



Selected Areas in Communications Symposium

Symposium Co-Chairs

Kenichi Higuchi	Tokyo Univ. of Sciences, Japan higuchik@rs.noda.tus.ac.jp
Khairi Hamdi	Univ. of Manchester, UK K.Hamdi@manchester.ac.uk
Jaafar Elmirghani	Univ. Leeds, UK J.M.H.Elmirghani@leeds.ac.uk
Xinde Hu,	SanDisk Corporation, USA xindeh@gmail.com
Hsi-Pin Ma	National Tsing Hua University, Hsinchu, Taiwan. Email: hp@ee.nthu.edu.tw
Latif Ladid,	Chair, IEEE COMSOC IOT sub, <i>UL/ IPv6 Forum, Luxembourg</i> , Email: latif@ladid.lu
Bill Lichtensteiger,	Landis+Gyr, Switzerland, Email: Bill.Lichtensteiger@landisgyr.com
Symeon Papavassiliou	National Technical University of Athens, Greece. Email: papavass@mail.ntua.gr
John Mitchell	<i>UCL, UK</i> . Email: j.mitchell@ucl.ac.uk
Andrew W. Eckford	<i>York University, Canada</i> , Email: aekford@yorku.ca
Tomaso de Cola	<i>DLR, German Aerospace Center, Germany</i> . Email: tomaso.decola@dlr.de
Jochen Maes	Alcatel-Lucent Bell Labs. Email: jochen.maes@alcatel-lucent.com

The 2015 IEEE International Conference on Communications (ICC) will be held in London, UK from 8-12 June 2015. Themed "Smart City & Smart World," with its proximity to Tech City, the fastest growing technology cluster in Europe, this flagship conference of IEEE Communications Society will feature a comprehensive technical program including twelve Symposia and a number of Tutorials and Workshops. IEEE ICC 2015 will also include an exceptional Industry Forum & Exhibition program including business panels and keynote speakers. We invite you to submit your original technical papers, and industry forum, workshop, and tutorial proposals to this event. Accepted and presented papers will be published in the IEEE ICC 2015 Conference Proceedings and submitted for inclusion in IEEE Xplore®/IEEE Digital Library. Full details of submission procedures are available at <http://www.ieee-icc.org/2015>.

Submission deadline: 15 October, 2014

Scope and Topics of Interest

The IEEE ICC 2013 **Selected Areas in Communications (SAC) Symposium** focuses on new and emerging communication technologies, including areas that are not directly addressed in any individual symposia. To ensure complete coverage of the advances, the SAC Symposium presents original contributions in the following topical areas: **(a)** Green Communications, **(b)** Data Storage and Cloud Computing, **(c)** Communications for E-Health, **(d)** Internet of Things, **(e)** Communications for the Smart Grid, **(f)** Satellite and Space Communications, **(g)** Access Networks and Systems, **(h)** Nanoscale, Molecular & Quantum Networking, **(i)** Social Networking, **(j)** Millimeter-wave Communications

(a) Green Communications: The Green Communications Track of in the Selected Areas in Communications Symposium will focus on improving the green topics and issues relevant to of communications systems. This track not only addresses energy relevant green topics but also discuss other non-energy relevant green topics. Green information communication technologies have been globally recognized as this has become an important research topic field in its own right, with the emphasis on both reducing carbon emissions and thereby reducing operational costs

in networks discussing energy- and/or resource- efficient and/or environment-sustainable communications and relevant systems. Research projects to date have identified solutions in terms of algorithms and subsystems, as well as new ideas for system architectures. Research will further develop these solutions as well as showing how different concepts can be integrated to design energy different efficient systems from the ground up. This track solicits contributions describing cutting-edge research in communication systems and networks that incorporate "green" considerations in their designs and operations. This covers a wide range of green topics, including not only greening communications and systems, but also exploiting communications and relevant systems to achieve green objectives for the sustainable world. This track covers broader topics enabling various green topics, such as green technologies, smart homes and offices, intelligent transport and smart grid energy systems, green services, green business and economic concerns.

(b) Data Storage and Cloud Computing: Data storage is at the core of the information technology revolution, from the smartphones in our hands to data centers in the cloud. Hard disk drives, flash memories, new non-volatile memory technologies, as well as distributed storage networks combine to provide ubiquitous access to data. But these new and existing systems pose novel problems of storage density, reliability, efficiency and security.

In addition, much of the data storage is not limited to the personal devices, rather "floating" in the cloud. Each day, peta-bytes of data is computed in the cloud, stored in the cloud, and secured in the cloud. Key technologies, such as ECC and DSP will have play a new key role in enabling fast, reliable, secure cloud storage/computing infrastructure.

Signal processing and coding techniques are the foundation for solving these problems. While storage channel models are fundamentally communication channels, the unique demands of recording and storage create new challenges to maintain the pace of growth.

(c) Communications for E-Health: The e-Health SAC Symposium will focus on the advance in e-Health and medical communications. E-Health is defined as a cost-effective and secure use of information and communications technologies in the support of health and the related fields, including health-care related services, monitoring, knowledge and research as local and remote sites. ICT has recognized as one of the main technology that will help to develop cost-effective e-Health solution. However despite the huge progress that have been achieved many challenges still need to be solved in order to build effective and acceptable solutions.

(d) Internet of Things: Internet of Things (IoT) is leading to a new dimension of the Internet. IoT is driven by the integration and unification of all communication systems located around us. Thereby, the systems can provide ubiquitous communication & computing with the purpose of defining a new generation of services. This symposium is focused on the extension and integration aspects of the Internet of Things to reach a global access to the services and information from all the existing and emergent technologies through, on the one hand, the so-called Web of Things, and on the other hand, the efficient support for global communications, such as IPv6 network. This will address the issues regarding emerging communication requirements in terms of lightweight versions of IPv6-related protocols, emerging semantics, platforms, and application requirements. The impact in the IoT of the security and privacy requirements will be also taking into account since it is one of the major pending challenges for the IoT. Finally, the definition of new advanced architectures and models for the IoT integration with the Cloud Computing, and Big Data frameworks will be also considered.

(e) Communications for the Smart Grid: The drive to integrate renewable energy resources such as wind and solar power to the Grid in order to reduce our reliance on nuclear power and fossil fuels continues unabated. New innovative Smart Grid Use Cases involving Electric Vehicles and Battery Storage have emerged in a very short time. Communication technologies play a key part in meeting the challenges in terms of managing all this integration and maintaining the Grid stability. Traditional Smart Metering, Distribution Automation, Demand Response and Load Control solutions continue to evolve, leveraging the latest communication technologies. The scale of Smart Grid sensor networks and the need for low-latency real-time communication has increased dramatically. Consumers are now part of the Smart Grid and they want to actively manage their energy consumption in order to reduce costs and become Green citizens. At the same time the Smart Grid must be kept secure from cyber-attack and consumer privacy is also paramount. Robust, reliable, low-latency, secure, standardized communication technologies are needed to meet these many challenges.

(f) Satellite and Space Communications: The recent advances of satellite communication technology have witnessed an unprecedented increase of services possibly distributed according to anywhere-anytime paradigm.

To this regard, the appearance of new standards and the simultaneous integration with terrestrial infrastructure has introduced new technical challenges to be faced by the scientific community.

The Satellite and Space Communications track solicits original and unpublished work not currently under review by any other conference or journal. The focus of this track is on exploring and discussing new technical breakthroughs and applications focusing on all aspects of satellite and space communications.

(g) Access Networks and Systems: Access Networks and Systems continue to be one of the most active fields of telecommunication research and development in recent years. Variety of technologies and services came together to create technological challenges in the access domain. Advances in Voice over IP (VoIP), IPTV, conventional and high-definition video, and multimedia have significantly impacted the access segment of service-provider networks. Moreover, many access lines today terminate on multiple home devices. This led to a need for home networks that are designed for a blend of multi-computer Internet access, multi-platform entertainment, and voice support. The evolution towards multi-service platforms and the emergence of a spectrum of new IP-based applications are fueling more demand for bandwidth. As service providers, Telcos and Cable MSOs alike, face the challenge of triple and quadruple play delivery (voice, data, and video to end customers; over wired and wireless networks), researchers in both academia and industry must develop innovative solutions to tackle this challenge.

Broadband access utilizes a variety of transmission media and systems, such as twisted-pair copper based systems (xDSL), coaxial-cable plants, fiber based solutions (passive and active optical networks), wireless systems (Wi-Fi, WiMAX, and cellular technologies), power-lines systems (PLC), and hybrid combinations of these. Various protocols are also required to support both downstream and upstream traffic. Understanding the performance characteristics of all the technological ingredients of tomorrow's access networks/systems is critical for delivering the desired Quality of Service (QoS) to end users.

The aim of the Access Networks and Systems (ANS) Track of the Symposium on Selected Areas on Communications is to provide a forum that brings together scientists and researchers from all over the world to present their cutting-edge innovations in all aspects of the field. Papers on practical applications and R&D results from industry and academic/industrial collaborations are particularly encouraged.

(h) Nanoscale, Molecular & Quantum Networking: As a result of recent advances in MEMS/NEMS and systems biology, as well as the emergence of synthetic bacteria and lab/process-on-a-chip techniques, it is now possible to design chemical "circuits", custom organisms, micro/nanoscale swarms of devices, and a host of other new systems at small length scales, and across multiple scales (e.g., micro to macro). This success opens up a new frontier for interdisciplinary communications techniques using chemistry, biology, and other principles that have not been considered in the communications literature.

This track is devoted to the principles, design, and analysis of communication systems that use physics beyond classical electromagnetism, particularly for small-scale and multi-scale applications. This includes: molecular, quantum, and other physical, chemical and biological (and biologically-inspired) techniques; as well as new communication techniques at these scales.

Contributions on related topics would also be considered for publication. Contributions from researchers outside the IEEE's typical audience are encouraged.

(i) Social Networking: Social networks have gained considerable interest over the last five to ten years and have become in many cases the lion's share of communications businesses. Such networks are now well known as the primal channels for communication and interaction on the Internet, presenting a more than ever increasing penetration and exploitation of communication networks in human lives. Social networks have traditionally been studied outside of the technological domains, but focus is now changing towards networking challenges such as cloud, mobile and wireless, privacy, data analytics, etc., while still keeping the social perspective such as focusing on improving quality-of-life. Social networks treating relationship as connections to form networks become an emerging technology in Internet and mobile computing/communications, as the foundation of popular personalized but anonymous applications/services of networking and communication infrastructure. The interplay between social networks and technological networks such as mobile networks and mobile computing is becoming still strong and many areas are still to be exploited.

The proposed track, among others, will cover the technical aspects of the interplay between social and communication networks, and more specifically will focus on original contributions regarding topics, such as structure, behavior, trust and security, dynamics, modeling, applications and optimization of social and communication networks. It aspires to raise holistically the awareness of the research and industrial communities

in the area of both social and communication networks from diverse and broad perspectives and provide a venue for the presentation and dissemination of the latest original contributions in the corresponding field of science.

The aim of the Social Networking (SN) Track of the Symposium on Selected Areas on Communications is to provide a forum that brings together scientists and researchers from all over the world to present their cutting-edge innovations in all aspects of the field.

(j) Millimeter-wave Communications: Globally there are major shortages encountered in the bandwidth available in the microwave bands. This has led to much interest in the exploitation of the comparatively broad spectrum available in the millimetre-wave bands. These frequency bands offer excellent opportunities as well as a different set of constraints due to their propagation characteristics. In particular, the broad bandwidths available are likely to make it a key technology for integration with optical fibre networks to support the back/front-hauling of 5G wireless services or to provide cost-effective access for close-to-customer access systems. The Millimeter-Wave Communications (MWC) Track of the Symposium on Selected Areas on Communications will cover both the underlying technologies and techniques as well as their integration into communications networks. It looks to provide a forum for discussion of the latest research from novel devices/subsystems, through system trials, experiments and propagation studies to advanced network architectures.

The aim of the Millimeter-Wave Communications (MWC) Track is to provide a forum that brings together scientists and researchers from all over the world to present their cutting-edge innovations in all aspects of the field. Papers on practical applications and R&D results from industry and academic/industrial collaborations are particularly encouraged.

Topics of Interest (not limited to)

(a) Green Communications (Chairs: Kenichi Higuchi, Khairi Hamdi, Jaafar Elmighani)

- Theory, modeling, analysis, and/or optimization for green and sustainable green communications and systems
- Life-cycle analysis
- Architecture, strategies, algorithms, protocols, scheduling, and/or designs for green communications and systems
- Non-energy green topics
- Green software, hardware, devices, and equipment
- Green wireless and/or wireline communications
- Green scheduling and allocation for communications
- Green optical devices, signal processing, switching and communications
- Electromagnetic pollution mitigation
- Green terminals
- Green data storage, data centers and cloud computing, content distribution networks
- Green communications under delay or quality of service constraints
- Physical layer approaches for green communications
- Green Internet of Things
- Energy harvesting, storage, and recycling
- Applications, economics, social issues, and interdisciplinary topics
- Novel network concepts and architectures lowering the overall network footprint
- Self-organizing wireless networks for energy efficiency
- Traffic shaping and policy implementation for energy saving
- Use of cognitive principles to achieve green objectives
- Signal processing for green communications
- Low cost, energy-efficient antenna and radio frequency system designs
- Economy and pricing for green communication and systems
- Environmental monitoring
- Measurement and profiling of energy consumption
- Power consumption trends and reduction in communications
- Standardizations, policies and regulations for green communications
- Mitigation of electromagnetic pollution
- Experimental test-beds and results for green communications
- Green technologies for intelligent transport systems

- Green technologies for industrial processes
- ICT technologies for green buildings and offices
- Field trials and deployment experiences
- Optimal use of renewable energy in communication systems and networks
- Communication System and network design with embodied energy and energy harvesting
- Green Approaches for Smart Grids
- Field trials and deployment experiences
- Possible avenues for standards and intervention

(b) Data Storage and Cloud Computing (Chair: Xinde Hu)

- Equalization, detection and filtering for data storage systems
- Timing recovery and write pre-compensation techniques
- Channel and noise characterization for magnetic recording, flash memories and emerging memory technologies
- Error-correcting codes for storage channels and distributed storage networks
- ECC decoding techniques
- Information theory for storage
- Network coding techniques for distributed storage networks
- DSP/ECC for flash-based data storage systems
- Channel coding/equalization for flash-based data storage systems
- Circuit design for coding, detection, and read/write channels
- Energy-efficient designs for storage
- Signal processing for shingled writing, heat-assisted magnetic recording and bit-patterned media
- WOM codes, modulation codes and run-length limited codes
- Circuit design for coding, detection, and read/write channels
- Security for cloud storage and storage devices
- Novel and emerging storage media: optical, PCM, MRAM, RRAM, etc.
- Network attached storage solutions
- Digital signal processing for cloud computing and cloud storage systems
- RAID for cloud storage systems
- Energy-efficient designs for storage

(c) Communications for E-Health (Chair: Hsi-Pin Ma)

- Telemedicine and mobile telemedicine
- Biomedical and biosensors engineering
- Sensing of vital signs and signatures
- Wearable medical wireless sensors
- Energy saving for long time monitoring
- In-Body medical sensors communications
- Molecular sensor communications
- E-Health-oriented software architectures (Agent, SOA, Middleware, etc.)
- Autonomic diagnosis and situation awareness (Fall, Activity, etc.)
- Context awareness and autonomous computing for AAL (Ambient Assisted Living)
- Health and wellness measurement, monitoring and intervention
- Security, trust and privacy
- Usability and acceptability
- Emerging e-Health applications
- Mobile and cloud computing for e-Health
- Health information systems and interoperability
- Social aspects of e-Health
- Electronic health records

(d) Internet of Things (Chair: Latif Ladid)

- Architectures for the Internet of Things (IPv4, IPv6, 6LoWPAN, RPL, 6TONon-IP, 6lo,..)

- Future technologies bridging the physical and virtual worlds
- End to End / Machine to Machine (M2M) protocols
- Cloud computing and IoT
- Big Data and IoT insight
- Middleware architectures & M2M Platforms
- Web of Things and Semantic technologies for devices and services
- Experiences with Open Platforms and hardware within IoT
- Crowd-sourcing and opportunistic IoT
- User-oriented, context-aware IoT services
- Security, Trust, Privacy and Identity in the IoT
- Efficient resource management (water, energy...) based on IoT
- Building automation and smart buildings based on IoT
- Deployments, test-beds and field trials

(e) Communications for the Smart Grid (Chair: Bill Lichtensteiger)

- Channel characterization and models
- Channel access and Physical layer technologies and techniques for Smart Grid communications
- MAC Layer and routing protocols for Smart Grid
- Resource allocation, coexistence, interoperability and interference in Smart Grid networks
- Cross-layer optimization for Smart Grid communications
- Optimized implementation solutions
- Architectures and networking for Smart Grid Networks
- Low-latency communications requirements and Quality-Of-Service for Smart Grid applications
- Modelling, performance analysis, field trials for Smart Grid communications technologies
- Green Solutions for Smart Grid communications
- Security for Smart Grid communication networks
- Standardization efforts and regulation

(f) Satellite and Space Communications (Chair: Tomaso de Cola)

- Satellite and space communications and networking
- Near-Earth satellite communications
- Antennas for Satellite Communications
- MIMO satellite communications
- Hybrid satellite/terrestrial networks
- Coding, modulation and synchronization schemes for satellite communications
- Channel models for satellite communications
- Reliable multicast protocols for satellite networks
- Transport protocol performance over satellite
- Game theory applications in satellite networks
- Security, privacy, and trust in satellite networks
- Radio resource management in satellite networks
- Emerging standards: DVB-Sx, DVB-SH, DVB-RCS2, IP over Satellite
- Cognitive satellite networks
- Delay Tolerant Networking for satellite networks
- Cross-layer air interface design
- QoS and performance for satellite networks
- On-board switching and processing technologies
- Fade mitigation techniques over satellite channels
- Special protocols for nano-satellites
- Nano-satellites communications
- Nano-Satellite constellation design
- M2M over satellite applications
- Geographic information systems
- Wireless positioning technologies and applications
- Signal detection and estimation for satellite communications

- RF engineering for satellite communications
- Statistical and adaptive signal processing for satellite systems
- Satellite communications for maritime applications (e.g., AIS)
- Satellite-based disaster recovery
- Satellite-based remote e-Health
- Satellite based alarm systems
- Satellite-based solutions for aeronautical applications
- Interplanetary communications
- Next-generation channel coding for deep-space communications

(g) Access Networks and Systems (Chair: Jochen Maes)

- Twisted pair copper systems and networks; xDSL
- Hybrid Fiber Coaxial (HFC) systems and networks
- FTTx and Passive/Active Optical systems and networks (PONs and AONs)
- Cable TV systems and networks
- Bluetooth, Wi-Fi, WiMAX, and Cellular Access
- Integrated wired/wireless access
- Optical-Wireless integration and radio over fiber
- Free-Space Optical-Access (components, systems, and networks)
- Digital satellite access technology
- Access network architectures and protocols
- Service convergence and multimedia networks
- Quality of Service (QoS): characterization and provisioning
- Access network survivability and security
- Municipal and community networks
- Power Line Communication (PLC)
- Home Networks
- Networked appliances
- Applications (video streaming/IPTV etc.)
- Synchronization (time & frequency) support in the access
- Billing and management aspects
- Standardization

(h) Nanoscale, Molecular & Quantum Networking (Chair: Andrew Eckford)

- Mathematical modelling
- Information/communication-theoretic or network-theoretic analysis
- Networking
- Implementations and laboratory experiments
- Industrial applications
- Information/communication theory for analysis of biological systems
- Communication processes or networks in biology

(i) Social Networking (Chair: Symeon Papavassiliou)

- Interplay between social networks and physical communications
- Social networks influence on (wireless) communications systems and networks and new design paradigm of future (wireless) communications
- Complex network structure analysis and optimization
- Graph theoretic analysis for mobile complex (social and physical) networks
- Social-aware network solutions in communications
- Network Utility Maximization (NUM) for mobile social and wireless networks
- Mobile cyber-physical systems
- Analytical techniques as a foundation to enable social networks of massive networked (big) data
- Social networks applications and services to mobile Internet, multimedia networks, mobile-commerce, cyber-physical systems, and their potential social, economic, and cultural impacts
- Social relationship graphs of mobile devices

- Social network behaviors, dynamics, modeling, and analysis
- Representation, measurement, modeling of relationships
- Belief and message propagation, search technology over Internet, recommendation systems
- Trusted networking, security, privacy, and digital right management over social networking
- System architecture, protocols, middleware and software engineering, terminal technology, user experience and interface technology, deployment and operations, and standards, for social networks

(j) Millimeter-wave Communications (Chair: John Mitchell):

- Millimeter-wave Communications architectures
- Standardisation of millimeter-wave communications
- Single-carrier vs. multi-carrier in the mm-wave bands
- Mobile back/front haul using millimeter-wave technologies
- Millimeter-wave Heterogeneous and small cell networks (HetSNets)
- Photonic and integrated fibre millimeter-wave systems
- Millimeter-wave access networks
- Propagation measurements and channel modeling in the millimeter-wave bands
- Security and privacy for mm-wave communications
- Advanced spatial diversity / MIMO in millimeter-wave communications
- Communications towards the THz bands

Submission Guidelines

Prospective authors are invited to submit original technical papers by the deadline 15 October 2014 for publication in the IEEE ICC 2015 Conference Proceedings. All submissions should be written in English with a maximum paper length of Six (6) printed pages (10-point font) including figures without incurring additional page charges (maximum 1 additional page with over length page charge if accepted).

Standard IEEE Transactions templates for Microsoft Word or LaTeX formats found at

<http://www.ieee.org/portal/pages/pubs/transactions/stylesheets.html>

Alternatively you can follow the sample instructions in template.pdf at

<http://www.comsoc.org/confs/globecom/2008/downloads/template.pdf>

Only PDF files will be accepted for the review process and all submissions must be done through EDAS at

<https://edas.info/newPaper.php?c=17651>

Co-Chairs Biographies

Kenichi Higuchi received the B.E. degree from Waseda University, Tokyo, Japan, in 1994, and received the Dr.Eng. degree from Tohoku University, Sendai, Japan in 2002. In 1994, he joined NTT Mobile Communications Network, Inc. (now, NTT DOCOMO, INC.). In NTT DOCOMO, INC., he was engaged in the research and standardization of wireless access technologies for wideband DS-CDMA mobile radio, HSPA, LTE, and broadband wireless packet access technologies for systems beyond IMT-2000. In 2007, he joined Tokyo University of Science. He is currently an Associate Professor at Tokyo University of Science. His current research interests are in the areas of wireless technologies and mobile communication systems, including advanced multiple access techniques, inter-cell interference coordination techniques, multiple-antenna transmission techniques, signal processing such as interference cancellation and turbo equalization, and issues related to heterogeneous networks using small cells. He was a co-recipient of two conference best paper awards and the Prime Minister Invention Prize in 2010. He is a member of the IEEE and Institute of Electronics, Information, and Communication Engineers of Japan.

Khairi Hamdi obtained an MSc degree with Distinction in Telecommunication Engineering from Technical University of Budapest in 1988 and he was awarded the PhD degree from the Hungarian Academy of Science in 1993. He joined the University of Manchester (formerly UMIST) in 2002, and is currently a Lecturer of Communications in the School of Electrical and Electronic Engineering. Previously, he held teaching and research posts at the Department of Computer Science, University of Manchester and the Department of Electronic Systems

Engineering, University of Essex. In 2002 Dr Hamdi was a BT research fellow and in 2007-2008 a visiting professor at Stanford University. His research is concerned with the application of mathematical and statistical techniques to the design, optimisation and performance analysis of wireless communication systems and networks in different interference and fading environments. He has been involved in modelling and performance analysis of wireless communication systems, with emphasis given on the physical and multiple-access control layers.

Jaafar Elmirghani is a Fellow of the IET, Fellow of the Institute of Physics, Senior Member of IEEE and is the Director of the Institute of Integrated Information Systems and Professor of Communication Networks and Systems within the School of Electronic and Electrical Engineering, University of Leeds, UK. He joined Leeds in 2007 having been chair in optical communications at the University of Wales Swansea 2000-2007. He was Chairman of the IEEE UK and RI Communications Chapter, 2004-2009, and was Chairman of IEEE Comsoc Transmission Access and Optical Systems Committee, 2004-2005, and Chairman of IEEE Comsoc Signal Processing and Communication Electronics (SPCE) Committee, 2001-2003. He was an editor of IEEE Communications Magazine and is and has been on the technical program committee of several IEEE ICC/GLOBECOM conferences between 1995 and present including 13 times as Symposium Chair/Co-Chair. He was founding Chair of the Advanced Signal Processing for Communication Symposium which started at IEEE GLOBECOM'99 and has continued since at every ICC and GLOBECOM and was also founding Chair of the first IEEE ICC/GLOBECOM optical symposium at GLOBECOM'00, the Future Photonic Network Technologies, Architectures and Protocols Symposium. He chaired this Symposium, which continues to date. He founded a track on Green Communication Networks and Systems at GLOBECOM'11 which continues to date. He received the IEEE Communications Society 2005 Hal Sobol award for exemplary service to meetings and conferences, the IEEE Communications Society 2005 Chapter Achievement award, the University of Wales Swansea inaugural 'Outstanding Research Achievement Award', 2006 and the IEEE Communications Society Signal Processing and Communication Electronics outstanding service award, 2009. He is currently an editor of IET Optoelectronics, editor of Journal of Optical Communications, Co-Chair of the GreenTouch, (a consortium of about 50 industrial and academic members), Wired, Core and Access Networks Working Group, an adviser to the Commonwealth Scholarship Commission, member of the Royal Society International Joint Projects Panel and an IEEE Comsoc Distinguished Lecturer (2013-2014) with a focus on energy efficiency. He has been awarded in excess of £20 million in grants to date from EPSRC, the EU and industry. He has published over 350 technical papers, co-edited "Photonic Switching Technology- Systems and Networks", IEEE Press 1998, leads a number of research projects including the EPSRC £5.9m INTelligent Energy awaRe NETworks (INTERNET) project 2010-2015, and has research interests in communication networks and optical communication systems; see <http://www.personal.leeds.ac.uk/~eenjmhe> for more details.

Xinde Hu is currently System Architect at SanDisk. His responsibility includes creating, designing, and evaluating innovative system architecture concepts and implementations for the next generations of non-volatile memory based storage systems. Dr. Xinde Hu received his Ph. D in Electrical and Computer Engineering from Carnegie Mellon University (CMU). Prior to joining SanDisk, Dr. Hu worked for STEC and STMicroelectronics inc. as a system architect.

Dr. Xinde Hu has authored more than a dozen technical papers on the area of coding/signal processing for data storage systems and has 20+ patent applications pending. His paper, "Error Floor Estimation of Long LDPC Codes on Partial response Channels," is awarded the best student paper award in signal processing & coding for data storage (awarded by IEEE Communications Society). He is currently serving as Vice Chairman of the IEEE Data Storage Technical Committee (DSTC). And he is an organizer of the annual Flash Memory Summit conference and serves on the committee for key IEEE conferences.

Hsi-Pin Ma received the B.S. and Ph.D. degrees in electrical engineering from National Taiwan University, Taiwan, in 1995 and 2002. At the summer of 2000, he interned at Siemens Telecommunication Systems Limited, for feasibility study and establishment of a dual-mode base station for WCDMA and cdma2000. Since 2003, he has been with the Department of Electrical Engineering/Institute of Communications Engineering, National Tsing Hua University, Hsinchu, Taiwan, where he is currently as Associate Professor. Dr. Ma's research interests include communications system design and SoC implementation, power efficient/energy efficient signal processing, and biomedical signal processing and system applications. He was the PI of three NSoC national programs (WCDMA/HSDPA, WiMAX, DVB-T/H), one Telecom. National program (Development of a MIMO-OFDM advanced platform), two MOEA projects (Wireless Testing/HOY, Low Power Cell Library/Starfish DSP) and many industry collaboration projects from Intel, MediaTek, Skymedi and ITRI. Recently, he has several NSC projects (PI/Co-PI) related to biomedical circuits and systems applications, including "Development of integrated electrophysiology instruments for basic research and biomedical uses", NPIE project "Patient-centric medical environment", NTHU-UC collaboration project "Molecular neuroscience: from basic research to translational development", and Taiwan-

France collaboration project (TecSan) “Innovating technology to characterize balance loss in ecological setting of daily life: application to Parkinson' s disease (ECOTECH)”. Dr. Ma has published 12 journal, 58 conferences papers, and 4 US patents and other international patents. He also participated in IEEE 802.16m standard contributions with ITRI and has submitted 15 contributions. He also has three cases of technology transfer to the industries. He is currently the TPC member for SPCE TC/e-Health TC, e-Health TC liaison in standard development board in IEEE ComSoc, TPC member for CASCOTC in IEEE CASS, and TPC member for IEEE VLSI-DAT.

Latif LADID is the Chair of the IEEE Communications Society Internet of Things Technical subCommittee. He holds the following positions: President, IPv6 FORUM www.ipv6forum.org, Chair, European IPv6 Task Force www.eu.ipv6tf.org, Emeritus Trustee, Internet Society www.isoc.org, Board Member IPv6 Ready and Enabled Logos Program and Board Member World Summit Award www.wsis-award.org. He is a Senior Researcher at the University of Luxembourg Security and Trust (SnT) www.securityandtrust.lu on multiple European Commission Next Generation Technologies IST Projects. Latif is also a Member of 3GPP PCG (www.3gpp.org), 3GPP2 PCG (www.3gpp2.org), Vice Chair, IEEE ComSoc TCIIIN, Member of UN Strategy Council, member of IEC Executive Committee and member of the Future Internet Forum EU Member States, representing Luxembourg.

Bill Lichtensteiger received his BSc. degree in Electrical and Electronic Engineering from the University of Birmingham UK in 1997, and a Diploma in Marketing from Bournemouth University UK in 2003. Bill started his career in electronics engineering and software engineering before working for nine years in product management, product development and programme management roles in the mobile communications industry with Ericsson and Sony Ericsson. In 2003 Bill moved back to his native Switzerland, joining Ascom as R&D Manager for secure wireless communications systems. In 2008 Bill joined Landis+Gyr as Director for Communication Technology at the Group HQ in Zug, Switzerland where he is globally responsible for the coordination of Communication Technology development for Landis+Gyr's Smart Metering and Smart Grid solutions. Bill is also active in the area of standardization of wireless and powerline communication technologies for Smart Metering and Smart Grid. He has co-served as a Technical Content Chair for the IF&E track of IEEE Gridcomm 2013 and has previously co-authored papers on the subject of RF mesh system performance and Multi-Carrier Powerline solutions.

Symeon Papavassiliou received the diploma in electrical engineering from the National Technical University of Athens, Greece, in 1990 and the MSc and PhD degrees in electrical engineering from Polytechnic University, Brooklyn, New York, in 1992 and 1995, respectively. Currently he is an associate professor in the School of Electrical and Computer Engineering at the National Technical University of Athens. From 1995 to 1999, he was a senior technical staff member at AT&T Laboratories, New Jersey. In August 1999 he joined the Electrical and Computer Engineering Department at the New Jersey Institute of Technology, USA, where he was an associate professor until 2004. From June 1996 till August 1999 he was also an adjunct professor at the Electrical Engineering Department of Polytechnic University, Brooklyn, NY. Dr. Papavassiliou was the Director of the Broadband, Mobile and Wireless Networking Laboratory (2000-2004) at the New Jersey Institute of Technology, USA, a founding member and Associate Director of the New Jersey Center for Wireless Networking and Internet security (2002-2004, New Jersey, USA), and a member of the New Jersey Center for Multimedia Research (1999-2001) and of the New Jersey Center for Wireless Telecommunications (1999-2003). Since 2005 he is also Associate Director of the Network Management and Optimal Design Laboratory at the National Technical University of Athens. He has an established record of publications in his field of expertise, with more than 200 technical journal and conference published papers. He received the Best Paper Award in IEEE INFOCOM'94, the AT&T Division Recognition and Achievement Award in 1997, the US National Science Foundation Career Award in 2003, the Best Paper Award in IEEE WCNC 2012, and the Excellence in Research Grant in Greece in 2012. Dr. Papavassiliou also served on the board of the Greek National Regulatory Authority on Telecommunications and Posts (2006– 2009). His main research interests lie in the area of communication networks, with emphasis on the analysis, optimization and performance evaluation of mobile and distributed systems, wireless networks, social networks and complex systems. He is an associate editor for IEEE Transactions on Parallel and Distributed Systems, a technical editor for IEEE Wireless Communications Magazine and serves as vice-chair of the IEEE Technical Subcommittee on Social Networks. He is also a senior member of the IEEE.

John E. Mitchell, received the Ph.D. degree in Electronic Engineering from UCL (University College London), UK in 2000. In 1999 he became a research fellow in the Department of Electronic and Electrical Engineering at UCL (University College London), becoming a Lecturer and Senior Lecturer in 2000 and 2006 respectively. His research interests cover optical and wireless communications technologies with specific interest in optical generation techniques for millimeter-wave communication systems and the use of RF techniques in optical networks, for

example for radio-over fibre systems. He has previously led the Virtual Centre of Excellence in Access, part of the European Union, Framework Seven Programme, Network of Excellence, 'BONE', Building the Optical Network for Europe. Dr. Mitchell is a Chartered Engineer and a Member of the Institute of Engineering and Technology (IET) and IEEE Communications and Photonics Societies.

Andrew Eckford is an Associate Professor in the Department of Electrical Engineering and Computer Science at York University, Toronto, Ontario. He received the B.Eng. degree from the Royal Military College of Canada in 1996, and the M.A.Sc. and Ph.D. degrees from the University of Toronto in 1999 and 2004, respectively, all in Electrical Engineering. Andrew held postdoctoral fellowships at the University of Notre Dame and the University of Toronto, prior to taking up a faculty position at York in 2006.

Andrew's research interests include the application of information theory to nonconventional channels and systems, especially the use of molecular and biological means to communicate. Andrew serves as Chair of the IEEE ComSoc Emerging Technologies Subcommittee on nanocommunications, and is the vice-chair of the IEEE 1906.1 standards working group, the first IEEE standard on nanoscale networking. Andrew was also the General Chair of the 2013 13th Canadian Workshop on Information Theory, and served as a track editor on the IEEE JSAC 2013 special issue on emerging technologies. Andrew is also a co-author of the textbook Molecular Communication, published by Cambridge University Press, and his research on molecular communication has been covered in media including the Wall Street Journal, Slate, and CTV News.

Tomaso de Cola was born in Manosque, France, on April 28, 1977. He received the "Laurea" degree (with honors) in telecommunication engineering, in 2001, the Qualification degree as Professional Engineer in 2002 and the Ph. D. degree in Electronic and Computer Engineering, Robotics and Telecommunications in 2010 from the University of Genoa, Italy.

From 2002 until 2007, he has worked with the Italian Consortium of Telecommunications (CNIT), University of Genoa Research Unit, as scientist researcher. Since 2008, he has been with the German Aerospace Centre (DLR), where he is involved in different European Projects focusing on different aspects of DVB standards, CCSDS protocols and testbed design. He is co-author of more than 50 papers, including international conferences and journals. His main research activity concerns: TCP/IP protocols, satellite networks, transport protocols for wireless links, interplanetary networks as well as delay tolerant networks.

Dr. de Cola served on the Technical Program Committee at several IEEE International Conferences. He is member of the IEEE Communications Society and secretary of the Satellite and Space Communications (SSC) technical Committee (TC) within Comsoc.

Jochen Maes joined Alcatel-Lucent Bell Labs in 2006 where he has been continuously shifting the limits of copper. He heads the Bell Labs team that researches transceiver and system design for copper access. The team is currently focused on G.fast that delivers 1 Gb/s over the telephony network. His previous work includes vectoring and phantom mode transmission.

He received his Masters in Physics and Ph.D. in Science from the Katholieke Universiteit Leuven in 2000 and 2004 respectively. During his Ph.D. and postdoc he researched Blu-ray laser structures, quantum nanostructured telecom lasers and synthetic diamond. He was visiting researcher at Laboratoire National des Champs Magnétiques Pulsés in Toulouse and at Technische Universität Berlin.

He is author of 60+ peer-reviewed papers, 19 pending and 11 granted patents and 50+ standardization contributions. He is TPC member for all ICC and Globecom conferences since 2012 and acts as reviewer for several IEEE and Eurasip journals. He is a senior member of the IEEE. His work received the Infovision Award for Broadband Innovation in 2010 and the Bell Labs President's Award in 2011.