

# WTS 2016

## Wireless Telecommunications Symposium 2016

*Global Wireless Communications: Europe and  
Beyond*

**April 18 - 20, 2016**



**California State Polytechnic University, Pomona**

**Holiday Inn Kensington Plaza  
London, UK**

## **WELCOME TO WTS 2016**

Welcome to the fifteenth annual Wireless Telecommunications Symposium, WTS 2016, “Global Wireless Communications: Europe and Beyond.” We hope that it will be a stimulating and rewarding experience for you. During the next three days of invited speakers’ presentations, accepted paper sessions, tutorials and a panel discussion, WTS 2016 will explore a wide range of multidisciplinary wireless communications, satellite, mobile computing, big data, disaster recovery, mobile health care, and emerging media topics in depth.

The WTS 2016 Program Committee received paper submissions from authors around the world, covering a wide area of topics. We thank all the authors who submitted papers and proposals to WTS 2016, the many reviewers who reviewed them, and the co-chairs, mini-symposia chairs, track chairs, and session chairs for coordinating the paper and proposal evaluation and selection process. We also thank the WTS support personnel for their tireless efforts and contributions behind the scene. Producing an event like WTS 2016 is not an easy task, and they did a masterful job. In addition, the WTS Committee is grateful to the IEEE Communications Society and its Communications & Information Security Technical Committee for their technical support for WTS 2016, and to the distinguished invited speakers representing the global wireless telecommunications industry for having taken time to participate in the conference and help us organize the program.

Finally, special thanks go to many organizations that have contributed to the conference or lent it financial support. Notable among the contributors and donors are Cal Poly Pomona’s College of Business Administration and College of Engineering; Cal Poly Pomona’s Computer Information Systems and Electrical & Computer Engineering Departments; Inmarsat; and Athlone Institute of Technology.

On behalf of the WTS 2016 Committee -- Welcome to WTS 2016!

Dr. Steven Powell, WTS General Chair  
Dr. Thomas Ketsseoglou, WTS Assistant Chair

**WTS 2016 Program April 17-20, 2016**  
**Holiday Inn Kensington Forum**  
**London, UK**

**Sunday, April 17**  
**Holiday Inn Kensington Forum, London UK**

Sight-Seeing in London

6:00  
pm –  
9:00  
pm

WTS Organizers' Meeting

**Monday, April 18**  
**Holiday Inn Kensington Forum**

8:00  
am –  
9:00  
am

Registration

9:00  
am –  
9:15  
am

Welcoming Remarks

9:15  
am –  
10:00  
am

"The Changing world of Satellite Communications"  
**Prof. Michael Walker OBE**  
Consultant, Educator, and Telecommunications Executive

10:00  
am –  
10:30  
am

Break

10:30  
am –  
11:15  
am

"The 5G Infrastructure Public-Private Partnership"  
**Dr. Werner Mohr**  
Head of Research Alliances, Nokia  
Chair, 5G-PPP Association, EU Commission

11:15  
am –  
12:00  
pm

"Wireless Myths, Realities and Futures"  
**Prof. Lajos Hanzo**  
Chair in Telecommunications, Head of the Wireless Group  
University of Southampton

12:00 pm – 2:00 pm	Lunch
2:00 pm – 2:45 pm	Tutorial: Mobile Security <b>Michael Montecillo</b> IBM Security Services Director of Security Intelligence
2:45 pm – 3:15 pm	Break
3:15 pm – 4:45 pm	Panel Discussion: "Mining over the Air: Motive Big Data Analytics for Telecommunications" Organizer and Moderator: <b>Dr. Ye Ouyang</b> , DMTS, Verizon Wireless <b>Dr. Tobias Hossfeld</b> , University of Duisburg-Essen <b>Dr. JP Shim</b> , Professor, Computer Information Systems, Georgia State University <b>Dr. Rob van den Dam</b> , Global Telecommunications Industry Leader IBM Institute for Business Value
4:45 pm – 5:00 pm	"Building a Data Center for an IT Curriculum" <b>Dr. Drew Hwang</b> Professor, Computer Information Systems Department Cal Poly, Pomona
5:00 pm – 5:30 pm	Doctoral Students Session <i>"Delay and Interference Aware Metric in Multi-Channel Wireless Mesh Network"</i> <b>Aisha Mousa Mashraqi</b> and Thomas Erlebach (University of Leicester, United Kingdom)
5:30 pm – 9:00 pm	Welcoming Reception & Dinner WTS Organizer Recognition Ceremony Guest Speaker: "The Internet of Things: Why is it taking so long?" <b>Professor William Webb</b> CEO Weightless SIG President, Institution of Engineering and Technology
<b>Tuesday, April 19</b> <b>Holiday Inn Kensington Forum/Inmarsat Headquarters</b>	
9:00 am –	<b>Bo Olofsson</b> Program Lead, Networked Applications and Devices Domain

10:00 am	Bell Labs, Nokia
10:00 am – 10:30 am	Break
10:30 am – 11:15 am	<b>David Meyer</b> Chairman of the Spectrum Policy Forum Chairman, Ofcom's Spectrum Advisory Board
11:15 am – 12:00 pm	"The 2020 telecom provider in the cognitive area" <b>Dr. Rob van den Dam</b> Global Telecommunications Industry Leader IBM Institute for Business Value
12:00 pm - 1:30 pm	Lunch
1:30 pm – 5:00 pm	Tour of Inmarsat's Spacecraft Control Center/Network Operations Center Speaker: <b>Claudio Galli</b> , Director, Global Service Operations, Inmarsat
5:00 pm – 5:30 pm	Break
5:30 pm – 7:00 pm	Dinner
7:00 pm – 10 pm	Coach Tour of London at Night
<b>Wednesday, April 20</b> <b>Holiday Inn Midtown Kensington Forum</b>	
8:30 am – 10:10 am	Paper Presentation Session (I)
10:10 am –	Break

10:20 am	
10:20 am – 12:00 noon	Paper Presentation Session (II)
12:00 noon – 1:40 pm	Lunch Best Paper Awards Ceremony Poster Paper Session
1:40 pm – 3:20 pm	Paper Presentation Session (III)
3:20 pm – 3:30 pm	Break
3:30 pm – 5:30 pm	Paper Presentation Session (IV)

## Panel Discussions & Tutorials

### WTS 2016 Panel Discussion: "Mining over the Air: Motive Big Data Analytics for Telecommunications"

Organizer and Moderator Bio:

**Dr. Ye Ouyang** is a Distinguished Staff Scientist-Mobile Network & Device Analytics at Verizon Wireless USA Headquarters. He has over 12 years' experience in the telecommunications industry, working on the forefront of the cutting edge wireless and big data analytics field. Dr. Ouyang's research lies in big data analytics and quantitative modeling for wireless networks, with a focus on 2G/3G/4G LTE network performance, network capacity, traffic patterns, user behaviors, and network and device service quality etc. by leveraging data analytics,

network simulation, statistical modeling, machine learning, and data mining techniques.

He holds a Bachelor of Engineering from Southeast University in Nanjing, China, a Master of Science from Tufts University in Massachusetts, USA, and a Doctor of Philosophy from Stevens Institute of Technology in New Jersey, USA. In 2012-2013, Dr. Ouyang as Co-Principal was awarded telecom research funding by White House, the office of Science and Technology and National Science Foundation (NSF). He authored 20+ academic papers, 3 book chapters, and 8 US Patents. Dr. Ouyang is also a columnist of SINA Technology (新浪科技), which is the largest online media portal in China. He serves as Chair for Big Data Analytics Session in IEEE WOCC and WTS Conference, and TPC and reviewer for many leading academic journals and transactions.

**Dr. J.P. Shim** was professor of IS and Larry and Tonya Favreau Notable Scholar at Mississippi State University before joining Georgia State University in 2011 as Professor of the Computer Information Systems and Director of RCB Korean Initiatives. He has published five books and 70 journal articles. Recently, his co-authored paper has been cited as top in SSCI citations, Elsevier citations, and downloads in decision support systems.

Dr. Shim served as program chair and track chair at numerous conferences. He is serving on the Wireless Telecommunication Symposium as program chair. He serves as program co-chair for 2013 AMCIS.

He has received professional awards, grants and distinctions, including NSF, Microsoft, U.S. Small Business Administration, and Japan Foundation. He is a frequent invited speaker (more than 300 times) at universities, research institutes, and companies in 30 countries. He has had interviews with CBS TV, Associated Press, and numerous media/press. He worked as a consultant for Booz-Allen, KIA Motors, and others.

## **WTS 2016 Tutorial: Network Management**

Presenter: Michael Montecillo

**Mr. Michael Montecillo** is the IBM Security Services Director of Security Intelligence. He has more than twelve years of experience in information security, during which he has served as the Threat Research and Intelligence Principal, a Senior Threat Researcher on the X-Force, as

an Information Security Officer dedicated to the Michigan State Police, a Vulnerability Management Coordinator and Forensic Investigator for the state of Michigan as well as a consultant and Principal Security Analyst for Enterprise Management Associates, an industry analysis firm. Michael studied Telecommunications at Michigan State University, did his Masters work in Information Assurance at Walsh College (an NSA designated University), and has done Executive education studies in policy and security at the Harvard Kennedy School. Testament to Michael's expertise, he has been featured on FOX Business and the Today Show, has won two State Police awards for Professional Excellence, has published more than 30 research articles, and was a contributing author to the 2013 Health Law and Compliance Update. As the Director of Security Intelligence within IBM Security Services, Michael works directly with clients in multiple sectors on developing tactical responses to highly technical issues, especially relating to breaches, as well as developing frameworks to ensure client security strategies meet emerging challenges.

**WTS 2016 Paper Presentation Sessions  
Wednesday, April 20, 2016**

**Wednesday, April 20  
Holiday Inn Kensington Forum**

**IEEE Xplore Papers & Big Data Analytics for Telecommunications  
Workshop**



**Paper Presentation Session (I - A)**

**Ad Hoc and Sensor Networks I**

**Chair: Robert Stewart, Athlone Institute of Technology, Ireland**

*Infrastructure Centric AQM approach for QoS in MANETs*

Alexis Tcach (Universidad de Buenos Aires & Universidad General Sarmiento, Argentina); Rodrigo Castro (University of Buenos Aires & CONICET, Argentina); Esteban E. Mocskos (University of Buenos Aires & Center for Technological Applications - CSC - CONICET, Argentina)

*Hello Message Scheme Enhancement in CRMANET*

Jingwen Bai (Queen Mary, University of London, P.R. China); Tao Liang (Queen Mary University of London, P.R. China); Yan Sun and Chris Phillips (Queen Mary University of London, United Kingdom)

8:30

am –  
10:10  
am

*A Residual Battery-Aware Routing Algorithm Based on DSR for BLE Sensor Networks*

Zonglin Guo (University of California Irvine, USA); Ian Harris and Christopher Harris (UC Irvine, USA); Yutong Jiang (Northeastern University, USA); Lih-feng Tsaur (University of Southern California, USA)

*A Novel Lightweight Authentication Scheme for heterogeneous Wireless Sensor Networks in the context of Internet of Things*

Hamza Khemissa (University of Sciences and Technology Houari Boumediene & Research Center on Scientific and Technical Information (CERIST), Algeria); Djamel Tandjaoui (Research Center on Scientific and Technical Information (CERIST), Algeria)

*A Trust-Privacy Framework in Vehicular Ad Hoc Networks (VANET)*

Diep Pham (Nanyang Technical University, Singapore); Chai Kiat Yeo (Nanyang Technical University, Singapore)

**Paper Presentation Session (I - B)**

**Wireless Modeling, Algorithms and Simulation 1**

**Chair: Dina Simunic, University of Zagreb, Croatia**

*Congestion-Aware RPL for 6LoWPAN Networks*

Hayder Al-Kashoash, Yaarob Al-Nidawi and Andrew H. Kemp (University of Leeds, United Kingdom)

8:30

am –  
10:10  
am

*Channel modeling and path loss characterization for in-body propagation at MICS and ISM bands*

Theofilos Chrysikos and Iliana Zisi (University of Patras, Greece); Stavros Kotsopoulos (Wireless Telecommunications Laboratory, Greece)

*Optimal Entropy Quantization for Maximum Likelihood Estimation based Cooperative Spectrum Sensing*

Oluoyomi Simpson, Idris Abdulkadir Yusuf and Yichuang Sun (University of Hertfordshire, United Kingdom)

*Analysis on Multipath Shape Factors of Air-to-Ground Radio Communication*

### *Channels*

Sardar Muhammad Gulfam (Comsats Institute of Information Technology, Pakistan); Junaid Nawaz Syed (COMSATS Institute of Information Technology, Islamabad, Pakistan); Abrar Ahmed (COMSATS Institute of Information Technology, Pakistan); Mohammad N Patwary (Staffordshire University, Stafford, United Kingdom)

*Effects of HPA Nonlinearities Mitigation for Amplitude, Phase and their Joint Distortions using MIMO Communication Systems* Latif Jan (Iqra National University Peshawar, Pakistan); Mohammad Haseeb Zafar (University of Engineering and Technology, Peshawar, Pakistan); Shahryar Khan Afridi, Shahr (Iqra National University Peshawar Pakistan, Pakistan)

### **Paper Presentation Session (I - C)**

#### **Wireless Resource Management and Efficiency**

**Chair: Michael Bartolacci, Penn State University - Berks**

*A Dynamic States Reduction Message Passing Algorithm for Sparse Code Multiple Access*

Yue Zhou (Huawei Technologies, Co. Ltd., P.R. China); Hejia Luo (Huawei Technologies Co., Ltd., P.R. China); Rong Li (Huawei Technologies, Co. Ltd., P.R. China); Justin Wang (Huawei Technologies Co. Ltd, P.R. China)

*Resource Management in OFDMA Heterogeneous Network*

Maria Seimeni, Panagiotis Gkonis, Dimitra I Kaklamani and Iakovos S. Venieris (National Technical University of Athens, Greece); Christos Papavassiliou (Imperial College London, United Kingdom)

*Fast and Efficient Transmission in D2D-Assisted Cellular Networks*

Yao-Liang Chung (National Taiwan Ocean University, Taiwan)

*An Improved Metric-Based Active Constellation Extension Scheme for PAPR Reduction in OFDM Systems*

Chin-Liang Wang, Shun-Sheng Wang and Hung-Mien Chen (National Tsing Hua University, Taiwan)

*RSS Fingerprints Dimensionality Reduction in WLAN-based Indoor Positioning*

Ayah Abusara (American University of Sharjah, UAE); Mohamed Hassan (American University of Sharjah, UAE); Mahmoud Ismail (Cairo University, Egypt)

### **Paper Presentation Session (I – D)**

#### **Big Data Analytics for Telecommunications**

**Chair: Ye Ouyang, Verizon Wireless**

*Evaluating LTE Accessibility Performance Via Clustering Based Model: A Wireless Analytic Methodology*

Yan Wang (Xidian University, P.R. China); Zhensen Wu (Xidian university, P.R. China)

*Big Data Management: An Investigation into Wireless and Cloud Computing*

8:30  
am –  
10:10  
am

Sunny Orike (Rivers State University of Science and Technology, Port Harcourt, Nigeria); Daboso Brown (National Open University of Nigeria, Nigeria)

*Identifying Dissatisfied 4G Customers from Network Indicators: A Comparison Between Complaint and Survey Data*

Alexis Huet and Xinling Dai (Nanjing Howso Technology, P.R. China)

*Mining of Leaders in Mobile Telecom Social Networks*

Ouyang Ye (Stevens Institute of Technology, USA); Alexis Huet (Nanjing Howso Technology, P.R. China); Mantian Hu (The Chinese University of Hong Kong, Hong Kong); Xingshuai Sun (Nanjing Howso Technology, P.R. China)

*Elliptic Curves Cryptosystem Based Approach for Keys Authentication in WSN*

Yucef Touati (University of Paris 8 SAINT-DENIS &amp; Dept. MIME, France)

10:10  
am –  
10:20  
am

**Break**

**Paper Presentation Session (II - A)**

**Ad Hoc and Sensor Networks 2 and Mobile Health**

**Chair: Robert Stewart, Athlone Institute of Technology, Ireland**

*Trust Management using Probabilistic Energy-Aware Monitoring for Intrusion Detection in Mobile Ad-hoc Networks*

Andrea Lupia and Floriano De Rango (University of Calabria, Italy)

*Energy-Efficient Data Aggregation Techniques for Exploiting Spatio-Temporal Correlations in Wireless Sensor Networks*

Somasekhar Reddy Kandukuri (University of La Reunion, France); Jean Lebreton (University of La Reunion &amp; LE2P Laboratory, France); Richard Lorion (University La Réunion, France); Nour Mohammad Murad (University of Reunion, France); Jean-Daniel Lan Sun Luk (LE2P, Reunion)

10:20  
am –  
12:00  
pm

*An energy-efficient addressing mechanism for wake-up radio systems*

Jean Lebreton (University of La Reunion &amp; LE2P Laboratory, France); Nour Mohammad Murad (University of Reunion, France); Somasekhar Reddy Kandukuri (University of La Reunion, France); Richard Lorion (University La Réunion, France)

*Multi-hop Cooperative Relaying for Energy Efficient In Vivo Communications*

Muhammad Ismail (Texas A&amp;M University at Qatar, Qatar); Marwa Qaraqe (Texas A&M University, USA); Qammer Hussain Abbasi (Texas A &amp; M University, Qatar); Erchin Serpedin (Texas A&M University, USA)

*Mood Prediction from Facial Video with Music "Therapy" on a Smartphone*

Chai Kiat Yeo, Yean Seanglidet and Bu Sung Lee (Nanyang Technological

University, Singapore)

**Paper Presentation Session (II – B)**  
**Emerging Wireless Technologies and Applications 1**

*Timing Synchronization for OFDM-based Visible Light Communication Systems*  
Marcos Fulgencio Guerra Medina, Oswaldo González, Inocencio R. Martín and Silvestre Rodríguez (University of La Laguna, Spain)

*Open source 6Lo protocol stack for wireless embedded systems*  
Artem Yushev (Offenburg University of Applied Sciences & Offenburg University of Applied Sciences, Germany); Axel Sikora (University of Applied Sciences Offenburg, Germany); Jubin Sebastian E (Offenburg University of Applied Sciences, Germany)

*Data Exchange via Multiplexed Color QR Codes on Mobile Devices*  
Sin Rong Toh (NTU, Singapore); Weihan Goh (Singapore Institute of Technology, Singapore); Chai Kiat Yeo (Nanyang Technological University, Singapore)

*Comparison between multi-mode monopulse and step tracking techniques for a UAV satellite terminal*  
Jaemoon Lee (Agency for Defense Development, Korea); Jae Sung Lim (Ajou University, Korea); Eunki Kim (LIGNex1, Korea)

*Wireless Multihoming for Smart Grid High Data Rate Applications*  
Atef Abdrabou and Hosam Hittini (UAE University, UAE); Khaled Bashir Shaban (Qatar University & College of Engineering, Qatar)

10:20  
am –  
12:00  
pm

**Paper Presentation Session (II - C)**  
**Propagation and Transmission Modeling**

*New Circularly Polarized Matrix Antenna for Space Applications*  
Ali Siblini (Limoges University, France)

*Effect of Transmit Multi-Port Amplifiers Used in Base Stations for Wireless Cellular Systems*  
Shigeo Nakajima (Niigata Institute of Technology, Japan)

*Capacity-approaching signals for the scalar Gaussian channel*  
Hugo Méric (NIC Chile Research Labs, Chile); Jerome Lacan (University of Toulouse, France)

*Cognitive Space Modulation Systems with Imperfect Channel Estimation*  
Ibrahem E. Atawi (University of Tabuk, Saudi Arabia)

*Congestion Analysis for Low Power and Lossy Networks*  
Hayder Al-Kashoash, Yaarob Al-Nidawi and Andrew H. Kemp (University of Leeds, United Kingdom)

10:20  
am –  
12:00  
pm

12:00 pm – 1:40 pm	<p style="text-align: center;"><b>Lunch</b> <b>Best Paper Awards Ceremony</b> <b>Poster Paper Session</b></p>
	<p style="text-align: center;"><i><b>International Journal of Interdisciplinary Telecommunications &amp; Networking Papers</b></i></p>
1:40 pm – 3:20 pm	<p><b>Paper Presentation Session (III - A)</b> <b>Wireless Modeling, Algorithms and Simulation 2</b> <b>Chair: Stephen Curran, Digicel Group</b></p> <p><i>Mobility Analysis for Passive Reservations in Vehicular Cellular Networks Based on Dynamic Programming and Roads Compression</i> Peppino Fazio and Mauro Tropea (University of Calabria, Italy); Miroslav Voznak (VSB – Technical University of Ostrava, Czech Republic); Andrea Lupia (University of Calabria, Italy)</p> <p><i>Cellular IoT for Mobile Autonomous Reporting in the Smart Grid</i> Ana E Goulart (Texas A&amp;M University, USA)</p> <p><i>Fade duration based neighbor cell list optimization for the handover in femtocell networks</i> Aklilu Gebremichail (University of Missouri-Kansas City, USA)</p> <p><i>A novel secret key generation method in OFDM system for physical layer security</i> Dong Wang, Hu Aiqun and Linning Peng (Southeast University, P.R. China)</p> <p><i>Analysis on Interference Impact of Wi-Fi on Digital Terrestrial Television Broadcasting</i> Guntis Ancans (Riga Technical University, Latvia); Evaldas Stankevicius (Vilnius Gediminas Technical University, Lithuania); Vjaceslavs Bobrovs and Arnis Ancans (Riga Technical University, Latvia)</p>
1:40 pm – 3:20 pm	<p><b>Paper Presentation Session (III - B)</b> <b>Wireless Resource Management and Efficiency</b></p> <p><i>Three-Dimension Kronecker Channel Modeling and Correlation Analysis</i> Jianzheng Li (Nanjing University of Posts and Telecommunications, P.R. China); Fei Li (Nanjing University of Posts and Telecommunications, P.R. China); Wei Ji (NanJing University of Posts and Telecommunications, P.R. China); Yulong Zou (Nanjing University of Posts and Telecommunications, P.R. China); Chunguo Li (Southeast University, P.R. China)</p> <p><i>Analysis on Multipath Shape Factors of Air-to-Ground Radio Communication</i></p>

*Channels*

Sardar Muhammad Gulfam (Comsats Institute of Information Technology, Pakistan); Junaid Nawaz Syed (COMSATS Institute of Information Technology, Islamabad, Pakistan); Abrar Ahmed (COMSATS Institute of Information Technology, Pakistan); Mohammad N Patwary (Staffordshire University, Stafford, United Kingdom)

*Improved Port Modulation for Multiuser massive MIMO systems*

Yujiao He, Jianing Zhao, Lijuan Tao, Fuyu Hou and Wei Jia (Southeast University, P.R. China)

*Throughput Analysis of IEEE 802.11ac and IEEE 802.11n in a Residential Home Environment*

Zawar Shah and Ashutosh Kolhe (Whitireia Community Polytechnic, Auckland, New Zealand)

*Dynamic Resource Management in High Throughput Satellite with Multi Port Amplifier (MPA)*

Sunil Panthi (University of California Irvine, USA); Ahmed M. Eltawil (University of California, Irvine, USA)

**Paper Presentation Session (III - C)**

**Emerging Wireless Technologies and Applications 2**

*An Optimal Switching-off eNB Selection Algorithm in LTE Hypr-dense Networks*  
Ding Fei, Tong En, Pan Zhiwen, You Xiahou, Song Aiguo (Southeast University, P.R. China)

*The use of an airborne platform to provide emergency communications*  
Stephen Curran (Digicel Group, Jamaica)

*3D Replica Conferencing System*  
Roger Achkar (American University of Science and Technology, Lebanon)

*Application of Signal Processing GPS Signal Detection Using USRP*  
Ehsan Sheybani, Brandon Harrington (Virginia State University, USA)

*Integrating Software Defined Radio with USRP*  
Ehsan Sheybani, Aleeyah Hopkins (Virginia State University, USA)

1:40  
pm –  
3:20  
pm

**Paper Presentation Session (III - D)**  
**Global Wireless Services, Business & Applications**  
**Chair: Galen Grimes, Penn State University**

*Changes in Corporate Strategy in the Telecommunications Services Industry: A Fifteen Year Retrospective*  
Steven R. Powell (California State Polytechnic University, Pomona)

1:40  
pm –  
3:20  
pm

*EMV, Apple Pay, Android Pay, and other Alternate Payment Technologies—Is it finally Safe to Use Credit/Debit Cards?*  
Galen Grimes (Penn State University)

*Data Centers: Current Status, Cyber Security, Compliance, and Next Generation*  
J. P. Shim (Georgia State University)

*Disconnects of specialized mobile digital forensics within the generalized field of digital forensic science*

Gregory H. Carlton (California State Polytechnic University, Pomona); Gary C. Kessler (Embry-Riddle Aeronautical University)

*Semi-autonomous traffic control at intersections utilizing radios and sensors.*  
Zory Marantz (New York City of Technology)

3:20  
pm –  
3:30  
pm

**Break**

**Paper Presentation Session (IV- A)**  
**Emerging Wireless Technologies and Applications 3**  
**Chair: Dina Simunic (University of Zagreb)**

*Modelling Wireless Sensor Networks in IoT-Based Home Sensing Environment*  
Ana Koren (FER, Croatia); Antun Kerner (Faculty of Electrical Engineering and Computing (FER), Croatia); Dina Simunic (University of Zagreb, Croatia)

3:30  
pm –  
5:30  
pm

*A Study of Forensic Imaging to Evaluate Unsanitized Destination Storage Media*  
Gregory H. Carlton (California State Polytechnic University, Pomona, USA); Gary C. Kessler (Embry-Riddle Aeronautical University, USA)

*Application of Digital Signal Processing in USRP Satellite Signal Detection*  
Giti Javidi, Candice Brown (Virginia State University, USA)

*Using Simulations and Computational Analyses to Study a Frequency-Modulated Continuous-Wave Radar*

Akbar Eslami, Jamiiru Luttamaguzi, Dwayne M. Brooks (Elizabeth City State University, USA); Giti Javidi, Philip M. Gabriel (Virginia State University, USA)

**Paper Presentation Session (IV - B)**  
**Propagation and Transmission Modeling**

*Linear Precoding for Large MIMO Configurations and QAM Constellations*  
Thomas Keteoglou (California State Polytechnic University, Pomona, USA);  
Ender Ayanoglu (University of California, Irvine, USA)

*Power Efficient Communication for Joint Detection Receivers in Rician Channels*  
Vignesh Kumar (IIT Madras, India)

3:30

pm –

5:30

pm

*Channel modeling and path loss characterization for in-body propagation at MICS and ISM bands*

Theofilos Chrysikos and Iliana Zisi (University of Patras, Greece); Stavros Kotsopoulos (Wireless Telecommunications Laboratory, Greece)

*Repetition Coding and Equal Power Allocation Scheme for JPEG Image Transmission over MIMO Systems*

Chuahdhy Mujeeb Ahmed (Singapore University of Technology and Design, Singapore)

*Improved Port Modulation for Multiuser massive MIMO systems*

Yujiao He, Jianing Zhao, Lijuan Tao, Fuyu Hou and Wei Jia (Southeast University, P.R. China)

**Paper Presentation Session (IV - C)**

**Ad Hoc and Sensor Networks 2**

**Chair: Robert Stewart, Athlone Institute of Technology**

*Mobile Data Offloading for Streaming-class Traffic with QoS Guarantee*  
Anusree Ajith (IIT Madras, India); Venkatesh Tiruchirai Gopalakrishnan (Indian Institute of Technology Madras, India)

3:30

pm –

5:30

pm

*A Residual Battery-Aware Routing Algorithm Based on DSR for BLE Sensor Networks*

Zonglin Guo (University of California Irvine, USA); Ian Harris and Christopher Harris (UC Irvine, USA); Yutong Jiang (Northeastern University, USA); Lih-feng Tsauro (University of Southern California, USA)

*A Mobility Model for Crowdsensing Simulation*

Jose Nava Auza (Pontifícia Universidade Católica do Rio de Janeiro & Centro de Estudos em Telecomunicações, Brazil); José Roberto B. de Marca (PUC/Rio, Brazil)

*Energy Efficient Cognitive M2M Communications*

Sajad Alabadi (University of Greenwich, United Kingdom)

**Paper Presentation Session (IV - D)**

**Emerging Media**

**Chair: Vassiliki Cossiavelou, Aegean University - Youth and Media Lab;**

3:30

pm –

5:30



pm

### Communication Counsellor at State, Belgium

*Brands and media gatekeeping in the social media: Current trends and practices - an exploratory research*

Vassiliki Cossiavelou (Aegean University, Youth and Media Lab & Communication Counsellor at State, Belgium); Georgia-Zozeta Miliopoulou (DEREE - The American College of Greece, Greece)

*ACTA: An online media content gatekeeper or a facilitator of e/m business? The EU role as global negotiator*

Vassiliki Cossiavelou (Aegean University, Youth and Media Lab & Communication Counsellor at State, Belgium)

*Smart Advertising*

Albert Asmaryan (Moscow State Technical University, Russia); Aleksey Levanov and Irina Borovik (Moscow State Technical University named after Bauman, Russia)

*Social and location analysis for similarity assessment*

Albert Asmaryan (Moscow State Technical University, Russia); Aleksey Levanov and Irina Borovik (Moscow State Technical University named after Bauman, Russia)

## WTS 2016 Poster Papers

### Speaker Biographies

**Claudio Galli** is Director of Global Services Operations at Inmarsat. After having worked for 14 years at Telespazio (Italy) as Telemetry, Tracking & Command (TT&C) engineer, Claudio Galli joined the Satellite Operations department at Inmarsat in January 2001 as Ground Systems engineer and was involved in the procurement, integration and testing and the new TT&C network for the Inmarsat-4 Satellite generation. From January 2006 to June 2009 Claudio acted as Project Manager of the Galileo IOT System procurement. In June 2009 Claudio joined the Inmarsat Network Operations department as Manager of the Network Operations Centre (NOC) in London. In January 2013 Claudio was appointed Director of Global Service Operations. In addition to managing the London NOC and

a team of operations engineers Claudio is now responsible for ensuring that all Inmarsat services are delivered to the highest standards.

**Lajos Hanzo** (<http://www-mobile.ecs.soton.ac.uk>) FREng, FIEEE, FIET, Fellow of EURASIP, DSc received his degree in electronics in 1976 and his doctorate in 1983. In 2009 he was awarded an honorary doctorate by the Technical University of Budapest, while in 2015 by the University of Edinburgh. During his 38-year career in telecommunications he has held various research and academic posts in Hungary, Germany and the UK. Since 1986 he has been with the School of Electronics and Computer Science, University of Southampton, UK, where he holds the chair in telecommunications. He has successfully supervised about 100 PhD students, co-authored 20 John Wiley/IEEE Press books on mobile radio communications totaling in excess of 10000 pages, published 1500+ research entries at IEEE Xplore, acted both as TPC and General Chair of IEEE conferences, presented keynote lectures and has been awarded a number of distinctions. Currently he is directing a 60-strong academic research team, working on a range of research projects in the field of wireless multimedia communications sponsored by industry, the Engineering and Physical Sciences Research Council (EPSRC) UK, the European Research Council's Advanced Fellow Grant and the Royal Society's Wolfson Research Merit Award. He is an enthusiastic supporter of industrial and academic liaison and he offers a range of industrial courses. He is also a Governor of the IEEE VTS. During 2008 - 2012 he was the Editor-in-Chief of the IEEE Press and a Chaired Professor also at Tsinghua University, Beijing. His research is funded by the European Research Council's Senior Research Fellow Grant. For further information on research in progress and associated publications please refer to <http://www-mobile.ecs.soton.ac.uk> Lajos has 23 000+ citations.

**David Meyer** served in the British Army as a Royal Signals officer from 1978-2010, during which he worked in a variety of roles and units around the world, but with a consistent theme of using, managing and exploiting spectrum from LF to the upper reaches of SHF. His last army post was as the deputy CIO in the MOD, in which he was responsible for reform of MOD's spectrum policy following Martin Cave's audit of public sector spectrum holdings in 2005. He drove the policy changes in Whitehall that enabled release of MOD spectrum, including Ofcom's forthcoming auction of former MOD 2.3 and 3.4GHz holdings.

On leaving the Army and MOD David joined the Foreign and Commonwealth Office as Chief Information Officer in 2010. He remained there for three years, leaving on a major reorganisation of the IT function

in the FCO which he planned. He now works as a consultant, covering cyber and technology issues for public and private sector clients. He has maintained his connection to spectrum issues through membership of Ofcom's Spectrum Advisory Board since 2010 having chaired the Board since 2011. His tenure as OSAB chairman extends to 2018.

David was appointed Chairman of the Spectrum Policy Forum in summer 2015. He seeks to follow the work of his predecessor in setting out the industry position on topical spectrum issues to government, and to Ofcom.

**Werner Mohr** was graduated from the University of Hannover, Germany, with the Master Degree in electrical engineering in 1981 and with the Ph.D. degree in 1987.

Dr. Werner Mohr joined Siemens AG, Mobile Network Division in Munich, Germany in 1991. He was involved in several EU funded projects and ETSI standardization groups on UMTS and systems beyond 3G. Werner Mohr coordinated several EU and Eureka Celtic funded projects on 3G (FRAMES project), LTE and IMT-Advanced radio interface (WINNER I, II and WINNER+ projects), which developed the basic concepts for future radio standards. Since April 2007 he is with Nokia Solutions and Networks (now Nokia) in Munich Germany, where he is Head of Research Alliances. In addition, he is chairperson of the NetWorld2020 European Technology Platform. Werner Mohr is also Chair of the Board of the 5G Infrastructure Association in 5G PPP of the EU Commission. He was chair of the "Wireless World Research Forum - WWRF" from its launch in August 2001 up to December 2003. He was member of the board of ITG in VDE from 2006 to 2014. He is co-author of a book on "Third Generation Mobile Communication Systems" a book on "Radio Technologies and Concepts for IMT-Advanced" and a book "Mobile and Wireless Communications for IMT-Advanced and Beyond".

**Bo Olofsson** is Program Lead for Networked Applications and Devices domain at Bell Labs, the research arm of Alcatel-Lucent. As such he leads Bell Labs research into the future applications and devices that will make interact with and be the visible part of the Future X network. Things like content deliver, personal devices/wearables and sensor devices are just a few of the things that falls into this domain. He is based in Cambridge at the Bell Labs antenna which is co-located with the headquarters of Alcatel-Lucent's video business.

Formerly Bo was Director, Product Research Group at British Sky Broadcasting (BSkyB). At Sky his team was responsible for research and

experimentation on emerging consumer technologies and their potential future application and implications for Sky and its product and services.

Prior to BSkyB, Bo was the Senior Vice President, Global Sales at Getty Images; the world's leading creator and distributor of [still imagery](#), [footage](#) and multimedia products.

Prior to that Bo spend 15+ years in the technology industry in various senior Sales, Product Marketing and General Management positions at Apple, Dell and IBM

Bo has a Master of Science (Computer Science) degree from Uppsala University, Sweden. He lives in London with his wife and son.

**Rob van den Dam** is the Global Telecommunications Industry Leader at the IBM Institute for Business Value. He is responsible for developing and deploying strategic thought leadership in telecommunications and as such contributor to IBM's global telecom strategy. In this role he develops future agendas, industry outlooks and business value realization studies. He has 20 years' experience in the telecom industry and has worked in a range of advisory and implementation roles for major telecommunications, media and government organizations.

Prior to joining IBM he worked for Data Sciences where he was Senior Principal and one of the founders of Data Sciences' telecommunications practice. He started his career 30 years ago at the National Aerospace Industry where he worked in both national and international projects. Rob graduated at the Delft University in Aerospace Engineering (with honours), where he received a PhD.

Recent work includes future scenario planning, big data, Cloud, social business, and Internet of Things. Rob periodically presents or participates in panel sessions at major industry conferences, such as World Future Trends Summit, ITU World, GSMA Mobile Asia Conference, Total Telecom World, World Telecom Council, CommunicAsia, Broadband World Forum, and Asian Carriers' Conference. He has published multiple articles in, amongst others, Total Telecom Magazine, Telecom Asia magazine, European Communications, Mobile Europe, Annual Review of Communications and Journal of Telecommunications Management.

**Michael Walker** is an independent consultant in telecommunications, with nearly 30 years in the sector, He provides consultancy services to a number of businesses in the telecoms sector, acts as an expert witness to legal firms with clients in that sector, and acts in an advisory capacity to

organizations with interests in the sector. He spent more than twenty years with Vodafone, the last ten years of which, until his retirement in September 2009, as the Group Research and Development Director for the Vodafone Group of companies. In that position he had responsibility for the Group's research activities, intellectual property and technology standards worldwide. He also led technology innovation and managed engagement with start-up companies, and was a member of the board of Vodafone Ventures, the venture capital arm of the company. Michael is a Vodafone Fellow and is a technical advisor to the company.

Michael is a non-executive director of Avanti, a satellite service provider, as well as Glasswall Solutions, a company specializing in Internet security. He is a trustee director of the Alacrity Foundation, a charity for providing opportunity for entrepreneurs.

From May 2011 until September 2013, Michael was Head of School for Natural and Mathematical Sciences at King's College London. He was chairman of the Board of the European Telecommunications Standards Institute for the 2008-2011 Board period, and continues today as a board member. He was a member of the UK Technology Strategy Board, and currently sits on the UK Government's OFCOM spectrum advisory board.

Michael sits on the scientific advisory board for the Universities of Surrey, and from 2006-2014, Warwick, and was a member of the academic advisory board of the University of Karlsruhe, Germany, from 2005-2008. He holds the Vodafone Chair in Telecommunications at Royal Holloway, University of London, as a part-time professor, and is a director of the Royal Holloway institute of Cyber Security Innovation. He was a visiting professor at the University of Surrey from 2004-2010, and from 2014 until today. In 2009 he was made a Fellow of the Wireless World Research Forum.

Before joining Vodafone, Michael was Head of Mathematics at Racal Research, and prior to that an academic in the Mathematics Department at the University of Tuebingen in Germany.

Michael is a Fellow of the Royal Academy of Engineering, and from July 2008 until June 2011 served as a member of Council of the Academy. He was the President of the Institute of Mathematics and its Applications for the Presidential term 2010-2011. He was awarded an Honorary Doctorate of Technology from the University of Plymouth in 2011. He was appointed an OBE in June 2009 for his services to the telecommunications industry.

**William Webb** is one of the world's leading wireless communications experts. William is CEO of the Weightless SIG, the standards body developing a new global M2M technology. He is a Director at Webb Search, an independent consultancy, and President of the IET - Europe's largest Professional Engineering body.

He was one of the founding directors of Neul, a company developing machine-to-machine technologies and networks, which was formed at the start of 2011 and subsequently sold to Huawei in 2014 for \$25m. Prior to this William was a Director at Ofcom where he managed a team providing technical advice and performing research across all areas of Ofcom's regulatory remit. He also led some of the major reviews conducted by Ofcom including the Spectrum Framework Review, the development of Spectrum Usage Rights and most recently cognitive or white space policy. Previously, William worked for a range of communications consultancies in the UK in the fields of hardware design, computer simulation, propagation modelling, spectrum management and strategy development. William also spent three years providing strategic management across Motorola's entire communications portfolio, based in Chicago.

William has published 14 books, over 100 papers, and 18 patents. He is a Visiting Professor at Surrey and Southampton Universities, an Adjunct Professor at Trinity College Dublin, a Board member of Cambridge Wireless, a member of the Science Advisory Council at DCMS, other oversight Boards and a Fellow of the Royal Academy of Engineering, the IEEE and the IET. In 2015 he was awarded the Honorary Degree of Doctor of Science by Southampton University in recognition of his work on wireless technologies and Honorary Doctor of Technology by Anglia Ruskin University in honour of his contribution to the engineering profession. His biography is included in multiple "Who's Who" publications around the world. William has a first class honours degree in electronics, a PhD and an MBA. He can be contacted at [wwebb@theiet.org](mailto:wwebb@theiet.org).

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