

WTS 2017

Wireless Telecommunications Symposium 2017

*Global Wireless Communications: Present and
Future*

April 25 - 28, 2017



California State Polytechnic University, Pomona

**Holiday Inn Chicago Mart Plaza
Chicago, IL, USA**

WELCOME TO WTS 2017

Welcome to the sixteenth annual Wireless Telecommunications Symposium, WTS 2017, “Global Wireless Communications: Present and Future.” 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 2017 will explore a wide range of multidisciplinary wireless communications, mobile computing, and emerging media topics in depth.

The WTS 2017 Technical 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 2017, the many reviewers who reviewed them, and the co-chairs, mini-symposium chairs, track chairs and technical program committee members 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 2017 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 and Communications Systems Integration & Modeling Technical Committees for their technical support for WTS 2017, 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; the Illinois Institute of Technology; IEEE@UIC; and CIORReview.

On behalf of the WTS 2017 Committee -- Welcome to WTS 2017!

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

**WTS 2017 Program April 25-28, 2017
Holiday Inn Chicago Mart Plaza
Chicago, IL, USA**

Tuesday, April 25
Holiday Inn Chicago Mart Plaza

1 pm
– 5:00
pm

Optional Visit to the Art Institute of Chicago.
(Fees for Museum Admission and Metro are not Included in WTS
2017 Registration.)

6:00
pm –
9:00
pm

WTS Organizers' Meeting

Wednesday, April 26
Holiday Inn Chicago Mart Plaza

8:00
am -
9:00
am

Registration

9:00
am –
9:15
am

Welcoming Remarks

9:15
am –
10:00
am

“Towards Efficient and Secure IoT Devices”
Cameron Coursey
VP of Product Development, Internet of Things Solution
AT&T

10:00
am –
10:30
am

Break

10:30
am –
11:15
am

‘Sharing Personal Data Vs. Privacy? Earning Consumer Trust in
the Cognitive Era
Dr. Rob van den Dam
Global Telecommunications Industry Leader, Institute for
Business Value
IBM

11:15
am –
12:00
pm

“Future X Networks: Intelligent Virtual Assistants (Chatbots)”
Anne Lee
Bell Labs Fellow, Nokia Chief Technology Office
Nokia Bell Labs

12:00 pm – 2:00 pm	Lunch "Mid 2017 Telecom and Media Regulatory Update" Guest Speaker: Andrew D. Lipman Partner, Morgan Lewis
2:00 pm – 2:45 pm	Tutorial: "Trends in Mobile Wireless Radio Infrastructure Evolution, an Industry Perspective" Habib Riazi , RF and Systems Engineering Director Corning Optical Communications Wireless Ltd
2:45 pm – 3:00 pm	Break
3:00 pm – 4:30 pm	Panel Discussion: "IoT and the Opportunities for Mobile Operators" Moderator: Dr. J.P. Shim , Georgia State University Panelists: Cameron Coursey , AT&T Dr. J. P. Shim , Professor, Georgia State University Dr. Rob van den Dam , IBM Daniel Barnes , Synapse Wireless
4:30 pm – 5:00 pm	Doctoral Students Session: "Internet of Things - Propagation Modelling for Precision Agriculture Applications" Jacqueline Stewart , Robert Stewart and Sean Kennedy (Athlone Institute of Technology, Ireland)
5:00 pm – 5:30 pm	Poster Paper Session
5:30 pm – 9:00 pm	Welcoming Reception & Dinner WTS Organizer Recognition Ceremony "Preparing for 2020 with Effective Security" Guest Speaker: Dr. Gee Rittenhouse , Senior VP of Engineering, Security Business Group Cisco

Thursday, April 27
Holiday Inn Chicago Mart Plaza/Argonne National Laboratory

9:00 am – 10:00 am	Tutorial, Part I: "Millimeter Wavelength Communication and Massive MIMO" Dr. Thomas Ketseoglou , Professor ECE Department California State Polytechnic University, Pomona
10:00 am – 10:15 am	Break
10:15 am – 10:45 am	Tutorial, Part II: "Millimeter Wavelength Communication and Massive MIMO" Dr. Thomas Ketseoglou , Professor ECE Department California State Polytechnic University, Pomona
10:45 am – 11:15 am	Tutorial on Emerging Media: "Curation strategies for social media: Global trends for CX optimization" Dr. Vassiliki Cossiavelou Youth and Media Lab, University of the Aegean
11:15 am – 11:45 am	"Digital Transformation using SMAC (Social, Mobile, Analytics, and Cloud)" Dr. Drew Hwang , Professor CIS Department California State Polytechnic University, Pomona
11:45 am - 1:00 pm	Lunch
1:00 pm – 5:30 pm	Visit to the Argonne National Laboratory* *Note: The Size of the Tour Group will be Restricted. Early Conference Registration and Tour Sign-up are Recommended. For People Not Taking the Argonne National Laboratory Tour: Tutorial: "Absorbing the Network Impact of Video" Kurt Raflaub ADTRAN, Inc.
6:00 pm – 9:00 pm	Dinner and Coach Tour
Friday, April 28 Holiday Inn Chicago Mart Plaza	
8:30	Paper Presentation Session (I)

am – 10:10 am	
10:10 am – 10:20 am	Break
10:20 am – 12:00 noon	Paper Presentation Session (II)
12:00 noon – 1:40 pm	Lunch Best Paper Awards Ceremony “Next Generation Wireless Technology” Guest Speaker: Dr. Michael Irizarry Executive President and CTO, Engineering and Information Services US Cellular
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 2017 Panel Discussion: IoT and the Opportunities for Mobile Operators

Abstract:

When evaluating new revenue generators, almost all mobile operators have the Internet of Things (IoT) on the top of their list. CEOs have made bold statements about how much revenue they are going to generate from the IoT. But how real is this? Indeed, the IoT will be huge, billions of objects and devices will be connected. No question about that. The question is how mobile operators will make money in this environment. How much will be connected using licensed spectrum and how much using WiFi, LPWA networks or other alternatives? With competitive technologies in unlicensed spectrum the economics will change dramatically for mobile operators. And will mobile operators be satisfied with just only a kind of SIM-only business or are there other places in which they will like to play a key role?

The panel will explore the different opportunities that the IoT offers mobile operators, ranging from connectivity through big data and cognitive analytics to IoT platforms and end-to-end solutions. The panel will focus on five questions:

- How much revenue can mobile operators generate from the IoT and from which parts of the value chain?
- Who are the competitors and who are potential partners in the evolving IoT ecosystem?
- What will be the business model for operators who want to surpass the role of ‘dumb pipe’?
- What is the importance of big data and cognitive analytics in the IoT?
- How can several issues surrounding the IoT - such as scalability, reliability and privacy concerns – be addressed?

Moderator:

Dr. J.P. Shim, Georgia State University

Panelists include:

Cameron Coursey, AT&T

Dr. J. P. Shim, Georgia State University

Dr. Rob van den Dam, IBM

Daniel Barnes, Synapse Wireless

5G Tutorial: Millimeter Wavelength Communication and Massive MIMO

Dr. Thomas Ketseoglou

California State Polytechnic University, Pomona

Abstract:

5G will require an assertive new technology deployment that aims at achieving orders of magnitude improvements in data throughput. This tutorial will address the fundamental ideas behind 5G MIMO, its physical layer, and the corresponding technical challenges. The tutorial will address how mm wavelength communication in conjunction with Massive MIMO offers the possibility of achieving the 5G high data rate requirements and what are the main technical challenges and impediments on the path of 5G deployment, including: propagation and channel models, beamforming techniques, and channel estimation. More explicitly the tutorial will cover the following issues:

1. Introduction and historical perspective: 1G, 2G, 3G, 4G, 5G
2. 5G Requirements
3. 5G prevailing technologies: What is mm wavelength communication? What is Massive MIMO? What are the advantages of 5G techniques over current wireless techniques? Is there still space for Multi-Carrier techniques in 5G?
4. Impediments to 5G: What is pilot contamination? How is channel estimation performed in 5G? What are some promising precoding techniques toward improved data communication?
5. Conclusions

Tutorial: Trends in Evolution of Mobile Wireless Infrastructure, An Industry Perspective

Dr. Habib Riazi, RF and Systems Engineering Director at Corning Optical Communications Wireless Ltd.

Abstract:

There has been ample research and focused academic work, suggesting improvements and guiding new technologies, for mobile wireless radio access and architecture. The purpose of this tutorial is to provide a broad perspective on the drivers and latest trends affecting changes and continued modernization of commercial mobile wireless infrastructure. We will review the shortcomings with respect to the growing data traffic, inefficiencies in spectrum utilization, capital expenditure and operating cost concerns. Then review enabling developments in the areas of spectrum repurpose and promising economic efficiencies of developing technologies such as; SDR, NFV, C-RAN, and 4G progression to 5G. We take a look at challenges in physical implementation and the facilitating engineering innovations. The purpose of this tutorial is to provide a broad insight and perspective on the system evolution. In the course of discussions, we will also identify relevant references and major influencers for further investigation into specific areas of interest.

Tutorial on Emerging Media: "Curation Strategies for Social Media: Global Trends for CX Optimization"

Dr. Vassiliki Cossiavelou
Youth and Media Lab, University of the Aegean

Abstract

This tutorial investigates how corporations and public administrations are editing their content on emerging media (social media etc. over any mobile platform) to augment customer experience (CX) and therefore customer engagement. Being on mobile has a lot of implications for communication strategy, implementation and assessment level. The tutorial is based on the latest reports of internationally known companies such as HubSpot, Smart Insights, Curata and Social Media Examiner.

Tutorial: "Absorbing the Network Impact of Video"

Kurt Raaflaub
ADTRAN, Inc.

Abstract

Service providers around the world are facing multiple networking trends that have them challenged to deliver extremely fast broadband service, while also maintaining accelerated deployment and a healthy bottom line. These providers are seeking high-bandwidth solutions throughout the network to achieve national objectives, global broadband competitiveness and to enable new and exciting applications and services.

This presentation will highlight these trends currently impacting the network. We will discuss the rise in OTT video and other bandwidth hogs including the impact of mobile devices and projections for the next few years such as:

- More bandwidth delivered to end-users;
- How access networks will become congested without innovative optical networking;
- Meeting the bandwidth demand through a variety of wireline access architectures including deep fiber deployments, and;
- Identifying the role of Software Defined Access (SD-Access) in the access network of the future

WTS 2017 Paper Presentation Sessions
Friday, April 28, 2017

Friday, April 28
Holiday Inn Chicago Mart Plaza

International Journal of Interdisciplinary Telecommunications & Networking Papers and Invited Presentations

I-A Security, Forensics & Data Analytics

Data Privacy and Security in Vehicular Communications: Research Achievements and Challenges

Ilias Panagiotopoulos (Harokopio University of Athens, Greece); George Dimitrakopoulos (Harokopion University of Athens, Greece); Dimosthenis Anagnostopoulos (Harokopio University of Athens, Greece)

Data Visualization for Low-Frequency Inverse Synthetic Aperture Radar (ISAR)

Ehsan Sheybani (University of South Florida Sarasota-Manatee, USA); Giti Javidi (University of South Florida Sarasota-Manatee, USA)

8:30
am –
10:10
am

Implementation and Performance Analysis of Two Error Detection and Correction Techniques: CRC and Hamming Code

Nan Wang (California State University at Fresno, USA); Swati Chaturvedi and Sukrut Pasumarthi (California State University, Fresno, USA)

Coverage Analysis of Heterogeneous Wireless Network with n-Interacted Transmission Nodes

Soumya Samal (Technical University of Sofia, Bulgaria); Shuvabrata Bandopadhaya (School of Engineering and Technology, BML Munjal University, Gurgaon, India); Saroj Dora (BPUT ODISHA, India); Vladimir K. Poulkov (Technical University of Sofia, Bulgaria)

Exploring Myths in Digital Forensics: Separating Science From Ritual

Gary Craig Kessler (Embry-Riddle Aeronautical University, USA); Gregory Carlton (California State Polytechnic University, Pomona, USA)

I-B Wireless Systems & Applications (I)

A Novel Delay-Based GFSK Demodulator in 65 nm CMOS for Low Power MICS Band Receiver

Meng Fu (University of Melbourne, Australia); Stan Skafidas (The University of Melbourne, Australia)

8:30
am –
10:10
am

Time-of-Flight Cameras enabling Collaborative Robots for Improved Safety in Medical Applications

Thomas M. Wendt and Urban B Himmelsbach (University of Applied Sciences Offenburg, Germany); Matthias Lai (NewTec GmbH & University of Applied Sciences Offenburg, Germany); Matthias Waßner (University of Applied

	<p>Sciences Offenburg, Germa</p> <p><i>Irrigation Measurement System for Dry Areas Based on WSN</i> Juan Granda (Universidad del Norte & Universidad del Norte, Colombia); Maria Calle (Universidad del Norte, Colombia)</p> <p><i>Indoor Localization for Optimized Ambient Assisted Living Services</i> Miroslav Mitev (Aalborg University, Denmark); Albena Mihovska (Aarhus University); Vladimir K. Poulkov (Technical University of Sofia, Bulgaria); Sofiya Stoyneva (Aalborg University, Denmark); Milica Pejanovic-Djurisic (University of Montenegro & Centre for Telecommunications, Montenegro)</p> <p><i>EcoSAR: Ecological Synthetic Aperture Radar Development</i> Ehsan Sheybani (University of South Florida Sarasota-Manatee, USA); Giti Javidi (University of South Florida Sarasota-Manatee, USA)</p> <p><i>GUI Design Considerations for Hyperspectral Microwave Atmospheric Sounder</i> Ehsan Sheybani (University of South Florida Sarasota-Manatee, USA); Giti Javidi (University of South Florida Sarasota-Manatee, USA)</p>
<p>8:30 am – 10:10 am</p>	<p>I-C Wireless Modeling, Algorithms, Simulation (I)</p> <p><i>Low Latency Actor Recovery Mechanism for Wireless Sensor and Actor Network</i> Reem Mahjoub (University of Bridgeport, USA); Khaled M. Elleithy (School of Engineering, University of Bridgeport, USA)</p> <p><i>Dynamic Carrier Allocation: A Step Towards the Future of 5G</i> Pedro Tonhozi de Oliveira (University of Missouri - Kansas City, USA); Cory Beard (University of Missouri-Kansas City, USA)</p> <p><i>A Multi-Carrier Proportional Fair Scheduling Scheme for Cloud Radio Access Networks</i> Daehyeong Kim (Incheon National University & Engineering Building, Korea)</p> <p><i>Design and Implementation of Indoor Asset Tracking System based on Low Power Clustering Operation</i> Yongsu Jeon, Jinwoo Lee, Seungjin Lee and Yunju Baek (Pusan National University, Korea)</p> <p><i>Implementation of Cognitive Radio Testbed Using Raspberry pi and USRP</i> Byeong-hee Roh, Hyun Jae Park and Gyu-min Lee (Ajou University, Korea); Ji Myung Oh (LIG Nex1, Korea); Seung-Hun Shin (Ajou University, Korea)</p>
<p>10:10 am – 10:20 am</p>	<p style="text-align: center;">Break</p>

<p>10:20 am – 12:00 pm</p>	<p>II-A Emerging Media and Applications</p> <p>Invited: <i>On Analyzing the Communications Ecosystem as a Complex System</i> Steven Powell (California State Polytechnic University, Pomona USA)</p> <p><i>Global Regulations on Innovation in Content Industries: The Google Privacy Policy as a News Gatekeeping Factor</i> Vassiliki Cossiavelou (Aegean University, Youth and Media Lab & Communications Counsellor at State, Belgium)</p> <p>Invited: <i>Digital Piracy and Consumption Habits: A Study of the Greek Market</i> Georgia-Zozeta Miliopoulou</p> <p><i>Social Media Fandom: The Construction of Identity in the Cases of “The 100” and “Once Upon A Time” Tumblr Communities</i> Eftychia Misailidou (American College of Greece, Greece)</p> <p><i>Mobilizing Learning in Higher Education: Developments in Teaching and Learning Practice</i> XinLu Kong, Sirirat Kongkasem, Fay Teplitsky, and Benjamin KS Khoo (New York Institute of Technology)</p>
<p>10:20 am – 12:00 pm</p>	<p>II-B 4G and 5G Networks and Applications (I)</p> <p><i>Cognitive-Based Radio Access Strategy in LTE-A Networks with M2M/H2H Coexistence</i> Salman A AlQahtani (King Saud University, Saudi Arabia)</p> <p><i>Iterative Destination Node Reception</i> Ahmed M. AlOtaibi and Salman A AlQahtani (King Saud University, Saudi Arabia)</p> <p><i>Vehicular Communications Leveraging on 5G Mobile Communication Infrastructures in Smart Cities</i> George Dimitrakopoulos (Harokopion University of Athens, Greece)</p> <p><i>Wireless Sensor and Actor Network Applications, Advantages, Direction, and Challenges</i> Reem Mahjoub (University of Bridgeport, USA); Khaled M. Elleithy (School of Engineering, University of Bridgeport, USA)</p> <p><i>A Novel Congestion Control Technique in Delay Tolerant Networks</i> Saeid Iranmanesh (RobotKarim Branch, Islamic Azad University, Iran); Maryam Saadati (Fachhochschule Technikum Wien, Austria)</p>

<p>10:20 am – 12:00 pm</p>	<p>II-C Ad Hoc and Sensor Networks (I)</p> <p><i>Density-Aware Load Balance Geographical Routing Protocol in Wireless Sensor Networks</i> Beom-Su Kim, ChungJae Lee and SeokYoon Kang (GNU, Korea); Kyong Hoon Kim (Gyeongsang National University, Korea); Ki-II Kim (Chungnam National University, Korea)</p> <p><i>A Timing Synchronization Method in Cognitive Radio Networks for Smart Grid Communication based on Modified Cyclic Prefix</i> Heyuan Qiao (Hefei University of Technology); Bingjing Zhao (Hefei Preschool Education College); Hu Peng (Hefei University of Technology, P.R. China)</p> <p><i>Range-Based Scheme for Adjusting Transmission Power of Femtocell in Co-Channel Deployment</i> Sultan Alotaibi and Robert Akl (University of North Texas, USA)</p> <p><i>On The Time-Varying Non-Linearity Effects Over The Spectrum Of MIMO-OFDM Wireless Communications Systems</i> Alexander Beremiz Hilario Tacuri and Ronald Coaguila (Universidad Nacional de San Agustín, Peru); Daniel Yanyachi Aco-Cárdenas (The National University of San Agustín, Peru)</p> <p><i>Phase Synchronization Impact on Throughput Performance in LTE Network</i> Rakesh Hanumantha, Rajesh P, Madhusudana CK and Prakash Nagarajan (Nokia Corporation, India)</p>
<p>12:00 pm – 1:40 pm</p>	<p style="text-align: center;">Lunch Best Paper Awards Ceremony “Next Generation Wireless Technology” Guest Speaker: Dr. Michael Irizarry Executive President and CTO, Engineering and Information Services US Cellular</p>
	<p style="text-align: center;">IEEE Xplore Papers and Invited Presentations</p>
<p>1:40 pm – 3:20 pm</p>	<p>III-A Spectrum Utilization and The Internet of Things</p> <p><i>An Effective Spectrum Handoff Scheme for Cognitive Radio Ad Hoc Networks</i> Grigoris Gkionis (University of Piraeus, Greece); Angelos Michalas (Technological Education Institute of Western Macedonia, Greece); Angeliki Sgora (University of Piraeus, Greece); Dimitrios D. Vergados (University of Piraeus - Hellenic Telecommunications and Post Commission (EETT), Greece)</p> <p><i>A Novel Metric to Study the Performance of Sectorized Fractional Frequency</i></p>

Reuse Techniques

Uttara Sawant and Robert Akl (University of North Texas, USA)

Capacity Consideration for Indoor Femtocell Networks in TV White Spaces

Wenjie Zhang (Minnan Normal University, P.R. China); Lingfu Xie (Ningbo University, P.R. China); Chai Kiat Yeo (Nanyang Technological University, Singapore)

Performance Comparison and Evaluation of the Proactive and Reactive Routing Protocols for MANETs

Nan Wang (California State University at Fresno, USA); Yuxia Bai and Yefa Mai (California State University, Fresno, USA)

Design and Implementation of a Distributed IoT System for the Monitoring of Water Quality in Aquaculture

Joaquin Cortez (Instituto Tecnológico de Sonora, Mexico); Erica Ruiz (Instituto Tecnológico de Sonora, Mexico); Adolfo Espinoza Ruiz and Cesar Encinas (Instituto Tecnológico de Sonora, Mexico)

III-B 4G and 5G Networks and Applications (II)

Cooperation Diversity Scenarios for Clipped OFDM

Thomas Ketsoglou (California State Polytechnic University, Pomona, USA)

A Novel Trellis-Coded Differential Chaotic Modulation System

Yanchun He, Lin Wang and Chenglong Zhou (Xiamen University, P.R. China); Guanrong Chen (City University of Hong Kong, P.R. China)

Analysis of Small Packet Traffic Support in LTE

Marco Centenaro and Lorenzo Vangelista (University of Padova, Italy)

A Software-Defined Radio Based Automatic Modulation Classifier

Patrick Cutno and Chi-Hao Cheng (Miami University, USA)

Orchestrating for Deployment of Network Slicing

Changpeng Gu (Chongqing University of Posts and Telecommunications, P.R. China); Xin Su, Jie Zeng, Lu Ge and Giyang Xiao (Tsinghua University, P.R. China)

III-C Ad Hoc and Sensor Networks (II)

Impact of changing energy detection thresholds on fair coexistence of Wi-Fi and LTE in the unlicensed spectrum

Muhammad Iqbal Cholilur Rochman (National Taiwan University of Science and Technology, Indonesia); Vanlin Sathya (University of Chicago, India); Monisha Ghosh (University Of Chicago, USA)

Advanced Communication Framework for Video Quality in Public Safety

Yongwen Yang (Johns Hopkins University APL, USA); Harold Zheng (Johns Hopkins University Applied Physics Lab, USA); Jay Chang (JHU/APL, USA);

1:40
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	<p>John Contestabile (Johns Hopkins Univ/Applied Physics Lab, USA); Steven Babin (JHU APL, USA)</p> <p><i>Decentralized Congestion Control Algorithm for Vehicular Networks Using Oscillating Transmission Power</i> Jordan Willis, Ikjot Saini and Arunita Jaekel (University of Windsor, Canada)</p> <p><i>BLE RSSI Ranking based Smartphone Indiscrimination Indoor Positioning System</i> Zixiang Ma and Stefan Poslad (Queen Mary University of London, United Kingdom); John Bigham (Queen Mary, University of London, United Kingdom); Xiaoshuai Zhang and Liang Men (Queen Mary University of London, United Kingdom)</p> <p><i>Towards Enhanced Connectivity Through WLAN Slicing</i> Maxweel Carmo (Universidade Federal de Mato Grosso, Brazil); Thalyson Souza (Universidade Federal do Rio Grande do Norte, Brazil); Sandino Jardim (Federal University of Mato Grosso, Brazil); Augusto J. Venancio Neto (Federal University of Rio Grande do Norte (UFRN), Brazil & Instituto de Telecomunicações Aveiro, Portugal); Daniel Corujo (Instituto de Telecomunicações Aveiro & Universidade de Aveiro, Portugal); Rui L. Aguiar (University of Aveiro & Instituto de Telecomunicações, Portugal)</p>
<p>3:20 pm – 3:30 pm</p>	<p style="text-align: center;">Break</p>
<p>3:30 pm – 5:30 pm</p>	<p>IV-A Wireless in Healthcare</p> <p><i>On the constraints to be imposed on the statistical behavior of single-entry interferences in satellite links</i> Alexander Beremiz Hilario Tacuri, Hugo Rucano, Gerson Ylla and Augusto Arce (Universidad Nacional de San Agustín, Peru)</p> <p><i>Personalized Recommendation System for Sina MicroComic Users</i> Yan Sun (Queen Mary University of London, United Kingdom); Tianrou Wang (Beijing University of Posts and Telecommunications, P.R. China)</p> <p>Invited: <i>Redesigning the Healthcare Model to Address Obesity Problem Using the Integration of Processes and Mobile Technologies: Facing a Worldwide Epidemic in an Innovative Manner</i> Izabella Lokshina and Barbara Durkin (SUNY Oneonta, USA)</p> <p>Invited: <i>Qualitative evaluation of IoT-driven eHealth</i> Izabella Lokshina (SUNY Oneonta, USA) and Cees Lanting (DATSA Belgium, Consulting, Belgium)</p> <p><i>Investigation of small-scale fading for pancreas-to-skin in-body propagation</i> Theofilos Chrysikos and Iliana Zisi (University of Patras, Greece); Stavros</p>

Kotsopoulos (Wireless Telecommunications Laboratory, Greece)

A Simple and Robust Architecture for Reliable, Latency-Critical Applications within Medical Operating Rooms

Matthias Lai (NewTec GmbH & University of Applied Sciences Offenburg, Germany); Thomas M. Wendt, Matthias Waßmer and Urban B Himmelsbach (University of Applied Sciences Offenburg, Germany)

IV-B Networks, Systems, and Applications

Invited: *Dynamic Frequency Hopping Scheme for Smart Grid Systems*

James Ashe (North Carolina A&T State University, USA); Qing-An Zeng (North Carolina A&T State University, USA)

Fast Scalable Fixed-Point Architecture Proposal of QR Decomposition for STBC-VBLAST Receiver

Joaquin Cortez (Instituto Tecnológico de Sonora, Mexico); Erica Ruiz and Eduardo Romero (Instituto Tecnológico de Sonora, Mexico); Jorge Robles (Instituto Tecnológico de Sonora, Mexico)

Joint CoMP and power allocation in ultra dense networks

Jingjing Wu (Chongqing University of Posts and Telecommunications, P.R. China); Jie Zeng, Xin Su, Xibin Xu and Limin Xiao (Tsinghua University, P.R. China)

3:30
pm –
5:30
pm

Establishing transparent IPv6 communication on LoRa based Low Power Wide Area Networks (LPWANS)

Steffen Thielemans, Maite Bezunartea and Kris Steenhaut (Vrije Universiteit Brussel, Belgium)

Detecting Flooding Attack while Accommodating Burst Traffic in Delay Tolerant Networks

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

Diversity Coded 5G Fronthaul Wireless Networks

Nabeel Sulieman (University of South Florida, USA); Kemal Davaslioglu (Intelligent Automation, Inc, USA); Richard D. Gitlin (University of South Florida, USA)

OFDM for 4G: A comprehensive analysis

Saurabh Dixit and Himanshu Katiyar (Babu Banarsi Das University, Lucknow, India)

3:30
pm –
5:30
pm

IV-C Wireless Modeling, Algorithms & Simulation (II)

A Method for Evaluating Coexistence of LTE and Radar Altimeters in the 4.2-4.4 GHz Band

Rohit Singh, Roger Peterson, Ali Riaz, Cynthia Hood, Roger B Bacchus and Dennis Roberson (Illinois Institute of Technology, USA)

ICI - Interference Characterization and Identification for WSN

Sergio Diaz and Diego Mendez (Pontificia Universidad Javeriana, Colombia);
Rolf Kraemer (IHP Microelectronics, Frankfurt/Oder & BTU-Cottbus,
Germany)

A Novel Beamforming Algorithm for Massive MIMO into Chipless RFID System
Mohamed Abouzeid (Duisburg-Essen Universität, Germany)

A Framework for Ultra-Reliable Low Latency Mission-Critical Communication
Shubhabrata Mukherjee (University of Missouri-Kansas City, USA)

An IoT Platform integrated into an energy efficient DC lighting grid
Massimo Celidonio (Fondazione Ugo Bordonio, Italy); Dario Di Zenobio (IEEE
Senior Member, Italy); Kris Steenhaut and Steffen Thielemans (Vrije Universiteit
Brussel, Belgium)

Wireless Channel Selection with Non-Invasive Power Probing
Kevin Schubert and Nicholas Bambos (Stanford University, USA)

Blockchain-Enabled Spectrum Access in Cognitive Radio Networks
Khashayar Kotobi and Sven Bilen (The Pennsylvania State University, USA)

*Adaptive Integrated Unit to User's Equipment for the Spectral and Energy
Efficiency in Cognitive Networks*
Koffi Dotche (Kwame Nkrumah University of Science and Technology, Ghana);
K. Diawuo (University of Energy Natural Resources, Ghana) and W. K. Ofose
(PSU Wilkes-Barre, USA)

WTS 2017 Poster Papers Wednesday, April 26, 2017

*Analysis of Shielding Effects of Magnetic Material for Small Wireless
Power Transfer Devices*

Sung-Ryul Hwang, Yong-Bae Kim, and Pan Seok Shin (Hongik
University, Korea)

*Reduced data rate wireless communication of compressively sampled
signals using antenna arrays*

Ismail Jouny (Lafayette College, USA)

*Toward Automated Analysis: An Approach to Spectrum Information
Modeling*

Vaishali Nagpure, Eric Faurie, Rohit Singh, Cynthia Hood (Illinois Institute of Technology, USA)

A proposal analytical model and simulation of the attacks in routing protocols of MANETs: implementation of a secure model of mobility
Abdourahime Gaye (Enseignant_Chercheur, SN)

Speaker Biographies

Daniel Barnes, Director of Product Management at Synapse Wireless, is responsible for SNAP: the Things Platform. Before transitioning into the IoT market, he performed various product development roles at ADTRAN, a telecom equipment manufacture, over the past 14 years.

Vassiliki Cossiavelou, Ph.D., is a Communication Officer at State and Associate Researcher of Youth and Media Lab in the Department of Cultural Technology and Communication of the University of the Aegean, Greece. Dr. Cossiavelou's research agenda has been extensive, ranging from EU policies on ICTs and media, media gatekeeping, sports and mega-events broadcasting, social media strategies, branding, etc. Her current research interests include the EU and USA regulations on media, social media strategies, online privacy and security issues, business models in emerging media industries, big data, IPR management in creative industries, and semantics issues. Dr. Cossiavelou's papers have appeared in proceedings of international conferences such as IEEE, ACM, INFORMS, WTS, WSKS, ICTSMA. Her research papers appear in journals such as the IJMNT and IJITN. She is a member of several EU and UN communication initiatives as well as International media and telecommunications professionals' associations. Her journal papers have external references in multidisciplinary journals such as Journal of Broadcasting & Electronic Media, International Journal of Sport Communication, among others and in grey bibliography of Purdue University, National University of Athens, etc. She is regularly invited to EU and USA universities as lecturer, and as keynote speaker to media and telecommunications conferences. Outside academia, she has been assigned to two diplomatic posts as Communication Counselor A' in the Greek Embassy in China and as permanent representative of Greece to the EU, in Belgium, as well as an External Expert in EACEA for EU-funded programs and Coordinator of the European Commission Radio Spectrum Comitology Committee.

Cameron Coursey is Vice President of Product Development for AT&T's Internet of Things Solution, charged with driving the system solutions and launch for connected devices on AT&T's network.

From April 2009 to June 2012, Coursey was AVP of Product Realization within the Emerging Devices Organization, where he led device and network realization. From December 2004 to April 2009, Coursey was Executive Director of Subscriber Product Engineering within the Chief Technology Officer's organization of AT&T and Cingular Wireless. In that capacity, he oversaw the technical requirements development, certification, and post-launch technical support for wireless devices and smart cards used on AT&T's domestic wireless network. From July 2003 to December 2004, Coursey was Executive Director of Network Initiatives for Cingular, charged with overseeing technology aspects of Cingular's merger with AT&T Wireless Services and with responsibility for Cingular's labs and infrastructure planning. From July 2000 to July 2003, Coursey was Director of Technology & Product Realization for Cingular, where he led the development and deployment of GSM/TDMA interoperable technology.

Coursey was instrumental in the industry efforts to specify GSM/TDMA interoperability from 1999 through 2001, chairing the joint GSM Association-Universal Wireless Communications Consortium team that developed GSM/TDMA interoperability specifications. He was also vice chair of the GSM Global Roaming Forum of the GSM Association. During this time, Coursey was also granted multiple U.S. patents covering intelligent roaming for handsets and methods to implement private in-building systems that use wireless spectrum and technology.

In 1999, Coursey authored the textbook "Understanding Digital PCS: The TDMA Standard," which described the technology behind TDMA (IS-136) from a handset, air interface, and network perspective. Coursey was a key contributor to the IS-136 standard from 1996 through 1999, and helped to introduce IS-136 into Cingular's networks during that time. Coursey began his commercial wireless career at SBC Technology Resources, Inc., in 1991, where he worked on technology for sharing spectrum between PCS and fixed wireless, early wireless packet data field trials for Southwestern Bell Mobile Systems, and network planning for new wireless opportunities for SBC in Southeast Asia. Prior to joining SBC Technology Resource, he worked for McDonnell Douglas on advanced communications systems for military aircraft.

Coursey received his Master of Science degree in Electrical Engineering from the University of Missouri-Rolla in 1988. He received his Bachelor

of Science degree in Electrical Engineering from the University of Missouri-Rolla in 1987, graduating Magna Cum Laud.

Drew Hwang is a Professor of Computer Information Systems at California State Polytechnic University, Pomona. He received a B.S. in Business Administration from Soochow University, Taiwan, a M.S. in Business Computer Information Systems from California State University, Fresno, and a Ph.D. in Management Information Systems from the University of Mississippi.

Dr. Hwang's research interests include electronic commerce, design and development of Internet-based systems, secure web development, mobile website design, social media, decision support systems, expert systems, web services, IS education, and many others. He has published many research papers in refereed journals such as Decision Support Systems, Omega, Information and Management, Journal of Information Science, Journal of the American Society for Information Science and Technology, Journal of IS Education, etc.

Dr. Hwang has also had more than twenty years of industry experiences as a system analyst, project manager, and chief technology officer in the area of business computer information systems. He was the chief developer of eHongKong.com, an ecommerce portal site developed and sold to New World Development Ltd., one of the top five enterprises in Hong Kong, in 2001.

Benefited from his academic background and industry experience, Dr. Hwang takes a hands-on and learn-by-doing approach in his teaching. His current teaching areas include e-commerce practice and systems, advanced web development, secure web development, and project management. He is also the Director of the Mitchell C. Hill Center for Applied Business Information Technology.

Mike Irizarry, who joined U.S. Cellular in 2002, oversees the company's information systems and technology as well as all of the company's technological operations including wireless towers, network build-outs for new markets, network operations and technological advancements.

Irizarry and his team are responsible for bringing U.S. Cellular customers 4G LTE speeds that provide an enhanced wireless experience with fast web browsing, smooth video streaming, video chatting and speedy app downloads. Currently, nearly 90 percent of customers have access to 4G LTE speeds. The team's commitment to continuously enhancing the

network is one of the reasons U.S. Cellular has the highest call quality and network satisfaction of any national carrier.

Irizarry also leads U.S. Cellular's information systems, strategic operations program and enterprise program management teams. These teams focus on application development, data warehousing, wireless billing technologies and support for data centers and end users, all of which help associates deliver the world's best customer experience.

Prior to joining U.S. Cellular, Irizarry held executive positions with Verizon, Bell Atlantic Mobile, Paging Network, Inc., and Motorola. He is a senior member of the Association for Computing Machinery as well as the I.E.E.E. and its communications and computer societies. Irizarry earned a bachelor's degree in engineering from Cleveland Technical College, a master's degree in information management and an MBA from the International School of Information Management, and a doctorate in Communications Technology from Capella University's School of Business and Technology. He is also a graduate of University of Chicago's executive management program. Irizarry lives in Barrington Hills, IL, with his wife and their four children.

Thomas Ketseoglou (S.85-M.91-SM.96) received the B.S. degree from the University of Patras, Patras, Greece, in 1982, the M.S. degree from the University of Maryland, College Park, Maryland, USA, in 1986, and the Ph.D. degree from the University of Southern California, Los Angeles, California, USA, in 1990, all in electrical engineering. He worked in the wireless communications industry, including senior level positions with Siemens, Ericsson, Rockwell, and Omnipoint. From 1996 through 1998 he participated in TIA TR45.5 (now 3GPP2) 3G standardization, making significant contributions to the cdma2000 standard. He has been inventor and co-inventor in several essential patents in wireless communications. Since September 2003 he has been with the Electrical and Computer Engineering department of the California State Polytechnic University, Pomona, California, USA, where he is a professor. He spent his sabbatical leave in 2011 at the Digital Technology Center, University of Minnesota, Minneapolis, Minnesota, USA, where he taught digital communications and performed research on network data and machine learning techniques. He is a part-time lecturer at the University of California, Irvine. His teaching and research interests are in wireless communications, signal processing, and machine learning, with current emphasis on MIMO, optimization, localization, and link prediction.

Anne Y. Lee (anne.lee@nokia.com) is a Bell Labs Fellow currently working on the Bell Labs CTO Technology Vision supporting the CTO and CEO by analyzing the evolution of key technologies and the overall network architecture to identify new directions for the industry and the impact and requirements on the company's portfolio. Prior to this, Anne was the CTO of IMS Innovations. In this role, she initiated and drove next generation IP communications solutions such as WebRTC as well as worked on creating the vision and initiating the work for future IP communications. She has also previously worked in both the Wireless CTO and Wireline CTO organizations.

From April 2009 to June 2012, Coursey was AVP of Product Realization within the Emerging Devices Organization, where he led device and network realization. Anne has nearly 30 years of experience at Nokia (AT&T, Lucent Technologies, Alcatel-Lucent, and Nokia) with more than 17 years in Wireless research and development. Anne is the original IMS technical team leader for Lucent Technologies working closely with the standards team to help pioneer the multi-access, globally interoperable IP communications system being deployed worldwide in the industry today.

Anne is the recipient of the 2014 WebRTC Pioneer Award, the 2010 Alcatel-Lucent Asian American Award for “Innovation and Technical Excellence”, and the 2005 Lucent Chairman’s Award for “Creating IMS Leadership”. She is also a finalist for the 2015 Bell Labs President’s Award as part of the IMS Cloud Orchestration team. She has been Guest Editor for the Bell Labs Technical Journal and IEEE Communications Magazine. She has over 10 granted patents. And she is the co-author of the “Future of Communications” chapter in the 2015 Bell Labs book, The Future X Network: A Bell Labs Perspective.

Anne became a Bell Labs Fellow in 2005.

Ms. Lee received her Bachelor’s degree in Electrical Engineering and Master’s degree in Computer Science from the Illinois Institute of Technology in Chicago.

Andrew D. Lipman is a partner at Morgan Lewis and the leader of the firm's Telecommunications, Media and Technology Practice. Mr. Lipman practices in virtually every aspect of communications law and related fields, including regulatory, transactional, litigation, legislative, and land use. His practice is international in scope, and includes the representation of clients in the U.S., Central and South America, Europe, Asia, and other parts of the world.

Mr. Lipman represents clients in both the private and public sectors, including those in the areas of local, long distance, and international telephone common carriage; Internet services and technologies; conventional and emerging wireless services; satellite services; broadcasting; competitive video services; telecommunications equipment manufacturing; and other high-technology applications. In addition, he has managed privatizations of telecommunications carriers in Europe, Asia and Latin America.

Mr. Lipman has been involved in nearly every new legal and regulatory policy at the Federal Communications Commission (FCC), at state public service commissions, in Congress, and before courts to open the U.S. local telephone market to competition. He also helped shape crucial provisions of the Telecommunications Act of 1996 and has used similar approaches to promote the opening of foreign markets. Mr. Lipman obtained one of the first competitive local service and interconnection agreements in continental Europe and the first competitive fiber network application in Japan. His expansive practice includes the strategic analysis of companies' telecom user agreements, including renegotiating existing agreements, and when necessary, negotiating new, more favorable telecom user agreements.

For nearly a decade, while maintaining his partnership at another international law firm, Mr. Lipman also served as senior vice president of legal and regulatory affairs for MFS Communications, the nation's largest competitive local services provider. As one of the founders of MFS, he helped guide the company from startup to its eventual sale for \$14.4 billion to WorldCom.

A frequent author and speaker on telecommunications-related topics, Mr. Lipman has published more than 170 articles and is the author of five books, including two Dow Jones books on telecommunications. He has appeared as a commentator on National Public Radio, C-SPAN, Bloomberg News Network and ABC News. In addition, he has served on the editorial advisory boards of Phillips Publishing Company, Internet Law and Regulation, Telecommunications Alert, Telecommunications Reports, Telecommunications Regulatory Monitor, and The Satellite Compendium. Mr. Lipman also served as general counsel to the International Teleconferencing Association and as legislative/regulatory counsel to the

International Satellite Users Association. He sits on the board of directors

of five public companies trading on the NYSE, NASDAQ, and Toronto Stock Exchange.

Mr. Lipman is co-founder and the first chairman of the Association of Local Telecommunication Services (ALTS), the national trade association for competitive telecommunications carriers.

Prior to entering private practice, Mr. Lipman participated in the legal honors program at the U.S. Department of Transportation and served in the Office of the Secretary of Transportation. He also served as an extern law clerk to Justice Raymond Sullivan of the California Supreme Court.

Mr. Lipman is admitted to practice in the District of Columbia.

Kurt Raaflaub leads ADTRAN's strategic solutions marketing, and has more than 20 years' experience in telecom. He has global solutions marketing responsibility for the areas of Software Defined Access, Gigabit Broadband, and Customer Connectivity directed at the residential, enterprise and mobile access markets. Prior to his current position, Raaflaub was responsible for directing ADTRAN's Broadband, Carrier Ethernet and Packet Optical solutions marketing activities within ADTRAN's Carrier Networks Division. In 2006, he joined ADTRAN from Nortel where for over a decade, he held various roles focused on marketing and managing new disruptive market opportunities.

Habib Riazi has been a contributor to the telecom industry for more than 30 years. He is currently the RF and Systems Engineering Director at Corning Optical Communications Wireless Ltd, a major manufacturer of active Distributed Antenna System (DAS). His previous tenure includes positions with both wireless service providers and equipment manufacturers. Prior to Corning, Habib was the Technology Strategist at Nextel, Sprint, and Clearwire, where he was responsible for assessing and recommending Radio Access Technology and products for network deployment. Prior to Nextel, he led the team for system design and simulation of the Satellite Digital Audio Receiver, now a commercially available product, at Bell Labs Advanced Technologies. Prior to Bell Labs, Habib served as the Radio Access Network Manager for Verizon for one of the first CDMA commercial network deployments.

Habib did doctoral studies in Electrical Engineering at the George Washington University in Washington DC. He is a life senior member of IEEE ComSoc, a registered Professional Engineer in the state of Virginia,

has served on Virginia State University Industrial Advisory Board, and holds a number of US and EU patents.

Gee Rittenhouse is Senior Vice President of Engineering for Cisco's Security Business Group, leading the build-out of the company's security portfolio while making sure of alignment of security development efforts across the business. Gee possesses strong executive management skills combined with deep technical experience: critical leadership elements needed to fuel growth and meet increasing demand from Cisco's customers for security architecture, platforms, and applications that are pervasive, integrated, and open.

In his previous role as SVP of the Cloud and Virtualization Group, Gee helped shape Cisco's Intercloud strategy and accelerated development of the software stack, NFV, and SaaS consumption model.

Prior to joining Cisco in 2013, Gee served as President of Bell Labs, leading the extensive transformation that followed the merger of Bell Labs and Alcatel's Research group.

As a highly respected IT industry leader with more than 20 years of experience in the telecommunications industry, Gee has appeared before the U.S. Congress, U.S. FCC, European Presidential Commission, and World Economic Forum. He has twice been elected to the Global Telecoms Business Power 100, has published numerous articles, and holds more than a dozen patents.

Gee served as a member of the Advisory Board for the University of California, Santa Barbara CE Department; served as Chairman of the Board of GreenTouch; and is an ALU Foundation Board member with the goal of educating disadvantaged women worldwide. He has a PhD degree in electrical engineering and computer science from the Massachusetts Institute of Technology, is a senior member of IEEE, and is a past winner of the IEEE Communication Quality and Reliability (CQR) Chairman's Award.

J. P. Shim is a faculty of Computer Information Systems and Executive Director of KABC at Robinson College of Business at Georgia State University. Before joining at GSU in 2011 as a faculty, he was professor of BIS, Larry and Tonya Favreau Notable Scholar, John Grisham Professor, and IBSP Director at Mississippi State University. During the past twenty-seven years at MSU, he was a seventeen-time recipient of outstanding faculty awards. He received his Ph.D from University of

Nebraska-Lincoln and completed Harvard Business School's Executive Education Program. He has published several books and over 100 papers, such as *Journal of AIS*, *Communications of the ACM*, *Journal of Strategic Information Systems*, *European Journal of Information Systems*, *Decision Support Systems*, *Information & Management*, *Interfaces*, *Journal of Information Technology*, *Sloan Management Review*, *Journal of Operational Research Society*, *Computers & Operations Research*, *Omega*, *Academy of Management Proceedings*, and *ICIS Proceedings*. He served on 2013 AMCIS Program Co-chair and was the principal investigator on several National Science Foundation grants and has received numerous funding from organizations. He has been interviewed by the media (CBS TV, AP, The Clarion-Ledger, AJC, Global Atlanta) and worked as a consultant for Booz Allen, U.S. EPA, and Kia Motors Manufacturing Georgia.

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.

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