earth Observation</i>	<i>Space Business & Policy</i>	<i>Space Object Tracking 1</i>
	11:45 - 13:15	Lunch - On your own		
	13:15 - 14:00	NorthStar Earth and Space - Keynote - Topic TBC		
	14:00 - 15:30	Session 2A	Session 2B	Session 2C
		<i>Missions</i>	<i>Payloads & Sensors 1</i>	<i>Space Object Tracking 2</i>
	15:30 - 16:00	Coffee and conversation		
	16:00 - 17:30	Fireside Chat - CSA EO Forum/Space Hub follow-up		
	17:30 - 19:00	Welcome Reception		
Wed 2/11	08:15 - 08:30	Welcome and Program Updates		
	08:30 - 10:00	Plenary 2 - Panellists and Topic TBC		
	10:00 - 10:15	Coffee and conversation		
	10:15 - 11:45	Session 3A	Session 3B	Session 3C
		<i>Satellite Operations</i>	<i>In Situ Resource Utilisation</i>	<i>Rover Technologies 1</i>
	11:45 - 13:15	Lunch - On your own		
	13:15 - 14:00	Commissioning and First Results of JWST's FGS/NIRISS - Dr. Neil Rowlands and Dr. René Doyon		
	14:00 - 15:30	Session 4A	Session 4B	Session 4C
		<i>Payloads & Sensors 2</i>	<i>AIT</i>	<i>Rover Technologies 2</i>
	15:30 - 15:45	Coffee and conversation		
	15:45 - 17:15	Session 5A	Session 5B	Session 5C
		<i>Payloads & Sensors 3</i>	<i>GNC 1</i>	<i>Advanced Manufacturing</i>
	18:30 - 22:30	Gala Reception and Awards Dinner		
Thu 3/11	08:15 - 08:30	Welcome and Program Updates		
	08:30 - 10:00	Plenary 3 - Panellists and Topic TBC		
	10:00 - 10:15	Coffee and conversation		
	10:15 - 11:45	Session 6A	Session 6B	Session 6C
		<i>Satellite Technology Dev't</i>	<i>GNC 2</i>	<i>Thermal Technologies</i>
	12:00 - 14:00	Turnbull Lecture Luncheon - Gilles Leclerc, Director General Space Exploration, CSA		
	14:00	Hope to see you at CASI ASTRO'23!		

Session 1		
Tues 1 Nov 10:15-11:45		
Concerto	Vivaldi	Tchaikovsky
Technical Session 1A	Technical Session 1B	Technical Session 1C
Earth Observation	Space Business & Policy	Space Object Tracking 1
Chair:	Chair:	Chair:
1A-01 Airbus next generation spaceborne radar technologies and techniques Jung-Hyo Kim Airbus Defence and Space	1B-01 Global space exploration - An economic and strategic assessment of the space exploration sector Miguel Ouellette Euroconsult	1C-01 Image classification for detection of resident space objects streaks Andrea Vallecillo Baires York University
1A-02 Low-cost IoT communication in the Arctic region: Using the SWARM satellite constellation for remote community connectivity Anastasiya Yermolenko University of Manitoba	1B-02 End to end data security and provisioning for Big Data Michael Henschel C-CORE	1C-02 Application of AstroPy's PhotUtils Package for Automated Photometry Michael Stewart Defence Research & Development Canada
1A-03 Use of SkyForest SkyForest™ DTM and TanDEM-X DEM 2020 for forest canopy height estimation Phil Green First Resource Management Group	1B-03 Re-useable rocket boosters – Does it really work? Richard McCammon C6 Launch Systems	1C-03 Space-based space surveillance (SBSS) payload demonstration onboard stratospheric balloons Perushan Kunalakantha York University
1A-04 Terrestrial Snow Mass Mission – Key features of the Phase 0 concept Geoff Burbidge Airbus Defence and Space	1B-04 Intellectual property (IP) awareness for space SMEs Oleh Tanchak Canadian Space Agency	1C-04 Space-based tracking and photometric assessment of Kepler Nano-Satellite Constellation Todd Malo Defence Research & Development Canada
1A-05 Airbus spaceborne radar heritage and future perspectives Geoff Burbidge Airbus Defence and Space	1B-05	1C-05

Session 2		
Tues 1 Nov 14:00-15:30		
Concerto	Vivaldi	Tchaikovsky
Technical Session 2A	Technical Session 2B	Technical Session 2C
Missions	Payloads & Sensors 1	Space Object Tracking 2
Chair:	Chair:	Chair:
2A-01 Radarsat-2 system status Neil Gibb MDA	2B-01 OA-ICOS methane spectrometer capable of characterizing methane sources in a Mars analogue environment in the high Canadian Arctic Haley Sapers York University	2C-01 Achieving SSA through comprehensive data gathering, curation and fusion Daniel Oltrogge COMSPOC
2A-02 A survey of international space programs incorporating mission phase exploration of the surface of celestial bodies via direct contact using manned or unmanned systems Marc Alexander National Research Council Canada	2B-02 Spaceborne global navigation satellite system (GNSS)-reflectometry soil moisture retrieval using a physics-informed neural network approach Narin Gavili Kilane York University	2C-02 Spacecraft resident space object close-loop tracking Warren Soh York University
2A-03 WildFireSat: The Canadian operational mission Denis Dufour Canadian Space Agency	2B-03 CSA CubeSat Initiative: QMSat's 2U Satellite Payload Deployment System Samuel Quenneville Université de Sherbrooke	2C-03 Assessing resident space objects (RSO) stability using light curves Randa Qashoa York University
2A-04 The RADARSAT Constellation Mission Daniel De Lisle Canadian Space Agency	2B-04 CSA CubeSat Initiative: QMSat in space demonstration of quantum magnetometer technology Samuel Quenneville Université de Sherbrooke	2C-04 Improving satellite streak detection methods for astrometric image processing in Python Shane Ryall Defence Research & Development Canada
2A-05 The mission portfolio of CSA's Sun-Earth System Sciences Program Helena van Mierlo Canadian Space Agency	2B-05	2C-05

Session 3		
Wed 2 Nov 10:15-11:45		
Concerto	Vivaldi	Tchaikovsky
Technical Session 3A	Technical Session 3B	Technical Session 3C
Satellite Operations	In Situ Resource Utilisation	Rover Technologies 1
Chair:	Chair:	Chair:
<p>3A-01 An artificial intelligence framework for space operations data and model management</p> <p style="text-align: right;">Rohaan Ahmed Mission Control Space Services</p>	<p>3B-01 Space resources: A bold vision & generational opportunity for Canada</p> <p style="text-align: right;">Daniel Sax Canadian Space Mining Corporation</p>	<p>3C-01 Parabolic flights with a single-wheel testbed to study rover wheel-soil interactions in lunar gravity and LMS-1</p> <p style="text-align: right;">George Butt Concordia University</p>
<p>3A-02 Evolution of the RADARSAT-2 ordering and planning systems</p> <p style="text-align: right;">Logan Pryor MDA</p>	<p>3B-02 Mining and metallurgical operations for the extraction of oxygen and metals on the moon</p> <p style="text-align: right;">Gustavo Jamanca-Lino Universidad Privada del Norte</p>	<p>3C-02 A.S.T.R.E.L.A.B. (Applications of Single-wheel Testbed for Rover Exploration with a Linear Actuator Box)</p> <p style="text-align: right;">Matthew Nutbean University of Manitoba</p>
<p>3A-03 The NEOSat Constraint Checker (NCC): Maximizing imaging opportunities while maintaining the health and safety of the spacecraft</p> <p style="text-align: right;">Matthew Bourassa Calian Advanced Technologies</p>	<p>3B-03 Design aspects of a metal-LOX lunar propulsion system using ISRU technologies</p> <p style="text-align: right;">Sebastian K. Hampl McGill University</p>	<p>3C-03 Thermal and vibrational analyses of a composite sandwich structure for a lunar rover</p> <p style="text-align: right;">David Lessard École Polytechnique de Montréal</p>
<p>3A-04 The design and integration of SpudNik-1: A 2U CubeSat for precision agriculture in Prince Edward Island</p> <p style="text-align: right;">Grant McSorley University of Prince Edward Island</p>	<p>3B-04 The purpose for in-situ resources utilisation in lunar and planetary exploration: Can we afford not to include geophysics sensors anymore?</p> <p style="text-align: right;">Richard Boudreault Canadian Space Mining Corporation</p>	<p>3C-04 Damping optimization for a 3D printed thermoplastic lunar rover structure</p> <p style="text-align: right;">Adam McKenzie Queen's University</p>
<p>3A-05 Development of a ground station for communication with the SpudNik-1 imaging CubeSat</p> <p style="text-align: right;">Travis Speelman University of Prince Edward Island</p>	<p>3B-05 Investigation of metal extraction from lunar regolith</p> <p style="text-align: right;">John Wen University of Waterloo</p>	<p>3C-05 Novel attachment system for lunar rovers to their launch vehicles</p> <p style="text-align: right;">Feng Yang Chen Canadian Space Agency</p>

Session 4		
Wed 2 Nov 14:00-15:30		
Concerto	Vivaldi	Tchaikovsky
Technical Session 4A	Technical Session 4B	Technical Session 4C
Payloads & Sensors 2	Assembly, Integration & Test	Rover Technologies 2
Chair:	Chair:	Chair:
4A-01 Stratospheric balloon demonstration of the AOM mission imaging spectrometer Geneviève Gariépy ABB	4B-01 Atmospheric plasma testing of hypersonic materials Ali Merati National Research Council Canada	4C-01 Thermal sizing of a lunar rover using Simcenter 3d Ryan Majkut MAYA Heat Transfer Technologies
4A-02 Development and performance evaluation of a high-resolution imaging system for a 2U CubeSat satellite Samuel Quenneville Université de Sherbrooke	4B-02 The keys to efficient and accurate random base excitation simulation Julien Frachon MAYA Heat Transfer Technologies	4C-02 3D Printing of a lightweight sandwich panel for a lunar rover's frame Olivier Duchesne École Polytechnique de Montréal
4A-03 MAGE: The science case for high frequency methane measurements on the surface of Mars John Moores York University	4B-03 Investigation of force limited vibration using Quicksat satellite and four test items Yvan Soucy Canadian Space Agency	4C-03 Developing an affordable, mechanically similar Martian regolith simulant Josephine Zhao University of Manitoba
4A-04 A precision calibration transponder for the Biomass Mission Michael Henschel C-Core	4B-04 Analysis of mission profiles of microgravity flight sciences research aircraft Marc Alexander National Research Council Canada	4C-04 Slanted-Grouser wheels for low mass skid-steer lunar rovers Krzysztof Skonieczny Concordia University
4A-05	4B-05 Usage of piezoelectric (PE) technology and multicomponent force measurement on rocket testing Bill Zwolinski Kistler Instrument Corp.	4C-05

Session 5		
Wed 2 Nov 15:45-17:15		
Concerto	Vivaldi	Tchaikovsky
Technical Session 5A	Technical Session 5B	Technical Session 5C
Payloads & Sensors 3	Guidance, Navigation & Control 1	Advanced Manufacturing
Chair:	Chair:	Chair:
5A-01 Design, testing and performance of the VEGA space gravimeter instrument Kieran A Carroll Canadensys Aerospace Corporation	5B-01 Development and testing of a low-cost GPS RFI emulation system Kenneth Johnston KTEQ GEOSPACE	5C-01 3D Printed BIU satellite antenna Alpha D.S. Ross MDA
5A-02 Design and characterization of a global navigation satellite system-reflectometry (GNSS-R) UAV-based payload for soil moisture monitoring Sogand Talebi York University	5B-02 Design and characterization of a test electrospray thruster with low-tolerance alignment Griffin Jones Royal Military College	5C-02 OneWeb heat pipes: A success story: Industrializing heat pipes production for constellations & NewSpace markets Mathieu Leclair Euro Heat Pipes S.A.
5A-03 MAPLE, a simple optical meteorological station for mars Charissa Campbell York University	5B-03 Effect of different collision avoidance constraints on optimal Δv requirement Shrouti Dutta McGill University	5C-03 Irradiation effects on boron nitride nanotubes and related polymer nanocomposites Benham Ashrafi NRC
5A-04 The Canadian technology behind NASA's Roman Telescope exo-planet camera Frédéric Grandmont ABB	5B-04 Multi-constellation and multi-frequency GNSS signal acquisition algorithm for real-time FPGA implementation for soil moisture monitoring payload Shamil Samigulin York University	5C-04 Liquid-solid interface and penetration of organic resin binder and iron alloy powder for the use of binder jetting additive manufacturing in microgravity Kinston Wong University of Alberta
5A-05	5B-05	5C-05 Toward mobile 3D printing of lunar regolith through simultaneous localization and additive manufacturing Krzysztof Skonieczny Concordia University

Session 6		
Thurs 3 Nov 10:15-11:45		
Concerto	Vivaldi	Tchaikovsky
Technical Session 6A	Technical Session 6B	Technical Session 6C
Satellite Technology Development	Guidance, Navigation & Control 2	
Chair:	Chair:	Chair:
<p>6A-01 Neural network based star identification using a dual-purpose star tracker</p> <p style="text-align: right;">Gabriel Chianelli York University</p>	<p>6B-01 Detecting geostationary satellite docking maneuvers using photometric light curves</p> <p style="text-align: right;">Jack Wawrow York University</p>	<p>6C-01</p>
<p>6A-02 Single event performance of radiation hardened flip-flops at 22-nm FDSOI technology node</p> <p style="text-align: right;">Chen Li University of Saskatchewan</p>	<p>6B-02 Design of a vectored electro spray thruster for nanosatellites</p> <p style="text-align: right;">Ivan Savytskyy Royal Military College</p>	<p>6C-02</p>
<p>6A-03 Developing a new metric for the MMOD bumper performance</p> <p style="text-align: right;">Majid Fazlollahi University of Manitoba</p>	<p>6B-03 Advanced global navigation satellite system signal acquisition for GNSS-reflectometry receiver design</p> <p style="text-align: right;">John Bagshaw York University</p>	<p>6C-03</p>
<p>6A-04 Numerical modelling of the hypervelocity impact on sandwich panel with corrugated core</p> <p style="text-align: right;">Tanvir Howlader University of Manitoba</p>	<p>6B-04 Experimental characterization of a cylindrical 10mm Hall thruster using krypton</p> <p style="text-align: right;">Felix Chan-Ying Royal Military College</p>	<p>6C-04</p>