5G

Virtual Workshop on 5G Technologies for First Responder and Tactical Networks

Online via ON24

October 23, 2020, 8:30 AM–4:30 PM EST

In collaboration with the **Department of Homeland Security, Science and Technology Directorate**

IEEE Future NETWORKS

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Visit **bit.ly/5G-20** to view the workshop website and speaker bios.

WORKSHOP AGENDA

MORNING PLENARY SESSION

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Session Chairs: Ashutosh Dutta, Brad Kloza

8:30 a.m. – 8:45 a.m. EST	Introductions and Welcome Remarks (Ashutosh Dutta, Johns Hopkins Applied Physics Laboratory and IEEE Future Networks; Andrew Oak, Johns Hopkins Applied Physics Laboratory)
8:45 a.m. – 9:20 a.m. EST	Keynote 1: Leveraging 5G for DHS Missions (Russell Becker, Department of Homeland Security, Science and Technology Directorate)
9:20 a.m. – 9:50 a.m. EST	Modernizing the Wireless Priority Service (WPS) Rules (Monisha Ghosh, Federal Communications Commission)
9:50 a.m. – 10:20 a.m. EST	Artificial Intelligence (AI) for Next-Generation Wireless Networks (Alex Sprintson, National Science Foundation)
10:20 a.m. – 10:50 a.m. EST	Incident Data Pain Points – A First Responder Perspective of Data Usage in a Large Incident Response (Chris Baker, First Responder Network Authority)
BREAK	
11:00 a.m. – 12:30 p.m. EST	Six Parallel Tracks: Research, Technology, First Responder I & II, Tactical Networks I & II (see **Track Details** below for a listing of talks and connection information)
BREAK	
1:00 p.m. – 2:30 p.m. EST	Six Parallel Tracks: Research, Technology, First Responder I & II, Tactical Networks I & II (see **Track Details** below for a listing of talks and connection information)

AFTERNOON PLENARY SESSION

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Session Chairs: Sean Brassard, Ashutosh Dutta

2:45 p.m. – 3:20 p.m. EST	Keynote 2: DoD 5G to Next G Initiative (Joe Evans, Department of Defense)
3:20 p.m. – 4:20 p.m. EST	Panel: Understanding the Impact of 5G on Operations (Cuong Luu, Department of Homeland Security, Science and Technology Directorate; Jeff Bratcher, First Responder Network Authority; Rob Dew, Department of Homeland Security, Cybersecurity & Infrastructure Security Agency, Emergency Communications Division; Ruth Vogel, Johns Hopkins Applied Physics Laboratory)
4:20 p.m. - 4:30 p.m. EST	Concluding Remarks (Rob Bartholet, Johns Hopkins Applied Physics Labor)

TRACK DETAILS

Research Track

Click here to view these sessions.

Session Chair: Jared Everett

11:00 a.m. EST	Joint MIMO-Radar-MIMO-Communications in the 5G Era (Kumar Vijay Mishra, Army Research Laboratory)
11:20 a.m. EST	Adversarial Machine Learning for 5G Security (Yalin E. Sagduyu, Intelligent Automation, Inc.; Tugba Erpek, Virginia Tech)
11:40 p.m. EST	Potentials and Challenges of 5G mmWave Technologies in Public Safety Scenarios (Michele Zorzi, University of Padova)
12:00 p.m. EST	End-to-End Simulations for 5G Public Safety Scenarios (Michele Polese, Northeastern University)
1:00 p.m. EST	Exploring 5G Dual-Connectivity for Increased Security (Jessica Bridgland, Cherita L. Corbett, Hyunwoo Warren Kim, and Ryan Pepito, Johns Hopkins Applied Physics Laboratory)
1:20 a.m. EST	Fundamentals and Open Problems for Post-Disaster Communications (Maurilio Matracia and Mustafa A. Kishk, King Abdullah University of Science and Technology)
1:40 p.m. EST	Autonomous Federated Byzantine Agreement for Decentralized Access in 5G Emergency Service and First Responder Networks (Steven Platt and Miquel Oliver, Universitat Pompeu Fabra)
2:00 p.m. EST	SDN-Enabled Space-Air-Ground Networks: Toward a Convergence (Nariman Torkzaban, Anousheh Gholami, and John S. Baras, University of Maryland; Chrysa Papagianni, Nokia Bell Labs)
2:20 p.m. EST	Securing the 5G Era (Nicolas Sklavos, University of Patras)

Technology Track

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Session Chair: Oscar Somerlock

11:00 a.m. EST	Bit Hopping for High Assurance Networks with 5G Components (Rajeev Gopal, Hughes Network Systems, LLC)
11:20 a.m. EST	Small Apertures for Long Wavelengths: Enabling Low VHF on Autonomous Agents (Brian Sadler, Army Research Laboratory)
11:40 a.m. EST	5G Network Slicing and Testing Its Security (Craig Hendricks, Anritsu)
12:10 p.m. EST	Single-User Massive MIMO (Kasturi Vasudevan, A. Phani Kumar Reddy, Shivani Singh, and Gyanesh Pathak, Indian Institute of Technology Kanpur)
1:00 p.m. EST	Efficient Testing of First Responder Networks on Legacy Technologies and 5G Simultaneously (Chintan Fafadia, PCTEL; David Adams)
1:20 p.m. EST	Verifying 5G Beam Coverage in 3D (Nathan Ryan Harmon, Keysight Technologies)
1:50 p.m. EST	United Spectrum, United Network (Red Grasso, North Carolina Department of Information Technology)
2:10 p.m. EST	How Does 5G New Radio (NR) Address Mission-Critical Communications Requirements? (Andreas Roessler, Rohde & Schwarz)

First Responders Track I

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Session Chair: Cherita Corbett

11:00 a.m. EST	Communications for Dynamic First Responder Teams in Emergency Response (Jiachen Chen, WINLAB, Rutgers University; K. K. Ramakrishnan, University of California, Riverside)
11:20 a.m. EST	Supporting NS/EP Priority Services in Wi-Fi Networks (Subir Das, John Wullert, and Kiran Rege, Perspecta Labs; Frank Suraci and An Nguyen, Department of Homeland Security, Cybersecurity & Infrastructure Security Agency, Emergency Communications Division)

11:40 a.m. EST	Stochastic Geometry-Based Analysis of LEO Satellite Communication Systems (Anna Talgat and Mustafa A. Kishk, King Abdullah University of Science and Technology)
12:00 p.m. EST	Broadcast TV and the New ATSC 3.0 Standard (John Contestabile, Skyline Technology Solutions; Sesh Simha, Sinclair Broadcast Group)
1:00 p.m. EST	Vendor Talk – Rohde & Schwarz (Darren McCarthy)
1:15 p.m. EST	US Border Control: Dynamic 5G-Network Services for Time-Critical Multi-source Sensor Fusion (Shashi Phoha, Applied Research Laboratory, Penn State University)
1:35 p.m. EST	A Dynamic Data-Driven First Responder Management Strategy: Border Surveillance, Hurricane, and Man-Made Disaster (Young-Jun Son, University of Arizona)
1:55 p.m. EST	DDDAS Solutions for Border Patrol and Emergency Response Environments (Frederica Darema; Erik Blasch, Air Force Research Laboratory)
2:15 p.m. EST	Concerns with SRVCC Handover From 5G to 3G for Emergency Services (Amar Ray, ATT&C & Other; Cadathur Chakravarthy, ATT&C)

First Responders Track II

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Session Chair: Narendra Mangra

11:00 a.m. EST	Mission-Critical Services for Public Safety and Tactical Communications (Brian Daly, AT&T)
11:20 a.m. EST	GSMA Investigation 5G Security (Pieter Veenstra, NetNumber)
11:40 a.m. EST	Technology Gaps and Opportunities for Public Safety Applications (Mehmet Ulema and Doug Zuckerman, IEEE Future Networks)
12:00 p.m. EST	UE-to-Network Relay Discovery in ProSe-Enabled LTE Networks (David Griffith, National Institute of Standards and Technology)
12:20 p.m. EST	Vendor Talk – Qualcomm
1:00 p.m. EST	5G Open RAN Implications for Public Safety Networks (Sameh Yamany, VIAVI Solutions)

1:20 p.m. EST	Security of 5G-Enabled Next-Generation Critical Communication in Norway (Ravishankar Borgaonkar, SINTEF AS & University of Stavanger)
1:40 p.m. EST	Earthquake Early Warning on 5G uRLLC Network (Fabio Graziosi, Andrea Marotta, and Fabio Franchi, University of L'Aquila)
2:00 p.m. EST	Self-Organizing Future Mobile Networks – An End-to-End Perspective (Meryem Simsek, VMware)

Tactical Networks Track I

Click here to view these sessions.

Session Chair: Julia Andrusenko

11:00 a.m. EST	5G-SDR: Harnessing the 5G Technology Advances for Tactical Communication Software Defined Radios (SDRs) (Muhammad Danish Nisar, Center for Advanced Studies/Research in Engineering [CASE/CARE], Pakistan, and Technical University Munich; Hammad Khan, Center for Advanced Studies/Research in Engineering [CASE/CARE])
11:20 a.m. EST	Vendor Talk – Anritsu
11:35 a.m. EST	Embedding Military-Grade TRANSEC in 5G for Tactical Networks (George F. Elmasry, Rockwell Collins)
11:55 a.m. EST	Potential of 5G Technologies for Land and Maritime Tactical Networks (Germano Capela and Luis Bastos, NATO Communications and Information Agency)
12:15 p.m. EST	Vendor Talk – Challenges of Building a 5G gNodeB (Paul Moakes, CommAgility)
1:00 p.m. EST	Securing 5G Is Critical and Will Become a Key Differentiator (Leonid Burakovsky, Palo Alto Networks)
1:20 p.m. EST	Use of Commercial Cellular Networks for Tactical Transport Use? (David Theriault, 4K Solutions)
1:40 p.m. EST	5G and On-the-Move Tactical Networks – Making it Work (Kevin Stiles, Oceus Networks)
2:10 p.m. EST	Priority-Aware Service Placement for 5G Disaster Response (Aaron Paulos, Raytheon)

Tactical Networks Track II

Click here to view these sessions.

Session Chair: David Coleman

11:00 a.m. EST	The Need for Systems Engineering in Developing Tactical/First Responder 5G Networks (William G. Scheible, MITRE Corporation; Susan Ronning, ADCOMM Engineering; Thomas Manley, Downer Defence)
11:20 a.m. EST	Heterogeneous Traffic Offloading in Integrated Satellite Terrestrial Networks (ISTN) (Wiem Abderrahim, King Abdullah University of Science and Technology)
11:40 p.m. EST	Vendor Talk – Oceus Networks (Kevin Stiles)
11:55 p.m. EST	Lessons Learned with Tactical Cellular Applications (Paul Terzulli, PEO C3T)
12:15 p.m. EST	Field Testing of 5G Tactical Networks (Raymond Shen, Keysight Technologies)
1:00 p.m. EST	5G Innovation for Public Safety (Jamie Italiano, Verizon)
1:20 p.m. EST	Designing 5G for Mission-Critical Services (Kiran Mukkavilli, Qualcomm)
1:40 p.m. EST	High Order Modulation Links: Transmitter versus Receiver Dominated Regimes (Doug Kirkpatrick, Eridan Communications)
2:00 p.m. EST	State-of-the-Art Heterogeneous Integrated Multi-Chip Prototypes (Frank Ferrante, Intel)

PATRONS

Rohde & Schwarz – Click here to view this virtual booth.

Anritsu – Click here to view this virtual booth.

Oceus Networks – Click here to view this virtual booth.

CommAgility – Click here to view this virtual booth.

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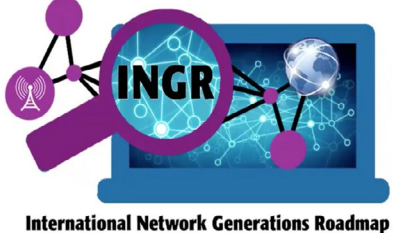NETWORKS

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