

The 13th IEEE International Conference on Wireless for Space and Extreme Environments (WiSEE 2025)

October 13 - 15, 2025
The Lord Nelson Hotel & Suites
Halifax, Nova Scotia, Canada

Conference Program Digest

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WELCOME Message

On behalf of the organizing committee, it is our great pleasure to welcome you to the 13th IEEE International Conference on Wireless for Space and Extreme Environments(WiSEE 2025) to be held at the The Lord Nelson Hotle & Suites, Halifax, Nova Scotia, Canada. Halifax is the largest maritime city in the Atlantic Canada Region and one of the world's most popular tourist cities. We have received 79 initial paper and abstract submissions, which representing 14 countries and regions. These papers reflect the fast-growing interests in research, development, and applications in the dynamic and exciting areas of wireless technologies and systems in space, underwater, and other extreme environments, which are the focus of the IEEE WiSEE conference.

IEEE WiSEE is the flagship conference for researchers, students, and professionals in the areas of wireless communications and sensing in extreme environments such as space, underwater, underground, and other challenging domains. It brings together the global community annually to disseminate research advancements, exchange innovative ideas, and foster collaborations across academia, industry, and government. WiSEE 2025 will feature three plenary speeches, three workshops and symposia covering diverse aspects of wireless technologies, industry panels, best paper awards, and networking events. We expect strong international participation and impactful discussions that will shape the future of wireless systems in extreme environments.

We wish to express our gratitude to all of our sponsoring societies, partners, and organizations. We also thank the many individuals who have contributed to the planning and execution of this conference. Special appreciation is extended to our colleagues in the Technical Program Committee for their careful review of all submissions, which is essential to the success of WiSEE. Last but not least, we thank all the participants for their support and engagement in making this conference a great success. IEEE WiSEE 2025 promises to be an exciting event with outstanding plenary talks, technical sessions, workshops, and networking opportunities. We look forward to welcoming you in Halifax in October 2025.



Dr. Mae Seto

Program Chair



Dr. Jason Gu

General Chair



Dr. Gunes Karabulut Kurt

General Chair



Dr. Qiang Ye

Program Chair

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WiSEE2025 Organization Committees

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Qiang Ye
Seyed (Reza) Zekavat
Lixia Zhang
Haifeng Zheng

General Information

Conference Venue

The Lord Nelson Hotel & Suites

1515 South Park Street, Halifax, Nova Scotia, Canada B3J 2L2

Phone: (902) 423-6331

Website: <https://lordnelsonhotel.ca/>

Language

The conference and all its activities will be conducted in English.

Conference Secretariat

Contact E-mail: ieeewisee2025@gmail.com

Dietary Needs

Conference delegate or partner with special dietary needs etc. is invited to indicate his/her special dietary needs to the organizing committee at the Registration Desk.

Conference Registration

Venue

The Lord Nelson Hotel & Suites

Time

Sunday	October 12, 2025	14:00 – 18:00
Monday	October 13, 2025	08:30 – 16:00
Tuesday	October 14, 2025	08:30 – 16:00
Wednesday	October 15, 2025	08:30 – 12:00

Oral Presentation and Additional Equipment

Please note that each session room will be equipped with a projector, screen, laser pointer, and microphone. Laptop and/or desktop computers will be provided. General software presentation package are preinstalled, such as Microsoft PowerPoint, Adobe Acrobat reader. If you plan to use specific software presenting packages other than stated above, you are required to bring your own computer and install them before your presentation. Please include your paper number in all correspondence. Each presentation is allocated 20 minutes including question and answer period.

Halifax Travel Guide

Halifax, formally the Halifax Regional Municipality (HRM), is the capital of the province of Nova Scotia, Canada.

Halifax is considered a global city and is a major economic centre in eastern Canada with a large concentration of government services and private sector companies. Major employers and economic generators include the Department of National Defence, Dalhousie University, the Halifax Shipyard, various levels of government, and the Port of Halifax. Agriculture, fishing, mining, forestry and natural gas extraction are major resource industries found in the rural areas of the municipality. Halifax was ranked by MoneySense magazine as the fourth best place to live in Canada for 2012, placed first on a list of "large cities by quality of life" and placed second in a list of "large cities of the future", both conducted by fDi Magazine for North and South American cities.



Halifax Regional Municipality. Clockwise from the top: Downtown Halifax, Halifax Town Clock, Halifax Transit Ferry, Citadel Hill.

Halifax's tourism industry showcases Nova Scotia's culture, scenery and coastline. The area has many museums reflecting its ethnic heritage, including the Black Cultural Centre for Nova Scotia. Others museums tell the story of its working history, such as the Maritime Museum of the Atlantic and is home to the only National Museum in the Atlantic provinces, the Canadian Museum of Immigration at Pier 21. It is also home to several internationally renowned events such as the Royal Nova Scotia International Tattoo, the Atlantic Film Festival and the Atlantic Fringe Festival. Halifax has numerous National Historic Sites, the most notable being Citadel Hill (Fort George) in Halifax.



Historic Properties



Peggy's Cove Lighthouse

The iconic Peggys Cove is internationally recognized and receives 600,000 plus visitors a year.



Town Clock as seen from Citadel Hill

Cruise ships visit the province frequently.

Transportation Information

By Air

The Halifax Stanfield International Airport (YHZ) is the center for domestic, regional and international flight services from Atlantic Canada. With over 600 flights a week, you can travel by air to Halifax on direct flights from many Canadian, U.S., European, and Caribbean destinations. Add to that hundreds more connecting flights and it's easy to get to Halifax from just about anywhere in the world.

Halifax is geographically closer to Boston (fly time 1.45 hours) and New York (fly time 2.25 hours) than any other Canadian city and over one hour closer to Europe than any other major North American city.

There are over 20 daily flights from Toronto (fly time 2 hours), 10 from Montreal (fly time 1.5 hours) and 7 from Ottawa (fly time 1.75 hours).

For more information: <http://www.flyhalifax.com>



Halifax Stanfield International Airport

By Rail

VIA Rail Canada offers trans-continental connection with Western Canadian cities, and some U.S. destinations. The Ocean links Montreal and Halifax by night. You'll travel hundreds of kilometers while you sleep in comfort. When you wake up, you are in Atlantic Canada! The Ocean leaves Montreal in the evening, and travels along the south shore of the St. Lawrence River through the Matapedia valley.

Continuing southwards across New Brunswick and Nova Scotia, the train reaches Halifax in mid-afternoon. In the other direction, the Ocean leaves Halifax in the late morning, and arrives in Montreal the next morning. The Ocean runs three days a week.

For more information: <http://www.viarail.ca>



HalifaxRailway Station

Venue and Hotel

Conference Venue and Hotel

Originally built in October 1928, the Lord Nelson Hotel & Suites is an iconic Maritime landmark overlooking the 16-acre downtown oasis famously known as the Halifax Public Gardens. Our historic elegance and charm have recently been enhanced with a multi-million-dollar lift, resulting in a unique blend of historic nobility and modern design. Enjoy a selection of stylishly designed rooms and suites that offer a wide range of amenities and services, including extended stay options.

Magnificent event space and service excellence has made the Lord Nelson the city's most sought-after venue for conferences, weddings and social events.

Experience remarkable sophistication's artful redesign at the Lord Nelson, with incorporated urban elegance fashioned to provide seamless service and a welcoming, comfortable travel experience.



The Lord Nelson Hotel & Suites

Address: **1515 South Park Street, Halifax, Nova Scotia, Canada B3J 2L2**

Phone: +1 902 423 6331

Toll-free: 1 (800) 565 2020

For more information and make a reservation, please visit

<https://lordnelsonhotel.ca/>

Please note that reservation must be made by **September 19, 2025** to receive discounted rate.

How to get to the Lord Nelson Hotel & Suites



From Halifax Stanfield International Airport to the Lord Nelson Hotel & Suites

Program Schedule

Sunday, October 12, 2025

14:00-18:00	Registration
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Monday, October 13, 2025

07:30-08:30	Breakfast at Imperia Ballroom
08:30-09:15	Plenary Session I by Rhonda Green at Imperial Ballroom
09:15-10:30	MA1 at Regency Ballroom, MA2 at Admiral Room, SSP Keynote-MA3 at Britannia Ballroom
10:30-10:45	Tea and Coffee Break at Imperial Ballroom
10:45-12:00	MM1 at Regency Ballroom, MM2 at Admiral Room, SSP-MM3 at Britannia Ballroom
12:00-13:00	Lunch
13:00-14:15	STINT Keynote 1-MP1 at Regency Ballroom, MP2 at Admiral Room, MP3 at Britannia Ballroom
14:15-14:30	Tea and Coffee Break at Imperial Ballroom
14:30-15:45	STINT-invited Session-ME1 at Regency Ballroom, ME2 at Admiral Room, ME3 at Britannia Ballroom
18:00-20:30	Reception (Regency Ball room)

Tuesday, October 14, 2025

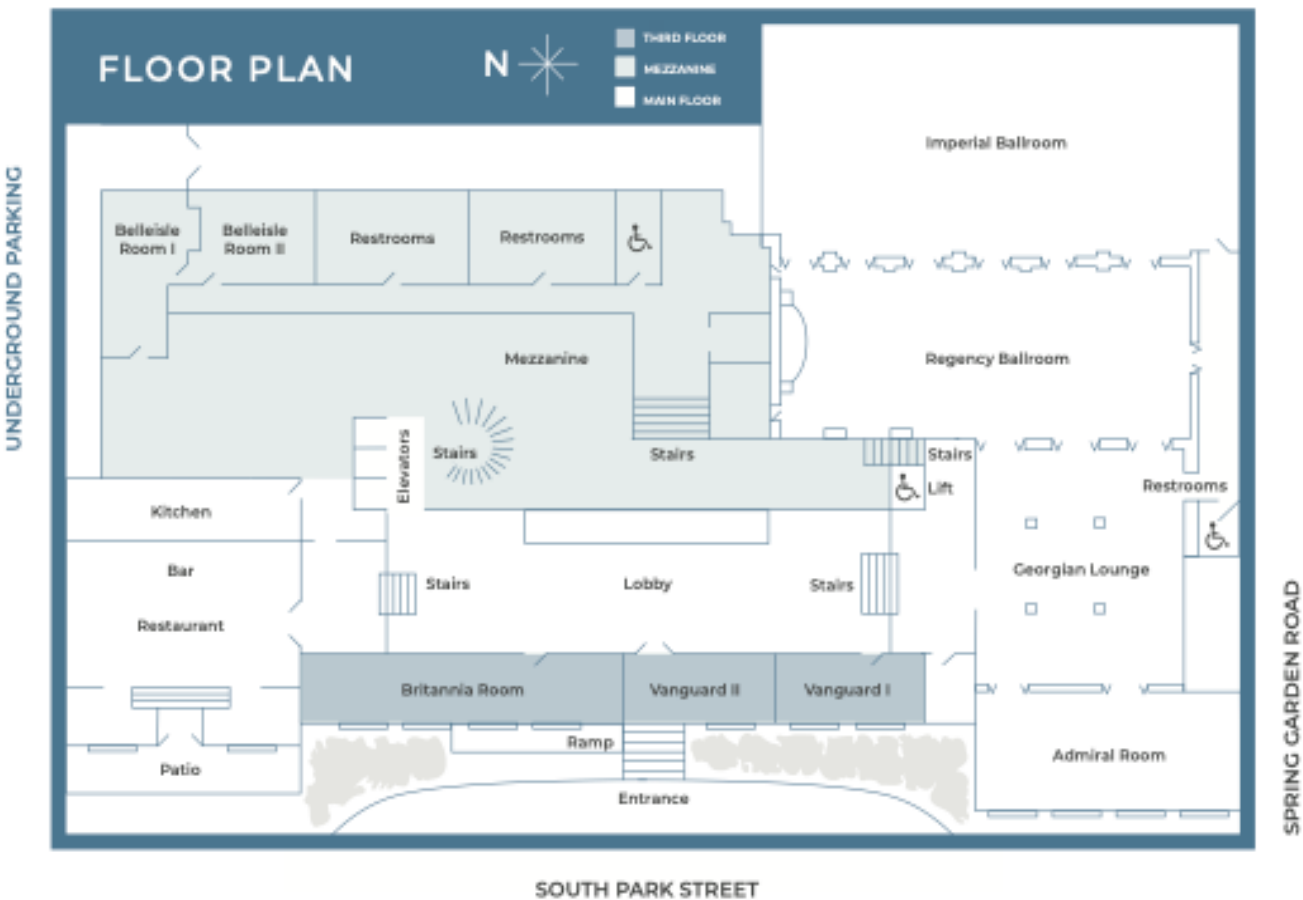
07:30-08:30	Breakfast at Imperia Ballroom
08:30-09:15	Plenary Session II by Scott Burleigh at Imperial Ballroom
09:15-10:30	STINT Keynote 1-TA1 at Regency Ballroom, TA2 at Admiral Room, COSMIC-TA3 at Britannia Ballroom
10:30-10:45	Tea and Coffee Break at Imperial Ballroom
10:45-12:00	STINT-TM1 at Regency Ballroom, iMerit-TM2 at Admiral Room, COSMIC-TM3 at Britannia Ballroom
12:00-13:00	Lunch
13:00-14:15	STINT-P1-TP1 at Regency Ballroom, iMerit-TP2 at Admiral Room, COSMIC-TP3 at Britannia Ballroom
14:15-14:30	Tea and Coffee Break at Imperial Ballroom
14:30-15:45 18:00-20:30	STINT-Panel1-TE1 at Regency Ballroom, iMerit-TE2 at Admiral Room, COSMIC-TE3 at Britannia Ballroom
18:00-21:30	Banquet (Regency Ball room)

Wednesday, October 15, 2025

07:30-08:30	Breakfast at Imperia Ballroom
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08:30-09:45	STINT Hackathon1-WA1 at Regency Ballroom, iMerit-WA2 at Admiral Room, WA3 at Britannia Ballroom
09:45-10:00	Tea and Coffee Break at Imperial Ballroom
10:00-11:15	STINT Hackathon2-WM1 at Regency Ballroom, WM2 at Admiral Room, WM3 at Britannia Ballroom
11:15-12:00	Plenary Session III By Brian Gallant at Imperial Ballroom

Floor Plan of Meeting Rooms



Keynote Speaker I

08:30-09:15, Monday, October 13, 2025

Imperial Ballroom

**Revolutionizing Logistics: A Comprehensive Ecosystem
Approach for Driving RFID Reader and Tag Innovations**



Rhonda Green

Abstract

In today's rapidly evolving logistics landscape, the need for efficiency, accuracy, and minimal human interaction has never been more critical. This keynote address will explore the transformative impact of RFID technology on logistics systems, underscoring its significance in the post-COVID era where automation and contactless operations are paramount.

As more companies accelerate the adoption of RFID solutions to meet heightened demands for efficiency and safety; we'll explore the distinctions between passive and active tags, examining their functionalities, costs, and applications in diverse environments.

A key component of the talk will be logistics optimization from a holistic viewpoint. We'll address the critical importance of tracking products through the supply chain, emphasizing the role of RFID in mitigating errors and enhancing the speed and reliability of logistics operations.

Furthermore, we'll provide a technical overview of the components and protocols that make up RFID systems, such as the GS1 Gen2 protocol and its sophisticated random-access procedures. This insight will shed light on the underlying technology that powers the RFID ecosystem, ensuring efficient communication and data processing.

Finally, we'll delve into the cutting-edge advancements offered by Zebra Technologies, highlighting their comprehensive end-to-end solutions that deliver real-time insights, ensuring products are accurately tracked across complex supply chains. From warehouses to indoor customer-facing environments, RFID readers, printers, and antennas provide unparalleled real-time asset tracking capabilities, ensuring seamless inventory management and operational efficiency.

Attendees will gain strategic insights into how RFID technology is redefining and revolutionizing logistics, enabling industries to navigate challenges with greater agility and precision. This keynote aims to inspire a reimagining of logistics, empowering companies to enhance productivity, resilience, and innovation for a dynamic future.

Biography

Rhonda Green is a highly accomplished leader in technology and innovation, recognized for her leadership in professional organizations and advocacy for diversity in STEM. Her pivotal role at Zebra Technologies, a global leader in enterprise solutions and services has been marked by significant contributions to developing cutting-edge RFID solutions that have profoundly impacted businesses worldwide. Her visionary leadership has solidified her reputation as a trailblazer in the tech sector.

Currently serving as Chair of the IEEE Long Island Section, Rhonda is the first African American to lead this group since its formation in 1952—a milestone celebrated in local media. In her role, she has championed initiatives to enhance technical excellence and professional development. Most recently, she served as Vice Chair of the IEEE Women in Engineering USA East Conference, further demonstrating her commitment to empowering underrepresented groups in engineering.

Rhonda's influence extends beyond her professional achievements. She has been a prominent speaker at numerous technology and leadership events, including a distinguished presentation at the United Nations ECOSOC Chamber for the Commission on the Status of Women, where she advocated for advancing women's empowerment.

Among her many accolades, Rhonda was honored with the LISTnet Diamond Award, recognizing her exceptional leadership and impact within the technology ecosystem. Her dynamic career spans academia and industry, exemplifying her dedication to fostering innovation and promoting STEM education.

A Pittsburgh native now shaping the future of engineering on Long Island, Rhonda holds a Bachelor of Science degree from Carnegie Mellon University and a Master of Science degree from the NYU Tandon School of Engineering. Her work continues to inspire the next generation of engineers and technologists.

Keynote Speaker II

08:30-09:15, Tuesday, October 14, 2025

Imperial Ballroom

Delay-Sensitive Applications Over a Delay-Tolerant Network



Scott Burleigh

Abstract

The original motivation for the research and development behind the Delay-Tolerant Networking (DTN) communications architecture was the realization in 1998 that, while the scope of space flight operations beyond low-Earth orbit was likely to grow over the coming decades, the prevailing models for communication with these distant operational entities would not scale up to support them. An automated, connection-rich fabric like the Internet would be needed, but environmental assumptions underlying the design of the Internet protocols made that architecture unsuitable. Twenty-seven years later, DTN is operational in flight missions. However, deployment of the thousands of applications that make the Internet so powerful remains a challenge, as many Internet applications were designed under those same assumptions of continuous connectivity and minimal transmission delay. This talk will discuss ways in which the application of core delay-tolerant communication principles can enable such applications to be readily integrated into a Solar System Internet.

Biography

Scott Burleigh retired from the Jet Propulsion Laboratory (JPL), California Institute of Technology, where he was a principal engineer, in 2021. His career spanned over 48 years of experience in computer software development including 35 years of software engineering for space flight applications. A founding member of the Delay-Tolerant Networking (DTN) Research Group of the Internet Research Task Force, Mr. Burleigh co-authored the specification for version 6 of the DTN Bundle Protocol (BP), supporting automated data forwarding through a network of intermittently connected nodes, and was the principal author of the specification for BP version 7 (Internet RFC 9171). He led development of the Interplanetary Overlay Network (ION) implementations of BP and related protocols, which are currently in operation on the International Space Station and in NASA's Plankton, Aerosol, Cloud, ocean Ecosystem (PACE) mission. He was Principal Investigator and software lead for the Deep Impact Network experiment, which operated an ION-based interplanetary networking router on the EPOXI spacecraft in solar orbit more than 60 light seconds from Earth for four weeks in 2008. ION was JPL's nominee for NASA's Software of the Year award in 2010. Mr. Burleigh has been awarded the NASA Exceptional Engineering Achievement Medal, the NASA Exceptional Public Service Medal, and four NASA Space Act Awards for his work on these communication protocols. He currently assists in software systems engineering for the Space Exploration Sector of the Johns Hopkins University's Applied Physics Laboratory.

Keynote Speaker III

11:15-12:00, Wednesday, October 15, 2025

Imperial Ballroom

Space's Role in a Shifting Geopolitical Landscape: Building Strength in the Global Space Economy



Brian Gallant

Abstract

In an era marked by geopolitical uncertainty and rapid technological change, the global space economy is emerging as a defining arena of strategic competition and collaboration. Space is not only an economic frontier but also a critical domain for national security, resilience, and innovation.

This presentation will analyze the economic opportunities space affords, the contributions it can make to addressing urgent policy challenges such as climate change and digital inclusion, and the approaches being pursued by Canada and other spacefaring nations. It will also review actions and programs that should be advanced by countries to strengthen their respective space sectors.

The hope is that attendees will gain a clearer understanding of why space matters for our collective future and what public policy approaches are needed to strengthen the global space ecosystem.

Biography

Brian Gallant, K.C., is the CEO of Space Canada, and he was the 33rd Premier of New Brunswick.

Brian is a Special Advisor to the President of Ontario Tech University. He also frequently provides business and political analysis as a media commentator for CTV and Radio Canada.

Brian is supportive of many causes and initiatives as a member of several boards of directors including the Asia Pacific Foundation of Canada, the Canada's Sports Hall of Fame, and the Canadian Olympic Foundation.

Symbols for Technical Sessions

Symbols for Days of a Week

M = Monday
T = Tuesday
W = Wednesday

Symbols for Session Times Slots

Session A = 09:15-10:30

Session M = 10:45-12:00

Session P = 13:00-14:15

Session E = 14:30-15:45

Symbols for Room Assignments

Room ID		Room
1	=	Regency Ballroom
2	=	Admiral Room
3	=	Britannia Ballroom

Oral Sessions on Monday October 13

Regular Session(**MA1**), October 13,2025

Room: **Regency Ballroom**, Session Chair: A. F. M. Shahen Shah

Paper ID	Time	Title and Authors
#3	09:15-09:40	Title: Challenges and Opportunities in Advancing CubeSat Technologies for Good Space Stewardship: a Regulatory and Technological Perspective Authors: Sajad Saraygord Afshari, Elham Baneshi and Daniel Asante (University of Manitoba, Canada); Philip A Ferguson (University of Manitoba & NSERC / CSA / Magellan Aerospace Industrial Research Chair in Satellite Engineering, Canada)
#18	09:40-10:05	Title: Performance Optimization of FAMA for 6G Using Meta-Heuristic Optimization Algorithms Authors: Muhammet Ali Karabulut (Turkish Air Force Academy, Turkey); A. F. M. Shahen Shah (Yildiz Technical University, Turkey)
#19	10:05-10:30	Title: Non-Terrestrial Network Based on Satellite-to-Multi-UAV Communication System for Emergency Situations Authors: Md. Thouhidur Rahman (Yildiz Technical University & Tubitak, Turkey); Salah Uddin and A. F. M. Shahen Shah (Yildiz Technical University, Turkey); Muhammet Ali Karabulut (Turkish Air Force Academy, Turkey)

Regular Session(**MA2**), October 13,2025

Room: **Admiral Room**, Session Chair: Zhuliang Jia

Paper ID	Time	Title and Authors
#12	09:15-09:40	Title: Robust Ultra-Lightweight Multi-Object Tracking on UAVs in Diverse Weather Environments Authors: Mohammad Fatin Fatihur Rahman and Ifrah Andleeb (University of Windsor, Canada); Abdul Mohaimen Al Radi (Dhaka University, Bangladesh); Ning Zhang and Esam Abdel-Raheem (University of Windsor, Canada)
#13	09:40-10:05	Title: Privacy-Preserving Spatial Range Query for Encrypted 3D Object Data Authors: Zhuliang Jia and Mohammadmasoud Shabanijou (University of New Brunswick, Canada);

		Suprio Ray (University of New Brunswick, Fredericton, Canada); Rongxing Lu (Queen's University, Canada); Pulei Xiong (National Research Council Canada, Canada)
#14	10:05-10:30	Title: A Laser Link Availability Model in Non-Terrestrial Networks Under Water Vapor Attenuation Authors: Tomohiro Korikawa (NTT, Japan); Kyota Hattori (Nippon Telegraph and Telephone Corporation, Japan); Chikako Takasaki and Takaaki Moriya (NTT, Japan)

Workshop Session(SSP-MA3), October 13,2025

Room: **Britannia Room**, Session Chair: Gregory Durgin

SSP Opening Remarks	Time	Topic
Greg Durgin (Georgia Tech)	09:15-09:30	News on SSP Community

SSP Keynote Speaker	Time	Topic
Neil Buchanan (Queens University Belfast, United Kingdom (Great Britain))	09:30-10:30	Secure, Dynamic Phase Correction Techniques for Space Based Solar Power

Regular Session(MM1), October 13,2025

Room: **Regency Ballroom**, Session Chair: Gunes Karabulut Kurt

Paper ID	Time	Title and Authors
#21	10:45-11:10	Title: Simulation and Performance Evaluation of Computational Mobile Devices Strategies for Data Transmission and Local Processing in IoT Systems Authors: Ojonukpe S. Egwuche (Federal Polytechnic Ile Oluji Ondo State Nigeria, Nigeria & North West University, South Africa); Japie Greeff (NWU, South Africa); Reolyn Heymann (North-West University, South Africa)
#22	11:10-11:35	Title: Deep Learning-Based MIMO Detection Under Power-Amplifier Nonlinearity and Channel Memory for 5G Networks Authors: Urooj Naveed Akhter and Wei-Ping Zhu (Concordia University, Canada); Paulo S R Diniz (Universidade Federal do Rio de Janeiro, Brazil); Ali Mohebbi (Concordia University, Canada)

#23	11:35-12:00	Title: Disrupt to Protect: Interference-Aware Security for HAPS-Based Wireless Systems Authors: Khaled Humadi (Polytechnique Montreal, Canada); Leila Marandi (Polytechnique Montreal University, Canada); Gunes Karabulut Kurt (Ecole Polytechnique de Montreal, Canada); Wessam Ajib (Université du Québec à Montréal, Canada); Wei-Ping Zhu (Concordia University, Canada)
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Regular Session(**MM2**), October 13,2025

Room: **Admiral Room**, Session Chair: Esmail M M Abuhdima

Paper ID	Time	Title and Authors
#20	10:45-11:10	Title: Space Threat Environmental Testing of Passive Components for Future Application in RF Transceiver Modules Authors: Gyeong-Min Lee, Kyu-Jin Lee and Jung-Ryul Lee (KAIST, Korea (South))
#25	11:10-11:35	Title: Intelligent Radio Frequency Channel Adaptation Based on Rain Detection and Low-Cost Sensors Authors: Esmail M M Abuhdima (ECPI University, USA & Embry-Riddle Aeronautical University, USA); Abdulmajid Mrebit (Benedict College, USA); Gurcan Comert (North Carolina a & T University, USA); Rajab Ataa, Jason Laing, Rolle Naomi and Negash Begashaw (Benedict College, USA); Justice Adjei Owusu (North Carolina A&T State University, USA)
#44	11:35-12:00	Title: Characterizing Millimeter Wave Attenuation and Phase Shifts Using a Novel Propagation Model in Harsh Environments Authors: Esmail M M Abuhdima (ECPI University, USA & Embry-Riddle Aeronautical University, USA); Abdulmajid Mrebit, Ricsheia Barr and Avery Basden (Benedict College, USA); Jian Liu (University of South Carolina, USA); Amir Nazari (Clemson University, USA); Gurcan Comert (North Carolina a & T University, USA); Chin-Tser Huang (University of South Carolina, USA); Pierluigi Pisu (Clemson University, USA); Rajab Ataa (Benedict College, USA)

Workshop Session(SSP-MM3), October 13,2025

Room: **Britannia Room**, Session Chair: Gregory Durgin

Paper ID	Time	Title and Authors
#41	10:45-11:05	Title: Impact of Random Errors on Fresnel Region Antenna Arrays for Wireless Power Transfer Authors: Kaitlyn Graves and Gregory Durgin (Georgia Tech, USA)
#61	11:05-11:25	Title: Growing Need for Space Solar Power for Clean Reliable Unlimited Electric Power Grids and Energy Authors: Darrell W Preble (Space Solar Power Institute, USA)
#62	11:25-11:45	Title: How to Overload a Rectenna Farm for Space-Based Solar Power Authors: Gregory Durgin (Georgia Tech, USA)
	11:45-12:00	Speaker's Panel on Future of SSP

Workshop Session(STINT-Keynote1-MP1), October 13,2025

Room: **Regency Ballroom**, Session Chair: Juan A. Fraire

STINT Opening Remarks	Time	Topic
Vint Cerf (Google)	13:00-13:10	Welcome Words by Vinton Cerf The co-inventor of the Internet will open STINT 2025 with remote welcome remarks.

STINT Keynote Speaker	Time	Topic
Felix Flentge (ESA)	13:10-13:37	The European Space Agency: Advancing towards a Solar System Internet" (remote)
Ricky Taylor (Aalyria)	13:37-14:14	Gateway to the Planets: A Technical Deep Dive on IP-DTN Application Bridging

Regular Session(MP2), October 13,2025

Room: **Admiral Room**, Session Chair: Clement Nzoleko

Paper ID	Time	Title and Authors
#31	13:00-13:25	Title: Modeling the Impact of Tunnel Wall Roughness on Wireless Propagation in Underground Mining Environments

		Authors: Clement Nzoleko (UQAT, Canada); Aurélien Surier (Université du Québec en Abitibi-Témiscamingue, Canada); Hussam Zgheib (UQAT, Canada); Nadir Hakem (Université du Québec en Abitibi Témiscamingue, Canada); Nahi Kandil (Université du Québec en Abitibi-Témiscamingue, Canada)
#35	13:25-13:50	Title: BPsec-MLS: Asynchronous Key Agreement for Space Communications Authors: Xisen Tian (Naval Postgraduate School & US Navy, USA); Paul K Westland (Naval Postgraduate School, USA)
#37	13:50-14:15	Title: AI-Driven Collaborative Satellite Object Detection for Space Sustainability Authors: Peng Hu (University of Manitoba, Canada); Wenxuan Zhang (University of Waterloo, Canada)

Regular Session(**MP3**), October 13,2025

Room: **Britannia Room**, Session Chair: Ganghui Lin

Paper ID	Time	Title and Authors
#52	13:00-13:25	Title: Scalable Radio Resource Management for NGSO Satellite Constellations Authors: Ganghui Lin (Carnegie Mellon University, USA); Jon M. Peha (Carnegie Mellon University & White House Office of Science & Technology Policy, USA); Marvin Sirbu and Alex Hills (Carnegie Mellon University, USA)
#43	13:25-13:50	Title: Forecasting Self-Similar User Traffic Demand Using Transformers in LEO Satellite Networks Authors: Yekta Demirci (Polytechnique Montréal, Canada); Guillaume Mantelet (Satellite Systems MDA, Canada); Stéphane Martel (Satellite Systems MDA Canada, Canada); Jean-François Frigon (Polytechnique Montréal, Canada); Gunes Karabulut Kurt (Ecole Polytechnique de Montreal, Canada)
#26	13:50-14:15	Title: Deterministic UWB Wireless Sensor Network for Time-Sensitive Intra-Spacecraft Applications Authors: Mohamed Khalil (Bremerhaven University of Applied Science, Germany); Kai Mueller and Karsten Peter (Bremerhaven University of Applied Sciences, Germany)

Workshop Session(STINT-Invited1-ME1), October 13,2025

Room: **Regency Ballroom**, Session Chair: Alberto Montilla Bravo

STINT Invited Talks	Time	Title and Authors
Alberto Montilla Bravo (Spatiam Corporation, USA)	14:30-14:55	LunaNet Service Providers - DTN Considerations
Teresa Algarra Ulierte (Hamburg University, Germany)	14:55-15:20	What Channel Analysis Tells Us About QoS Needs in Space DTNs
Xisen Tian (Naval Postgraduate School, USA)	15:20-15:45	BPSec-MLS: Asynchronous Key Agreement for Space Communications

Regular Session(ME2), October 13,2025

Room: **Admiral Room**, Session Chair: Yassine Afif

Paper ID	Time	Title and Authors
#46	14:30-14:55	Title: Experimental Evaluation of Joint Clock Recovery and Equalization for Sub-Terahertz Links Authors: Pietro Savazzi and Anna Vizziello (University of Pavia, Italy); Sherif Badran (Northeastern University, USA); Josep M Jornet (Northeastern University & Institute for the Wireless Internet of Things, USA)
#48	14:55-15:20	Title: Kalman Filter-Enhanced Space Debris Detection and Tracking Using Space-Borne FMCW Radars Authors: Keywan Mohammadi (École Polytechnique de Montréal, Canada); Khaled Humadi (Polytechnique Montreal, Canada); Elham Baladi (École Polytechnique de Montréal, Canada); Gunes Karabulut Kurt (Ecole Polytechnique de Montreal, Canada)
#50	15:20-15:45	Title: Joint Satellite Power Consumption and Handover Optimization for LEO Constellations Authors: Yassine Afif (Polytechnique Montreal, Canada); Mohammed Almekhlafi and Antoine Lesage-Landry (Polytechnique Montréal, Canada); Gunes Karabulut Kurt (Ecole Polytechnique de Montreal, Canada)

Regular Session(ME3), October 13,2025

Room: **Britannia Room**, Session Chair: Yousef Abu Baker

Paper ID	Time	Title and Authors
#27	14:30-14:55	Title: From Prompt to Action: a Comprehensive Review of LLM Autonomous Agents

		Authors: Zainab Rafiq (University of Management and Technology, Lahore, Pakistan); Muhammad Wasim (University of Management and Technology, Pakistan)
#55	14:55-15:20	Title: Modeling the Doppler Shift in Cislunar Environment with Gaussian Mixture Models Authors: Baris Donmez (Polytechnique Montreal, Canada); Sebastien Loranger (École Polytechnique de Montréal, Canada); Gunes Karabulut Kurt (Ecole Polytechnique de Montreal, Canada)
#64	15:20-15:45	Title: Medium Access Control for Underwater Network Using an SNR-Aware Adaptive Learning Agent Authors: Yousef Abu Baker and Jean-Francois Bousquet (Dalhousie University, Canada)

Oral Sessions on Tuesday October 14

Workshop Session(**STINT-Keynote2-TA1**), October 14,2025

Room: **Regency Ballroom**, Session Chair: Juan A. Fraire

STINT Keynote Speaker	Time	Topic
Jeremy Pierce Mayer (GMV)	09:15-09:52	Embracing The Space Internet: Towards The Use of Industry Standards in Space. (remote)
Felix Walter (D3TN)	09:52-10:29	The Journey to the Space Cloud.

Regular Session(**TA2**), October 14,2025

Room: **Admiral Room**, Session Chair: Salma Ait Fares

Paper ID	Time	Title and Authors
#28	09:15-09:40	Title: Modular Audio Transcription Framework for Voice Communication in Mission-Critical Environments Authors: Salma Ait Fares (InterTalk Critical Information Systems, Canada); Malk Daboor (Dalhousie University, Canada); Muhammad Saad and James Birchall (InterTalk, Canada)
#29	09:40-10:05	Title: Light Simulation Framework for the Optimization of Spatial Structures for Intra-Satellite LiFi-Communication Authors: Marek Jahnke (Hamburg University of Technology, Germany); Ben Palmer (Technical University of Berlin, Germany); Lev Perschin (Hamburg University of Technology (TUHH), Germany); Enrico Stoll (TU Berlin, Germany); Ulf Kulau (Hamburg University of Technology, Germany & DSI Aerospace Technology, Germany)
#66	10:05-10:30	Title: Curiosity-Driven Energy-Aware Resource Allocation for Internet of Vehicles Presenter: Baorui Jia

Workshop Session(**COSMIC-TA3**), October 14,2025

Room: **Britannia Room**, Session Chair: Gunes Karabulut Kurt

COSMIC Keynote Speaker	Time	Topic
Dr. Sarah Gallagher	09:15-10:30	CASTOR: A Flagship Space Astronomy Mission for Canada

Workshop Session(STINT-TM1), October 14,2025

Room: **Regency Ballroom**, Session Chair: Juan A. Fraire

Paper ID	Time	Title and Authors
#17	10:45-11:03	Title: Operationalizing LunaNet Service Provider Delay Tolerant Networks on the International Space Station. Authors: Alberto Montilla Bravo, Alberto Montilla Ochoa, Eric Hill and Veronica Acosta (Spatiam Corporation, USA); Shehroze Ahmed (Axiom Space, USA)
#36	11:03-11:21	Title: Modeling Pointing, Acquisition, and Tracking Delays in Free-Space Optical Satellite Networks. Authors: Jason Gerard (Concordia University, Canada); Juan A. Fraire (Inria/INSA Lyon & CONICET, Argentina); Sandra Cespedes (Concordia University, Canada)
#40	11:21-11:39	Title: POMDP-Based Routing for DTNs with Partial Knowledge and Dependent Failures. Authors: Gregory F. Stock and Alexander Haberl (Saarland University, Germany); Juan A. Fraire (Inria/INSA Lyon & CONICET, Argentina); Holger Hermanns (Saarland University, Germany)
#42	11:39-11:57	Title: Towards Modeling Application Execution Platforms for Delay-Tolerant Networks. Authors: Anastasia Klara Vöhringer (Dresden University of Technology, Germany); Marius Feldmann (D3TN GmbH, Germany); Iris Braun (Technische Universität Dresden, Germany)

iMerit Session(TM2), October 14,2025

Room: **Admiral Room**, Session Chair: Koceila Cherfouh

Paper ID	Time	Title and Presenter
#65	10:45-11:10	Title: Enhancing Adversarial Traffic Realism with Autoencoder-Assisted WGAN for IDS Evasion Presenter: Shiyun Wang
#73	11:10-11:35	Title: Overcoming the Arctic: Robust Wireless Solutions for Autonomous Vessel Navigation and Control Systems Presenter: Koceila Cherfouh
#67	11:35-12:00	Title: Using Autoencoders to Fortify Intrusion Detection Systems Against Adversarial Attacks Presenter: Patricia Kibenge-MacLeod

Workshop Session(COSMIC-TM3), October 14,2025

Room: **Britannia Room**, Session Chair: Gunes Karabulut Kurt

COSMIC Speaker	Keynote	Time	Topic
Dr. Guy Seguin		10:45-12:00	Synthetic Aperture Radar satellites and connectivity

Workshop Session(STINT-TP1), October 14,2025

Room: **Regency Ballroom**, Session Chair: Juan A. Fraire

Paper ID	Time	Title and Authors
#45	13:00-13:18	Title: A Border Gateway Protocol Extension for Distributing Endpoint Identifier Reachability Information in Delay-Tolerant Networks. Authors: Marius Feldmann, Théo Tchilinguirian and Felix Walter (D3TN GmbH, Germany)
#56	13:18-13:36	Title: Deep Reinforcement Learning for Routing in Uncertain DTNs with Graph Neural Networks. Authors: Valentin Negrelli and Renato Cherini (National University of Córdoba, Argentina); Juan A. Fraire (Inria/INSA Lyon & CONICET, Argentina)
#57	13:36-13:54	Title: A-SABR: The Adaptive Library for Schedule-Aware Bundle Routing. Authors: Olivier De Jonckère (Université de Montpellier / LIRMM, France); Longrui Ma (INSA Lyon, France); Juan A. Fraire (Inria/INSA Lyon & CONICET, Argentina)
#58	13:54-14:12	Title: Design and Implementation of a Native Socket Interface for the Bundle Protocol. Authors: Sylvain Pierrot and Charley Geoffroy (Université de Montpellier, France); Scott C Burleigh (USA); Olivier De Jonckère (Université de Montpellier / LIRMM, France)

iMerit Session(TP2), October 14,2025

Room: **Admiral Room**, Session Chair: Kamran Awaisi

Paper ID	Time	Title and Presenter
#75	13:00-13:25	Title: Enhancing the Reliability of Industrial IoT Systems with Deep Learning Presenter: Kamran Awaisi

#68	13:25-13:50	Title: Correlation-Preserving Adversarial Traffic Generation Presenter: Burhan Mehraj
#70	13:50-14:15	Title: Deep Reinforcement Learning-Enhanced Distributed Coded Machine Learning over Wireless Network Presenter: Yitong Zhou

Workshop Session(**COSMIC-TP3**), October 14,2025

Room: **Britannia Room**, Session Chair: Gunes Karabulut Kurt

COSMIC Speaker	Keynote	Time	Topic
Dr. Petros Spachos		13:00-14:15	Navigation and tracking solutions for smart city systems

Workshop Session(**STINT- Panel1-TE1**), October 14,2025

Room: **Regency Ballroom**, Session Chair: Juan A. Fraire

Panel	Time	Topics
Scott Burleigh (D3TN), Ed Birrane (APL), R. Taylor (Aalyria) Moderator: Juan A. Fraire (Inria, France)	14:30-15:45	Key Technological Gaps for Broad DTN Adoption. (Each participant sketches one future focus topic for documentation and distribution.)

iMerit Session(**TE2**), October 14,2025

Room: **Admiral Room**, Session Chair: Hanxiang Zhang

Paper ID	Time	Title and Presenter
#69	14:30-14:55	Title: Error-Correcting Codes in Modern Communications: From Foundations to Future Directions Presenter: Hanxiang Zhang
#79	14:55-15:20	Title: A Methodological Approach to Enhancing AV Motion Forecasting with Gen-AI Powered Synthetic Data Presenter: Shuvro Pal and Yujie Tang (Dalhousie University, Canada)
#71	15:20-15:45	Title: Smart Ports for a Safer and More Efficient Future

		Presenter: Zuming Zhang
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Workshop Session(**COSMIC-TE3**), October 14,2025

Room: **Britannia Room**, Session Chair: Dr.Fang Fang

COSMIC Speakers	Keynote	Time	Topics
Dr.Fang Fang		14:30-15:08	Communication-Efficient Federated Learning for 6G
Dr. Pablo Madoery		15:08-15:45	An AI-Enabled Testbed for Satellite Mega-Constellations

Oral Sessions on Wednesday October 15

Workshop Session(**STINT-Hackathon1-WA1**), October 15,2025

Room: **Regency Ballroom**, Session Chair: Juan A. Fraire

Paper ID	Time	Topic
Olivier De Jonckère (Université de Montpellier / LIRMM, France)	08:30-09:45	This hands-on hackathon introduces participants to the CCSDS Schedule-Aware Bundle Routing (SABR) framework and the A-SABR open-source library. Attendees will progress from conceptual foundations to practical exercises at user, operator, and developer levels. Activities include pathfinding and routing with static contact plans, experimenting with dynamic operator scenarios, and exploring the library's architecture for advanced development.

iMerit Session(**WA2**), October 15,2025

Room: **Admiral Room**, Session Chair: Dunyu Hu

Paper ID	Time	Title and Presenter
#78	08:30-08:55	Title: Wireless Privacy, Security and Routing Techniques: From Fundamentals to Emerging Trends Presenter: Dunyu Hu
#72	08:55-09:20	Title: Communications for Integrated UAV Systems in Extreme Environments Presenter: Sichen Qiu

Regular Session(**WA3**), October 15,2025

Room: **Britannia Room**, Session Chair: Nannan He

Paper ID	Time	Title and Authors
#9	08:30-08:55	Title: Convergia-X: an Adaptive Intelligence Framework for Real-Time Communication and Resource Optimization in Terrestrial and Spaceborne Extreme Environments Authors: Olujimi Myking Ezekiel Fatimiro (Oyo state Government, Nigeria & Build the World Initiative, Nigeria); Nimotallahi Adejoke Lawal (Build the world Initiative, Nigeria); Faith Oluwakemi Ganiyu, Hammed Temitope Atoyebi, Lukman Olawumi Akande, Tosin Tobilola Adepoju, Omobolanle Oluwakemi Babalola, Iyanu Raphael Johnson, Emmanuel Nuel Ebinum and Anniel Praise Johnson (Build The World Initiative, Nigeria)
#10	08:55-09:20	Title: Analyzing Weather Impact on Signal Quality of s Band Ground Station

		Authors: Saïah Bekkar-Djelloul-Saïah (Satellites Development Center, Algeria); Boualem Nasri (Satellite Development Center, Algeria); Amine Bab and Abdelmadjid Lassakeur (Satellites Development Center, Algeria); ALI Kaddouri (Algerian Space Agency, Algeria); Djamel Eddine Baba Hamed (Satellites Development Center, Algeria)
#54	09:20-09:45	Title: A New UAV-Assisted LoRaWAN Wireless Underground Sensors Network for Soil Data Collection Authors: Nannan He (Minnesota State University at Mankato, USA)

Workshop Session(**STINT-Hackathon2-WM1**), October 15,2025
Room: **Regency Ballroom**, Session Chair: Juan A. Fraire

Paper ID	Time	Topic
	10:00-11:15	This hands-on hackathon introduces participants to the CCSDS Schedule-Aware Bundle Routing (SABR) framework and the A-SABR open-source library. Attendees will progress from conceptual foundations to practical exercises at user, operator, and developer levels. Activities include pathfinding and routing with static contact plans, experimenting with dynamic operator scenarios, and exploring the library's architecture for advanced development.

Regular Session(**WM3**), October 15,2025
Room: **Britannia Room**, Session Chair: TBA

Paper ID	Time	Title and Authors
#74	10:00-10:25	Title: Procedural Video Analysis with Genetic Folding: A Symbolic Approach to Resilient Wireless Sensing in Extreme Environments Authors: Mohammad Mezher and Asem Hamza Alkhateeb (Fahad Bin Sultan University, Saudi Arabia)
#76	10:25-10:50	Title: Genetic Folding for Interpretable Symbolic Models in IMU-Based Autism Classification Under Extreme Sensing Conditions Authors: Mohammad Mezher (Fahad Bin Sultan University, Saudi Arabia); Areej Alsharif (King Faisal University, Saudi Arabia)
#77	10:50-11:15	Title: Integrating Machine Learning and Expert Validation for Sentiment Analysis in Historical Narratives Authors: Mohammad Mezher (Fahad Bin Sultan University, Saudi Arabia); Malik A. Mizher (Zarqa University, Jordan)

IEEE WISEE 2025 Program at a Glance

Sunday, October 12, 2025			
14:00-18:00	Registration (Look for location information in the hotel lobby)		
Monday, October 13, 2025			
07:30-08:30	Breakfast: Imperial Ballroom		
08:30-09:15	Plenary Session I, Imperial Ballroom Revolutionizing Logistics: A Comprehensive Ecosystem Approach for Driving RFID Reader and Tag Innovations Rhonda Green		
Time \ Room	Regency Ballroom	Admiral Room	Britannia Room
09:15-10:30	MA1	MA2	SSP Keynote-MA3
10:30-10:45	Tea and Coffee Break: Imperial Ballroom		
10:45-12:00	MM1	MM2	SSP-MM3
12:00-13:00	Lunch		
13:00-14:15	STINT Keynote 1-MP1	MP2	MP3
14:15-14:30	Tea and Coffee Break: Imperial Ballroom		
14:30-15:45	STINT- invited1-ME1	ME2	ME3
18:00-20:30	Reception (Regency Ballroom)		
Tuesday, October 14, 2025			
07:30-08:30	Breakfast: Imperial Ballroom		
08:30-09:15	Plenary Session II, Imperial Ballroom Delay-Sensitive Applications Over a Delay-Tolerant Network Scott Burleigh		
09:15-10:30	STINT- Keynote 2-TA1	TA2	COSMIC-TA3
10:30-10:45	Tea and Coffee Break: Imperial Ballroom		
10:45-12:00	STINT-TM1	iMerit-TM2	COSMIC-TM3
12:00-13:00	Lunch		
13:00-14:15	STINT-TP1	iMerit-TP2	COSMIC-TP3
14:15-14:30	Tea and Coffee Break: Imperial Ballroom		
14:30-15:45	STINT-Panel-TE1	iMerit-TE2	COSMIC-TE3
18:00-20:30	Banquet (Regency Ballroom)		
Wednesday, October 15, 2025			
07:30-08:30	Breakfast: Imperial Ballroom		
08:30-09:45	STINT-Hackathon1-WA1	iMerit-WA2	WA3
09:45-10:00	Tea and Coffee Break: Imperial Ballroom		
10:00-11:15	STINT-HACKathon2-WM1	WM2	WM3
11:15-12:00	Plenary Session III, Imperial Ballroom Space’s Role in a Shifting Geopolitical Landscape: Building Strength in the Global Space Economy Brian Gallan		