WTS 2012

Wireless Telecommunications Symposium 2012

Global Wireless Communications: A European Perspective

April 18 - 20, 2012

California State Polytechnic University, Pomona

Holiday Inn London – Kensington Forum
London, England UK

WELCOME TO WTS 2012

Welcome to the eleventh annual Wireless Telecommunications Symposium, WTS 2012: Global Wireless Communications - A European Perspective. 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 panel discussion, WTS 2012 will explore a wide range of global wireless communications topics in depth.

The WTS 2012 Program Committee received paper submissions from authors representing 34 different countries. We thank all the authors who submitted papers and proposals to WTS 2012, the many reviewers who reviewed them, and the co-chairs, track chairs, and session chairs for coordinating the paper and proposal evaluation and selection process. We also thank the WTSI support personnel for their tireless efforts behind the scene. Producing an event like WTS 2012 is not an easy task, and they did a masterful job. In addition, the WTSI Committee is grateful to the IEEE Communications Society and its Wireless Technical Committee for their technical support for WTS 2012, and to the distinguished invited speakers representing the 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; its Computer Information Systems Department; the Electronics and Electrical Engineering Department of Imperial College; Athlone Institute of Technology; City University of London; Tektronix; and MESAQIN.

On behalf of the WTS 2012 Committee -- Welcome to WTS 2012!

Dr. Steven Powell, WTSI General Chair
Dr. Thomas Ketseoglou, WTSI Assistant Chair

WTS 2012

Tuesday, April 17	
9:00 am –	Optional Sightseeing Tour of London

5:00 pm	
Wednesday, April 18	
8:15 am - 9:15 am	Registration
9:15 am – 9:30 am	Welcoming Remarks
9:30 am – 10:30 am	"Innovation in Wireless," **Dr. Markus Hofmann**, Head of Bell Laboratories Research, Alcatel-Lucent
10:30 am – 10:45 am	Break
10:45 am – 11:45 am	"Weightless: The Technology to Finally Realise the M2M Vision," **Prof. William Webb**, a founding director and CTO, Neul Ltd.
12:00 pm – 1:15 pm	Lunch
1:15 pm – 2:45 pm	Panel Discussion: "Enabling wireless data growth with small cells: Will femtocells or Wi-Fi win out? What are the implications for operators and the value chain?" Organizer and moderator: **Prof. William Webb**, Neul Ltd. Confirmed panelists: **Simon Saunders**, CEO RealWireless **Steve Methley**, Quotient Associates **Trevor Gill**, Chief Scientist, Vodafone **Mike Bowerman**, VP, Alcatel-Lucent
2:45 pm – 3:15 pm	Break
3:15 pm - 5:15 pm	Tutorial: "Emerging Challenges and Opportunities on Smart Home Communications & Networking," presented by **Vijay Anand**, Technology Director & Practice Head, and Aricent Technologies

5:30 pm – 6:00 pm	Organizers' Meeting
6:30 pm – 9:00 pm	Welcoming Dinner • 2012 IEEE Leon K. Kirchmayer Graduate Teaching Award Presentation to **Dr. Anthony Constantinides**, Emeritus Professor, Imperial College. Award presented by **Dr. Peter Staecker**, IEEE President-Elect. Introduction by **Dr. Kin Leung**, Imperial College Tanaka Chair Professor in Internet Technology and Head of the Communications & Signal Processing Group, Electrical and Electronic Engineering Department • Welcoming Address: "Universities and Innovation: A Personal Perambulation," **Dr. Anthony Constantinides**, Emeritus Professor, Imperial College

Thursday, April 19	
7:00 am – 8:00 am	Registration
8:00 am – 10:00 am	Tutorial: "Dynamic Spectrum Allocation: Enabling Technologies and the Road Ahead," **Dr. Keivan Navaie**, School of Electronic and Electrical Engineering, University of Leeds, Leeds, UK
10:00 am – 10:15 am	Break
10:15 am – 11:15 am	"Identity Management, Technologies, Trends and Challenges," **Dr. Francois Cosquer**, Head of Solutions Security, Alcatel-Lucent Corporate Solutions, Software, Services & Solutions Group, Alcatel-Lucent
11:15 am – 12:00 pm	"How Recession and the Empowerment of Consumers Impact the Telecommunications Industry," **Dr. Rob van den Dam**, IBM Institute for Business Value
12:00 pm - 1:15 pm	Lunch

Time	Session
1:15 pm – 2:15 pm	"Free Space Optical Communications – Fog and Turbulence," **Dr. Zabih Ghassemlooy**, Professor of Optical Communications and Associate Dean for Research, School of Computing, Engineering & Information Sciences University of Northumbria, UK
2:15 pm – 3:15 pm	Tutorial: **"**Wireless Technologies & Healthcare: Applications, Requirements, and Emerging Research" (I) **Professor Upkar Varshney** Department of CIS, Georgia State University
3:15 pm – 3:30 pm	Break
3:30 pm – 4:30 pm	Tutorial: **"**Wireless Technologies & Healthcare: Applications, Requirements, & Emerging Research" (II) **Professor Upkar Varshney** Department of CIS, Georgia State University
4:30 pm – 5:00 pm	"Secure Mobile Banking: Research to Reality," **Dr. Muttukrishnan Rajarajan**, Associate Professor in Information Security City University London
5:00 pm – 6:00 pm	Tutorial: "User-Centric Service Model in Wireless Networks: The Transition from Technical Excellence to Customer Experience Excellence in Wireless Networks," presented by **Dr. Jan Holub**, Associate Professor, Czech Technical University
6:00 pm – 6:30 pm	Poster Paper Session
Friday, April 20	
7:30 am – 8:00 am	Registration
8:00 am – 9:20 am	Accepted Paper Sessions (I)
9:20 am – 9:40 am	Break
9:40 am – 11:00 am	Accepted Paper Sessions (II)
11:00 am – 12:00 am	Accepted paper Sessions (III)

12:10 pm – 1:30 pm	Lunch Guest Speaker: "New Media Rising: Multiple Platforms and the Future of Media and Television", **Dr. William F. Baker**, Director, Bernard L. Schwartz Center for Media, Education, and Public Policy, Fordham University
1:40 pm – 3:00 pm	Accepted Paper Sessions (IV)
3:00 pm – 3:15 pm	Break
3:15 pm – 5:15 pm	Accepted Paper Sessions (V)
5:15 pm – 5:30 pm	Awards Ceremony & Closing Remarks

Panel Discussions & Tutorials

Panel Discussion: "Enabling wireless data growth with small cells: Will femtocells or Wi-Fi win out? What are the implications for operators and the value chain?"

Organizer and moderator: **Prof. William Webb**, Neul Ltd.
Confirmed panelists:

- **Simon Saunders**, CEO RealWireless
- **Steve Methley**, Quotient Associates
- **Trevor Gill**, Chief Scientist, Vodafone
- **Mike Bowerman**, VP, Alcatel-Lucent

Tutorial: Emerging Opportunities and Challenges on "Smart Home" Communications & Technologies

Presenter: **S.Vijay Anand**, Director – Technology & Practice Head – Smart Home Solutions, Aricent Technologies Limited

Abstract

The global market is witnessing emergence of new type of consumer electronics and mobile devices that are capable of being connected to the network. Some have the ability to connect to the global network (cellular phones, tablets etc.) while some remain constrained to more of a private network that could be residing within a home. With the development of Internet broadband access, Wireless communication, sensors/devices and

Home Networking Technologies, "Smart Home" has become a hot area for research and development in both academia and industry. Customers increasingly are requiring multiple TVs/displays in diverse locations throughout the home – bedrooms, living room, kitchen, office/den, basements; etc. and emerging technologies must be able to reach the primary entertainment hubs within the home. While the IP Set top Box is a primary target for home networking technology integration, operators are also integrating home networking technologies into Optical Network Terminals (ONT), Residential Gateways / Broadband Home Routers (BHR). Smart Home Appliances are essential elements of all modern homes and a wide range of technologies exists, both for interconnecting appliances inside home and for remotely monitoring and accessing the appliances. The Smart home environment offers an end-user the ability to actually control the home appliances and other devices, like Digital Photo Frame, DLNA (Digital Living Network Alliance) enabled TV etc., remotely using a mobile device (like a Smart-Phone or a tablet). Apart from that, set-top boxes, game consoles, stereos, cameras and other entertainment appliances now routinely come with built-in communications capabilities that enable them to upload, download, and display data from other devices in the home. The DLNA develops device interworking profiles for home-based media-sharing services and now widely accepted in the industry, with more than 100 devices being certified each month, DLNA will soon enable interworking for all sorts of devices across home networks. "DLNA/ IMS / IPTV / Zigbee Interworking Technologies" have become a Key aspect area that is enjoying considerable growth with new Mobile devices and services being developed for the home automation industry. With an eye towards future sets of New applications interconnecting IMS<->DLNA<->IPTV, operators have an opportunity to protect their investments by deploying home networking technologies that will allow expansion of services in the future.

Finally in an all-connected world, the simple user proposition is that user-created and commercial content should be available "anywhere, anytime and on any device" and the need for New Multi-media applications to end users, via multiple service providers and technologies like IMS, DLNA, IPTV, UPnP, LTE drives the worldwide development of a new generation of residential devices, networks, and gateways. Combining DLNA and IMS provides the unique strength for both flexible home network and the Wireless telecommunication networks and also supports remote home access and personal media from any IMS device.

List of Topics

- Overview of Smart Home Networking
- Home Network strategy and end-2-end ecosystem
- Multimedia Convergence in "Smart Home"
- Evolving Home Networking Standards
- Overview of DLNA, ZigBee, IPTV and IMS
- How DLNA and IMS assure interoperability and Interconnectivity among PCs, CE devices and mobile devices?
- UPnP Framework for Device discovery, Configuration and Control
- How do media management, distribution and control work in the DLNA Environment?
- The "Plug 'n Play" Layer
- Device Discovery and Services
- Many Devices become "One"
- The Meta Device "concept"

- The Uni-Home Middleware Layer
- Home gateway requirements and its features
- QoS - Quality of Service Mechanisms for Real-time Traffic Monitoring
- Authentication and authorization for users & devices
- IMS Inter-working with Home Gateway through DLNA
- Family Identity Management including an ISIM Card
- Device Capability management
- Inter-working between non-IMS devices and the IMS Network
- RHA (Remote Home Access) Concepts
- Evolution of Various Standards/ Forums like HGI, LTE, UPnP, Open IPTV, DLNA, NG Connect
- Identified RHA Concepts / Use Cases
- Home Surveillance
- 2-Box Image, Video Upload/Download
- Remote Video Streaming
- Instant Video Share through (YouTube, Social Networking Sites, IMS and 3G-324M)
- PIP (Picture-in-Picture)
- DLNA with IPTV
- 3-Box Streaming
- Remote Control of Electronic Appliances
- Synchronize Home contents with Social Networking
- Application Features with Frog UX
- Media Storage/Servers & Media Players
- Different types of media accessible from different devices and locations in the home
- Content Protection using DRM (Digital Rights Management)
- Media formats and Control of Media streams
- Demos (Proof-of-Concepts) from Tablets/Smart Phones
- Home Surveillance with Control of Electronic Appliances
- Remote Video Streaming
- 2-Box Image Upload/Download
- Instant Video Share from (YouTube, IMS) to DMR
- DLNA with IPTV
- Follow-me Services
- Advantages to OEM's / Service Providers / Operators
- What business opportunities does "Smart Home" provide to the industry?
- How will the consumer benefit from Digital Living?

Tutorial: Dynamic Spectrum Allocation: Enabling Technologies and the Road Ahead

Presenter: Keivan Navaie, School of Electronic and Electrical Engineering, University of Leeds, Leeds, UK, LS2 9JT

Abstract

In this tutorial we present a survey on recent developments in the dynamic spectrum allocation to provide a comprehensive perspective on the enabling technologies and the road ahead for future advances in this technology. We first have a look on the standardization and regulatory issues related to the dynamic spectrum sharing. We then categorize the challenges into, physical layer and sensing, MAC layer, radio resource allocation, and networking techniques. For each category we briefly

review the fundamental challenges and results followed by recent development. Further for each category we discuss the enabling technologies. In particular we present the recent results on cross layer optimal radio resource allocation for spectrum sharing systems in presence of imperfect sensing and channel state information (CSI) estimation error. We also discuss the convexity of such optimal problems and provide analytical techniques to address the computational complexity of finding sub-optimal solutions. We also cover the current standard activities IEEE P1900 workgroup, ETSI Technical Committee on Reconfigurable Radio Systems (RRS), the SDR Forum and the IEEE 802.22 groups. Moreover, we discuss the emerging research topics in this area and present recent results on networked spectrum sensing, architectural design for cognitive radio networks, concept development and dynamic spectrum sharing economy. This tutorial then concludes on the requirements and open research issues for the development of dynamic spectrum allocation.

<u>Outline</u>

1 Introduction
2 New spectrum regulation perspectives
2.1 Standard activities for dynamic spectrum allocation
2.2 Challenges for regulatory in cognitive radio era
2.3 Economy models for dynamic spectrum sharing
3 Challenges in spectrum sharing technology
3.1 Physical layer and sensing
3.2 MAC layer
3.3 Radio resource allocation
3.4 Networking techniques
4 Physical layer and sensing techniques
4.1 Signal design for spectrum sharing
4.2 Spectrum sensing: Fundamental performance bounds
4.3 Collaborative spectrum sensing
4.4 Coding techniques for spectrum sharing
4.5 Signal processing techniques for interference mitigation
4.6 Cooperative and MIMO based techniques for spectrum sharing
4.7 Robust spectrum sharing with parameter uncertainty
5 Spectrum access techniques
5.1 Access technologies for centralized and distributed spectrum sharing
5.2 Impact of spectrum sensing on the access performance
5.3 Secondary network architectures
5.4 Approaches to collaborative access technology
5.5 Interference mitigation/reduction techniques
5.6 Parameter uncertainty and collaborative spectrum sharing
6 Radio resource allocations (RRA)
6.1 General formulation of RRA in dynamic spectrum access networks
6.2 Power and rate allocation in secondary network
6.3 Cross layer RRA design of access and spectrum sharing
6.4 Performance evaluation of RRA in presence of parameter uncertainty
6.5 Algorithmic and theoretical challenges for RRA in cognitive networks
7 Networking techniques
7.1 Network architecture and standardization
7.2 Tomography in cognitive networks

7.3 Routing in ad-hoc cognitive networks
7.4 Challenge of QoS provisioning
7.5 Performance evaluation techniques for multi user cognitive networks
8 Emerging research topics
8.1 Networked spectrum sensing
8.2 Architectural design for cognitive radio networks
8.3 Standardization and concept development
8.4 Dynamic spectrum sharing economy
9 Conclusions

Tutorial: "Wireless Technologies and Healthcare: Applications, Requirements, and Emerging Research"

Presenter: Professor Upkar Varshney, Department of CIS, Georgia State University

Abstract

The introduction of telecommunications in healthcare has led to an increased accessibility to healthcare providers, more efficient tasks and processes, and a higher quality of healthcare services. However, many challenges, including a significant number of medical errors, considerable stress on healthcare providers, and a partial coverage of healthcare services in rural and underserved areas worldwide, still exist. These combined with an increasing cost of healthcare services, such as the cost of healthcare services reaching to 19% of Gross National Product for U.S., and an exponential increase in the number of seniors and retirees in developed countries have created several major challenges for policy makers, healthcare providers, hospitals, insurance companies and patients. Wireless healthcare, or pervasive healthcare, is considered a solution to many of these problems as well as a possible future of healthcare services. In simple terms, wireless healthcare can be defined as healthcare to anyone, anytime, and anywhere by removing locational, time and other restraints while increasing both the coverage and quality of healthcare. The broad definition includes prevention, healthcare maintenance and checkups, short-term monitoring (or home healthcare monitoring), long-term monitoring (nursing home), personalized healthcare monitoring, incidence detection and management, and, emergency intervention, transportation and treatment. In this tutorial, we present an introduction of wireless and mobile technologies, present wireless healthcare applications, derive requirements and wireless solutions, and discuss the future and open issues. More specifically, we discuss how wireless technologies can be applied to achieve wide-scale patient monitoring in and out of hospitals and nursing homes, location management, intelligent emergency system, and mobile telemedicine applications. Additionally, some open issues and research challenges in pervasive healthcare are also discussed.

List of topics

Current wireless technologies: Architecture, Protocols and Usage Models
- Sensors and RFID
- Wireless LANs
- Ad hoc wireless networks

- 3G/4G Cellular Networks
- Satellites
- Fixed wireless
- Bluetooth and PANs
- Smart and wearable computing

Various Healthcare Challenges and Current Technologies
- Access
- Quality
- Limited resources
- Medical errors

Applications, Requirements and Wireless Solutions
- Pervasive healthcare
- Mobile Telemedicine
- Wireless Health Monitoring
- Wireless Emergency Management Systems
- Health-aware Mobile Devices
- Smart Medication Management
- Smart Homes
- Context-awareness in healthcare
- Wireless decision making & cognitive load

Future/Open issues of Wireless in Healthcare
- Personalization of Healthcare
- Wireless in emergencies
- Wireless in mental health, addiction and overdose management
- Training of healthcare professionals for wireless technologies
- Reducing the cost of delivering healthcare services by wireless infrastructure
- Legal and regulatory issues including liability and law-suits

Tutorial: "User-Centric Service Model in Wireless Networks: The Transition from Technical Excellence to Customer Experience Excellence in Wireless Networks"

Presenter: **Dr. Jan Holub**, associate professor in the Department of Measurement of Faculty of Electrical Engineering, Czech Technical University in Prague

<u>Abstract</u>

Network operators realized the technical excellence is not enough and even worse might be unnecessarily expensive. User-centric approach enables to target different parts of customer portfolio with different service quality levels, keeping both capex and opex conveniently optimal but even discovering faults that are not easily visible just using purely technical approach.

WTS 2012 Accepted Paper Sessions
Friday, April 20, 2012

8:00 am - 9:20 am   Session 1-A
Security

"Are Apple's Security Measures Sufficient to Protect Its Mobile Devices?"
Galen Grimes (Penn State University - Greater Allegheny, USA)

"Managing Bluetooth Risks In The Workplace"
Ashley Podradsky (Drexel University, USA), Cindy Casey (Drexel University, USA), and Peter Ceretti (Drexel University, USA

"The Bluetooth Honeypot Project"
Ashley Podradsky (Drexel University, USA), Cindy Casey (Drexel University, USA), and Peter Ceretti (Drexel University, USA)

"IEEE 802.11 Denial of Service Attack Detection in MANET"
Joseph Soryal (The City University of New York - City College, USA) and Tarek Saadawi (The City University of New York - City College, USA)

8:00 am - 9:20 am   Session 1-B
Satellite

"An Enhanced Multiple Random Access Scheme for Satellite Communications"
Huyen Chi Bui (University of Toulouse, France), Jerome Lacan (University of Toulouse, France), and Marie-Laure Boucheret (Enseeiht, France)

"Outage Analysis of Hybrid Satellite-Terrestrial Cooperative Network with Best Relay Selection"
Sokchenda Sreng (University of Toulouse, INPT-ENSEEIHT), Benoit Escrig (Université de Toulouse, France) , and Marie-Laure Boucheret (Enseeiht, France)

"Non Data Aided Parameter Estimation for Multi-User ARGOS Receivers"
Fares Fares (Consort Group, France), Benoit Escrig (Université de Toulouse, France), Marie-Laure Boucheret (Enseeiht, France), Thibaud Calmettes (Thales Alenia Space, France), and Hervé Guillon (CNES, France)

8:00 am - 9:20 am   Session 1-C
Wireless Network Modeling/Algorithms 1

"Performance Analysis of Emulated Dynamic Multi-Service UMTS Core Networks Using Clustering and Neural Modelling"
Izabella Lokshina (SUNY Oneonta, USA)

"Effect of Path Loss Model on Received Signal: Using Accra, Ghana as Case Study"
Koffi Dotche (Kwame Nkrumah University of Science and Technology, Ghana), Kwesi Diawuo (Kwame Nkrumah University of Science and

Technology, Ghana), and Willie Ofosu (Penn State University - Wilkes-Barre, USA)

"Trading Latency for Load Balancing in Many-to-One Wireless Networks"
Anthony Kleerekoper (University of Manchester) and Nicolas Filer (University of Manchester)

"Distributed generalized parallel concatenated Turbo-like codes for multi-relay networks"
Zhang Zaibin (Tsinghua University, P.R. China), Liuguo Yin, (Norwegian University of Science and Technology), and Jianhua Lu (Tsinghua University, P.R. China)

8:00 am - 9:20 am   Session 1-D
Traffic Engineering/Performance 1

"Stimulus-Centric versus Perception-Centric Relations in Quality of Experience Assessment"
Sajad Khorsandroo (University of Malaya, Malaysia), Rafidah Md Noor (University of Malaya, Malaysia) and Sayid Khorsandroo (Islamic Azad University, Iran)

"Impact of IP channel parameters on the final quality of the transferred voice"
Jan Holub (FEE CTU Prague, Czech Republic) and Oldřich Slavata (Fee CTU Prague, Czech Republic)
"A Novel Scalable Architecture to IMS based Mobile Terminal for Efficient Access to Remote Home Equipments"
Suman Kumar Sanjeev Prasanna (Aricent Group, India), S Vijay Anand (ARICENT, Director - Technology, India), SriHarsha V (Aricent Group, India), and Keyurkumar J. Patel (Department of Defence, Australia)

"Channel and Traffic Status Aware Relay Selection and Traffic Queue Analysis in Wireless User-Relaying Networks"
Xing Zhang (Beijing University of Posts and Telecommunications, P.R. China)

9:20 am - 9:40 am   Break

9:40 am - 11:00 am   Session 2-A
Wireless Network Modeling/Algorithms 2

"Cross-tier Interference Mitigation for Self Organized-Self Optimized Femtocells"
Massa Ndong ((The University of Electro-Communications, Japan) and Takeo Fuji (The University of Electro-Communications, Japan)

"On-Demand Routing with Unidirectional Link Using Path Loss Estimation Technique"
Megat Zuhairi (University of Strathclyde, United Kingdom), Mohammad Haseeb Zafar (University of Strathclyde, United Kingdom), and David A. Harle (University of Strathclyde, United Kingdom)

"Handover with Consideration of Connection Cost in Femtocell Networks"
Michal Vondra (Czech Technical University in Prague, Czech Republic) and
Zdenek Becvar (Czech Technical University in Prague, Czech Republic)

9:40 am - 11:00 am   Session 2-B
Traffic Engineering/Performance 2

"Calculation of error probability of reception of the signal in the presence
of multiple access interference"
Evgeny Goncharov (MTS, Russia)

"Efficient Coded DCT-OFDM System Utilizing Walsh-Hadamard Transform"
Hussein Leftah (Newcastle University, United Kingdom) and Said
Boussakta (Newcastle University, United Kingdom)

"Impacts of initial states on the short term fairness of one-bit feedback
fair scheduler"
Fumio Ishizaki (Nanzan University, Japan)

"Is Rate-Distortion Optimization Really Worth It?"
Sandra Scott-Hayward (Queen's University Belfast, United Kingdom) and
Emiliano Garcia-Palacios (Queens University Belfast, United Kingdom)

9:40 am - 11:00 am   Session 2-C
OFDM

"Bidirectional 60 Ghz MB-OFDM Wireless Communication System"
Jia Liu (Beijing University of Technology, P.R. China), Guangmin Sun
(Beijing University of Technology, P.R. China), and Wen-Piao Lin (Chang
Gung University, Taiwan)

"MISO Model for Improving Performance of OFDM-CDMA System with Pilot
Tone"
Ugljesa Urosevic (University of Montenegro, Montenegro), Zoran Veljovic
(University of Montenegro, Montenegro) , and Milica Pejanovic-Djurisic
(University of Montenegro, Montenegro)

"Ergodic Capacity of OFDM AF Fixed Gain Relay System with Subcarrier
Mapping"
Enis Kocan (University of Montenegro, Montenegro), Milica Pejanovic-
Djurisic (University of Montenegro, Montenegro), and Zoran Veljovic
(University of Montenegro, Montenegro) –

"FPGA Implementation of Frequency Domain Equalizer with Time Domain
Channel Estimation for Millimetre-Wave OFDM System"
Khaled Sobahi (University of Glamorgan, United Kingdom), Akram
Hammoudeh (University of Glamorgan, United Kingdom), and David
Scammel (University of Glamorgan, United Kingdom)

"Automatic Gain Control on FPGA for Software-Defined Radios"
Khaled Sobahi (University of Glamorgan, United Kingdom), Akram
Hammoudeh (University of Glamorgan, United Kingdom), and David
Scammel (University of Glamorgan, United Kingdom)

9:40 am - 11:00 am   Session 2-D
LTE

"Indoor LTE Uplink Cell Planning Considerations for Symmetrical and Unsymmetrical MIMO Techniques"
Ala Al Masoud (Jawwal Company, Palestine), George Asimakopoulos (Technical University of Messology, Greece), Spiros Louvros (Technical University of Messology, Greece), A Baltagiannis (University of Patras, Greece), and Vasilios Triantafyllou (Technical University of Messology, Greece

"Influence of M2M Communication on the Physical Resource Utilization of LTE"
Christopher Ide (TU Dortmund University, Germany), Bjoern Dusza (TU Dortmund University, Germany), Markus Putzke (TU Dortmund University, Germany), Christian Muller (TU Dortmund University, Germany), and Christian Wietfeld (TU Dortmund University, Germany)

"Interference Management in LTE Femtocell Systems Using an Adaptive Frequency Reuse Scheme"
Christos Bouras (University of Patras and RACTI, Greece), Georgios Kavourgias (Computer Engineering and Informatics Department, Greece), Vasileios Kokkinos (CTI Diophantus and University of Patras, Greece), and Andreas Papazois (CTI and University of Patras, Greece)

"A Novel Procedure for Initial Cell Search in 3GPP LTE Wireless Access Networks"
Francesco Benedetto (University of Roma Tre, Italy), Gaetano Giunta (University of "Roma TRE", Italy), and Elena Guzzon (University of Roma Tre, Italy)

11:00 am - 12:00 pm   Session 3-A
Traffic Engineering/Performance 3

"A Cognitive Radio Based Dynamic Spectrum Access Scheme for LTE Heterogeneous Networks"
Juan Naranjo (Universität der Bundeswehr München, Germany), Ingo Viering (Nomor Research GmbH, Germany), and Karl-Josef Friederichs (Nokia Siemens Networks, Germany)

"Full Diversity Achieving MMSE Frequency-Domain Equalizer for Single-carrier Block Transmission with DSSS"
Hongliang Mao (Tsinghua University, P.R. China), Yukui Pei (Tsinghua University, P.R. China)and Ning Ge (Tsinghua University, P.R. China)

"Energy Efficient Cognitive Radio MAC Protocol for Adhoc Networks"
Faisal Fayyaz Qureshi (University of Bedfordshire, United Kingdom), Vladimir Dyo (University of Bedfordshire, United Kingdom), and Xiaohua Feng (University of Bedfordshire, United Kingdom)

11:00 am - 12:00 pm   Session 3-B
Sensor and Ad Hoc Networks 1

"Worst Case Bounds of a Cluster-based MAC Protocol for Wireless Sensor Networks"
Nauman Aslam (Northumbria University, United Kingdom), William Phillips (Dalhousie University, Canada) and Ghazanfar A. Safdar (University of Bedfordshire, United Kingdom)

"Bayesian Classifier Model for Reactive Routing Improvement in Mobile Ad Hoc Networks"
Son Tran (Northumbria University, United Kingdom); Hoa Le Minh (Northumbria University, United Kingdom); Graham Sexton (Northumbria University, United Kingdom); and Nauman Aslam (Northumbria University, United Kingdom)

"A methodology to design an advanced framework for efficient modeling and testing of MANETS"
Maurizio Colizza (University of L'Aquila, DEWS, Italy), Marco Faccio (University of L'Aquila, Italy), Claudia Rinaldi (University of L'Aquila, Italy) and Fortunato Santucci (University of l'Aquila, Italy)

11:00 am - 12:00 pm   Session 3-C
Business/Healthcare Applications 1

"Toward Integrated Telecommunications in Europe: A Market-Based Analysis of Four Telecommunications Service Providers."
Steven Powell (California Polytechnic University - Pomona, USA)

"Media & Wireless Communication: Emerging decision-making factors in their global industries"
Vassiliki Cossiavelou (Aegean University, Greece) and Philimon Bantimaroudis (Aegean University, Greece)

"A Framework for Context-aware Wireless Wellness Monitoring"
Upkar Varshney (Georgia State University, USA)

12:10 pm - 1:30 pm   Lunch

Guest Speaker: "New Media Rising: Multiple Platforms and the Future of Media and Television"
Dr. William F. Baker, Director, Bernard L. Schwartz Center for Media, Education, and Public Policy, Fordham University

1:40 pm - 3:00 pm   Session 4-A
Traffic Engineering and Performance 4

"Near Optimum Maximum Likelihood Detector for Structured Communication Problems"
Tharwat Morsy (Dortmund University of Technology, Germany) and Jurgen Gotze (TU Dortmund University, Germany)

"Stimulus-Centric Perception-Centric Relations in Quality of Experience Assessment"
Sajad Khorsandroo (University of Malaya, Malaysia), Rafidah Md Noor (University of Malaya, Malaysia), and Sayid Khorsandroo (Islamic Azad University, Iran) –

"Improving Network Performance with Affinity based Mobility Model in Opportunistic Network"
Suvadip Batabyal (Jadavpur University, India) and Parama Bhaumik (Jadavpur University, India)

1:40 pm - 3:00 pm   Session 4-B
Physical Layer

"Robust Spectrum Sensing in the Presence of Carrier Frequency Offset and Phase Noise for Cognitive Radio"
Youssif Sharkasi (University of Leeds, United Kingdom), Desmond McLemon (University of Leeds, United Kingdom), and Ghogho (University of Leeds, United Kingdom)

"Joint PAPR and SIdelobe Reduction Using Optimum SLM"
Yanyan Wu (Xi'an Jiaotong-Liverpool University, P.R. China), Ka-Lok Man (Xi'an Jiaotong-Liverpool University, P.R. China), and Leming Sun (Xi'an Jiaotong-Liverpool University, P.R. China)

 "The Effect of Frequency, Multi Resonator and Relay Conditions on Wireless Power Transmission"
Askin Erdem Gundogdu (General Directorate of Land Registry and Cadastre, Turkey) and Erkan Afacan (Gazi University, Turkey)

"Model Order Selection for Collision Multiplicity Estimation"
Benoit Escrig (Université de Toulouse, France)

"SU/MU-MIMO in IEEE 802.11ac: PHY+MAC Performance Comparison for Single Antenna Stations"
Getachew Redieteab (Orange Labs, France), Laurent Cariou (France telecom R&D, France), Philippe Christin (Orange Labs, France), and Jean-Francois Helard (IETR, France)

1:40 pm - 3:00 pm   Session 4-C
Sensor and Ad Hoc Networks

"Energy Characterization in the Wireless Sensor Networks"
Vivek Deshpande (University of Poona, India)

"Data Order Reduction and Noise Removal in Wireless Sensor Networks"
E. Sheybani (Virginia State University, USA) and G. Javidi (Virginia State University)

"Global Mobility through Vertical Group Handovers in Wireless Sensor Networks"
Qasim, Nadia (King's College London, United Kingdom)

"A Node Scheduling Based on Partition for WSN"
Yimei Kang (Software School, Beihang University, P.R. China), Yang Han (Software School, Beihang University, P.R. China); Jiang Hu (Beijing Institute of Computer Technology and Application, P.R. China)

1:40 pm - 3:00 pm   Session 4-D
Capacity Management

"WiMAX Capacity Enhancement: Capacity Improvement of WiMAX
Networks by Dynamic Allocation of Subframes"
Syed Zaidi (City University Of New York, USA), Shahab Hussain (The City
University of New York, USA), Mohamed A Ali (City University of New
York, USA), Aparicio Carranza (New York City College of Technology,
USA), Farrukh Zia (New York City College of Technology, USA), and Ajaz
Sana (Bronx Community College of the City University of New York, USA)

"Mutually Orthogonal Chaotic Multiplexing"
Chance Glenn (Rochester Institute of Technology, USA)

"Traffic Estimation for Centralized Resource Allocation in Meshed High
Data Rate WPANs"
Sahibzada Ali Mahmud (University of Engineering and Technology,
Peshawar, Pakistan), Shahbaz Khan (University of Engineering &
Technology, Pakistan), Mohammad Zafar (University of Strathclyde,
United Kingdom) and Hamed Al-Raweshidy (University of Brunel, United
Kingdom)

"On the Capacity of MIMO Broadcast Systems with Multi-antenna Users"
Xintao Gao (Xi'an Jiaotong University, P.R. China), Jihong Zhao (Xi'an
Jiaotong University, P.R. China), and Hua Qu (Xi'an Jiaotong University,
P.R. China)

"A Novel Ranging Method by Code and Multiple Carriers of FHSS Systems"
Cheng Wan-Jie (National Taiwan University, Taiwan) and Chang Fan-Ren
(National Taiwan University, Taiwan)

3:00 pm – 3:15 pm   Break

3:15 pm - 5:15 pm   Session 5-A
Traffic Engineering and Performance 4

"A Spectrum Sensing Model for Continuous Transmission in Cognitive
Radio Network"
Renato Bizerra (University of Brasilia, Brazil), Adoniran Braga (University
of Brasilia, Brazil), and Gustavo de Carvalho (University of Brasilia, Brazil)

"MACHU: A novel vertical handover algorithm for vehicular environments"
Johan Marquez-Barja (Universidad Politecnica de Valencia, Spain), Carlos
Calafate (Universidad Politécnica de Valencia, Spain), Juan-Carlos Cano
(Universidad Politecnica de Valencia, Spain) and Pietro Manzoni
(Universidad Politécnica de Valencia, Spain)

"Unified evaluation for innovative broadband wireless access technologies"
Jingyu Li (Tsinghua University, P.R. China), Xin Su (Tsinghua University,
P.R. China), Jie Zeng (Tsinghua University, P.R. China), Limin Xiao
(Tsinghua University, P.R. China), and Xibin Xu (Tsinghua University, P.R.
China)

"Capacity Bound for Full-Duplex Multiple-Hop MIMO Relays System in Rayleigh Fading"
Pham Thanh Hiep (Yokohama National University, Japan) and Ryuji Kohno (Yokohama National University, Japan)

"Joint Source and Relay Optimization for Multiuser Relay System with QoS Considerations"
Junjie Zeng (University of Electronic Science and Technology of China, P.R. China), Zhi Chen (University of Electronic Science and Technology of China, P.R. China), and Lingxiang Li (University of Electronic Science and Technology of China, P.R. China)

"Performance Evaluation of Adaptively Modulated MIMO-OFDM Systems with Low Rate Channel Feedback Techniques"
Muhammad Rehan Khalid (National University of Sciences and Technology, Pakistan); Muhammad Siddiqui (National University of Sciences and Technology, Pakistan)

3:15 pm - 5:15 pm   Session 5-B
Traffic Engineering and Performance 5

"Joint Transmitter/Receiver Optimization for Overlay Wireless Systems"
Monirosharieh Vameghestahbanati (American University of Sharjah, UAE), Hassan Mir (American University of Sharjah, UAE), and Mohamed El-Tarhuni (American University of Sharjah, UAE)

""Converged Networks Session Management: The need for a Mobility Management Layer and Framework"
Francisco De Carvalho (University College London, United Kingdom)

"Precoded DCT-OFDM System for Baseband and Wireless Transmission: Performance Analysis and Evaluation"
Hussein Leftah (Newcastle University, United Kingdom) and Said Boussakta (Newcastle University, United Kingdom)

"A Novel Ricean Fading Channel Model with Random K factor"
Maja Ilic-Delibasic (University of Montenegro) and Milica Pejanovic-Djurisic (University of Montenegro)

"Adaptive Threshold for Energy Detector Based on Discrete Wavelet Packet Transform"
Zhijin Qin (Beijing University of Posts and Telelcommunications, P.R. China), Nan Wang (Electronic Engineering and Computer Science, United Kingdom), Yue Gao (Electronic Engineering and Computer Science, United Kingdom), and Laurie Cuthbert (Queen Mary, University of London, United Kingdom)

3:15 pm - 5:15 pm   Session 5-C
Business/Healthcare Applications 2

"Cloud Storage Performance Enhancement by Real-time Feedback Control and De-duplication"
Tin-Yu Wu (Tamkang University, Tawain) and Wei-Tsong Lee (Tamkang University, Tawain)

"Ultra Wideband Off-Body Radio Channel Characterisation and Modelling for Healthcare Applications"
Mohammad Monirujjaman Khan (Queen Mary University of London, United Kingdom), Qammer Hussain Abbasi (Queen Mary University of London, United Kingdom), Akram Alomainy (Queen Mary, University of London, United Kingdom), Yang Hao (Queen Mary, University of London, United Kingdom), and Clive Parini (QMUL, United Kingdom)

"Second Order Statistics of Ultra Wideband On-Body Radio Channels"
Qammer Hussain Abbasi (Queen Mary University of London, United Kingdom), Mohammad Monirujjaman Khan (Queen Mary University of London, United Kingdom), Akram Alomainy (Queen Mary, University of London, United Kingdom), Yang Hao (Queen Mary, University of London, United Kingdom), and Clive Parini (QMUL, United Kingdom)

"Wireless Communications in South-Eastern Europe: Opportunities and Challenges"
Pejanovic-Djurisic (University of Montenegro, Montenegro)

"Student attendance monitoring at the university using NFC"
Balázs Benyó (Budapest University of Technology and Economics, Hungary), Bálint Sódor (Budapest University of Technology and Economics, Hungary), Tibor Doktor (Budapest University of Technology and Economics, Hungary) and Gergely Fördős (Budapest University of Technology and Economics, Hungary)

"A Survey of Potential Architectures for Communication in Heterogeneous Networks"
Mahdi Aiash (Middlesex University, United Kingdom), Glenford E Mapp (MIddlesex University, United Kingdom), Aboubaker Lasebae (Middlesex University, United Kingdom), Jonathan Loo (Middlesex University, United Kingdom), Fragkiskos Sardis (Mddlesex Unversity, United Kingdom), Raphael C.-W. Phan (Loughborough University, United Kingdom), Mario Augusto (State University of Santa Catarina, Brazil), Edson D. S. Moreira (University of Sao Paulo, Brazil), and Renata Porto Vanni (Federal Institute of Sao Paulo, Brazil)

3:15 pm - 5:15 pm   Session 5-D
Sensor and Ad Hoc Networks/802.11

"Localized algorithm for border nodes detection in WSNs"
Jozef Kenyeres (Vienna University of Technology, Slovakia); Martin Kenyeres (Slovak University of Technology, Slovakia), Markus Rupp (Vienna University of Technology, Austria) and Peter Farkaš (Slovak University of Technology, Slovakia)

"An Efficient Solution Offering Sink Mobility Support in Wireless Sensor Networks"
Carlos Lino (Universidad Politécnica de Valencia, Spain), Carlos Calafate (Universidad Politécnica de Valencia, Spain), Arnoldo Diaz-Ramirez (Instituto Tecnológico de Mexicali, Mexico), Pietro Manzoni (Universidad Politécnica de Valencia, Spain) and Juan-Carlos Cano (Universidad Politecnica de Valencia, Spain)

"A New Efficient Distributed Route Discovery for Wireless Mobile Ad hoc Networks"
Mustafa Bani Khalaf (Edinburgh Napier University, United Kingdom); Ahmed Y Al-Dubai (Edinburgh Napier University, United Kingdom) and William Johnston Buchanan (Napier University, United Kingdom)
 "Experimental Investigation of Link Layer Adaptation in IEEE 802.11n WLANs"
Mujahid Al-Adhami (University of Edinburgh, United Kingdom), Ahmed Al-Dubai (Edinburgh Napier University, United Kingdom), and Imed Romdhani (Edinburgh Napier University, United Kingdom)

"Joint Optimization of Coverage and Capacity in Self-Organizing Network Using a Multi-Level Random Taguchi's Method"
Wei Luo (Tsinghua University, P.R. China), Jie Zeng (Tsinghua University, P.R. China), Xin Su (Tsinghua University, P.R. China), Jingyu Li (Tsinghua University, P.R. China), and Limin Xiao (Tsinghua University, P.R. China)

"The application of Decay Rate Analysis for WSN Buffer Dimensioning"
Jackie Stewart (Athlone Institute of Technology, Ireland) and Robert Stewart (Athlone Institute of Technology, Ireland)

Speaker Biographies

S. Vijay Anand is a Technology Director & Practice Head in Aricent Technologies focusing Primarily on building Multimedia Software Products for NEXT GEN Smart Phones/Tablets and CE products specifically for Residential Gateway, Set Top Box and Smart TV. In this role, he oversees technology direction and innovation road map for "Smart Home" and "Multimedia Middleware products". He directs research activities that drive the state-of-art in the design of next-generation wireless technologies and along with his group, he builds Software Products, Proof-of-concepts, engage with OEM's/ODM's/Service Providers/Operators and publish papers in competitive conferences and journals for the research community. He has organized and chaired several technical sessions and gave tutorials on "Mobile Device Architecture: Present and Future", "Digital Living Network Alliance", "Fixed Mobile Convergence" at various International Conferences and symposia - NTMS, NCC 2010, WPMC, CSI, IEEE Wi-MAX, ICEMC2, AICT & MAP. He is a sought after panelist, keynote speaker, and architect on next generation mobile terminals and Consumer Electronic products.

He has been involved in several international Research projects related to Mobile communication systems. Vijay has 19+ years of experience and has Published, more than 17 Research Papers, 3 International Journals at various Wireless International Conferences - WTS, WWC, WWRF, IMSAA and COMSWARE and engaged academic Institutions for Research Projects. He is the author for the "Best-Paper and Outstanding Paper" award winning articles. He can be reached at vijay.anand@aricent.com

Dr. William F. Baker directs the Bernard L. Schwartz Center for Media, Education, and Public Policy at Fordham University, where he is also Journalist-in-Residence and a professor in the Graduate School of Education. He is a professor at IESE Business School, ranked #1 globally by *The Economist.* Baker is a Senior Research Fellow at Harvard's Hauser

Center for Nonprofit Organizations, Executive-in-Residence at the Columbia University Business School, teaches at the Juilliard School, and is President Emeritus of Educational Broadcasting Corporation (EBC), licensee of America's flagship PBS station Thirteen/WNET, and WLIW21, New Jersey's PBS affiliate.

Baker is co-author of the book *Leading with Kindness: How Good People Consistently Get Superior Results* (American Management Association, 2008), and hosts the documentary of the same name which premiered on public television in 2008.

Baker's career spans four decades. During his twenty years as chief executive officer of EBC, he distinguished himself as one of America's most prolific fundraisers, raising over $1 billion for the station, and establishing the largest endowment in the history of public television. Among many other accomplishments at EBC, Baker introduced the landmark program *Charlie Rose*, oversaw the station's transition to digital broadcasting, and launched WNET's first cable channel, MetroArts/Thirteen.

Prior to joining EBC, he was president of Westinghouse Television and chairman of their cable and programming companies. At Westinghouse, Baker introduced Oprah Winfrey as a talk show host and established *PM Magazine* as the #1 syndicated program in America in the 1980s. During Baker's tenure, Westinghouse also launched five cable networks, including the Discovery Channel and the Disney Channel.

Baker is the executive producer of the *The Face: Jesus in Art*, a landmark Emmy-winning documentary film that traces the image of Jesus Christ in art around the world and across two millennia. *The Face* premiered nationwide on public television in 2001 and also enjoyed a limited theatrical release.

Baker is the recipient of seven Emmy Awards and is a fellow of the American Academy of Arts and Sciences. In 2007, he was inducted into the National Academy of Television Arts & Sciences (NATAS) Management Hall of Fame and received the *Mark Schubart Award* from the Lincoln Center Institute, given to individuals who most exemplify the Institute's ideal of integrating the arts with education. He has been inducted into *Broadcasting & Cable's* Hall of Fame and the New York State Broadcasters Association Hall of Fame. In addition to numerous other awards, Baker has received the Gabriel Personal Achievement Award, two Alfred I. duPont-Columbia University Journalism Awards and the 1987 Trustees Emmy Award, given in recognition of outstanding contribution to the advancement of television.

Baker is also the co-author of *Down the Tube: An Insider's Account of the Failure of American Television* (Basic Books, 1998) and the author of *Lighthouse Island: Our Family Escape* (Ruder Finn Press, 2004).

In addition to being Chairman of the National Parks System Advisory Board, Baker serves on the boards of Rodale Press and the Intrepid Sea, Air & Space Museum in New York City. He holds B.A., M.A. and Ph.D. degrees from Case Western Reserve University, and seven honorary doctorates.

Dr. Baker's long standing commitment to promoting education led him to establish WNET's Educational Resources Center, America's most prolific trainer in multimedia teaching techniques. He also established the Bernard L. Schwartz Center for Media, Education, & Public Policy at Fordham University, and he is an annual speaker at WNET's Celebration of Teaching and Learning.

His interests include astronomy, horology, and polar science, and he is believed to be one of only a few people who have stood on both the North and South Poles.

Dr. Anthony Constantinides is an Emeritus Professor in the Department of Electrical and Electronic Engineering at Imperial College, London, U.K. He has been actively involved with research in various aspects of digital filter design, digital signal processing, and communications for more than 30 years. Professor Constantinides' research spans a wide range of Digital Signal Processing and Communications, both from the theoretical as well as the practical points of view. His recent work has been directed toward the demanding signal processing problems arising from the various areas of mobile telecommunication. Professor Constantinides has published several books and over 250 papers in learned journals in the area of Digital Signal Processing and its applications

Professor Constantinides has been awarded the 2012 IEEE Leon K. Kirchmayer Graduate Teaching Award sponsored by the Leon K. Kirchmayer Memorial Fund for educating, inspiring, and mentoring generations of graduate students in digital signal processing and communications throughout the world. He pioneered the teaching of digital signal processing in the United Kingdom and established programs at other universities around the world. In 1970 he established the Signal Processing and Communications Research Group at Imperial College, London, U.K. The group soon became a major center of research and attracted a large number of international researchers. Hundreds of master's students and over 130 doctoral students were directly supervised by Dr. Constantinides until his retirement in 2008; many went on to become leaders in industry and academia. He helped establish the Athens Institute of Technology and the Technical University of Cyprus and he developed new courses and lecture notes for use by universities worldwide. Dr. Constantinides was also the first president of the European Association for Signal Processing and helped establish a new journal and conference series in Europe focusing on the field.

Professor Constantinides holds a BSc and PhD from the University of London. He is an IEEE Life Fellow and Fellow of the Royal Academy of Engineering (U.K). In 1985 Professor Constantinides was awarded the Honour of Chevalier, Palmes Academiques, by the French government, and in 1996, the promotion to Officier, Palmes Academiques. He holds honorary doctorates from European and Far Eastern Universities, several Visiting Professorships, Distinguished Lectureships, Fellowships and other honours around the world. Dr. Constantinides is an Honorary Professor of Archaeology in the Institute of Archaeology at University College, London.

Dr. Francois Cosquer is Head of Solutions Security for the Alcatel-Lucent Corporate Solutions organization now part of the newly created Software, Services & Solutions group (S3G). He previously served as CTO Security and Technology Strategist for the Alcatel-Lucent Enterprise Business Group. Over the past 18 years, he has held senior positions with research institutions, equipment vendors and telecommunications

operators. He draws on extensive experience in security architecture, networking, operating systems, middleware, and multimedia applications. He has been speaker, panelist, and chair at key industry events and conferences. François graduated in Electronics and Computing and holds an MSc in Computer Science and a Ph.D. in Computer Engineering. He currently serves as Adjunct Professor at the Faculty of Engineering and Computer Science, University of Concordia, Montreal.

Professor Zabih Ghassemlooy, CEng, Fellow of IET, and Senior Member of IEEE received his BSc (Hons) degree in Electrical and Electronics Engineering from the Manchester Metropolitan University in 1981, and his MSc and PhD in Optical Communications from the University of Manchester Institute of Science and Technology (UMIST), in 1984 and 1987, respectively with Scholarships from the Engineering and Physical Science Research Council, UK. From 1986-87 he worked as a Demonstrator at UMIST and from 1987 to 1988 he was a Post-doctoral Research Fellow at the City University, London. In 1988 he joined Sheffield Hallam University as a Lecturer, becoming a Reader in 1995 and a Professor in Optical Communications in 1997. He was the Group Leader for Communication Engineering and Digital Signal Processing, and also head of Optical Communications Research Group until 2004. In 2004 he moved to the University of Northumbria at Newcastle as an Associate Dean for Research in the School of Computing, Engineering and Information Sciences. He also heads the Northumbria Communications Research Laboratories within the School. In 2001 he was a recipient of the Tan Chin Tuan Fellowship in Engineering from the Nanyang Technological University in Singapore to work on the photonic technology. In 2006, he was awarded one of the best PhD research supervisors at Northumbria University. He was a visiting professor at the Ankara University, Turkey and Hong-Kong Polytechnic University, and is currently a visiting Professor at the Technological University of Malaysia.

Dr. Ghassemlooy is the Editor-in-Chief of The Mediterranean Journals of Computers and Networks, and Electronics and Communications. He currently serves on the Editorial Committees of IEEE Communications Letters, International Journal of Communication Systems, Journal of Electrical and Computer Engineering, Iranian Journal Electrical and Electronic Engineering, the EURASIP Journal of Wireless Communications and Networking, Contemporary Engineering Sciences, Research Letter in Signal Processing, Hindawi Journal of Electrical and Computer Engineering, and also has served on the Publication Committee of the IEEE Transactions on Consumer Electronics, the editorial board of the Inter and the Sensor Letters. He is the founder and the Chairman of the IEEE, IET International Symposium on Communication Systems, Network and Digital Signal Processing, the Chairman of NOC2011, a committee member of The International Institute of Informatics and Systemics, and is a member of technical committee of a number of international conferences. He is a College Member of the Engineering, and Physical Science Research Council, UK (2003-2009) and (2009-), and has served on a number of international Research and Advisory Committees including a Panel Member of the Romanian Research Assessment Exercise 2011. His researches interests are on photonics switching, optical wireless and wired communications, visible light communications and mobile communications. He has received a number of research grants from UK Research Councils, European Union, Industry and UK Government.

Dr. Ghassemlooy has supervised a large number of PhD students (more than 36) and has published over 410 papers (136 in journals + 10 book

chapters) and presented several keynote and invited talks. He is a co-author of a CRC book on "Optical Wireless Communications – Systems and Channel Modelling with Matlab (to be published in 2012); a co-editor of an IET book on "Analogue Optical Fibre Communications"; a book on Optical Communication Systems (published by the Sheffield Hallam University, 1994); the proceedings of the CSNDSP '2010', '08', '06, CSDSP'98, NOC2011, and the 1st Intern. Workshop on Materials for Optoelectronics 1995, UK. He is the co-guest editor of a number of special issues: The Mediterranean J. of Electronics and Communications on "Free Space Optics –RF", July 2006, the IEE Proceeding J. 1994, and 2000, IET Proceeding Circuit, Devices and Systems, Special issue on the best papers for CSNDSP conference, Vol. 2, No. 1, 2008, IEE Proceeding Circuit, Devices and Systems, Special issue on the best papers for CSNDSP conference, Vol. 153, No. 4, 2006, Inter. J. Communications Systems 2000, J. of Communications 2009, Ubiquitous Computing and Communication Journal - *Selected papers from CSNDSP 08 conference*, 2009, International Journal of Communications - *Special issue on Optical Wireless Communications*, 2009. From 2004-06 he was the IEEE UK/IR Communications Chapter Secretary, the Vice-Chairman (2004-2008), the Chairman (2008-2011), and Chairman of the IET Northumbria Network (Oct 2011-).

Dr. Markus Hofmann is the Head of Bell Labs Research, the research organization of Alcatel-Lucent. As Head of Bell Labs Research, Dr. Hofmann is leading the global research team in creating new growth opportunities by inventing technologies with disruptive impact. This includes the overall research portfolio from project inception through transfer.

Dr. Hofmann is known for his pioneering work on reliable multicasting over the Internet and for defining and shaping fundamental principles of content networking. He has published over 60 journal and conference papers and given invited talks as well as courses all over the world. He has been granted six U.S. patents, with more than thirty patent applications pending.

Dr. Hofmann has been very active in several professional organizations, and the IEEE Communications Society (ComSoc), in particular. He has served as Chair of the Internet Technical Committee (ITC), a joint committee of the Internet Society and the IEEE Communications Society. He has also served as the Chair of the Open Pluggable Edge Services (OPES) Working Group in the Internet Engineering Task Force (IETF) and is also serving on the Editorial Board of the Computer Communications Journal and the IEEE/ACM Transactions on Networking. He has been involved in organizing a number of major international conferences and events. These include serving as the Technical Program Chair of the IEEE Globecom'02 Symposium on Global Internet, the Network Group Communication (NGC), and the 1999 GI Multicast Workshop. He has been on the Advisory Board of the 2001 Content Distribution Networking (CDN) conference and served as guest editor of a recent issue of the Computer Networks Journal. Dr. Hofmann has been on the program committees of various IEEE and ACM-sponsored conferences and is an alumnus of the 2004 Frontiers of Engineering, National Academy of Engineers (NAE). Between 1998 and 2002, he was a national representative of Germany on the Cost 264 Management Committee, a project within the European

research framework.

He received his Ph.D. with honors in Computer Engineering from University of Karlsruhe, Germany, in 1998 and joined Bell Labs Research the same year. For the spring 2005, spring 2006, and spring 2007 semesters, Dr. Hofmann also accepted a position as adjunct professor at Columbia University in New York, USA, teaching a graduate course on Content Networking. Before joining Bell Labs in May 1998, he worked as a Senior Researcher in the High Performance Networking Group at University of Karlsruhe, Germany, where he initiated and led several projects with industry partners in multiple European countries.

Dr. Hofmann has been awarded several prestigious awards. His Ph.D. thesis won the 1998 GI/KuVS Doctoral Dissertation Award for the best Ph.D. thesis in Germany in the area of Distributed Systems and Telecommunications, and the 1998 FZI Doctoral Dissertation Award for best Ph.D. thesis in Computer Science at University of Karlsruhe. He is triple winner of the Bell Labs Teamwork Award and was a key leader of the team that won the 2006 Lucent Chairman award.

Dr. Jan Holub is associate professor in the Department of Measurement of Faculty of Electrical Engineering of Czech Technical University in Prague, the oldest technical university in Europe (est. 1707). Dr. Holub is an internationally recognized expert in the field of objective and subjective speech quality measurement, with more than 170 published academic papers in the field and related topics. Dr. Holub participates in international standards activities (e.g. ETSI STF 294), manages the MESAQIN.com company since 1999 and is frequently consulted by companies within the industry. His research interests cover AD and DA converters, digital signal processing, speech coding and processing, psychoacoustics and measurements in telecommunication networks.

Dr. Holub has acted as chair of organizing and member of program committees of MESAQIN 2002-2012. He also acted as a chairman of the section Dithering in ISDDMI 98 (10th International Symposium on Development in Digital Measuring Instrumentation, Naples, Faculty of Engineering) and was awarded by Antoio Menchetti prize for the best contribution of younger scientist there. Member of Program Committee of WTS 2006-2012 and Program Committee Chair of WTS 2009, Prague, Czech Republic

Dr. Holub is an IMEKO member since 2004. He represents Czech Republic in IMEKO TC-1 since 2008 and has become an IMEKO TC-1 chair in 2010. Currently he acts as a Program Committee Member of IMEKO World Congress to be held in Busan, Korea in 2012. His other memberships include ISCA (2002), IET (prev. IEE, 2004) and ETSI STQ (European Telecommunication Standardization Institution, Speech Transmission Quality).

Dr. Keivan Navaie (S'02-M'05-SM'10) received his B.Sc. degree from Sharif University of Technology, Tehran, Iran, his M.Sc. degree from the University of Tehran, Tehran, Iran, and his Ph.D. degree from Tarbiat Modares University, Tehran, Iran, all in Electrical Engineering in 1995, 1997 and 2004 respectively. From March to November 2004, he was with the School of Mathematics and Statistics, Carleton University, Ottawa,

Canada, as a Postdoctoral Research Fellow. From December 2004 to September 2006, he was with the Broadband Communication and Wireless System (BCWS) Centre, Carleton University, Ottawa, Canada where he was the project manager of BCWS participation in European Union 6th Framework integrated project, the Wireless World Initiative New Radio (WINNER) on beyond 3G wireless systems. From September 2006 to July 2011 he was with the Department of Electrical and Computer Engineering, Tarbiat Modares University, Tehran, Iran. Since July 2011 he has been with the School of Electrical and Computer Engineering, University of Leeds, Leeds, UK.

His research interests lie in the field of radio resource allocation for wireless communication systems, dynamic spectrum allocation, cognitive radio networks and cooperative communications. He has significantly contributed into the area of wireless communications by publishing more than 70 journal publications, book chapters and conference presentations. Dr. Navaie is on the editorial board of the European Transactions on Telecommunications. He has been on the technical program committee of different IEEE conferences, including Globecom, ICC, VTC and WCNC, and chaired some of their symposia. He is also serving as Co-Chair of Wireless Network Track, IEEE VTC-2012 Yokohama, Japan and IEEE 8th International Workshop on Wireless Network Measurements WiNMee 2012, Paerborn, Germany. He is the recipient of the 2011 IEEE Iran Section Young Investigator award. Dr. Navaie is a senior member of the IEEE.

Dr. Muttukrishnan Rajarajan is an Associate Professor in Information Security at City University London. Raj leads the information security research group at the same institution and has been actively researching on the areas of mobile security, cloud security, wireless networks and critical national infrastructure protection for well over 10 years. He currently holds a patent in the area of communication security for mobile financial services. He acts as an advisor to the government of India cyber security research laboratories in the area of SCADA Security. He is also a visiting fellow at the British Telecommunications security research laboratories. Raj is a Senior Member of IEEE and is a member of the academic advisory board of the institute of information security professionals. He has been involved in several recent policy debates and scoping workshops in the area of mobile security, identity and cyber security. He has published more than 150 journal and conference papers and has recently published a book *Mobile Security and Privacy.* He serves on several editorial boards and international conferences programme committees and was the General Chair of SecureComm 2011.

Dr. Rob van den Dam is the Global Telecommunications Industry Leader at the IBM Institute for Business Value. He is responsible for developing strategic thought leadership in telecommunications and as such contributes to IBM's global telecom strategy. In this role he develops future agenda's, industry outlooks and business value realization studies. He has 20 years of experience in telecommunications.

Rob graduated at the Delft University in Aerospace Engineering (with honours) and got a Ph.D. He started his career 30 years ago at the National Aerospace Industry and worked in both national and international projects. In 1987 he was the Representative of the Dutch Aerospace

Industry in a mission to Southeast Asia sponsored by the Ministry of Economic Affairs. Prior to joining IBM he worked for Data Sciences where he was Senior Principal and one of the founders of Data Sciences' telecommunications practice.

Rob periodically presents at major industry conferences, such as Total Telecom World, Andicom 2011, China LTE Summit, World Telecom Council and the i2010 Industry Roundtable for the European Commission. He has published multiple articles in, amongst others, European Communications, Total Telecom Magazine, Mobile Europe and Journal of Telecommunications Management.

Prof. Upkar Varshney is on the faculty of Computer Information Systems (Associate Professor) at Georgia State University, Atlanta (http://www.cis.gsu.edu/~uvarshne). He received a Bachelor of Engineering in Electrical Engineering with Honors from University of Roorkee (now Indian Institute of Technology, IIT-Roorkee), and, MS in Computer Science and a Ph.D. in Telecommunications & Networking, from the University of Missouri-Kansas City. His research and teaching interests include wireless networks, pervasive healthcare, and mobile commerce.. He has written over 130 papers in these topics in major journals and international conferences. Several of his papers are among the most cited references in wireless and healthcare. He is the founding chair of International Pervasive Health Conference (since 2006) and is the author of Pervasive Healthcare Computing book (2009).

Prof. Varshney has delivered several keynote speeches and has presented more than 30 extremely well received tutorials and workshops at major international conferences including WTS (2005), AMCIS (2002-2007), HICSS (1998-2006), IEEE WCNC (1999-2003), and, ACM Mobicom (2002). Upkar has received several teaching awards, including Myrone T. Greene Outstanding Teaching Award (2000 and 2004), and RCB College Distinguished Teaching Award (2002). He has organized and/or chaired more than 20 sessions at major international conferences. He is an editor or member of editorial board for International Journal of Network Management, IJWMC, Communications of the AIS, and International Journal of Mobile Communications, and has also guest edited major journals including ACM/Kluwer Journal on Mobile Networks and Applications (MONET).

Professor William Webb is CTO and one of the founding directors of Neul, a company developing machine-to-machine technologies and networks, which was formed at the start of 2011.
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 11 books, 80 papers, and 18 patents. He is a

Visiting Professor at Surrey University and DeMontfort University, a member of Ofcom's Spectrum Advisory Board (OSAB) and a Fellow of the Royal Academy of Engineering, the IEEE and the IET where he is a Vice President. 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 william.webb@neul.com.

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