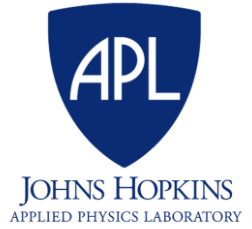


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Welcome to

FIRST IEEE NEXT G

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Emerging Services and Applications

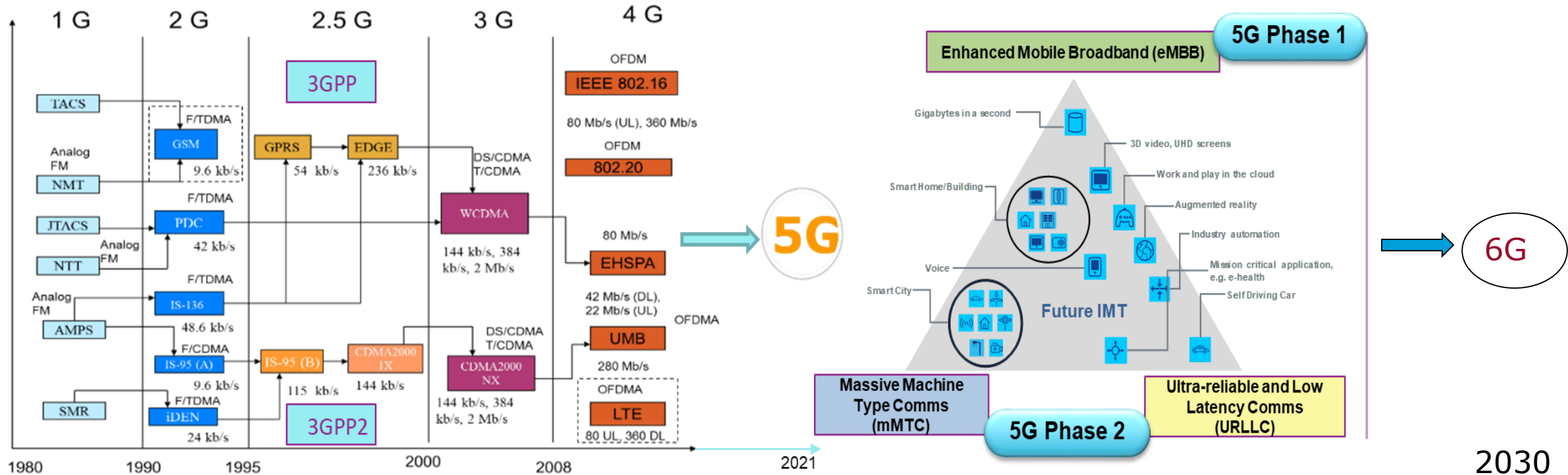
A Driver for Network Evolution



What "5G and Next G Communications" is About



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3 IEEE 5G Summits in 2015



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18 IEEE 5G Summits Held - 2019



11 IEEE 5G Summits - 2020



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7 IEEE 5G Summits - 2022

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May 26 2015

5G ----→ Next G



June 14 2022

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IEEE Future Networks Tech Focus
Issue 14, April 2022

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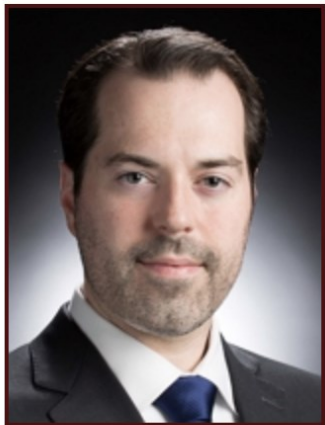
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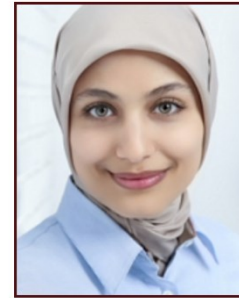
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Vincent Poor
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Keynote Speakers



Henning Schulzrinne
Columbia University



Mischa Dohler
Ericsson



Reinaldo Valenzuela
Nokia Bell Labs



Sumit Roy
OUSD R&E



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Plenary Speakers



Chih-Lin I
China Mobile



Alex Sprintson
NSF



Vinay Shrivastava
TSDSI



Raymond Shen
Keysight



Ari Pouttu
6G-Flaship and 6GESS Program



Charles Clancy
MITRE Labs



Rajeev Gopal
Hughes



Mohamed Slim Alouini
KAUST



Monisha Ghosh
University of Notre Dame



Peiyong Zhu
Huawei



Ian Wong
Viavi Solutions



Salvador D'Itri,
National Spectrum Consortium

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**Michael
Marcus**
Northeastern
University



**Anna
Grabek**
MITRE



**Tim
Sylvester**
Integrated
Roadways



**Per
Valter**



**S.
Kannadhasan**
Cheran College
of Engineering



**Todor
Cooklev**
Purdue
University



**Oscar F.
Somerlock**
JHU/APL



**Apurva
Mody**
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Track Speakers: NEXT G TECHNOLOGY (II)



Jie Chen
Durham
University



Tamara Sobers
MITRE



Timothy Salo
Univ. of
Minnesota



Nicolas Sklavos
Univ. of
Patras



Hans-Peter Bernhard
Silicon Austria
Labs and
Johannes
Kepler Univ.



Nizar Naji
Middle
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Ashish Kundu
Cisco



Meryem Simsek
VMWare



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Track Speakers: NEXT G RESEARCH (I)



Riku Jäntti
Aalto University



Praveen Gupta
MITRE



Bharat Rawal
Capitol Technology University



John Joseph
OptiPulse Inc.



Deepak Kataria
IEEE FNI



Alana Scott
Ericsson



John Baras
UMD



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University of Bristol



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Vijay Shah
George
Mason
University



David Tennenhouse
Independent
Researcher



Adel Dabah
KAUST



Reza Khalilian
NUST



Ajay Rajkumar
AT&T



Rudra Dutta
North
Carolina
State
University



Aloizio P. DaSilva
Commonwealth Cyber
Initiative
Virginia
Tech



Narendra Mangra
IEEE FNI



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AGENDA

08:00 AM – 08:30 AM

Registration and Coffee/Refreshment

08:30 AM – 08:45 AM

Welcome Address (Ashutosh Dutta, JHU/APL, USA; Chair, ACM Baltimore Chapter; and Co-Chair, IEEE Future Networks Initiative; Ramjee Prasad, CTIF Global Capsule (CGC), BTECH, Aarhus University, Denmark; Eman Hammad, University of Toronto, Canada; General Co-Chair, IEEE Next G Summit)

08:45 AM – 10:15 AM

MORNING PLENARY SESSION (I)

10:15 AM – 10:30 AM

Coffee Break

10:30 AM – 12:20 PM

MORNING PLENARY SESSION (II)

12:20 PM – 01:00 PM

Lunch Break

01:00 PM – 03:00 PM

TECHNICAL TRACK 1: NEXT G TECHNOLOGY (I) (for more details, [click here](#))

TECHNICAL TRACK 2: NEXT G TECHNOLOGY (II) (for more details, [click here](#))

TECHNICAL TRACK 3: NEXT G RESEARCH (I) (for more details, [click here](#))

TECHNICAL TRACK 4: NEXT G RESEARCH (II) (for more details, [click here](#))

03:00 PM – 03:20 PM

Coffee Break

03:20 PM – 06:00 PM

AFTERNOON PLENARY SESSION

06:00 PM – 06:10 PM

Closing

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MORNING PLENARY SESSION (I)

Session Chairs: Jeffrey Chavis, JHU/APL, USA; and Vice-Chair, ACM Baltimore Chapter

08:45 AM – 09:15 AM	Keynote 1: Scaling Networks up and down: New Network Architectures for 6G (Henning Schulzrinne, Columbia University)
09:15 AM – 09:35 AM	The Possibilities and Certainties of 6G (Chih-Lin I, China Mobile)
09:35 AM – 09:55 AM	Killer Apps for NextG: Web3 and the Metaverse (Charles Clancy, MITRE)
09:55 AM – 10:15 AM	From 5GTN to 6GTN - Three Pronged Approach (Ari Pouttu, 6G Flagship)

MORNING PLENARY SESSION (II)

Session Chairs: Wale Akinpelu, JHU/APL, USA; Treasurer, ACM Baltimore Chapter;
Ivan Seskar, WINLAB/Rutgers University, USA

10:30 AM – 11:00 AM	Keynote 2: Now is a Perfect Time to Talk 6G! (Mischa Dohler, Ericsson)
11:00 AM – 11:20 AM	An Overview of NSF's Support for NextG Research (Alex Sprintson, NSF)
11:20 AM – 11:40 AM	Moving Beyond 5G: Technologies and Trends (Ian Wong, Viavi Solutions)
11:40 AM – 12:00 PM	A Testbed for 6G Non-terrestrial Networks (Raymond Shen, KeySight)
12:00 PM – 12:20 PM	6th Generation: At what cost? (Vinay Shrivastava, TSDSI)

AFTERNOON PLENARY SESSION

Session Chairs: Jared Everett, JHU/APL, USA;

Eman Hammad, University of Toronto, Canada, General Co-Chair, IEEE NextG Summit

03:20 PM – 03:50 PM	Keynote 3: The Road to 6G (Reinaldo Valenzuela, Nokia Bell Labs)
03:50 PM – 04:20 PM	Keynote 4: Beyond 5G Network Customization for US DoD (Sumit Roy, OUSD R&E)
04:20 PM – 04:40 PM	Foundational 5G Testbed for NextG/6G Framework Refinement and Implementation (Rajeev Gopal, Hughes Network)
04:40 PM – 05:00 PM	Towards Extreme Band Communications (Mohamed Slim Alouini, KAUST)
05:00 PM – 05:20 PM	What 6G Should Learn from 5G: A Measurement Study of 5G mmWave (Monisha Ghosh, University of Notre Dame)
05:20 PM – 05:40 PM	Role of Dual Use Technology Approach in Next G (Salvador D'Itri, National Spectrum Consortium)
05:40 PM – 06:00 PM	6G: The Next Frontier of Wireless Innovation (Peiying Zhu, Huawei)

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TECHNICAL TRACK 1: NEXT G TECHNOLOGY (I)

Session Chairs: Roger Ding, *US Navy, USA*;

Mithun Mukherjee, *Nanjing University of Information Science and Technology, China*

01:00 PM - 01:15 PM	Spectrum Sharing Requirements to Enable Wide Bandwidths above 100 GHz (Michael Marcus, <i>Northeastern University</i>)
01:15 PM - 01:30 PM	Market Segmentation of State Broadband Delivery Approaches (Anna Grabek, <i>MITRE</i>)
01:30 PM - 01:45 PM	The Case for Using Road Pavement as an Access Point (Tim Sylvester, <i>Integrated Roadways</i>)
01:45 PM - 02:00 PM	Green Business Model 6G Services: A new perspective with Internet of Things connected Green Business Models empowered with Artificial Intelligence (Per Valter)
02:00 PM - 02:15 PM	Design and Development of Optical Antennas for Wireless Communication (S. Kannadhasan, <i>Cheran College of Engineering</i>)
02:15 PM - 02:30 PM	The Analog RF-digital Interface: The VITA 49 Standard and Evolution Roadmap (Todor Cooklev, <i>Purdue University</i>)
02:30 PM - 02:45 PM	Reconfigurable Intelligent Surfaces for 6G Communication (Oscar F. Somerlock, <i>JHU/APL</i>)
02:45 PM - 03:00 PM	Next G: From Spectrum Agility to Network Agility (Apurva Mody, <i>Airanaculus</i>)

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TECHNICAL TRACK 2: NEXT G TECHNOLOGY (II)

Session Chair: Komlan Egoh, *Alteryx*; Ryan A. Pepito, *JHU/APL*

01:00 PM - 01:15 PM	Network Design Employing a Quantum Processor (Jie Chen, <i>Durham University</i>)
01:15 PM - 01:30 PM	Considerations using Machine Learning in Physical Layer Applications (Tamara Sobers, <i>MITRE</i>)
01:30 PM - 01:45 PM	Fine-Grained, Application-Driven, Quality of Service (QoS) for IP and 5G Networks (Timothy Salo, <i>University of Minnesota</i>)
01:45 PM - 02:00 PM	Security as a Service, for Next Generation: 5G and 6G Challenge (Nicolas Sklavos, <i>University of Patras</i>)
02:00 PM - 02:15 PM	Reflecting on Communication Paradigms - Dependability Demand as a Chance (Hans-Peter Bernhard, <i>Silicon Austria Labs and Johannes Kepler University</i>)
02:15 PM - 02:30 PM	Potential of using Chaotic signals in 6G Communications (Nizar Naji, <i>Middle East College</i>)
02:30 PM - 02:45 PM	Post-quantum Security: Challenges and Opportunities (Ashish Kundu, <i>Cisco</i>)
02:45 PM - 03:00 PM	Towards the Grid - A distributed Compute and Communications Fabric (Meryem Simsek, <i>VMWare</i>)

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TECHNICAL TRACK 3: NEXT G RESEARCH (I)

Session Chair: Fran O'Connell, *Consultant*

01:00 PM - 01:15 PM	Sustainable Zero-Energy Machine Type Communications for 6G (Riku Jäntti, <i>Aalto University</i>)
01:15 PM - 01:30 PM	Private 5G Sharing via Midhaul (Praveen Gupta, <i>MITRE</i>)
01:30 PM - 01:45 PM	Future of Artificial Intelligence in IoT and Cyberizations: A Global Perspective (Bharat Rawal, <i>Capitol Technology University</i>)
01:45 PM - 02:00 PM	6G (six generation) - Optical Wireless Advancements using Chip Scale Beam Summing and Directing (John Joseph, <i>OptiPulse Inc.</i>)
02:00 PM - 02:15 PM	Leveraging AI/ML for Full Stack Autonomous Operation of 5G and Beyond Networks (Deepak Kataria, <i>IEEE FNI</i>)
02:15 PM - 02:30 PM	Introduction to Zero Trust (Alana Scott, <i>Ericsson</i>)
02:30 PM - 02:45 PM	Integrated Satellite Terrestrial Networks: A GEO-based Resource Provisioning Use-case (John Baras, <i>UMD</i>)
02:45 PM - 03:00 PM	Quantum Internet and 6G (Reza Najabati, <i>University of Bristol</i>)



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TECHNICAL TRACK 4: NEXT G RESEARCH (II)

Session Chair: Ivan Seskar, WINLAB/Rutgers University, USA

01:00 PM - 01:15 PM	Open AI Cellular (OAIC): Prototyping AI Controllers and Testing Framework for Cellular Communication Research (Vijay Shah, <i>George Mason University</i>)
01:15 PM - 01:30 PM	Surprise-based Networking - Near the Edge (David Tennenhouse)
01:30 PM - 01:45 PM	Enabling Massive MIMO for Next-Generation Mobile Wireless Communication Systems (Adel Dabah, <i>KAUST</i>)
01:45 PM - 02:00 PM	Real Time Tele-Medicine for Primary Prevention of Diseases to Improve Life Style via WBAN (Reza Khalilian, <i>NUST</i>)
02:00 PM - 02:15 PM	6G: Does it need to be Evolutionary (Ajay Rajkumar, <i>AT&T</i>)
02:15 PM - 02:30 PM	AERPAW: A real-world testbed for NextG applications on NextG networks (Rudra Dutta, <i>North Carolina State University</i>)
02:30 PM - 02:45 PM	CCI xG Testbed: End-to-End Open-Source Open-RAN Platform for Experimentation, Testing, and Workforce Development (Aloizio P. DaSilva, <i>Commonwealth Cyber Initiative Virginia Tech</i>)
02:45 PM - 03:00 PM	Future Networks Roadmap (Narendra Mangra, <i>IEEE FNI</i>)

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Session Chair



Jeffrey Chavis

Vice-Chair, ACM Chapter of Baltimore

Johns Hopkins University

Applied Physics Labs, USA



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MORNING PLENARY SESSION (I) 08:45 AM – 10:15 AM (EDT)



**Henning
Schulzrinne**
Columbia
University



Chih-Lin I
China
Mobile



**Charles
Clancy**
MITRE



Ari Pouttu
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At a Glance

08:45 AM – 09:15 AM

Keynote 1: Scaling Networks up and down: New Network Architectures for 6G (Henning Schulzrinne, *Columbia University*)

09:15 AM – 09:35 AM

The Possibilities and Certainties of 6G (Chih-Lin I, *China Mobile*)

09:35 AM – 09:55 AM

Killer Apps for NextG: Web3 and the Metaverse (Charles Clancy, *MITRE*)

09:55 AM – 10:15 AM

From 5GTN to 6GTN - Three Pronged Approach (Ari Pouttu, *6G Flagship*)

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Keynote Talk

Scaling Networks up and down: New Network Architectures for 6G

Prof. Henning Schulzrinne
Columbia University

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Prof. Henning Schulzrinne



Prof. Henning Schulzrinne, Levi Professor of Computer Science at Columbia University, received his Ph.D. from the University of Massachusetts in Amherst, Massachusetts. He was an MTS at AT&T Bell Laboratories and an associate department head at GMD-Fokus (Berlin), before joining the Computer Science and Electrical Engineering departments at Columbia University. He served as chair of the Department of Computer Science from 2004 to 2009, as Engineering Fellow, Technology Advisor and Chief Technology Officer at the US Federal Communications Commission (FCC) from 2010 to 2017. In 2019-2020, he worked as a Technology Fellow in the US Senate. He is a Fellow of the ACM and IEEE, has received the New York City Mayor's Award for Excellence in Science and Technology, the VON Pioneer Award, TCCC service award, IEEE Internet Award, IEEE Region 1 William Terry Award for Lifetime Distinguished Service to IEEE, the UMass Computer Science Outstanding Alumni recognition, and is a member of the Internet Hall of Fame.



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Hybrid (In-person and Remote)

TUESDAY, JUNE 14, 2022, 8:00 AM - 6:00 PM EDT



JOHNS HOPKINS
APPLIED PHYSICS LABORATORY

Plenary Talk

The Possibilities and Certainties of 6G

Chih-Lin I
China Mobile



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Chih-Lin I



Chih-Lin I is CMCC Chief Scientist of Wireless Technologies. She received Ph.D. EE from Stanford University. She has won 2005 IEEE ComSoc Stephen Rice Prize, 2018 IEEE ComSoc Fred W. Ellersick Prize, the 7th IEEE Asia-Pacific Outstanding Paper Award, and 2015 IEEE Industrial Innovation Award for Leadership and Innovation in Next-Generation Cellular Wireless Networks. She is Chair of O-RAN Technical Steering Committee and an O-RAN Executive Committee Member, Chair of FuTURE 5G/6G SIG, Chair of WAIA (Wireless AI Alliance) Executive Committee, an Executive Board Member of GreenTouch, a Network Operator Council Founding Member of ETSI NFV, a Steering Board Member and Vice Chair of WWRF, etc.



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JOHNS HOPKINS
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Plenary Talk

Killer Apps for NextG: Web3 and the Metaverse

Charles Clancy
MITRE



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Charles Clancy



Charles Clancy is senior vice president, general manager of MITRE Labs, and chief futurist. He is responsible for sparking innovative disruption, accelerating risk-taking and discovery, and delivering real-time technology capabilities and execution through the company's laboratories, solution platforms, and MITRE Fellows program. He leads technical innovation to anticipate and meet the future demands of government sponsors and industry and academic partners. Clancy is an internationally recognized expert on topics at the intersection of wireless, cybersecurity, and artificial intelligence. Before joining MITRE in 2019 as vice president for intelligence programs, Clancy served as the Bradley Professor of Cybersecurity at Virginia Tech, and executive director at the Hume Center for National Security and Technology. There, he led Virginia Tech's research and experiential learning programs in defense and intelligence. Clancy started his career at the National Security Agency, filling a variety of research, engineering, and operations roles, with a focus on wireless communications. He has co-authored more than 250 patents and academic publications, as well as six books. He co-founded several venture-backed security startup companies that apply commercial innovation to national security challenges.

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JOHNS HOPKINS
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Plenary Talk

From 5GTN to 6GTN - Three Pronged Approach

Ari Pouttu

6G-Flaship and 6GESS Program



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Ari Poultu



Ari Poultu has scientific and engineering experience as a researcher, project manager and research manager in various domains of ICT development. The projects under his command have resulted in waveforms and system designs for military radio communication, radar systems, embedded device networks, future wireless radio communications including cellular systems, cognitive networks and navigation applications.

He has published more than 70 conference or journal papers in the field of wireless communications and he holds two patents. He was the Director of Centre for Wireless Communications in the University of Oulu from 2006 to 2012. Currently he is heading as a professor a research group targeting dependable wireless solutions for business verticals such as energy, industry, health and automotive including solutions for 5G. He is the principal investigator of 5G test network (5GTN) experimental research, co-PI of H2020 SLICES-SC, 5G!Drones, Inspire5Gplus and 5G-ENHANCE projects and is acting as vice-director of the national 6G Flagship Programme targeting 6G solutions.

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10:15 AM – 10:30 AM (EDT) Coffee Break



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JOHNS HOPKINS
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MORNING PLENARY SESSION (II)

10:30 AM – 12:20 PM (EDT)



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Session Chair



Wale Akinpelu

Treasurer, ACM Baltimore Chapter
Johns Hopkins University Applied
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MORNING PLENARY SESSION (II) 10:30 AM – 12:20 PM (EDT)



**Mischa
Dohler**
Ericsson



**Alex
Sprintson**
NSF



Ian Wong
Viavi
Solutions



**Raymond
Shen**
Keysight



**Vinay
Shrivastava**
Keysight

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At a Glance

10:30 AM – 11:00 AM

Keynote 2: Now is a Perfect Time to Talk 6G! (Mischa Dohler, *Ericsson*)

11:00 AM – 11:20 AM

An Overview of NSF's Support for NextG Research (Alex Sprintson, *NSF*)

11:20 AM – 11:40 AM

Moving Beyond 5G: Technologies and Trends (Ian Wong, *Viavi Solutions*)

11:40 AM – 12:00 PM

A Testbed for 6G Non-terrestrial Networks (Raymond Shen, *KeySight*)

12:00 PM – 12:20 PM

6th Generation: At what cost? (Vinay Shrivastava, *TSDSI*)

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JOHNS HOPKINS
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Keynote Talk

Now is a Perfect Time to Talk 6G!

Mischa Dohler
Ericsson



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Mischa Dohler



Mischa Dohler is now Chief Architect in Ericsson Inc. in Silicon Valley, US. He was Professor in Wireless Communications at King's College London, driving cross-disciplinary research and innovation in technology, sciences and arts. He is a Fellow of the IEEE, the Royal Academy of Engineering, the Royal Society of Arts (RSA), the Institution of Engineering and Technology (IET); and a Distinguished Member of Harvard Square Leaders Excellence. He is a serial entrepreneur with 5 companies; composer & pianist with 5 albums on Spotify/iTunes; and fluent in several languages. He sits on the Spectrum Advisory Board of Ofcom, and acts as policy advisor on issues related to digital, skills and education. He has had ample coverage by national and international press and media. He is featured on Amazon Prime. He is a frequent keynote, panel and tutorial speaker, and has received numerous awards. He has pioneered several research fields, contributed to numerous wireless broadband, IoT/M2M and cyber security standards, holds a dozen patents, organized and chaired numerous conferences, was the Editor-in-Chief of two journals, has more than 300 highly-cited publications, and authored several books. He is a Top-1% Cited Scientist across all science fields globally.

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Plenary Talk

An Overview of NSF's Support for NextG Research

Alex Sprintson

NSF



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Alex Sprintson



Dr. Alex Sprintson (asprints@nsf.gov) joined NSF as a rotating Program Director in September 2018, in the Directorate of Computer & Information Science and Engineering (CISE). He manages networking research within the Networking Technologies and Systems (NeTS) and Secure and Trustworthy Cyberspace (SaTC) programs. He also serves as a program manager for the NSF/Intel Partnership on Machine Learning for Wireless Networking Systems (MLWiNS) program, Spectrum Innovation Initiative (SII), and Platforms for Advanced Wireless Research (PAWR). Alex Sprintson is a faculty member in the Department of Electrical and Computer Engineering, Texas A&M University, College Station, where he conducts research on wireless network coding, distributed storage, and software-defined networks. Dr. Sprintson received the Wolf Award for Distinguished Ph.D. students, the Viterbi Postdoctoral Fellowship, the TAMU College of Engineering Outstanding Contribution Award, and the NSF CAREER award. From 2013 and 2019, he served as an Associate Editor of the IEEE Transactions on Wireless Communications. He has been a member of the Technical Program Committee for the IEEE Infocom 2006-2023.

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JOHNS HOPKINS
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Plenary Talk

Moving Beyond 5G: Technologies and Trends

Ian Wong
Viavi Solutions



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Ian Wong



Dr. Ian C. Wong has been in the wireless field for over 20 years and is presently the Director of RF and Wireless Architecture in the CTO office at VIAVI Solutions, where he is leading RF and wireless technology strategy, standards, and architectures. He is also the current co-chair of the Test and Integration Focus Group (TIFG) in the O-RAN Alliance. From 2009 to Aug 2020, he was with NI (formerly National Instruments) where he was Section Manager of Wireless Systems R&D where he led the development of real-time end-to-end 5G wireless test and prototyping systems and managed the company - 3GPP wireless standards and IP strategy. From 2007-to 2009, he was a systems research and standards engineer with Freescale Semiconductor where he represented Freescale in the 3GPP LTE standardization efforts. He is a senior member of the IEEE, was the Director of Industry Communities for IEEE Communications Society 2016-2019, and was the Industry Program Chair for IEEE Globecom 2014 in Austin. His current research interests include 5G wireless systems architecture, standards, and algorithms, with a particular focus on advanced physical layer technologies like mmWave and Massive MIMO.

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JOHNS HOPKINS
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Plenary Talk

A Testbed for 6G Non-terrestrial Networks

Raymond Shen
Keysight



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Raymond Shen



Raymond Shen, PhD is Director of 5G/6G/Cyber Govt Solutions at Keysight Technologies. In this role he leads Keysight's vast portfolio of end-to-end 5G and 6G test and security solutions for defense and government. He also leads Keysight's Cybersecurity and spectrum monitoring solutions, managing solutions that include handheld, outdoor, and modular platforms. He has over 24 years of experience in spectrum monitoring, wireless signals, and security, with particular expertise in cellular signals. Shen has a BS EE from Caltech and a MS EE and PhD EE from Stanford University, where his PhD thesis was in the area of neural networks.



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JOHNS HOPKINS
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Plenary Talk

6th Generation: At what cost?

Vinay Shrivastava

TSDSI



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Vinay Shrivastava



Mr. Vinay Shrivastava is a seasoned researcher driving multiple studies at TSDSI (Telecommunications Standards Development Society, India) focused on research areas related to future generation technologies, spectrum studies, and standardization aspects. Mr. Shrivastava is General Manager, Telecom standards group at Reliance Jio Infocomm Limited. He has two decades of Telecom R&D experience. He pursued a Masters in Technology (Telecommunications) from the Indian Institute of Technology, Roorkee.

Mr. Shrivastava has contributed to Indian and international standardization efforts at ITU-R, 3GPP, TSDSI and ORAN respectively. During his career, he has been actively involved in modeling, simulation, & implementing various generations of cellular standards working with multiple MNCs. Some of his standardization contributions include being a Rapporteur of NAVIC A-GNSS standardization work in 3GPP & contributing India's vision to ITU-R draft report on Future Technology trends towards IMT2030 & Beyond.



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12:20 PM – 01:00 PM (EDT)

Lunch Break



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JOHNS HOPKINS
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AFTERNOON PLENARY SESSION

03:20 PM – 06:00 PM (EDT)



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Session Chair



Wale Akinpelu

Treasurer, ACM Baltimore Chapter
Johns Hopkins University Applied
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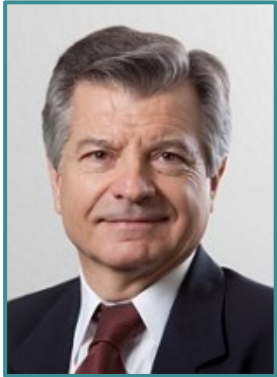
Hybrid (In-person and Remote)

TUESDAY, JUNE 14, 2022, 8:00 AM - 6:00 PM EDT



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MORNING PLENARY SESSION (I) 08:45 AM – 10:15 AM (EDT)



**Reinaldo
Valenzuela**
Nokia Bell
Labs



Sumit Roy
OUSD R&E



**Rajeev
Gopal**
Hughes
Network



**Mohamad
Slim Alouini**
KAUST



**Monisha
Ghosh**
University of
Notre Dame



**Salvador
D'Itri**
NSC



**Peiying
Zhu**
Huawei

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At a Glance

03:20 PM – 03:50 PM

Keynote 3: The Road to 6G (Reinaldo Valenzuela, *Nokia Bell Labs*)

03:50 PM – 04:20 PM

Keynote 4: Beyond 5G Network Customization for US DoD
(Sumit Roy, *OUSDA R&E*)

04:20 PM – 04:40 PM

Foundational 5G Testbed for NextG/6G Framework Refinement and
Implementation (Rajeev Gopal, *Hughes Network*)

04:40 PM – 05:00 PM

Towards Extreme Band Communications (Mohamed Slim Alouini, *KAUST*)

05:00 PM – 05:20 PM

What 6G Should Learn from 5G: A Measurement Study of 5G mmWave
(Monisha Ghosh, *University of Notre Dame*)

05:20 PM – 05:40 PM

Role of Dual Use Technology Approach in Next G
(Salvador D'Itri, *National Spectrum Consortium*)

05:40 PM – 06:00 PM

6G: The Next Frontier of Wireless Innovation (Peiying Zhu, *Huawei*)



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Keynote Talk

The Road to 6G

Reinaldo Valenzuela

Nokia Bell Labs



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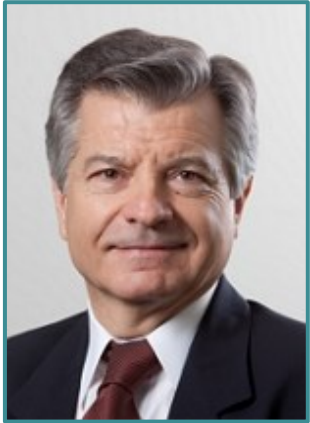
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TUESDAY, JUNE 14, 2022, 8:00 AM - 6:00 PM EDT



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Reinaldo Valenzuela



Reinaldo A. Valenzuela: Member National Academy of Engineering, Fellow IEEE. IEEE Eric E. Sumner Award. Bell Labs Fellow. WWRF Fellow, 2014 IEEE CTTC Technical Achievement Award, 2015 IEEE VTS Avant Garde Award. B.Sc. U. of Chile, Ph.D. Imperial College. Director, Communication Theory Department, Distinguished Member of Technical Staff, Bell Laboratories. Engaged in propagation measurements and models, MIMO/space time systems achieving high capacities using transmit and receive antenna arrays, HetNets, small cells and next generation air interface techniques and architectures. He has over 200 publications and 44 patents. He has over 33,200 Google Scholar citations and is a 'Highly Cited Author' In Thomson ISI and a Fulbright Senior Specialist.



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JOHNS HOPKINS
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Keynote Talk

Beyond 5G Network Customization for US DoD

Sumit Roy
OUSD R&E



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Sumit Roy



Sumit Roy (Fellow, IEEE) received the B. Tech. degree from the Indian Institute of Technology (Kanpur) in 1983, and the M. S. and Ph. D. degrees from the University of California (Santa Barbara), all in Electrical & Comp. Engineering in 1985 and 1988 respectively, as well as an M. A. in Statistics and Applied Probability in 1988. He served as Integrated Systems Professor (2014-19) of Electrical & Computer Engineering, Univ. of Washington-Seattle where his research and technology transition interests include analysis/design of wireless communication and sensor network systems with an emphasis on 5G & beyond standards, multi-standard inter-networking and spectrum coexistence using software-defined networks. He spent 2001-03 at Intel Wireless Technology Lab as a Senior Researcher engaged in systems architecture and standards development for ultra-wideband systems (Wireless PANs) and next generation high-speed wireless LANs. He has been active in IEEE Communications Society in various roles (journal editor and Distinguished Lecturer) and was elevated to IEEE Fellow (2007) for "contributions to multi-user communications theory and cross-layer design of wireless networking standards". He currently serves as Program Lead for Innovate Beyond 5G for OUSD R&E Beyond 5G initiative <https://5g-to-xg.org>.

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JOHNS HOPKINS
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Plenary Talk

Foundational 5G Testbed for NextG/6G Framework Refinement and Implementation

Rajeev Gopal
Hughes Network



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Rajeev Gopal



Dr. Gopal is Vice President, Advanced Systems and is responsible for resilient communications, LEO, 5G, HTS, AI/ML and cyber programs within Hughes DISD. He was on the system design of the OneWeb LEO broadband network using 4G/5G and IP network technologies. He earlier served as Network System Engineering lead for Transformational Satellite (TSAT) space segment (with onboard layer 3 packet processing) and worked on Mobile Satellite systems (Thuraya, ICO, LEO Teledesic) development teams. He was the chief architect and software manager for the SPACEWAY, a \$1.8B development, Network Operations Control Center.

Dr. Gopal serves on the editorial board of Wiley's International Journal of Satellite Communications and Networking (IJSCN) and is member of IEEE 5G World Forum, AIAA Communication Systems Technical Committee, and AIAA ICSSC technical program committee. Dr. Gopal has published more than 40 technical papers on topics ranging from space, 5G, software, AI/ML, network management, and life sciences, and holds 11 patents on satellite/communications systems.

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JOHNS HOPKINS
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Plenary Talk

Towards Extreme Band Communications

Mohamad Slim Alouini
KAUST



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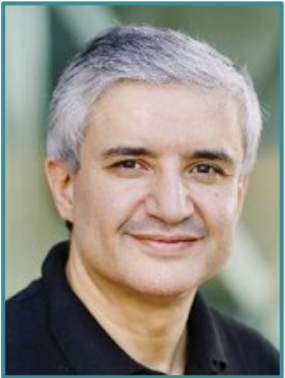
Hybrid (In-person and Remote)

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Mohamad Slim Alouini



Mohamed-Slim Alouini was born in Tunis, Tunisia. He received the Ph.D. degree in Electrical Engineering from the California Institute of Technology (Caltech) in 1998. He served as a faculty member at the University of Minnesota then in the Texas A&M University at Qatar before joining in 2009 the King Abdullah University of Science and Technology (KAUST) where he is now a Distinguished Professor of Electrical and Computer Engineering. Prof. Alouini is a Fellow of the IEEE and OPTICA (Formerly the Optical Society of America (OSA)). He is currently particularly interested in addressing the technical challenges associated with the uneven distribution, access to, and use of information and communication technologies in rural, low-income, disaster, and/or hard-to-reach areas.

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JOHNS HOPKINS
APPLIED PHYSICS LABORATORY

Plenary Talk

What 6G Should Learn from 5G: A Measurement Study of 5G mmWave

Monisha Ghosh
University of Notre Dame



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Monisha Ghosh



Monisha Ghosh is a Professor of Electrical Engineering at the University of Notre Dame and a member of the Wireless Institute. She is also the Policy Outreach Director for SpectrumX (<https://www.spectrumx.org/>), the first NSF Center for Spectrum Innovation and the co-chair of the FCC's Technological Advisory Council Working Group on Advanced Spectrum Sharing. Her research interests are in the development of next generation wireless systems: cellular, Wi-Fi and IoT, with an emphasis on spectrum sharing and coexistence and applications of machine learning to improve network performance. Prior to joining the University of Notre Dame in 2022, she was the Chief Technology Officer at the Federal Communications Commission, a Program Director at the National Science Foundation, Research Professor at the University of Chicago and spent 24 years in industry research at Bell Labs, Philips Research and Interdigital. She obtained her B.Tech from IIT Kharagpur and Ph.D. from USC. She is a Fellow of the IEEE.

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TUESDAY, JUNE 14, 2022, 8:00 AM - 6:00 PM EDT



JOHNS HOPKINS
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Plenary Talk

Role of Dual Use Technology Approach in Next G

Salvador D'Itri

National Spectrum Consortium



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TUESDAY, JUNE 14, 2022, 8:00 AM - 6:00 PM EDT



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Salvador D'Itri



Salvador D'Itri is the elected Chairman of the National Spectrum Consortium (NSC). He has served in various leadership roles in commercial and public sector companies focused on wireless communications and spectrum management. He previously served as NSC Chairman from 2018 to 2020. Additionally, he has served on the Board of the Wireless Innovation Forum and as appointed commission member to the Arlington County Information Technology Advisory Committee.



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Plenary Talk

6G: The Next Frontier of Wireless Innovation

Peiying Zhu
Huawei



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Peiying Zhu



Dr. Peiying Zhu, Senior Vice President of Wireless Research, is a Huawei Fellow, IEEE Fellow and Fellow of Canadian Academy of Engineering. She is currently leading 5G and beyond wireless research and standardization in Huawei. The focus of her research is advanced radio access technologies. She is actively involved in 3GPP and IEEE 802 standards development. She has been regularly giving talks and panel discussions on 5G/B5G vision and enabling technologies. She led the team to contribute significantly to 5G technologies and standardization. She served as the guest editor for IEEE Signal processing magazine special issue on the 5G revolution and IEEE JSAC on Deployment Issues and Performance Challenges for 5G.

Prior to joining Huawei in 2009, Peiying was a Nortel Fellow and Director of Advanced Wireless Access Technology in the Nortel Wireless Technology Lab. She led the team and pioneered research and prototyping on MIMO-OFDM and Multi-hop relay. Many of these technologies developed by the team have been adopted into LTE standards and 4G products. Dr. Zhu has more than 200 granted patents.



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Ashutosh Dutta

Chair, ACM Chapter of Baltimore

Johns Hopkins University Applied
Physics Labs, USA



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Vote of Thanks



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Backup slides



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