IEEE ICC 2013 PATRONS & EXHIBITORS

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IEEE INTERNATIONAL CONFERENCE ON COMMUNICATIONS INDUSTRY FORUM & EXHIBITION 9-13 JUNE • BUDAPEST, HUNGARY
PROGRA M AT A GLANCE

SUNDAY, 9 JUNE 2013

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LEGEND

W Workshops
NI SDR National Instruments Software Defined Radio Hands-On Session
AG WS Agilent Workshop: A Novel Wideband DPD Measurement Platform using SystemVue
T Tutorials
Keynote Keynotes and Social Events
I&B P Industry & Business Panels
AH Ad Hoc and Sensor Networking Symposium
CRN Cognitive Radio and Networks Symposium
CIS Communication and Information Systems Security Symposium
CQR Communication QoS, Reliability & Modeling Symposium
CSS Communication Software and Services Symposium
CT Communication Theory Symposium
NGN Next Generation Networking Symposium
ONS Optical Networks and Systems Symposium
SPC Signal Processing for Communications Symposium
WC Wireless Communications Symposium
WN Wireless Networking Symposium
SAC Selected Areas in Communications Symposium
SA-AN Access Systems and Networks Area
SA-DS Data Storage Area
SA-EH E-Health Area
SA-GC Green Communication Systems and Networks Area
SA-PLC Power Line Communications Area
SA-SSC Satellite & Space Communication Area
SA-SG Smart Grids Area
## Monday, 10 June 2013
### Program at a Glance

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### Keynotes

- **Ballroom I**
  - Opening Keynote & Awards Ceremony
- **Ballroom II**
  - Keynote & Awards Ceremony

### Lunches

- **Ballroom I**: 12:30 - 14:00
- **Ballroom II**: 12:30 - 14:00
- **Ballroom III**: 12:30 - 14:00
- **Panorama I**: 12:30 - 14:00
- **Panorama II**: 12:30 - 14:00
- **Panorama III**: 12:30 - 14:00
- **Panorama IV**: 12:30 - 14:00
- **Panorama V**: 12:30 - 14:00
- **Duna Salon I**: 12:30 - 14:00
- **Duna Salon II**: 12:30 - 14:00
- **Duna Salon III**: 12:30 - 14:00

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## Tuesday, 11 June 2013
### Program at a Glance

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### Keynotes

- **Ballroom I**: 09:00 - 10:30
  - Keynotes

### Lunches

- **Ballroom I**: 12:30 - 14:00
- **Ballroom II**: 12:30 - 14:00
- **Ballroom III**: 12:30 - 14:00
- **Panorama I**: 12:30 - 14:00
- **Panorama II**: 12:30 - 14:00
- **Panorama III**: 12:30 - 14:00
- **Panorama IV**: 12:30 - 14:00
- **Panorama V**: 12:30 - 14:00
- **Duna Salon I**: 12:30 - 14:00
- **Duna Salon II**: 12:30 - 14:00
- **Duna Salon III**: 12:30 - 14:00

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**WEDNESDAY, 12 JUNE 2013**
**PROGRAM AT A GLANCE**

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**THURSDAY, 13 JUNE 2013**
**PROGRAM AT A GLANCE**

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Gheorghe Sebestyén-Pál
Technical University Cluj Napoca, Romania
As Chairman and CEO of Magyar Telekom, the leading ICT and telecommunications provider of Hungary, it is a great pleasure for me to welcome you in a very special role today, as the General Chair of this year’s IEEE International Conference on Communications.

We are living in exciting times, where the developments and achievements of information communication are not only shaking up some of the ways we are living and working, but they already became a key pillar of any competitive economy and inclusive society and we are just at the beginning of a revolution of the sector which will continue to change the way citizens, companies, governments and public institutions operate and interact.

Hungary as a country has not only substantial traditions in electrical engineering, but it is also worth mentioning that ICT – and telecommunications – is a true success story in the country.

Let me share just a few facts with you:

• After two decades of dynamic development, the ICT sector now plays a major role in Hungary’s economy: its contribution to the GDP and economic growth is above the European average.
• According to the ‘Europe’s Digital Competitiveness Report’ published by the EU, the weight of the Hungarian ICT sector is among the highest in the EU both in the case of GDP (5th place) and employment (3rd place).
• The contribution of the ICT sector to GDP growth was around 20 % in the last 8 years.
• The ICT sector is also a substantial economic force as a major employer. Around 100 thousand people work in the ICT production sector and about the same number of ICT experts work in other industries, public and government institutions.
• ICT products and services represent more than one fifth of Hungary’s export.

In view of the above, I believe that Hungary is an excellent choice for this year’s conference.

Bridging the Broadband Divide as the overarching topic of the 2013 conference is also more current than ever, as broadband continues to be the essential to enable the full-fledged use and further evolution of services, products, solutions, equipments, applications, functions of ICT – connecting work and life in a smart, efficient and multiscreen way.

Hungary’s broadband infrastructure coverage is better than the EU average, quality of internet services is also above the average, yet the country is still lagging behind in terms of digital literacy, broadband penetration and use of sophisticated e-services by citizens and SMEs. Despite major investments, there is still room for improvement to close the digital gap in the country.

Telekom has the worldwide vision to become a leader in connected life and work. We at Magyar Telekom in Hungary and in the region see ourselves as the leading enabler committed to provide the best customer experience in telecommunications and ICT, using cutting edge technologies, quality network abilities and top of choice equipment.

Therefore, I am really proud that Magyar Telekom has the opportunity to support IEEE ICC 2013 and to commit to our common goal of Bridging the Broadband Divide.

I am looking forward to greeting you all live here in Budapest.

Christopher Mattheisen
IEEE ICC 2013 General Chair
Allow me to commence by welcoming you to IEEE ICC 2013 in the vibrant city of Budapest! May I invite you to reminisce for a moment and think of the best conference experience you have ever had, the nicest place you have ever been to. Our team has been working towards matching these experiences for you over the past 36 months.

I have a vivid recollection of my first IEEE ICC in 1985, which brings back fond memories of the ensuing dynamic period of spectacular growths across the wireless communications industry - the ‘ride’ has been amazing and as a community, we succeeded in turning the whole big world into a global village. Only two decades ago the average global penetration of telephony was extremely low and many people never made a phone call. This community created a global infrastructure, which today facilitates communications for anyone at the touch of a dialing key and fuels global business.

My hope is that you would enjoy the rich technical blend of plenaries and panels presented by distinguished industrial and academic leaders converging on Budapest from all over the globe. These will also be complemented by cutting-edge research-oriented tutorials, workshops and the regular technical sessions.

I am indebted to the entire organizing and technical program committees, especially to the General Chair Christopher Mattheisen, TPC Chair Andy Molisch, TPC Vice Chairs Andrea Conti and Iain Collings as well as to the Operations Chair Vida Rolland and to the entire executive committee for their generosity with their precious research-time invested in making IEEE ICC 2013 a success. I would also like to express my sincere gratitude to the Workshop Chairs Thomas Bohnert, Christina Fragouli and to Christoph Meklenbreuker as well as to other leading members of the committee, including all the Symposium Chairs for their dedication. Our committee has also been tirelessly assisted by GITC, in particular by John Thompson and special thanks are due to June Leach-Barnaby of IEEE ComSoc for ‘oiling the wheels’ every step of the way. Naturally, we are all grateful to our valued colleagues in the TPC and the research community at large who assisted us in securing 10,000+ reviews!

It is my privilege to convey the community’s gratitude to the conference patrons, namely to Magyar Telekom, Ericsson and BEEcube as well as to the exhibitors and other sponsors. Needless to say the countless further volunteers contributed in numerous ways to the success of the conference.

On a technical note, following the gradual roll-out of the Third-generation Partnership Project’s Long-Term Evolution (3GPP LTE) initiative, research is now well under way towards the definition of next-generation standards. The 3G High Speed Packet Access (HSPA) system also continues to evolve further towards increased-rate multi-carrier solutions using carrier aggregation, with the goal of maintaining the current momentum of increasing the achievable bitrate. In the past, each consecutive decade brought about a factor of ten bitrate improvement, as observed for the second-, third- and fourth-generation wireless systems. Naturally, the associated three orders of magnitude throughput improvement was achieved at the cost of a substantially increased power consumption. In the light of the escalating energy prices, this motivated the design of ‘green radios,’ aiming for more power-efficient designs - all in all, an exciting era for our community. Please join the debate on the weird and wonderful future world of quantum communications as well as on mm-wave cellular or optical wireless.

My hope is that you, dear Colleague, will enjoy the technical discussions, meeting old friends and forging new professional links, but that you will also be able to sample the local culture and history which I look forward to an enlightening and enjoyable event with you!

Lajos Hanzo
IEEE ICC 2013 Executive Chair
On behalf of the Technical Program Committee, it is our pleasure to welcome you to the IEEE International Conference on Communications (ICC 2013) in the beautiful and historic city of Budapest. Under the motto “Bridging the Broadband Divide,” the conference brings together researchers from all over the world to discuss the latest advances in communications technology.

The technical program of IEEE ICC 2013 consists of 12 symposia, 20 workshops, 22 tutorials as well as industry and business panels. Together, all these forums present cutting-edge advances of both the scientific and industrial developments in communications engineering.

IEEE ICC 2013 received 2,423 paper submissions from 74 countries, out of which 949 papers have been accepted—corresponding to an acceptance rate of 39%. All papers have undergone a rigorous review process—every symposium paper was reviewed by at least 3 experts, with many receiving even more reviews. Also the workshops were carefully scrutinized with only 20 out of 49 submitted workshop proposals were finally accepted. Most of the technical symposia papers will be presented in lecture style, while some papers will be presented in poster sessions. The quality of papers in lecture-style and poster sessions is the same. The only criterion to assign a paper to a poster session is topic homogeneity. Also, new this year is a rule that all papers must be presented by authors, which hopefully will increase the discussions and lead to fruitful technical exchanges.

We would like to especially thank the symposia chairs, workshop chairs, tutorial chairs, and industry panel chairs as well as the many hundred members of the technical program committee and the external reviewers for their dedication. Without their help, this conference would not be possible. We would also like to thank the keynote speaker chairs, and the keynote speakers for contributing to this important part of the program. Last, but not least, our sincere thanks to Lajos Hanzo and the executive committee for their strong support and willingness to help.

We are looking forward to seeing you all in Budapest!

Andy Molisch
TPC Chair

Andrea Conti
TPC Vice Chair

Iain Collings
TPC Vice Chair
**Welcome Remarks**

09:00 – 09:45

**Keynote Presentation**

Gerhard P. Fettweis  
ciAED Scientific Director and Coordinator  
Vodafone Chair Professor  
TU Dresden

**5G - What will it Be: The Tactile Internet**

Mainstream wireless communications has enabled applications and services as cordless & cellular telephony, wireless data access, multimedia content delivery, and is now moving towards machine-type-communications (MTC/M2M). Within this context, cellular communications has been advancing at a steady pace, with the introduction of a new digital cellular standard every 10 years. Starting with the introduction of 2G, then 3G, and now 4G, every standard required major innovations and has been a great step forward in technology. When making projections, 5G cellular will be deployed approximately a decade from now. Hence, now is the time to decide on new key application & service enabling ingredients, as well as technology enablers.

The TACTILE INTERNET will be proposed within this talk, leapfrogging future application enablement. It will have a dramatic impact into our daily life, advancing the planet to a better and safer place. The extreme requirements on latency and resilience are analyzed. A proposal for a new physical air interface are addressed by the use of GFDM (Generalized Frequency Division Multiplexing), showing that the feasibility of the vision of the TACTILE INTERNET.

**Biography: Gerhard Fettweis**

earned his Ph.D. under H. Meyr’s supervision from RWTH Aachen in 1990. Thereafter he was one year at IBM Research in San Jose, CA and then at TCSI Inc., Berkeley, CA. Since 1994, he is Vodafone Chair Professor at TU Dresden, Germany, with currently 20 companies from Asia/Europe/US sponsoring his research on wireless transmission and chip design.

Gerhard is IEEE Fellow, member of acatech, has received an honorary doctorate and multiple awards. In Dresden he has spun-out nine start-ups so far, and setup funded projects of more than EUR 1/4 billion volume. He has been actively involved in organizing IEEE conferences, most notably being TPC Chair of IEEE ICC 2009, TTM 2012, and General Chair of VTC Spring 2013. He remains active within IEEE societies as well as their publications.

09:45 – 10:30

**Awards Ceremony**

The Awards Ceremony honors the achievements of IEEE Communications Society members. The Society’s major paper awards recognize outstanding and original papers published in IEEE ComSoc journals and magazines, which essentially enlarge the field of communications engineering; for example, open new lines of research, envision bold approaches to communication and formulate new problems to solve. Award recipients discover, extend, or complement technological advancements in education, industry, research and service.
Wireless Access for the Future Networked Society

The vision for the future networked society is a world with unlimited access to information and sharing of data available anywhere and anytime for anyone and anything. To approach this vision, new technology solutions are needed in all areas of communication, not the least within the wireless access. This presentation will outline the vision of the networked society and the challenges it will create and discuss steps that may be taken to address these challenges.

Biography: Erik Dahlman received the Master of Science degree and Doctor of Technology degree from the Royal Institute of Technology, Stockholm in 1987 and 1992 respectively. He is currently the Senior Expert in Radio Access Technologies within Ericsson Research. Erik Dahlman was deeply involved in the development and standardization of 3G radio access technologies (WCDMA and HSPA), first in Japan and later within the global 3GPP standardization body. More recently he has been involved in the standardization/development of the 3GPP Long Term Evolution (LTE) and its continued evolution. He is currently part of the Ericsson Research management team working with long-term strategies in the area of radio-access technologies. Erik Dahlman is the co-author of the book 3G Evolution – HSPA and LTE for Mobile Broadband and its follow-up 4G – LTE and LTE-Advanced for mobile broadband. He has also participated in three other books within the area of radio communication, as well as numerous journal papers and conference contributions. In 1998 he received the IEEE Jack Neubauer Best System Paper award for the paper WCDMA – The Radio Interface for Future Mobile Multimedia. Erik Dahlman holds more than 80 patents in the area of mobile-radio communication and has been named the Inventor of the Year within Ericsson. In October 2009, Erik Dahlman received the Major Technical Award, an award handed out by the Swedish Government, for his contributions to the technical and commercial success of the HSPA radio-access technology.

Transformation from a Traditional Telco Provider to a Multiservice Community Enabler

Facing the challenges of the continuously changing telco market Magyar Telekom, the leading incumbent service provider in Hungary took courageous steps by entering various non-traditional telco market segments like satellite TV broadcasting, retail electricity and gas distribution, media and insurance in the near past. The speech intends to lead through different aspects of this journey by treating external and internal factors such as market and technology evolution, organizational and process changes, IT transformation, people and culture development.

Biography: Walter Goldenits received a technical mathematics degree from Technical University Vienna. He started his career in telecommunications at Mobilkom Austria in 1998 in the IT department, and then from 2003, as Head of IT. After 2007, he has held multiple executive positions in Telekom Austria group, first heading the IT and Network's division of si.mobil, and then served as Chief Technology Officer in Telekom Austria wireline, where he was responsible for optimization of the organization, technology lifecycle management and IT transformation. In 2010, upon the merger of Mobilkom Austria and Telekom Austria into a single entity to form A1 Telekom Austria, he was appointed as Chief Technology Officer, where his principal responsibilities involved the integration of the wireline and wireless technology units, rollout of LTE and fiber technology and IT harmonization. Since January 2013, he has been Chief Technology and IT Officer of Magyar Telekom
Advances in High Definition and 3D Video Coding

With the increased growth of video traffic, coding and compression of video are as important as ever. The deployment of HD and the arrival of 3D and Ultra HD content on flat screens and portable devices will push the limits even further. Already today, video related Internet and mobile traffic exceeds more than 50% of the overall traffic in each domain. This process is expected to continue with some predictions forecasting video to be the clearly dominant type of traffic.

Today, the majority of the video bits are compressed using the H.264/MPEG-AVC standard, which has been the driving force behind HD video. In recent years, a successor has been standardized: H.265/MPEG-HEVC. The aim of the new standard was to half the bit rates needed by its predecessor. The scope of these video coding standards also covers scalable video coding and support for stereo as well as autostereoscopic 3D video. This keynote will provide an overview of the advances in high definition and 3D video coding.

Biography: Thomas Wiegand is a professor at the department of Electrical Engineering and Computer Science at TU Berlin and is jointly heading the Image Processing department of the Fraunhofer Heinrich Hertz Institute, Berlin, Germany. He received the Dr.-Ing. degree from the University of Erlangen-Nuremberg, Germany, in 2000. He has been a visiting researcher to Kobe University, UC Santa Barbara and a visiting professor to Stanford University. Since 1995, he has been an active participant in standardization for multimedia with successful submissions to ITU-T VCEG, ISO/IEC MPEG, 3GPP, DVB, and IETF. He received a number of awards including the Innovations Award of the Vodafone Foundation, the EURASIP Group Technical Achievement Award, the Eduard Rhein Technology Award, the Karl Heinz Beckurts Award, and the IEEE Masaru Ibuka Technical Field Award. He is a Fellow of the IEEE and has been active within IEEE in many capacities including associate and guest editorships as well as awards committee membership.

Optical Transport Is Going MIMO

Over the past decade, fiber-optic communication systems have embraced a wide range of digital communication techniques long established in radio-frequency communications, such as digital coherent detection, adaptive equalization, higher-level modulation, orthogonal frequency division multiplexing, and soft-decision forward error correction. Integrated into chip sets with internal data buses of several Tbit/s, the resulting cutting-edge optical transponder products support per-channel information rates beyond 100 Gbit/s, with aggregate per-fiber capacities of more than 10 Tbit/s using wavelength-division multiplexing (WDM). With this enormous progress, however, per-fiber capacities are rapidly approaching the recently identified Shannon limit of the nonlinear fiber-optic channel. Fundamentally new technologies will be required to enable fiber-optic transport systems to scale to Pbit/s capacities and beyond, as needed to support the unabated exponential network traffic growth. Space-division multiplexing using multiple-input multiple-output techniques (MIMO-SDM) has been identified as the only long-term scalable solution to the problem, and is now being heavily researched within the global fiber-optics communications community, both for network capacity scaling and for the information-theoretically secure transmission of vast amounts of data.

Biography: Peter J. Winzer received his Ph.D. in electrical engineering from the Vienna University of Technology, Austria in 1998. Supported by the European Space Agency, he investigated space-borne Doppler lidar and laser communications using high-sensitivity digital modulation and detection. In 2000, he joined Bell Labs, focusing on many hardware, systems, and architectural aspects of fiber-optic networks research and setting several high-speed and high-capacity optical transmission records. He has widely published and patented and is actively involved in technical and organizational tasks with the IEEE Photonics Society and the Optical Society of America (OSA). He was promoted Distinguished Member of Technical Staff at Bell Labs in 2007 and since 2010 heads the Optical Transmission Systems and Networks Research Department. He is a Fellow of the OSA and the IEEE.
This talk presents a vision beyond the conventional LTE-4G evolution path and argues that time-division duplex (TDD) could be a key enabler for a new heterogeneous network architecture based on a co-channel deployment of macro base stations (BSs) with very large antenna arrays and a secondary tier of small cells (SCs). The resulting channel reciprocity enables not only the estimation of large-dimensional channels at the BSs, but also an implicit coordination between both tiers without the need to exchange user data or channel state information over the backhaul. Moreover, a massive-MIMO infrastructure could simultaneously solve the critical problem of backhaul provisioning for the SCs. Lastly, we present a recently developed prototype of a scalable antenna architecture and report on channel measurements with an unprecedented number of antennas.

Biography: Jakob Hoydis is a member of the technical staff in the Wireless Physical Layer Research Department at Alcatel-Lucent, Bell Labs, in Stuttgart, Germany. He received the diploma degree (Dipl.-Ing.) in electrical engineering and information technology from RWTH Aachen University, Germany, and the Ph.D. degree from Supélec, Gif-sur-Yvette, France, in 2008 and 2012, respectively. His research interests are in the areas of large random matrix theory, information theory, signal processing, and wireless communications. He was awarded the 2012 Publication Prize from the Supélec Foundation for his dissertation.

Biography: Giuseppe Caire received his B.Sc. degree in electrical engineering from Politecnico di Torino, Italy in 1990, his M.Sc. degree in electrical engineering from Princeton University, Princeton, NJ in 1992 and his Ph.D. degree from Politecnico di Torino in 1994. He has been Assistant Professor in Telecommunications at the Politecnico di Torino; Associate Professor at the University of Parma, Italy; and Professor with the Department of Mobile Communications at the EURECOM Institute; Sophia-Antipolis, France. He is now a Professor with the Electrical Engineering Department of the Viterbi School of Engineering, University of Southern California, Los Angeles. He received the Jack Neubauer Best System Paper Award from the IEEE Vehicular Technology Society in 2003, and the IEEE Communications Society and Information Theory Society Joint Paper Award in 2004 and in 2011. Dr. Caire served as an Associate Editor for the “IEEE Transactions on Communications” in 1998–2001 and as an Associate Editor for the “IEEE Transactions on Information Theory” in 2001–2003 and was President of the IEEE Information Theory Society in 2011.

Biography: Ove Edfors received his M.Sc. degree in computer science and electrical engineering in 1990 and the Ph.D. degree in signal processing in 1996, both from Luleå University of Technology, Sweden. In the spring of 1997 he worked as a researcher at the Division of Signal Processing at the same university and in July 1997 he joined the staff at the Department of Electrical and Information Technology, Lund University, Sweden, where he is a professor of Radio Systems. His research interests include radio systems, statistical signal processing and low-complexity algorithms, with applications in telecommunication. He has long experience with processing for OFDM and MIMO based systems, and recently he has turned his attention to channel properties and processing issues in massive MIMO systems.
Massive MIMO systems allow for interference control with simple distributed techniques. In practice the gains are severely limited from so-called pilot contamination effects arising from pilot reuse and leading to corrupted channel estimates. In this talk, we reveal recent results indicating how the specular structure of multipath propagation can be exploited towards dramatically reducing contamination effects. The talk emphasizes novel properties of second order channel statistics in the large scale antenna regime. Such properties are shown to be instrumental in discriminating against interference, both for channel estimation and beamforming purposes.

Biography: David Gesbert (IEEE Fellow) is Professor and Head of the Mobile Communications Department, EURECOM, France. He obtained his Ph.D. degree from Ecole Nationale Superieure des Telecommunications, France, in 1997. From 1997 to 1999, he was with the Information Systems Laboratory, Stanford University. In 1999, he was a founding engineer of Isopan Wireless Inc, San Jose, Ca., a startup company pioneering MIMO-OFDM (now Intel). D. Gesbert has published over 200 papers and several patents all in the area of signal processing, communications, and wireless networks. He has guest edited 6 special journal issues on these topics. He has co-authored papers winning several paper awards, including most recently the 2012 SPS Signal Processing Magazine Best Paper Award.

Ralf Müller
Professor, Institute of Digital Transmission
University of Erlangen-Nuremberg, Germany

Pilot Decontamination Based on Power Controlled Hand-Off

Power controlled hand-off enables to separate signals from interfering cells from signals of interested blindly. The separation is based on the singular value decomposition of the received signal. It allows to reject pilot interference from neighboring cells without prior estimation of propagation conditions. Furthermore, the array gain of massive MIMO systems can be utilized to aid channel estimation and avoid pilot contamination as reported in earlier works. We provide preliminary simulation results for a cellular massive MIMO system utilizing the proposed method.

Biography: Ralf Müller was born in Schwabach, Germany, 1970. He received his Dipl.-Ing. and Dr.-Ing. degrees with distinction from University of Erlangen-Nuremberg in 1996 and 1999, respectively. From 2000 to 2004, he directed a research group at Vienna Telecommunications Research Center in Vienna, Austria and taught as an adjunct professor at Vienna University of Technology. In 2005, he was appointed full professor at the Department of Electronics and Telecommunications at the Norwegian University of Science and Technology (NTNU) in Trondheim, Norway. In 2013, he joined the Institute of Digital Transmission at the University of Erlangen-Nuremberg in Erlangen, Germany. He held visiting appointments at Princeton University, USA; Institute EURECOM, France; University of Melbourne, Australia; University of Oulu, Finland; National University of Singapore; Babes-Bolyai University, Cluj-Napoca, Romania; Kyoto University, Japan; and University of Erlangen-Nuremberg, Germany.

Michalis Matthaiou
Professor, Chalmers University of Technology, Sweden

Optimal Linear Receivers for Large-Scale Multiuser MIMO Systems

Large-scale MIMO systems have recently come at the forefront of wireless communication research, since they promise to offer higher data rates, increased link reliability, and potential power savings. The anticipated performance gains can be achieved by coherent, but simple, processing (e.g., linear reception techniques in an uplink scenario). In this talk, we present a novel, linear reception technique in the uplink of multicell multiuser MIMO systems, which maximizes the received signal-to-interference-plus noise ratio (SINR). This is achieved by exploiting the correlation between the channel estimates and the interference from other cells, due to the pilot contamination effect. We show that at low SINR, maximal-ratio combing (MRC) receiver performs as well as the proposed optimal linear receiver (OLR), however at high SINR, OLR outperforms MRC. Compared with the typical minimum mean-square error receiver, our proposed OLR improves systematically the system performance, especially when the interference is large.

Biography: Michalis Matthaiou is currently an Assistant Professor at Chalmers University of Technology, Sweden. He received his Ph.D. in 2008 from the University of Edinburgh, U.K. His research interests span signal processing for wireless communications, random matrix theory and multivariate statistics for MIMO systems, and performance analysis of fading channels. Dr. Matthaiou is the recipient of the 2011 IEEE ComSoc Young Researcher Award for the Europe, Middle East and Africa Region and a co-recipient of the 2006 IEEE Communications Chapter Project Prize for the best M.Sc. dissertation in the area of communications. He currently serves as an Associate Editor for the IEEE Transactions on Communications, IEEE Communications Letters and as a Lead Guest Editor of the special issue on “Large-scale multiple antenna wireless systems” of the IEEE Journal on Selected Areas in Communications.
Biography: Jesse Russell

Jesse Russell is currently Chairman and CEO of inciNETWORKS a Broadband Wireless Communications Company focused on 4th Generation Wireless Communications and Advanced Technologies. Mr. Russell has over thirty years of professional experience in directing Research and Development of pioneering technologies, products and services related to the communications industry with Lucent Bell Labs, AT&T and inciNETWORKS. For the last twenty years, Mr. Russell’s work has been focused in the wireless communications area as the Chief Technical Officer for Lucent Wireless Business Unit and Chief Wireless Architect and VP of Advanced Communications Technologies with the AT&T Company. Mr. Russell has over a decade of experience with business development aspects of communications technologies, products and service realization through business strategy development, business case preparation, marketing, and sales support as well as Customer Interface and Product Portfolio Management. Mr. Russell is a Member of the National Academy of Engineering, a Fellow of the IEEE, and a Fellow of the International Engineering Consortium (IEC). In 1980, Mr. Russell was selected byEta KappaNu as “The Most Outstanding Young Electrical Engineer of the Year” under the age of 32. Mr. Russell has over 75 US Patents to his credit in the Communication Engineering field.

From AMPS to Digital Cellular Mobile

Since the invention of cellular radio systems in 1946, the technology has migrated from the concept of voice mobile telephone service to high speed digital wireless communications supporting voice, broadband data and video services. This evolution has allowed the industry to grow from a cellular concept within Bell Laboratories, which was the research and development arm of the Bell System, to a global digital communications concept. This revolutionary digital cellular concept is currently being fueled by the explosive demand for smart phone devices which has been referred to as the smartphone phenomenon. This presentation will explore the revolutionary changes in technology and services over the past 70 years. In addition, the presentation will explore the market demands for security and mobility that has served as the hallmark for the creation of the 21st Century digital cellular communications industry.

Biography: Gerhard Fettweis

Gerhard P. Fettweis received his Ph.D. in Electrical Engineering from The Ohio State University in 1981. He was with AT&T in the research area for over 20 years where his last position was Division Manager of the Wireless Systems Research Division at AT&T Labs Research. At AT&T he did research on wireless and optical systems, including pioneering research on MIMO and smart antennas for wireless systems, and equalization for optical systems. He is an adjunct professor at Stevens Institute of Technology and has co-founded two startups, while consulting on wireless and optical systems. He is an IEEE Fellow, a former Area Editor for Transmission Systems for the IEEE Transactions on Communications, a former IEEE Distinguished Lecturer, a New Jersey Inventor of the Year for 2001, and a co-recipient of the IEEE Eric E. Sumner Award, with 74 issued U.S. patents.

The Development of GSM

The first ever mobile systems supporting international roaming were conceived in Scandinavia. The benefits of roaming inspired the member countries of the EU to embark on extending this concept to all the member states, which required substantial research and development efforts and led to the birth of the Global System of Mobile communications known as GSM. GSM was the first ever public digital mobile radio system, which later spread right across the globe. Initially it only supported voice communications and low-rate data, but its more mature, evolved versions became the first adaptive modulation and coding aided systems used by billions of private and business customers across the globe.

The Development of 3G WCDMA and HSPA

This presentation will provide backwards looking overview of the development of 3G technology. It will describe the initial discussions on wideband CDMA as the fundamental technology for 3G, the initial specification phase, and the evolution of WCDMA to HSPA providing the foundation for the mobile broadband revolution that the world has since then witnessed.

Biography: Jack H. Winters

Jack H. Winters
Stevens Institute of Technology
New Jersey, USA

The Development of 3G WCDMA and HSPA

This talk will describe the development of MIMO and Space-Time Coding. Three decades ago, multipath fading and delay spread were considered impairments to be avoided or mitigated, but with these techniques the “impairments” have become the key to substantial performance improvements in wireless systems. Mr. Winters will briefly describe how these techniques evolved from work on adaptive arrays (smart antennas), dual polarization microwave radio, and transmit diversity, along with the journey to wide spread deployment and the more recent extensions to MIMO in radar, MIMO in optical communications, and free-space MIMO.

Biography: Jack H. Winters

Jack received his Ph.D. in Electrical Engineering from The Ohio State University in 1981. He was with AT&T in the research area for over 20 years where his last position was Division Manager of the Wireless Systems Research Division at AT&T Labs Research. At AT&T he did research on wireless and optical systems, including pioneering research on MIMO and smart antennas for wireless systems, and equalization for optical systems. He is an adjunct professor at Stevens Institute of Technology and has co-founded two startups, while consulting on wireless and optical systems. He is an IEEE Fellow, a former Area Editor for Transmission Systems for the IEEE Transactions on Communications, a former IEEE Distinguished Lecturer, a New Jersey Inventor of the Year for 2001, and a co-recipient of the IEEE Eric E. Sumner Award, with 74 issued U.S. patents.
Theodore S. Rappaport
David Lee/Ernst Weber Professor, Polytechnic Institute of New York University
Professor, Computer Science, NYU Courant Institute of Mathematical Sciences
Professor, Radiology, New York University
School of Medicine

**The Millimeter Wave Propagation Channel with Steerable Antennas**

This talk provides extensive channel propagation data collected in Austin TX and New York City, at frequencies of 28, 38 and 60 GHz. The world’s first outdoor mm-wave cellular measurement studies show that future multi-gigabit per second mobile systems will be possible using the mm-wave spectrum. The talk also provides a glimpse at a new, convenient statistical spatial channel model (SSCM) that can be used for future mobile systems that exploit directional, beamforming antennas and massive MIMO.

Biography: Theodore (Ted) S. Rappaport is the David Lee/Ernst Weber Professor of Electrical Engineering at the Polytechnic Institute of New York University and is a professor of computer science at New York University’s Courant Institute of Mathematical Sciences. He is also a professor of radiology at the NYU School of Medicine. Rappaport serves as director of the National Science Foundation (NSF) Industrial/University Collaborative Research Center for Wireless Internet Communications and Advanced Technology (WICAT), a national research center that involves 5 major universities and is headquartered at NYU-Poly. He is also the founding director of NYU WIRELESS, the world’s first academic research center to combine engineering, computer science, and medicine. Earlier, he founded two of the world’s largest academic wireless research centers: The Wireless Networking and Communications Group (WNGC) at the University of Texas at Austin in 2002, and the Mobile and Portable Radio Research Group (MPRG), now known as Wireless@ at Virginia Tech, in 1990. Rappaport has served on the Technological Advisory Council of the Federal Communications Commission, assisted the governor and OIO of Virginia in formulating rural broadband initiatives for Internet access, and conducted research for NSF, Department of Defense, and dozens of global telecommunications companies. He has over 100 U.S. or international patents issued or pending and has authored, co-authored, and co-edited 18 books, including the world’s best-selling books on wireless communications and smart antennas.

Amitabha Ghosh
Head, Broadband Wireless Innovation
Nokia Siemens Networks, USA

**Can Mmwave wireless technology meet the future capacity crunch?**

There is a case to be made of utilizing large untapped spectrum resources in the millimeter wave(Mmwave) band for providing gigabit experience with true local feel for high capacity small cells. Unlike traditional cellular systems, millimeter wave transmissions do not benefit from diffraction and dispersion making it difficult for them to propagate around obstacles thus resulting in higher shadowing loss. They also have less favorable link budgets due to lower power amplifier (PA) output powers and greater pathloss at these higher frequencies. Also, current costs of the Mmwave circuits are higher, but the costs will become much lower when the technology becomes mainstream. One advantage of millimeter wave, however, is that the smaller wavelengths allow for the fabrication of antenna arrays having a much higher number of antenna elements in a much smaller area than is typical at microwave bands. In this introductory talk, we outline a framework for Beyond-4G (B-4G) local area network in the millimeter wave band for both access and backhaul which addresses different components like air-interface, antenna-arrays and IC technology.

Biography: Amitabha (Amitava) Ghosh joined Motorola in 1990 after receiving his Ph.D. in Electrical Engineering from Southern Methodist University, Dallas. Since joining Motorola, he worked on multiple wireless technologies starting from IS-95, cdma-2000, 1xEV-DV/XTREME, 1xEV-DO, UMTS, HSPA, 802.16e/WiMAX/802.16m, Enhanced EDGE and 3GPP LTE. Dr. Ghosh has 55 issued patents and numerous external and internal technical papers. Currently, he is Head, North America Radio Systems within the Technology and Innovation office of Nokia Siemens Networks. He is currently working on 3GPP LTE-Advanced and Beyond-4G systems. His research interests are in the area of digital communications, signal processing and wireless communications. He is a senior member of IEEE and co-author of the book titled “Essentials of LTE and LTE-A.”

David Astley
Ericsson Research, Sweden

**mmWaves for Future Radio Access - Opportunities and Challenges**

We discuss requirements on future radio access, partly stemming from the tremendous success of mobile broadband. We consider candidate solutions to meet the requirements and do in this talk focus on the role of mm wavelength spectrum. In light of propagation characteristics, including recent field trials of backhaul for non-line-of-sight conditions, as well as implementation aspects we outline opportunities and challenges when it comes to the use mm wavelengths in the future radio access context.

Biography: David Astley received his Ph.D. degree in signal processing from the Royal Institute of Technology in 1999. He has been with Ericsson since 2001, has held positions in both research and product development and has experience from 2G, 3G and 4G systems. He was active in the European research project WINNER and later on in 3GPP physical layer standardization of LTE and LTE Advanced, primarily within the areas of advanced antenna systems and time division duplex. As Principle Researcher with Ericsson Research, he is currently working with coordination of research and standardization activities for future radio access including the evolution of LTE beyond LTE Advanced.

**BRIDGING THE BROADBAND DIVIDE**

**IEEE 5G 2013**
Millimeter wave (mmWave) spectrum may be the solution to the spectrum gridlock in cellular systems. mmWave systems overcome potentially high pathloss by using large antenna arrays at both the transmitter and receiver, to provide enough beamforming gain to reverse, if not benefit from, the effects of the higher carrier. In this talk, we examine the system-level performance of mmWave cellular systems with a special focus on coverage and capacity. This talk presents an analysis of mmWave cellular systems using the mathematical framework of stochastic geometry, which has been used to analyze microwave cellular and ad-hoc networks. The analysis incorporates mmWave’s key differentiating factors such as the limited scattering nature of mmWave channels, and the use of RF beamforming strategies (also known as beam steering) to provide highly directional transmission with limited hardware complexity. To model mmWave signals’ increased susceptibility to signal blockage (shadowing) in urban environments, an exciting new tool is leveraged known as random shape theory to model blockages due to buildings.

Biography: Robert W. Heath Jr. received his Ph.D. in EE from Stanford University. He is currently a Professor in the Department of Electrical and Computer Engineering at the University of Texas at Austin and Director of the Wireless Networking and Communications Group. He is also the President and CEO of MIMO Wireless Inc and Chief Innovation Officer at Kurna Signals LLC. Prof. Heath is a recipient of the 2012 Signal Processing Magazine Best Paper award and the 2011 EURASIP Journal on Wireless Communications and Networking best paper award. He is the recipient of the David and Doris Lybarger Endowed Faculty Fellowship in Engineering, is a registered Professional Engineer in Texas, and is a Fellow of the IEEE.

Robert W. Heath Jr.  
Professor, IEEE Fellow  
David and Doris Lybarger Endowed Faculty Fellow  
Director, Wireless Networking and Communications Group  
University of Texas, Austin, USA

Coverage and Capacity Analysis of mmWave Cellular Systems

This talk presents how the mobile traffic explosion in the next five to ten years could be met by utilizing wide spectrum in mmWave bands. The feasibility of mmWave bands for cellular applications is demonstrated in two ways. First, simulation results, both in the link level and the system level, of novel hybrid beamforming system with reduced implementation complexity are provided. In addition, actual test results of a proof-of-concept (PoC) system are shown with the data rate close to 6Gbps in outdoor non-line-of-sight (NLOS) environment with the receiver moving in a pedestrian speed and separated by hundreds of meters from the transmitter.

Biography: Wonil Roh is currently Director and Head of Advanced Communications Lab at Samsung Electronics Corp in Korea, responsible for research of next generation mobile communications technologies. He started working at Samsung Electronics in 2003 in research and development of CDMA and Mobile WiMAX base-stations with the main focus on multi-antenna algorithms and system analysis. Then he led overall WiMAX related standard activities and strategy in Samsung including IEEE, the WiMAX Forum and ITU-R, and served as Chair of Technical Working Group (TWG) of the WiMAX Forum from 2006 to 2011. Since 2011, he has been leading research efforts for the next generation cellular (Beyond 4G or 5G) technologies at DMC R&D Center with a focus on development of disruptive technologies and the feasibility studies. Dr. Roh holds a Doctorate in Electrical Engineering at Stanford University in USA.

Wonil Roh  
Director & Head, Advanced Communications Lab  
DMC R&D Center  
Samsung Electronics Co., Ltd., Korea

Performances and Feasibility of mmWave Beamforming Systems in Cellular Environments

The widespread availability and use of digital multimedia content has created a need for faster wireless connectivity that current commercial standards cannot support. This has driven demand for a single standard that can support advanced applications such as wireless display and docking, as well as more established usages such as network access. The Wireless Gigabit (WiGig) Alliance was formed to meet this need by establishing a unified specification for wireless communication at multi-gigabit speeds; this specification is designed to drive a global ecosystem of interoperable products. The WiGig MAC and PHY specification enables data rates up to 7 Gbps, more than 10 times the speed of the fastest Wi-Fi networks based on IEEE 802.11n. It operates in the unlicensed 60 GHz frequency band, which has much more spectrum available than the 2.4 GHz and 5 GHz bands used by existing Wi-Fi products. This allows wider channels that support faster transmission speeds. The WiGig specification is based on the existing IEEE 802.11 standard, which is at the core of hundreds of millions of Wi-Fi products deployed worldwide. In this presentation we provide an overview of the WiGig technology and usages such as wireless docking and connection to displays, as well as virtually instantaneous wireless backups, synchronization and file transfers between computers and handheld devices. Other usages of the WiGig technology could expand to adjacent markets such as Short range Backhaul and Mobile Offload for cellular systems.

Biography: Ali Sadri is the Director of Intel mobile wireless group for mmWave standards and the Chairman and CEO of the WiGig Alliance. Ali has over 20 years of engineering Scientific and academic background. His Professional work started at IBM and a Visiting Professor at the Duke University. In 2002, he joined Intel Corporation Mobile Wireless division where he is currently leading the mmWave and WiGig standardization activity. Dr. Sadri’s expertise is in Wireless Communications Theory, mmWave systems, Channel Modeling, Adaptive closed loop Power control and adaptive modulations techniques. He holds more than 25 Issued patents in communications and wireless systems.

Ali Sadri  
Director, WiGig and mmWave Standards  
Chairman & President of WiGig Alliance  
Intel Corporation

Evolution of mmWave Systems from WiGig to Small Cells

Over the years, there has been continuous and ever increasing demand in data traffic stretching the capacity requirements on the backhaul and transport layers of the communication networks. In this talk, we look at potential applications which would benefit from high capacity links offered by Millimetre Wave (mmWave) radio, and we present the key role which mmWave radio will play in realizing an unprecedented ultra-high-capacity radio of 10Gbps in high-density deployment scenarios. Capabilities of the mmWave radio will be analyzed in terms of its link length and availabilities. A practical mmWave radio solution for backhaul is also presented.

Biography: Nader Zein is a Technical Manager and Director of Wireless Solutions at NEC Europe, Germany.

Nader Zein  
Technical Manager & Director of Wireless Solutions  
NEC Europe, Germany

mmWave Technology - Enabler for High-Capacity High-Density Radio link

The widespread availability and use of digital multimedia content has created a need for faster wireless connectivity that current commercial standards cannot support. This has driven demand for a single standard that can support advanced applications such as wireless display and docking, as well as more established usages such as network access. The Wireless Gigabit (WiGig) Alliance was formed to meet this need by establishing a unified specification for wireless communication at multi-gigabit speeds; this specification is designed to drive a global ecosystem of interoperable products. The WiGig MAC and PHY specification enables data rates up to 7 Gbps, more than 10 times the speed of the fastest Wi-Fi networks based on IEEE 802.11n. It operates in the unlicensed 60 GHz frequency band, which has much more spectrum available than the 2.4 GHz and 5 GHz bands used by existing Wi-Fi products. This allows wider channels that support faster transmission speeds. The WiGig specification is based on the existing IEEE 802.11 standard, which is at the core of hundreds of millions of Wi-Fi products deployed worldwide. In this presentation we provide an overview of the WiGig technology and usages such as wireless docking and connection to displays, as well as virtually instantaneous wireless backups, synchronization and file transfers between computers and handheld devices. Other usages of the WiGig technology could expand to adjacent markets such as Short range Backhaul and Mobile Offload for cellular systems.

Biography: Nader Zein is a Technical Manager and Director of Wireless Solutions at NEC Europe. His research interests include (but not limited to) Communication Systems, Future Wireless Broadband Communications, Self-organized and Confligurable Networks, Communication Systems for Aviation Security and Techniques for IMT-Advanced and Beyond. Dr. Nader Zein built his reputation as one of the world’s leading scientists during his involvement in the IEEE802.16, WiMAX Forum, ETSI BRAN, ETSI HYPERACCESS, DVB-DSNG, DVB-RCS, DVB-H and DVB-S2 International standardization bodies, where he chaired a number of working Groups and initiated the development of a numerous International Standards. He was elected as a Technical Advisor to the RTCA and EURAOE, the US and European Standardization body specializing in aviation specifications. His reputation has been cemented by his publications in National and International Professional Journals, over 80 standards contributions and by his election to number of National and International Professional Committees.

Biography: Nader Zein
Monday, 10 June 2013
11:00 – 12:30
Room: Ballroom I, 1st Floor, InterContinental

**P1: Quality of End User Experience (QoE) for Network Services: Are we really measuring the right things?**

**Moderator: Markus Fiedler, Blekinge Institute of Technology, Sweden**

During the recent years, Quality of Experience (QoE) has received much attention by suppliers, operators and researchers. While intensive and fundamental discussions on views on, definitions of and measurement principles for QoE are going on, suppliers and operators face the challenge that they need to satisfy their customers. Schisms exist between viewpoints (technology- versus user-oriented), measurement methods (lab versus life) and parameters (standardized versus innovative). This panel, consisting of panelists with different backgrounds and views, will scrutinize current practices with regards to QoE assessment and try to come up with constructive and pragmatic proposals on how to overcome shortcomings of classical QoE assessment methods and parameters, thus taking important steps towards telling and future-proof measurements.

**Speakers:**
- Robert Muellner, Telefonica, Germany
- Matthias Linder, Magyar Telekom, Hungary
- Katrien de Moor, iMinds/University of Ghent, Belgium
- Tobias Hossfeld, University of Würzburg, Germany
- Sergio Beker, Huawei European Research Centre, Germany

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Monday, 10 June 2013
14:00 – 15:30
Room: Ballroom I, 1st Floor, InterContinental

**P2: 3D Multimedia for Entertainment: Key Technologies and the Role of 3D Media on the Perceived Quality of Experience**

**Moderator: Atanas Gotchev, Tampere University of Technology, Finland**

During the last years, 3D media has gained momentum due to advances in display technology, signal processing and microelectronics, which allow offering an appealing 3D media experience on consumer electronics platforms. Recent advances in 3D media technologies follow worldwide increasing research activity in multidisciplinary fields, including capturing, representation, coding, delivering/transmitting, and visualizing to 3D displays. Whereas 3D media has been widely adopted in several application scenarios, the entertainment market segment is reporting the most remarkable successes, with 3DTV and 3D gaming at the forefront. Indeed, it is now considered an essential media towards the provisioning of immersive experience to home and mobile users. With particular reference to 3D multimedia for entertainment, this industry panel is aimed at discussing about the key technologies that are being exploited in the latest applications, which are the major obstacles that still need to be addressed, and the role of 3D media on the perceived Quality of Experience.

**Speakers:**
- Andy Quested, BBC, UK
- Peter Kovacs, Holografika, Hungary
- Qing Zhang, Huawei, China
- Aljoscha Smolic, Disney Research, Switzerland
- Luigi Atzori, UNICA, Italy
P3: Future Network Technologies: What is the impact of future network technologies on carrier networks and services?

**Moderator:** David Soldani, Huawei European Research Centre, Germany

This panel discusses the influence of future network technologies, such as Information Centric Networking, Software Defined Networking, Cloud Networking, Virtualization and Open Connectivity on Future Carrier Networks, i.e. networks that will enable the business of Telco operators in 2020 horizon and beyond. Trust, security and privacy, enforcement of Service Level Agreements (SLA), inter-operability of various virtual cloud systems, Internet of Things (IoT) and spectrum issues are also addressed.

**Speakers:**
- Luis Rodríguez-Roselló, European Commission, Belgium
- John Strassner, Huawei Technologies, USA
- Hendrik Berndt, NTT DOCOMO Communications Laboratories Europe GmbH, Germany
- Kari Aaltonen, NSN, Finland
- James Kempf, Ericsson, USA
- Heinrich J. Stuetzgen, NEC, Germany

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P4: Wireless Myths, Realities and Futures: From 3G/4G to Optical and Quantum Wireless

**Moderated:** Lajos Hanzo, University of Southampton, UK

The Myth: Sixty years of research following Shannon’s pioneering paper has led to telecommunications solutions operating arbitrarily close to the channel capacity - ‘flawless tele-presence’ with ‘zero error’ is available to anyone, anywhere, anytime across the globe.

The Reality: Once we leave home or the office, even top of the range iPhones and tablet-computers fail to maintain ‘flawless tele-presence’ quality. They also fail to approach the theoretical performance predictions.

The 1000-fold throughput increase of the best third-generation (3G) phones over second-generation (2G) GSM phones and the 1000-fold increased tele-traffic predictions of the next decade require substantial further bandwidth expansion towards ever increasing carrier frequencies, expanding beyond the radio frequency (RF) band to optical frequencies, where substantial bandwidths are available.

The Future: However, at the time of writing optical- and quantum-domain wireless communications is less well developed than RF wireless. It is also widely recognized that the pathloss of RF wireless systems monotonically increases with the carrier frequency and this additional challenge has to be tackled by appropriate counter-measures in future research. Hence we set out to seek promising techniques of tackling the above-mentioned challenges and for resolving the conflicting design constraints imposed on the flawless tele-presence systems of the future.

**Speakers:**
- Harald Haas, University of Edinburgh, UK
- Sandor Imre, Budapest University of Technology and Economics, Hungary
- Markus Rupp, Vienna University of Technology, Austria
Tuesday, 11 June 2013
9:00 – 10:30
Room: Ballroom I, 1st Floor, InterContinental

**P5: Cloud Computing and Communication**

**Moderator:** Y. Mochizuki, VP, Central Research Laboratories
(Head of Cloud Research), NEC Corporation, Japan

As the application of cloud computing is becoming broader, cloud services become covering not only IT-oriented applications but also those dealing with cyber-physical systems by accommodating M2M capabilities. While the rapid expansion of applications is creating new business “models, the technology demand supporting cloud computing is starting to see more and more network communication aspects. Therefore, this panel will feature panelists from industries discussing business models and giving a perspective on future cloud computing.

**Speakers:**
- Francisco Medeiros, Deputy Head of Unit, European Commission, DG Connect, Brussels
- Wolfgang Theilmann, Head of Enterprise Platform Research, SAP, Germany
- Matthias Kaiserswerth, Director, IBM Zurich Research Laboratory, Switzerland
- Götz Brasche, Microsoft Research, Advanced Technology Labs, Germany

Tuesday, 11 June 2013
14:00 – 15:30
Room: Ballroom I, 1st Floor, InterContinental

**P6: Internet of Things: What are the challenges and how far is the future?**

**Moderator:** Barbara Pareglio, Netherlands

The concept of “Internet of Things” (IoT) has been around for almost a decade, but only during the past few years has become more prominent. IoT envisage a world where the world of smart-objects and the real objects “things” (including humans) participate actively in a business process. Smart objects and things can communicate with each other and they are capable to react in an autonomous way to events from the real world and humans. The panel will address some of the challenges in creating such a complex system.

**Speakers:**
- Alexander Gluhak, CCSR, University of Surrey, UK
- Falko Dressler, University of Innsbruck, Austria
- Uwe Kubach, SAP AG, Germany
- Bin Zhen, Huawei, China
- Afonso Ferreira, DG CONNECT, FET, France
Tuesday, 11 June 2013
16:00 – 18:00
Room: Ballroom I, 1st Floor, InterContinental

P7: Inter-vehicle Communication: Quo Vadis?

Moderator: Falko Dressler, University of Innsbruck, Austria

Intelligent Transportation Systems (ITS) are strongly demanding the management and control of network connections among vehicles and between vehicles and an existing network infrastructure. The domain of Inter-Vehicle Communication (IVC) became one of the most challenging research fields in computer networking and communications. In the last 10 years, many applications – as interesting as challenging – have been envisioned and (at least) partially realized. The technology is now, major parts have been standardized, ready for use in commercial environments. This panel aims at revisiting the research aspects in the field of IVC with a major focus on recent experimental results to answer the question “IVC: Quo Vadis?”

The panelists will discuss this question from different viewpoints, also aiming to conclude on open questions and problems that demand further research in the IEEE Communications Society. Topics include IEEE/ETSI standardization, lessons learned from field tests and experiments, and the need to consider all the heterogeneity of available communication technologies.

Speakers:
Mario Gerla, University of California, Los Angeles, USA
Onur Altintas, Toyota InfoTechnology Center, Japan
Hannes Hartenstein, Karlsruhe Institute of Technology, Germany
Marco Gruteser, Rutgers University, USA
Javier Gozalvez, University Miguel Hernandez, Spain
Jorge Pereira, European Commission, DG CONNECT, Portugal

Wednesday, 12 June 2013
09:00 – 10:30
Room: Ballroom I, 1st Floor, InterContinental

P8: Horizon 2020: Europe’s Major New Collaborative Research Programme

Moderator: David Soldani, Huawei European Research Centre, Germany

On the potential ICT solutions driving research priorities in H2020 Work Programme Horizon 2020 will address three priorities in one programme: Excellent Science, Industrial Leadership and Societal Challenges. In this panel we will elaborate on the main areas of Application Driven Research, Technology Driven Research and Basic Research in the field of Information and Communication Technology (ICT). The key issues on the 2020 Horizon, such as Scenarios, New Architectures, Spectrum, Management of Complex System and Service Applications will be introduced and the positioning of ICT topics, such as Elastic Networking, Future Radio Access, Software Defined Networking, Service Aware Networks, Virtualization, etc. discussed.

Speakers:
Rahim Tafazolli, University of Surrey, UK
Luis Rodríguez-Roselló, European Commission, Belgium
Werner Mohr, NSN – DE/Munich, Germany
Erik Dahlman, Ericsson, Sweden
Wednesday, 12 June 2013
14:00 – 15:30
Room: Ballroom I, 1st Floor, InterContinental

P9: Collaborative Programs in Green Communications: Successful Cases and Key Remaining Research Challenges

Moderator: Rod Tucker, University of Melbourne, Australia

As research activities in the area of energy-efficient communications have expanded around the world, a number of groups in universities and industry have joined together in collaborative research programs. Examples include the GreenTouch Consortium, a global pre-competitive research consortium dedicated to improving network energy efficiency; TREND, a Network of Excellence on energy-efficient networking; ECONET, an EU-funded green communications program, and MVCE, a collaboration of networking researchers across a variety of institutions. The purpose of this Panel Session will be to provide a snapshot of research activities in these four collaborative programs and to provide an overview of the global status of green telecommunications research. The panel will review some of the successful cases that have been achieved to date and highlight some key remaining research challenges.

Speakers:
Franco Davoli (ECONET), University of Genoa, Italy
Thierry Klein (GreenTouch), Bell Labs, Alcatel-Lucent, USA
John Thompson (MVCE), University of Edinburgh, UK
Marco Ajmone Marsan (TREND), Politecnico di Torino, Italy

Wednesday, 12 June 2013
16:00 – 18:00
Room: Ballroom I, 1st Floor, InterContinental

P10: Wireless 100Gb/s and Beyond: A Special Focus Program of the German Scientific Foundation

Moderator: Rolf Kraemer, Technical University Cottbus / IHP, Germany

The panel will discuss the technical challenges of wireless communication systems at ultra-high speed of 100Gb/s and more. This is the topic of a newly started focus project of the German Science Foundation (DFG). The panel will present and discuss different approaches to solve the problem and to integrate such a communication system into ordinary computers. The panelists represent different project proposals submitted to DFG and started in Spring 2013.

Speakers:
Jörg Nolte, Technical University of Cottbus, Germany
Frank Ellinger, Technical University of Dresden, Germany
Eckhard Grass, Humboldt University, Germany
Christoph Scheytt, University Paderborn / Heinz Nixdorf Institute, Germany
Damian Dudek, German Scientific Foundation, Germany

Rod Tucker, Franco Davoli, Thierry Klein, John Thompson, Marco Ajmone Marsan

Rolf Kraemer, Jörg Nolte, Frank Ellinger, Eckhard Grass, Christoph Scheytt, Damian Dudek
Monday, 10 June 2013 • 11:00 – 12:30
Room: Panorama IV, 1st Floor, InterContinental

**AH-01: Routing**

**Improving Routing Performance when Several Routing Protocols are used Sequentially in a WSN**
Nancy El Rachkidy (Blaise Pascal University, France)
Alexandre Guittou (Clermont University, France)
Michel Misson (Equipe REPLIC, IUT Clermont-Fd, France)

**Simultaneous Routing and Multiplexing in Ad Hoc Networks with MIMO Links**
Maggie Cheng, Quanmin Ye (Missouri University of Science and Technology, USA)
Xiaochun Cheng (Middlesex University, UK)

**A Destination Information Based Probabilistic Routing Protocol for Vehicular Sensor Networks**
Hui Tong, Xu Wu, Jun Zheng (Southeast University, China)

**PHRLS: A Movement-Prediction-based Joint Routing and Hierarchical Location Service for VANETs**
Marwane Ayaida (Université de Reims Champagne-Ardenne, CReSTIC, France)
Mohyadi Barhoumi, Hacene Fouchal (Université de Reims Champagne-Ardenne, France)
Yacine Chami-Doudane (ENSIIIE, Université Paris-Est, France)
Lissan Afilal (Centre de Recherche en Informatique de Toulouse, France)

**On the Overhead of Ad Hoc Routing Protocols with Finite Buffers**
Min Sheng, Yang Xu, Jia Liu, Yan Shi (Xi’an Jiaotong University, China)

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Monday, 10 June 2013 • 11:00 – 12:30
Room: Panorama V, 1st Floor, InterContinental

**AH-02: Cognitive Wireless Networks**

**On Designing Truthful Spectrum Auctions for Variable Bandwidths**
Tingting Chen (Oklahoma State University, USA)
Sheng Zhong (UB, USA)

**Network Partition-Aware Geographical Data Dissemination**
Leandro Aparecido Villas (UFMG, Brazil)
Azeddine Bokerche (University of Ottawa, Canada)
Regina Borges de Araujo (Federal University of Sao Carlos, Brazil)
Antonio A.F. Loureiro (UFMG, Brazil)
Jo Ouyama (USP, Brazil)

**Power-efficient Hierarchical Data Aggregation using Compressive Sensing in WSN**
Xi Xu, Rashid Ansari, Ashfaq Khokhar (University of Illinois, Chicago, USA)

**Social Network Generation and Friend Ranking Based on Mobile Phone Data**
Mustafa I Akbas, Raghu Avula, Mostafa Bassiouni, Damla Turgut (University of Central Florida, USA)

**Hybrid Channel Assignment in Multi-hop Multi-radio Cognitive Ad Hoc Network**
Jiaxiao Zheng, Wenjun Xu, Gaofei Sun, Xiaohua Tian, Xinbing Wang (Shanghai Jiaotong University, China)

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Monday, 10 June 2013 • 11:00 – 12:30
Room: Erzsebet A, Mezzanine Level, Marriott

**AH-03: Localization I**

**A New Splitting-Merging Paradigm for Distributed Localization in Wireless Sensor Networks**
S. Ali reza Motegvallian, Lu Xia (Australian National University, Australia)
Brian Anderson (Australian National University, National ICT Australia, Australia)

**L-MAC: Localization Packet Scheduling for an Underwater Acoustic Sensor Network**
Hamid Ramezani, Geert Leus (Delft University of Technology, Netherlands)

**A Fast Location-based Handoff Scheme for Vehicular Networks**
Yikun Wang (University of Ottawa, Canada)
Mohammed Almualla (Kuwait University, Kuwait)

**Fault Tolerant Target Localization and Tracking in Binary WSNs using Sensor Health State Estimation**
Christos Laoudias (University of Cyprus, Cyprus)
Michalis P. Michaelides (Cyprus University of Technology, Cyprus)
Christos Panayiotou (University of Cyprus, Cyprus)

**A Distributed Localization in Wireless Sensor Networks Utilizing AOD Estimation and Rotation Synthetic Aperture Technique**
Wenjie Wang, Bin Li, Qinye Yin, Bin Yang (Xi’an Jiaotong University, China)

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Monday, 10 June 2013 • 11:00 – 12:30
Room: Duna Salon I, 1st Floor, InterContinental

**CIS-01: Cloud and Distributed Application Security**

**Ensuring Data Privacy by Hybrid Cloud**
Xueli Huang, Xiaojing Du (Temple University, USA)

**A General Cloud Firewall Framework with Dynamic Resource Allocation**
Shui Yu, Robin Doss, Wanlei Zhou (Deakin University, Australia)
Song Guo (University of Aizu, Japan)

**Privacy-Preserving Public Auditing for Shared Cloud Data Supporting Group Dynamics**
Boyang Wang (Xi’an Jiaotong University, Utah State University, China)
Hui Li (Xi’an Jiaotong University, China)
Ming Li (Utah State University, USA)

**A Privacy Preserving Distributed Reputation Mechanism**
Emmanuelle Anceaume (IRISA, France)
Gilles Guette, Paul Lajoie-Mazenc (University of Rennes 1, France)
Nicolas Prigent, Valerie Viet Triem Tong (SUPELEC, France)

**A Performance Prediction Scheme for Computation-Intensive Applications on Cloud**
Hongli Zhang, Panpan Li, Zhigang Zhou (Harbin Institute of Technology, China)
Xiaojing Du (Temple University, China)
Weihe Zhang (Harbin Institute of Technology, China)

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Monday, 10 June 2013 • 11:00 – 12:30
Room: Lanchid A, Mezzanine Level, Marriott

**CIS-02: Anomaly and Intrusion Detection I**

**Intrusion Detection in Distributed Systems: An Approach Based on Taint Marking**
Christophe Hauser, Frederic Tronel (SUPELEC, France)
Colin Fidge (Queensland University of Technology, Australia)
Ludovic Me (SUPELEC, France)

**Improved Detection and Correlation of Multi-Stage VoIP Attack Patterns by using a Dynamic Honeynet System**
Dirk Hoffstadt, Niels Wolff, Stefan Monhof, Erwin P. Rathgeb (Universität Duisburg-Essen, Germany)

**Model Checking Invariant Security Properties in OpenFlow**
Soool Son (University of Texas, Austin, USA)
Seungwon Shin (Texas A&M University, USA)
Vino Yegneswaran (SRI International, USA)
Philip A. Porras (SRI International, USA)
Guofei Gu (Texas A&M University, USA)
Dynamic Probing for Intrusion Detection under Resource Constraints
Kexin Liu, Qing Zhao (University of California, Davis, USA)
Ananthram Swami (Army Research Lab., USA)

Spectrum Analysis for Detecting Slow-Paced Persistent Activities in Network Security
Li Ming Chen, Meng Chang Chen (Academia Sinica, Taiwan)
Yeali S. Sun, Wanjiun Liao (National Taiwan University, Taiwan)

Moibity-aware Admission Control with QoS Guarantees in OFDMA Femtocell Networks
Long Bao Le (INRS, University of Quebec, Canada)
Ekram Hossain (University of Manitoba, Canada)
Dusit Niyo (Nanyang Technological University, Singapore)
Dong In Kim (Sungkyunkwan University, Korea)

Evaluation of the Minstrl Rate Adaptation Algorithm in IEEE 802.11g WLANs
Dong Xia
(Victoria University of Wellington, Victoria University, New Zealand)
Jonathan Hart, Qiang Fu
(Victoria University of Wellington, New Zealand)

Cooperative Task Assignment for Distributed Deployment of Applications in WSNs
Virginia Pilloni (University of Cagliari, Italy)
Pirabakaran Navaratnam, Serdar Vural (University of Surrey, UK)
Luigi Atzori (University of Cagliari, Italy)
Rahim Tafazoli (University of Surrey, UK)

Energy and Delay Analysis of Contention Resolution Mechanisms for Machine-to-Machine Networks based on Low-Power WiFi
Francisco Vázquez-Gallego, Jesus Alonso-Zarate
(Centro Tecnológico de Telecomunicaciones de Catalunya, Spain)
Luis Alonso (Universidad Politécnica de Catalunya, Spain)

Improving Energy Efficiency in Green Femtocell Networks: A Hierarchical Reinforcement Learning Framework
Xianfu Chen (VTT Technical Research Centre of Finland, Finland)
Hongzhang Zhang (Université Européenne de Bretagne, SUPELEC, Zhejiang University, France)
Tao Chen, Mika Lasanen
(VTT Technical Research Centre of Finland, Finland)

The Effect of Noise Correlation on Fractional Sampling based Spectrum Sensing
Shree Krishna Sharma, Syameen Chatzinotas
(University of Luxembourg, Luxembourg)
Björn Ottersten (Royal Institute of Technology, Sweden)

New Algorithms for Wideband Spectrum Sensing Via Compressive Sensing
Shwetak Mistry (Hellosoft India pvt ltd, India)
Vinod Sharma (Indian Institute of Science, India)

ReDiSen: Reputation-based Secure Cooperative Sensing in Distributed Cognitive Radio Networks
Tongjie Zhang, Reihaneh Safavi-Naini, Zongpeng Li
(University of Calgary, Canada)

A Novel Asynchronous Cooperative Spectrum Sensing Scheme
Chunxing Jiang, Norman C. Beaulieu (University of Alberta, Canada)
Chunxiaoj Jiang (University of Maryland, College Park, USA)

Utilizing Misleading Information for Cooperative Spectrum Sensing in Cognitive Radio Networks
Shameek Bhattacharjee, Saptarsi Debroy, Mainak Chatterjee
(University of Central Florida, USA)
Kevin Kwiat (Air Force Research Laboratory, USA)

Monday, 10 June 2013 • 11:00 – 12:30
Room: Duna Salon II, 1st Floor, InterContinental

CSS-P1: CSS (Poster)

Location-aware Alert System for Mobile Devices
Philip Sibley (Dublin City University, Ireland)
Ramona Trestian (Dublin City University, IBM, Ireland)
Gabriel-Miro Muntean (Dublin City University, Ireland)

Network Coding Over the 232-5 Prime Field
Morten V. Pedersen, Janus Heide (Aalborg University, Denmark)
Péter Vingelmann (Budapest University of Technology and Economics, Aalborg University, Hungary)
Frank H.P. Fitzek (Aalborg University, Denmark)

Pedestrian Collision Avoidance in Vehicular Networks
Mohamed Amine Abid, Omar Chakroun, Soumaya Cherkaoui
(University de Sherbrooke, Canada)

Monday, 10 June 2013 • 11:00 – 12:30
Room: Duna Salon III, 1st Floor, InterContinental

CT-01: Relay Channels I

On Channel State Feedback for Two-Hop Networks Based on Low Rank Matrix Recovery
Jan Schreck (Technische Universität Berlin, Germany)
Peter Jung (TU-Berlin, MCI, Germany)
Slawomir Stanczak (Fraunhofer Heinrich Hertz Institute, Technische Universität Berlin, Germany)

On Bi-directional Lossy Communication of Correlated Gaussian Sources
Masoud Badiel Khuzani, Hamidreza Ebrahimzadeh Saffar, Jesse Haber-Kucharsky, Patrick Mitran (University of Waterloo, Canada)

Low Density Lattice Codes for the Relay Channel
Nuwan S. Ferdinando (University of Oulu, Finland)
Matthew Nokleby, Behnam Aazhang (Rice University, USA)

On the Performance of Multi-Antenna AF Relaying Systems over Nakagami-m Fading Channels
Ehsan Soleimani-Nasab (K. N. Toosi University of Technology, Iran)
Michail Matthaiou (Chalmers University of Technology, Sweden)
Mehrdad Ardebilipour (Kajeh Nasir University, Iran)

Amplify-and-Forward Relay Beamforming for Secrecy with Cooperative Jamming and Imperfect CSI
Sanjay Vishwakarma, A. Chockalingam (Indian Institute of Science, India)

Monday, 10 June 2013 • 11:00 – 12:30
Room: Corso B, Ground Floor, Marriott

NGN-01: P2P Networks and Services

A P2P Query Algorithm based on Betweenness Centrality Forwarding in Opportunistic Networks
Jianwei Niu (Beihang University, China)
Yazhi Liu (Hebei United University, China)
Lei Shu (Guangdong University of Petrochemical Technology, China)
Bin Dai (Beihang University, China)

Lightweight Gossip-based Distribution Estimation
Amir H. Payberah (Royal Institute of Technology, SICS, Sweden)
Hanna Kavalionak, Alberto Montresor (University of Trento, Italy)
Jim Patrick Bowling (SICS, Sweden)
Seif Haridi (Royal Institute of Technology, SICS, Sweden)
Symbiotic Coupling of P2P and Cloud Systems: The Wikipedia Case
Lars Bremer (University of Paderborn, Germany)
Kalman Grafli (Universität Düsseldorf, Germany)

iPeer TV: a P2P IPTV Architecture with Fast Channel Switching
Daniel A. G. manzato, Nelson L. S. da Fonseca
(State University of Campinas, Brazil)

Coordination in P2P Management Overlays to Improve Decentralized Detection of SLA Violations
Jefer son Nobre, Lisandro Z Graville
(Federal University of Rio Grande do Sul, Brazil)
Alexander Clemm, Alberto Gonzalez Prieto (Cisco Systems, Inc., USA)

Perform ance of Free-Space O ptical M IM O  S ystems U sing
Rearrangeable Log2 (N ; 0; p) S w itching N etworks
Mark Michalski, Wojciech Kabacinski

The Control Algorithm and the FP G A  Controller for N on-interruptive
W eigang Hou, Lei Guo (Northeastern University, China)

O n Routing and A ggregation of M any-to-M any S essions over
Y ing Chen, Arunita Jaekel (University of W indsor, Canada)

Green W DM  O ptical N etw orks
Henna Huang, Vincent Chan (Massachusetts Institute of Technology, USA)

Area Spectral Efficiency Performance Comparison between
VLC and R F F emtocell N etworks
Irina Stefan (Jacobs University, Germany)
Harald Burchardt, Harald Haas (University of Edinburgh, UK)

On Routing and Aggregation of Many-to-Many Sessions over
Green WDM Optical Networks
Weigang Hou, Lei Guo (Northeastern University, China)
Zeyu Zheng (City University of Hong Kong, Hong Kong)

Energy Optimization in Optical Grids through Anycasting
Ying Chen, Arunuta Jaeckel (University of Windsor, Canada)

The Control Algorithm and the FPGA Controller for Non-interruptive
Rearrangeable Log2 (N; 0; p) Switching Networks
Marek Michalski, Wojciech Kabacinski
(Poznan University of Technology, Poland)

Performance of Free-Space Optical MIMO Systems Using
SC-QAM over Atmospheric Turbulence Channels
Ha Duyen Trung (Hanoi University of Science and Technology, Vietnam)
Bach Vu, Anh T. Pham (University of Aizu, Japan)

Static Manycast Advance Reservation in Split-Incapable
Optical Networks
Tim Entel, Arush G. Gadkar (University of Massachusetts, Dartmouth, USA)
Vinod M. Vokkarane (University of Massachusetts Dartmouth, MIT, USA)

Mismatched Hypothesis Testing with Application to Digital
Modulation Classification
Yoojin Choi, Dongwoon Bae, Jungwon Lee (Samsung US R&D Center, USA)

Blind Primary User Identification in MIMO Cognitive Networks
Amiotosh Ghosh, Wa laa Hamouda (Concordia University, Canada)
Iyad Dayoub (University Lille Nord de France, Concordia University Montreal, France)

Monday, 10 June 2013 • 11:00 – 12:30
Room: Budapest Ballroom, Mezzanine Level, Marriott

ON S-P1: Selected Areas in Optical Networking (Poster)

Transport Layer Protocol for Optical Flow-Switched Networks
Henna Huang, Vincent Chan (Massachusetts Institute of Technology, USA)

Area Spectral Efficiency Performance Comparison between
VLC and R F F emtocell N etworks
Irina Stefan (Jacobs University, Germany)
Harald Burchardt, Harald Haas (University of Edinburgh, UK)

On Routing and Aggregation of Many-to-Many Sessions over
Green WDM Optical Networks
Weigang Hou, Lei Guo (Northeastern University, China)
Zeyu Zheng (City University of Hong Kong, Hong Kong)

Energy Optimization in Optical Grids through Anycasting
Ying Chen, Arunuta Jaeckel (University of Windsor, Canada)

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Rearrangeable Log2 (N; 0; p) Switching Networks
Marek Michalski, Wojciech Kabacinski
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Monday, 10 June 2013 • 11:00 – 12:30
Room: Budapest Ballroom, Mezzanine Level, Marriott

SPC-02: Transceiver Techniques I

A New Method to Simultaneously Estimate TX/RX IQ Imbalance and Channel for OFDM Systems
Yabo Li, Linlin Fan (Zhejiang University, China)
Hai Lin (Osaka Prefecture University, Japan)
Minjian Zhao (Zhejiang University, China)

FPGA Implementation of QR Decomposition for MIMO-OFDM
Using Four CORDIC Cores
Bing Han, Zengli Yang, Yahong Rosa Zheng
(Missouri University of Science and Technology, USA)

Analyzing the Signal-to-Noise Ratio of Direct Sampling Receivers
Bjoern Almeroth, Stefan Krone, Gerhard Fettweis
(Technische Universität Dresden, Germany)

Adaptive Signal Conditioning Algorithms to Enable Wideband Signal Digitization
Abhishek Ghosh, Sudhakar Pamarti
(University of California, Los Angeles, USA)

SDMA for filterbank with Tomlinson Harashima precoding
Márius Caus, Ana Perez-Neira (UPC, Spain)

Monday, 10 June 2013 • 11:00 – 12:30
Room: Ballroom III, 1st Floor, InterContinental

WC-01: Cooperative Communications I

Performance Analysis of Decode-and-Forward Relaying with Optimum Combining in the Presence of Co-Channel Interference
Navod Suraweera, Norman C. Beaulieu (University of Alberta, Canada)

Performance Analysis of Cooperative DF Relaying over Correlated Nakagami-m Fading Channels
Kai Yang (Alcatel-Lucent Shanghai Bell Co., Ltd, China)
Jie Yang (Beijing Institute of Technology, China)
Jingsong Wu (Bell Labs, Alcatel-Lucent, China)
Chengwen Xing
(Beijing Institute of Technology, University of Hong Kong, China)

Multi-Hop Amplify-and-Forward Relaying Cooperation in the Presence of I/Q Imbalance
Jian Qi (King Abdullah University of Science and Technology, Saudi Arabia)
Sonia Aissa (INRS, University of Quebec, Canada)
Mohamed-Slim Alouini
(King Abdullah University of Science and Technology, Saudi Arabia)

Outage Analysis of Nth-Best DF Relay Networks in the Presence of CCI over Rayleigh Fading Channels
Anas M. Salhab
(King Fahd University of Petroleum & Minerals, Saudi Arabia)
Fawaz Al-Qahtani (Texas A&M University, Education City, Qatar)
Salam A. Zumm (KFUPM, Saudi Arabia)

Centralized Relay Coordination for Weighted Sum Rate Maximization in TDD Multisuser Multi-Relay Systems
Qi Sun, Lhuai Li, Ping Zhang
(Beijing University of Posts & Telecommunications, China)
**WC-02: Femtocells**

Outage Constrained Transmission Optimization for MISO Two-Tier Femtocell Networks
Kun-Yu Wang (National Tsing Hua University, Taiwan)
Neil Jacklin, Zhi Ding (University of California, Davis, USA)
Chong-Yung Chi (National Tsing Hua University, Taiwan)

Distributed Cross-Layer Resource Allocation for Statistical QoS Provisioning in Femtocell Networks
Cen Lin, Meixia Tao (Shanghai Jiaotong University, China)
Gordon Stüber (Georgia Institute of Technology, USA)
Yuan Liu (Shanghai Jiaotong University, China)

Bit-Map Based Resource Partitioning in LTE-A Femto Deployment
Petri Luoto (University of Oulu, Finland)
Jouko T Leinonen (Ericsson, Sweden)

**Analysis of Area Spectral Efficiency for Co-Channel Deployed Macrocell-Femtocell OFDMA Networks**
Prabhu Chandhar, Supra Sekhar Das (Indian Institute of Technology, Kharagpur, India)

Cross-tier Interference Mitigation in Femto-Macro Cellular Architecture in Downlink
Rizwan Ghaffar, Pin-Han Ho (University of Waterloo, Canada)

**WC-04: OFDM/OFDMA I**

Diversity Analysis of Bit-Interleaved Coded Multiple Beamforming with Orthogonal Frequency Division Multiplexing
Boyi Li, Endre Ayanoglu (University of California, Irvine, USA)

Conditional Outage Performance Analysis Framework for OFDM Channels
Bo Bai, Wei Chen (Tsinghua University, China)
Khaled B. Letaief (Hong Kong University of Science and Technology, Hong Kong)
Zhigang Cao (Tsinghua University, China)

Low Complexity Precoded OFDM System
Sabah Nasyef, Charalampos C. Tsimenidis (Newcastle University, UK)
Bayan S. Sharif, Arafat J. Al-Dweik (Khalifa University, UAE)
Said Boussakta (Newcastle University, UK)

Signalling-Assisted Modulation Classification in Wireless OFDM Systems with Adaptive Modulation and Coding
Lars Haering, Christian Kisters (University Duisburg-Essen, Germany)

A Robust Low Complexity Frequency Domain Iterative Block DFE for SC-FDMA System
Qiucui Wang, Chaowei Yuan, Jinbo Zhang, Yingxue Li (Beijing University of Posts & Telecommunications, China)

**WC-P1: WCS I (Poster)**

Finite-State Markov Modeling of Tunnel Channels in Communication-based Train Control (CBTC) Systems
Hongwei Wang, F. Richard Yu, Li Zhu (Carleton University, Canada)
Tao Tang (Beijing Jiaotong University, China)
Bing Ning (State Key Laboratory of Rail Traffic Control and Safety, China)

Interference Engineering for Network Secrecy in Nakagami Fading Channels
Alberto Rabbachin (Massachusetts Institute of Technology, USA)
Andrea Conti (ENDIF University of Ferrara, WILAB University of Bologna, Italy)
Moe Win (Massachusetts Institute of Technology, USA)

Envelope Level Crossing Rate in Mobile-to-Mobile Underwater Fading Channels
Bryan Blankenagel, Alenka G. Zajic (Georgia Institute of Technology, USA)

**WC-P1: Network Model and Management (Poster)**

Incentive Mechanism for Access Permission and Spectrum Trading in Femtocell Network
Jikai Yin, Gaofei Sun, Feng Yang (Shanghai Jiaotong University, China)
Xiaoying Gan (Shanghai Jiaotong University, Calit2, UCSD, China)
Xinbing Wang (Shanghai Jiaotong University, China)

Evaluation of Jumboframes Feasibility in LTE Access Networks
Marco Mezzavilla (University of Padova, Italy)
Davide Chiariotto (New Vision Group, Italy)
Daniel Corujo (Universidade de Aveiro, Portugal)
Michelle M. Wetterwald (EUROCOM, France)
Michele Zorzi (Università degli Studi di Padova, Italy)

Optimal Client Association, Airtime Sharing and Contention Resolution in Thruput Fair Multi-cell WLANs with Hidden APs
Jun Zhang, Jason Min Wang, Ying Wang, Brahim Bensaou (Hong Kong University of Science and Technology, Hong Kong)

Analytical Evaluation of Coverage-Oriented Femtocell Network Deployment
He Wang (Australian National University, NICTA, Australia)
Xiangyun Zhou (Australian National University, Australia)
Mark C. Reed (UNSW Canberra, Australia)

Optportunistic Network Coding for Two-way Relay Fading Channels
Ning Ding (University of New South Wales, Australia)
Ido Nevat (CSIRO, Australia)
Gareth Peters (University College London, UK)
Jinhong Yuan (University of New South Wales, Australia)
Collaborative Multi-Layer Network Coding for Cellular Cognitive Radio Networks
Sameh Sorour
(King Abdullah University of Science and Technology, Saudi Arabia)
Tareq Y. Al-Naffouri
(King Abdullah University of Science and Technology, USA)
Mohamed-Slim Alouini
(King Abdullah University of Science and Technology, Saudi Arabia)

Algebraic Connectivity of Degree Constrained Spanning Trees for FSO Networks
Hui Zhou (Auburn University, USA)
Alireza Babaei (Virginia Tech, USA)
Shivinen Mao, Pratha Agrawal (Auburn University, USA)

A Data Dissemination Protocol for Urban Vehicular Ad Hoc Networks with Extreme Traffic Conditions
Guillaume Maia (Federal University of Minas Gerais, Brazil)
Azzedine Boukerche (University of Ottawa, Canada)
Andre Aquino (Universidade Federal de Alagoas, Brazil)
Aline Carneiro Viana (INRIA, France)
Antonio A.F. Loureiro (Federal University of Minas Gerais, Brazil)

Event Coverage in Theme Parks Using Wireless Sensor Networks with Mobile Sinks
Gürkan Solmaz, Damla Turgut (University of Central Florida, USA)

Small Worlds in Multi-channel Wireless Networks: An Analytical Approach
Bo Lv, Muqing Wu, Jingrong Wen, Wang Dongyang
(University of Ottawa, Posts & Telecommunications, China)

Monday, 10 June 2013 • 14:00 – 15:30
Room: Lanchid A, Mezzanine Level, Marriott
CIS-03: Internet Security

Protect Sensitive Sites from Phishing Attacks Using Features Extractable from Inaccessible Phishing URLs
WeiBo Chu (Xian Jiaotong University, China)
Bin Benjamin Zhu, Feng Xue (Microsoft Research Asia, China)
Xiaohong Guan (Xi’an Jiaotong University, Tsinghua University, China)
Zhongmin Cai (Xi’an Jiaotong University, China)

An Empirical Analysis of Family in the Tor Network
Wang Xiao, Jinqiao Shi, Bingxing Fang, Li Guo
(Chinese Academy of Sciences, China)

RobuRec: Robust Sybil Attack Defense in Online Recommender Systems
Giseop Noh, Chong-kwon Kim (Seoul National University, Korea)

Pollution and Whitewashing Attacks in a P2P Live Streaming System: Analysis and Counter-Attack
Rafael Almeida (Federal University of Juiz de Fora, Brazil)
Jose Augusto Miranda Nacif (Universidade Federal de Vicosa, Brazil)
Ana Paula da Silva (Universidade Federal de Minas Gerais, Brazil)
Alex Borges Vieira (Universidade Federal de Juiz de Fora, Brazil)

On Effective Localization Attacks against Internet Threat Monitors
Wei Yu, Suxiao Wei, Guanghui Ma (Towson University, USA)
Xinwen Fu (University of Massachusetts, Lowell, USA)
Nan Zhang (George Washington University, USA)

Monday, 10 June 2013 • 14:00 – 15:30
Room: Duna Salon II, 1st Floor, InterContinental
CQR-02: Design and Virtualization of Networks

Towards Survivable Network Virtualization
Qian Hu, Yang Wang, Xiaojian Cao (Georgia State University, USA)

QoS-aware Optimal Resilient Virtual Networks
Arsany Basta, Isil B. Bara
(Technical University of Munich, Nokia Siemens Networks, Germany)
Marco Hoffmann (Nokia Siemens Networks, Germany)
Georg Carle (Technische Universität München, Germany)

Substrate Network House Cleaning via Live Virtual Network Migration
Bassem Wasis, Nancy Samaan, Ahmed Karmouch
(University of Ottawa, Canada)

Live Migration in Green Virtualized Networks
Esteban Rodriguez, Gustavo Alkmin
(State University of Campinas, Brazil)
Daniel M. Batista (University of Sao Paulo, Brazil)
Nelson L. S. da Fonseca (State University of Campinas, Brazil)

Algorithm for Traffic Grooming of Batches of Deadline-driven Requests
Juliana De Santi, Nelson L. S. da Fonseca
(State University of Campinas, Brazil)
Gustavo Bittencourt Figueiredo (Federal University of Bahia, Brazil)
Monday, 10 June 2013 • 14:00 – 15:30
Room: Lanchid B, Mezzanine Level, Marriott

**CRN-02: Spectrum Sensing II**

*Analysis and Algorithm for Robust Adaptive Cooperative Spectrum-Sensing in Time-Varying Environments*
Hongting Zhang, Hsiao-Chun Wu (Louisiana State University, USA)
Shih Yu Chang (National Tsing Hua University, Taiwan)

*Adaptive Bistable Stochastic Resonance Aided Spectrum Sensing*
Shaowen Zhang, Jun Wang, Shaoqian Li (University of Electronic Science and Technology of China, China)

*On the BEP Walls for Soft Decision Based Cooperative Sensing in Cognitive Radios*
Sachin Chaudhari, Jarmo Lundén (Aalto University, Finland)
Vesa Koivunen (Helsinki University of Technology, Finland)

*Channel Switching Cost Aware and Energy-Efficient Cooperative Sensing Scheduling for Cognitive Radio Networks*
Salim Ertyig (Bogazici University, Turkey)
Suzan Bayhan (Helsinki Institute for Information Technology, Finland)
Tuna Tugcu (Bogazici University, Turkey)

*Optimal Sensing Duration Based on Primary Feedback in Energy Limited Cognitive Networks*
Anthony Fanous (University of Maryland, College Park, USA)
Ahmed Sultan (Alexandria University, Egypt)

Monday, 10 June 2013 • 14:00 – 15:30
Room: Duna Salon I, 1st Floor, InterContinental

**SA-AN-01: Access Systems and Networks**

*Performance Analysis of Vectored Wireline Systems Embracing Channel Uncertainty*
Thomas Magesacher (Lund University, Sweden)
Driton Statovci, Tomas Nordström (Telecommunications Research Center Vienna, Austria)
Erwin Riegler (Vienna University of Technology, Austria)

*Reduced Complexity Dynamic Spectrum Management Based on a Polar Coordinates Formulation*
Rodrigo B. Moraes, Paschalis Tsiflakis, Marc Moonen (KU Leuven, Belgium)

*Enhanced Upstream Power Back-off*
Haleema Mehmod (Stanford University, USA)
Kenneth Kerpez (ASSIA inc, USA)
John Cioffi (Stanford University, USA)

*A Flexible and Real-Time Constrained Controller for Sparse Linear Zero-Forcing Based DSL Vectoring*
Paschalis Tsiflakis, Marc Moonen (KU Leuven, Belgium)

*Capacity Analysis of G.fast Systems via Time-domain Simulations*
Igor M. Almeida, Aldo Barla Clautau (Universidade Federal do Para, Brazil)
Chenguang Lu (Ericsson Research, Sweden)

Monday, 10 June 2013 • 14:00 – 15:30
Room: Budapest Ballroom, Mezzanine Level, Marriott

**SAC-P1: Selected Areas in Communications (Poster)**

*Comparison of Error-Control Schemes for High-Rate Communication over Short DSL Loops Affected by Impulsive Noise*
Julie Neckebroek, Marc Moonenlaey (Ghent University, Belgium)
Mamoun Guenach, Michael Timmers, Jochen Maes (Alcatel-Lucent, Bell Labs, Belgium)

*Efficiency Analysis of Jamming-based Countermeasures against Malicious Timing Channel in Tactical Communications*
Salvatore D’Oro (University of Catania, CNIT, Italy)
Laura Galluccio (DIEEI, Italy)
Giacomo Morabito, Sergio Palazzo (University of Catania, Italy)

*Design for Change: Information-Centric Architecture to Support Agile Disaster Response*
Yan Shvartzshnaider (University of Sydney, NICTA, Australia)
Max Ott (NICTA, Australia)
Information Transmission through a Multiple Access Molecular Communication Channel
Yutaka Okaie, Tadashi Nakano, Michael J. Moore
(Osaka University, Japan)
Jian-Qin Liu (National Institute of Information and Communications Technology, Japan)

Analogies in Modelling Wireless Network Stability and Advanced Power Grid Control
Maria Kangas, Savo Glišić (University of Oulu, Finland)

A Study on IEEE 802.15.4e Compliant Low-Power Multi-Hop SUN with Frame Aggregation
Fumihide Kojima, Hiroshi Harada (National Institute of Information & Communications Technology, Japan)

Impact of Smart Grid Traffic Peak Loads on Shared LTE Network Performance
Juho Markkula, Jussi P. Haapola (University of Oulu, Finland)

Reflection: An Efficient Technique for Implementing an LTE-Based Wireless Network Control System for Smart Grid and Other Applications
Jason Brown, Jamil Y. Khan (University of Newcastle, Australia)

Repair for Distributed Storage Systems with Erasure Channels
Majid Gerami, Ming Xiao (Royal Institute of Technology, Sweden)

Lower Bound for ML Sequence Detection in ISI Channels with Gaussian Markov Noise
Naveen Kumar (Link Media Devices, USA)

Repairing Multiple Description Quantizers in Distributed Storage Systems
Symeon Chatzinotas (University of Luxembourg, Luxembourg)

Optimal Algorithms for Hierarchical Web Caches
Konstantinos Poularakis, Leandros Tassiulas (University of Thessaly, Greece)

A Hybrid Procedure with Selective Retransmission for Aggregated Packs of Unequal Length
Dragana D. Bajic (University of Novi Sad, Serbia)
Goran Dimić, Nikola Zogović (University of Belgrade, Institute Mihajlo Pupin, Serbia)

The Impact of Error Control on Energy-Efficient Reliable Data Transfers over Optical Networks
Kyle C. Guan (Bell Labs, Alcatel-Lucent, USA)
Bipin Sankar Gopakarathinthi Pillai, Arun Vishwanath (University of Melbourne, Australia)
Daniel Kilper (Columbia University, USA)
Jaime Llorca (Bell Labs, Alcatel-Lucent, USA)

Energy Storage Optimization Strategies for Smart Grids
Claudio Codemo, Tomaso Erseghe, Andrea Zanella (University of Padova, Italy)

Optimal Power Scheduling for Green Smart Grids with Renewable Sources
Nihan Çiçek, Hakan Deliş (Bogazici University, Turkey)

Service-Oriented Architecture for Smart Building Energy Management
Abdellah Chehri, Hussein T. Mouftah (University of Ottawa, Canada)

NFC Based m-Healthcare Application Focusing on Security, Privacy and Performance
Weider D. Yu, Hargun Hansrao, Kirandeep Dhillon, Pradeep Desinguraj (San Jose State University, USA)

Monday, 10 June 2013 • 14:00 – 15:30
Room: Panorama III, 1st Floor, InterContinental

SPC-03: Equalization

An Adaptive Equalizer Based on Greatest Constraint Satisfaction Criterion for Coded Communication Systems
Junho Cho, Hyoseop Lee (Bell Labs, Korea)

Blind Channel Shortening for Uplink SC-OFDMA Operating over Highly-dispersive Channels
Donatella Darsena, Giacinto Gelli, Luigi Paura, Francesco Verde (University of Napoli, Italy)

Joint Semi-Blind Channel Equalization andICI Mitigation for Carrier Aggregation Based CoMP OFDMA Systems with Multiple CFOs
Yufei Jiang, Xu Zhu (University of Liverpool, UK)
Eng Gee Lim (Xi’an Jiaotong-Liverpool University, China)
Yi Huang (University of Liverpool, UK)

A Fast Iterative Bayesian Inference Algorithm for Sparse Channel Estimation
Niels Lovmand Pedersen, Carles Navarro Manchón, Bernard Henri Fleury (Aalborg University, Denmark)

Superfast Reduced-Redundancy Block Memoryless Linear Equalizers
Ricardo Merched (Universidade Federal do Rio de Janeiro, Brazil)

Monday, 10 June 2013 • 14:00 – 15:30
Room: Margit A, Mezzanine Level, Marriott

SPC-04: Relay I

Coordinated Beamforming for Wireless Multicast Cell with Nonregenerative Multi-Antenna Relay
Haibin Wan (GuangXi University, China)
Wen Chen (Shanghai Jiaotong University, China)

Joint Relay Weighting and Power Allocation for a Two-Way Amplify-and-Forward Relay System
Chin-Liang Wang, Ting-Nan Cho, Hsiao-Han Song (National Tsing Hua University, Taiwan)

Opportunistic Pair-wise Compute-and-Forward in Multi-way Relay Channels
Tao Huang, Jinhong Yuan (University of New South Wales, Australia)
Qifu T. Sun (Chinese University of Hong Kong, Hong Kong)

Optimal Power Sharing Strategies in NAF Multiple-Relay Networks with CSI
Tuyen Tran, Ngh H. Tran, Hamid Reza Bahrami (University of Akron, USA)

Optimal Asymmetric Resource Allocation for Dual-Hop Multi-Relay LTE-Advanced Systems in the Downlink
Linhao Dong, Xu Zhu, Yi Huang (University of Liverpool, UK)

Monday, 10 June 2013 • 14:00 – 15:30
Room: Panorama I, 1st Floor, InterContinental

WC-05: Cellular Systems I

Interference Suppression based on Soft Blanking and Iterative Likelihood Test for LTE Uplink
Mehmet Bahadir Celebi (University of South Florida, USA)
Ismaıl Güvenç (Florida International University, USA)
Huseyin Arslan (University of South Florida, USA)
Khalid A. Qaraqe (Texas A&M University, Qatar, USA)

Reduction of HARQ Memory in Low Mobility LTE Systems
Rodofto Torreao-Duran (KUL, Belgium)
Claude Desset (IMEC, Belgium)
Sofie Pollin (IMEC, UC Berkeley, USA)
Liesbet Van der Perre (IMEC, Belgium)
A Solution to Relieve ICI Effects on System Control Information in OFDM-based Mobile Networks: Conflict Coordination on PDCCH via PCI Planning
Hemin Yang, Ruigeng Gao, Anpeng Huang, LinZhen Xie
(Peking University, China)

Reliable Rate-Optimized Video Multicasting Services over LTE/LTE-A
Andrea Tassi (University of Florence, Italy)
Chadi Khirallah (University of Edinburgh, UK)
Dejan Vukobratovic (University of Novi Sad, Serbia)
Francesco Chiti (Università degli Studi di Firenze, Italy)
John Thompson (University of Edinburgh, UK)
Romano Fantacci (University of Florence, Italy)

Enabling LTE/WiFi Coexistence by LTE Blank Subframe Allocation
Erika Almeida, Andre Cavalcante, Rafael Paiva,
Fabiano de Sousa Chaves (Nokia Institute of Technology, Brazil)
Fuat Mousse Abinader, Junior
(Nokia Institute of Technology, UFRN, Brazil)
Robson Domingos Vieira (Nokia Institute of Technology, UFB, Brazil)
Sayantan Choudhury, Esa Tuomaala, Klaus Doppler (Nokia, Finland)

Monday, 10 June 2013 • 14:00 – 15:30
Room: Panorama V, 1st Floor InterContinental

WC-06: Wireless Networks I

Performance of Terrestrial Network with the Presence of Overlay Satellite Network
Antti Roivainen (Centre for Wireless Communications, Finland)
Juha Ylitalo, Jukka Kyröläinen (Elektrobit, Finland)
Markku Juntti (University of Oulu, Finland)

On the Exploitation of OFDMA Properties for an Efficient Alert Message Flooding in VANETs
Alessandro Bazzi (WiLab, IEIIT-CNR, University of Bologna, Italy)
Barbara M Masini (IEIIT-CNR, University of Bologna, Italy)
Flavio Zabini (University of Bologna, Italy)

Analysis of Interveniece Communication
Youngmin Jeong, Hyundong Shin (Kyung Hee University, Korea)
Moe Win (Massachusetts Institute of Technology, USA)

Multi-Packet Communication in 802.11 Networks by Spatial Reuse: From Theory to Protocol
Fulvio Babich, Massimiliano Comisso, Alessandro Crismani,
Aljosha Dorni (University of Trieste, Italy)

About the Practicality of using Partially overlapping Channels in IEEE 802.11 b/g Networks
Michael Doering, Łukasz Budzisz, Daniel Willkomm, Adam M. Wolisz
(Technical University of Berlin, Germany)

Monday, 10 June 2013 • 14:00 – 15:30
Room: Erzsébet B, Mezzanine Level, Marriott

WC-07: Network Coding and Resource Allocation

Field Size of Random Network Coding in Untrustworthy Networks
Sang Wu Kim, Duk Hee Yoon (Iowa State University, USA)

Instantly Decodable Network Coding Protocols with Unequal Error Protection
Muhammad Muhammad, Matteo Berioli, Gianluigi Liva
(German Aerospace Center, Germany)
Giovanni Giambene (University of Siena, Italy)

Experimental Study of the Interplay of Channel and Network Coding in Low Power Sensor Applications
Georgios Angelopoulos, Arun Paidimarri, Anantha Chandrakasan,
Muriel Médard (MIT, USA)

Throughput versus Fairness Tradeoff Analysis
Flavio Zabini (University of Bologna, Italy)
Alessandro Bazzi (WiLab, IEIIT-CNR, University of Bologna, Italy)
Barbara M Masini (IEIIT-CNR, University of Bologna, Italy)

Channel Quantization Based Physical-layer Network Coding
Shengli Zhang (Shenzhen University, China)
Qingfeng Zhou, Caihong Kai (Hefei University of Technology, China)
Wei Zhang (University of New South Wales, Australia)

Monday, 10 June 2013 • 14:00 – 15:30
Room: Corso A, Ground Floor, Marriott

WC-08: Millimeter Wave Communications

28 GHz Propagation Measurements for Outdoor Cellular Communications Using Steerable Beam Antennas in New York City
Yaniv Azar, George N. Wong (NYU-Poly, NYU Wireless, USA)
Kevin Wang (NYU-Poly, USA)
Rimma Mayzus, Jocelyn K. Schulz, Hang Zhao, Felix Gutierrez, Jr.
(NYU-Poly, NYU Wireless, USA)
Duckdong Hwang (Samsung, Korea)
Theodore Rappaport (NYU-Poly, NYU Wireless, USA)

Quality-Aware Coding and Relaying for 60 GHz Real-Time Wireless Video Broadcasting
Joongheon Kim (University of Southern California, USA)
Yafei Tian (Beihang University, China)
Stefan Mangold (Disney Research, Switzerland)
Andreas Molisch (University of Southern California, USA)

Characterization of Path Loss and Delay Spread of 60-GHz UWB Channels vs. Frequency
Dajana Cassioli (University of L’Aquila, Italy)
Luca Alfredo Annoni (2T srl Information Technology Consulting, Italy)
Stefano Piersanti (RadioLabs, Italy)

Iterative Tx and Rx Phase Noise Compensation for 60 GHz Systems with SC-FDE Transmission
Changming Zhang, Zhenyu Xiao, Bo Gao, Li Su, Depeng Jin
(Tsinghua University, China)

28 GHz Millimeter Wave Cellular Communication Measurements for Reflection and Penetration Loss in and Around Buildings in New York City
Hang Zhao, Rimma Mayzus, Shu Sun (NYU-Poly, NYU Wireless, USA)
Mathew Samimi (NYU Poly, USA)
Jocelyn K Schulz, Yaniv Azar (NYU-Poly, NYU Wireless, USA)
Kevin Wang (NYU-Poly, USA)
George N. Wong, Felix Gutierrez, Jr., Theodore Rappaport
(NYU-Poly, NYU Wireless, USA)

Monday, 10 June 2013 • 14:00 – 15:30
Room: Budapest Ballroom, Mezzanine Level, Marriott

WC-P2: WCS II (Poster)

Loading Prediction and Barring Controls for Machine Type Communication
Chie Ming Chou, ChingYao Huang
(National Chiao Tung University, Taiwan)
Chun-Yuan Chiu (National Taiwan University, Taiwan)

A Delay Tolerant Control Scheme for Communication-based Train Control (CBTC) Systems with Unreliable Wireless Networks
Bing Bu (State Key Lab of Rail Control and Safety, Beijing Jiaotong University, China)
F. Richard Yu (Carleton University, Canada)
Tao Tang, Chunhai Gao (Beijing Jiaotong University, China)

Joint Sliepian-Wolf/Dirty-Paper Coding
Momir Uppal (Lahore University of Management Sciences, Pakistan)
Khalid A. Qaraqe (Texas A&M University, Qatar, USA)
Zixiang Xiong (Texas A&M University, USA)
Monday, 10 June 2013 • 14:00 – 15:30
Room: Panorama II, 1st Floor, InterContinental

WN-02: Power, Cost and System Control

Joint Subchannel and Power Allocation in Two-Tier OFDMA HetNets with Clustered Femtocells
Amr Abdelnasser, Ekram Hossain (University of Manitoba, Canada)

A Comparative Study of Power Control Approaches for Device-to-Device Communications
Gabor Fodor (Ericsson Research, Royal Institute of Technology, Sweden)
Marco Bellelli, Demia Della Penda (Ericsson Research, Sweden)
Mikaël Johansson (Royal Institute of Technology, Sweden)
Andrea Abrardo (University of Siena, Italy)

Overall Cost Minimization for Data Aggregation in Energy-Constrained Wireless Sensor Networks
Wei An (IOA, Chinese Academy of Sciences, China)
Xiaoyuan Luo (Cisco Systems, University of Nebraska-Lincoln, USA)
Dalei Wu (Massachusetts Institute of Technology, USA)
Yanmin Han, Ying Qi, Tao Lin (IOA, Chinese Academy of Sciences, China)

Latency and Energy in Quality-Driven Applications for Networked Wireless Devices
Martin Valdez-Vivas, Nicholas Bambos (Stanford University, USA)

Monday, 10 June 2013 • 14:00 – 15:30
Room: Corso B, Ground Floor, Marriott

WN-03: Standards and Protocols

RFID enabled MAC Protocol for WBAN
Sana Ullah (King Saud University, Saudi Arabia)

A Distributed Protocol for Cooperation among Different Wireless Sensor Networks
Pedro O.S. Vaz de Melo, Felipe Cunha, Antonio A.F. Loureiro (Federal University of Minas Gerais, Brazil)

Enabling Co-channel Coexistence of 802.22 and 802.11af Systems in TV White Spaces
Xiaojun Feng, Qiang Zhang, Bo Li (Hong Kong University of Science and Technology, Hong Kong)

SAFE: A Social Based Updatable Filtering Protocol with Privacy-preserving in Mobile Social Networks
Kuan Zhang, Xiaohui Liang, Rongxing Lu, Sherman Shen (University of Waterloo, Canada)

A Holistic IPv6 Test-Bed for Smart, Green Buildings
Constantinos Marios Angelopoulos, Gabriel Filios, Sotiris E. Nikoletseas, Dimitra Patsoura, Theofanis P. Raptis (University of Patras, CTI, Greece)
Konstantinos Veroutis (University of Patras, Greece)

Monday, 10 June 2013 • 16:00 – 18:00
Room: Margit B, Mezzanine Level, Marriott

CIS-04: Anonymity and Privacy

Geocast into the Past: Towards a Privacy-Preserving Spatiotemporal Multicast for Cellular Networks
Sander Wozniak, Michael Rosberg, Franz Girlich, Guenter Schaefer (Technische Universitaet Ilmenau, Germany)

Privacy-Preserving Scheme in Smart Grid Communication Using Enhanced Network Coding
Hasen Nicanfar, Peyman TalebiFard, Amr Alasaad, Victor CM Leung (University of British Columbia, Canada)

Smart Meter Privacy in the Presence of an Alternative Energy Source
Deniz Gündüz (Imperial College London, UK)
Jesús Gómez-Vilardebó (Centre Tecnològic de Telecomunicacions de Catalunya, Spain)

Mobility Data Anonymization by Obfuscating the Cellular Network Topology Graph
Eduardo Baena Martinez, Michal Ficke, Lukas Kencl (Czech Technical University, Prague, Czech Republic)

Fake Point Location Privacy Scheme for Mobile Public Hotspots in NEMO based VANETs
Sanan Taha (University of Waterloo, Cairo University, Canada)
Sherman Shen (University of Waterloo, Canada)

d*2 Deleting Diaspora: Practical Attacks for Profile Discovery and Deletion
Stephan Schulz (Mercedes-Benz Research, USA)
Thorsten Strufe (TU Darmstadt, Germany)

Monday, 10 June 2013 • 16:00 – 18:00
Room: Lanchid A, Mezzanine Level, Marriott

CQR-03: Overlay and P2P Networks

An In-depth Measurement and Analysis of Popular Private Tracker Systems in China
Qiwen Li (Tsinghua University, China)
Tao Qin (Xi’an Jiaotong University, China)
Xiaohong Guan (Xi’an Jiaotong University, Tsinghua University, China)
Qinghua Zheng, Qiuzhen Huang (Xi’an Jiaotong University, China)

Differentiating Link State Advertisements to Optimize Control Overhead in Overlay Networks
Mathieu Bouet, Julien Boite, Jerome Leguay, Vania Conan (Thales Communications & Security, France)

A Game-Theoretic Approach for Cooperation Stimulation in Peer-to-Peer Streaming Networks
Xin Kang, Yongdong Wu (Institute for Infocomm Research, Singapore)

Topology-Aware Clustering to Achieve Latency Comparable to One-Frame in Multiplayer Online Games
Yohei Aikawa, Yuichiro Hieda, Tomokio Ogishah, Sumaru Niida (KDDI R&D Labs Inc., Japan)
Toru Hasegawa (Osaka University, Japan)

A New Analytical Framework for Studying Protocol Diversity in P2P Networks
Xin Jin, Yu-Kwong Kwok (University of Hong Kong, Hong Kong)
Jian Deng (Shanghai Jiaotong University, China)

Promotion of Content Availability by Playlist Viewers in CDN-P2P Systems
Cesar A. V. Melo, Jonathan Araújo Oliveira (Federal University of Amazonas, Brazil)
Nelson L. S. da Fonseca (State University of Campinas, Brazil)
Monday, 10 June 2013  •  16:00 – 18:00  
Room: Budapest Ballroom, Mezzanine Level, Marriott

CQR-P1: QS, Reliability and Modeling (Poster)

New Diversity Coding Design Algorithms for Link Failure Recovery in Communication Networks  
Serhat N. Avci, Ender Ayanoglu (University of California, Irvine, USA)

Resource Allocation for High-Speed Railway Downlink MIMO-OFDM System Using Quantum-Behaving Particle Swarm Optimization  
Yisheng Zhao, Xi Li, Yi Li, Hong Ji  
(University of Posts & Telecommunications, China)

Increased Robustness with Interface Based Permutation Routing  
Hung Quoc Vo, Olav Lysne, Amund Kvalbein  
(Simula Research Laboratory, Norway)

Fine-Grained End-to-End Network Model via Vector Quantization and Hidden Markov Processes  
Mo Ghorbanzadeh, Yang Chen, T. Charles Clancy, Robert McGwier  
(Virginia Tech, USA)

Prolonging Battery Usage Time in Smart Phones  
Kun Wei, Wuxiong Zhang  
(Shanghai Research Center for Wireless Communications, China)  
Yang Yang (Shanghai Research Center for Wireless Communications, CAS Shanghai Institute of Microsystem and Information Technology, China)

Critical Sections in Networked Games  
Saptarshi Debroy, Mohammad Zubair Ahmad (University of Central Florida, USA)  
Mukundan Iyengar (Stevens Institute of Technology, USA)  
Mainak Chatterjee (University of Central Florida, USA)

Joint Optimization of Power, Electricity Cost and Delay in IP over WDM Networks  
Xiaowen Dong, Taisir El-Gorashi, Jaafar Elmirghani (University of Leeds, UK)

Modeling the Communication Contacts in Roadside Unit Aided Vehicles Opportunistic Networks  
Yong Li, Depeng Jin (Tsinghua University, China)  
Pan Hui (Deutsche Telekom Laboratories, University of Cambridge, Germany)  
Lieguang Zeng (Tsinghua University, China)

Monday, 10 June 2013  •  16:00 – 18:00  
Room: Panorama V, 1st Floor, InterContinental

CSS-01: Wireless Networking: Services, Protocols and Design

Traversal of the Customer Edge with NAT-Unfriendly Protocols  
Petri Leppäaho, Nicklas Beijar (Aalto University, Finland)  
Raimo Kantola (Helsinki University of Technology, Finland)  
Jesus Llorente Santos (Aalto University, Finland)

AppaaS: Provisioning of Context-aware Mobile Applications as a Service  
Khalid Elgazzar, Ali Eijaz, Hossam S. Hassanein  
(Queen’s University, Canada)

OpenFlow based Load Balancing for Fat-Tree Networks with Multipath Support  
Yu Li, Deng Pan (Florida International University, USA)

Resource Provisioning on Customer-provided Clouds: Optimization of Service Availability  
Haiyang Wang (Simon Fraser University, Canada)  
Feng Wang (University of Mississippi, USA)  
Jiangchuan Liu (Simon Fraser University, Canada)  
Ke Xu (Tsinghua University, China)  
Di Wu (Dalian University of Technology, China)  
Qiang Lin (Rimeware Technologies Inc, Canada)

Secured Distributed Discovery Services in the EPCglobal Network  
Abdelmounaim Dahbi, Mazen George Khair, Hussein T. Mouffah (University of Ottawa, Canada)

Monday, 10 June 2013  •  16:00 – 18:00  
Room: Erzsébet A, Mezzanine Level, Marriott

CT-04: Performance Analysis

Asymptotically Tight Error Rate Bounds for EGC in Correlated Generalized Rician Fading  
Josh Schlenker, Julian Cheng, Robert Schober (University of British Columbia, Canada)

On the Coexistence of Primary and Secondary Users in Spectrum-Sharing Broadcast Channels  
Yuli Yang (KAUST, Saudi Arabia)  
Sonia Aïssa (INRS, University of Quebec, Canada)

Performance & Complexity Tradeoff in Sequential Decoding for the Unconstrained AWGN Channel  
Walid Abediseid, Mohamed-Slim Alouini (King Abdullah University of Science and Technology, Saudi Arabia)

Optimal Transmit Filters for Constrained Complexity Channel Shortening Detectors  
Andrea Modenini (University of Parma, Italy)  
Fredrik Rusek (Lund University, Sweden)  
Giulio Colavolpe (University of Parma, Italy)

Adaptive Estimation Based on Quantized Measurements  
Rodrigo Cabral Farias (GIPSA-Lab, France)  
Jean-Marc Brossier (GIPSA-Lab/DIS, France)

Subcarrier Pairing for Self-heterodyne OFDM  
Nirmal Fernando, Yi Hong, Emanuele Viterbo (Monash University, Australia)
**SPC-05: MIMO I**

**DoA Estimation and Capacity Analysis for 2D Active Massive MIMO Systems**

Yi Zhu, Lingjia Liu (University of Kansas, USA)
Anding Wang (Zhejiang Gongshang University, University of Kansas, China)
Krishna Sayana, Jianzhong Zhang
(Samsung Telecommunications America, USA)

**Multi-Pair Amplify-and-Forward Relaying with Very Large Antenna Arrays**

Himal A Suraweera
(Singapore University of Technology and Design, Singapore)
Hien Duc Ngo (Linkoping University, Sweden)
Trung Q. Duong (Blekinge Institute of Technology, Sweden)
Chau Yuen (Singapore University of Technology and Design, Singapore)
Erik G. Larsson (Linkoping University, Sweden)

**Energy Efficiency of Large Scale MIMO Systems with Transmit Antenna Selection**

Hui Li, Lingyang Song (Peking University, China)
Dalin Zhu, Ming Lei (NEC Laboratories China, China)

**A Performance-Complexity Tradeoff for Vector Perturbation Precoding**

Christos Masouros (University College London, UK)
Mathini Sellathurai (Heriot-Watt University, UK)
Tharmalingam Ratnarajah (University of Edinburgh, UK)

**Precoder Design for MIMO Systems with Iterative Equalization**

Junjie Ma (City University of Hong Kong, Hong Kong)
Xiaojun Yuan (Chinese University of Hong Kong, Hong Kong)
Li Ping (City University of Hong Kong, Hong Kong)

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**SPC-06: Cognitive Radio**

**Optimizing Performance of Cooperative Sensing for Increased Spectrum Utilization in Dynamic Cognitive Radio Systems**

Dusadee Treemunuk, Sara Macdonald, Dimitrie Popescu
(Old Dominion University, USA)

**Cooperative Spectrum Sensing and Allocation with LDA for Cognitive Radio Networks**

Wenjun Xu, Jiaxiao Zheng, Gaofei Sun, Xbing Wang (Shanghai Jiaotong University, China)

**Blind Identification of SM and Alamouti STBC Signals Based on Fourth-order Statistics**

Yahia Eldemerdash, Mohamed Marey, Octavia A. Dobre (Memorial University, Canada)
Robert J. Inkol (Defence R&D Canada, Canada)

**Adaptive Rate and Power Transmission for OFDM-based Cognitive Radio Systems**

Ebrahimb Bedeer, Octavia A. Dobre, Mohamed Hossam Ahmed (Memorial University, Canada)
Kareem E. Baddour (Communications Research Centre, Canada)

**An F-test for Multiple Antenna Spectrum Sensing in Cognitive Radio**

Qi Huang, Pei-Jung Chung (University of Edinburgh, UK)

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**SPC-07: OFDM**

**Efficient Sidelobe Suppression for OFDM Systems Using Advanced Cancellation Carriers**

Ahmed Selim, Irene Macaluso, Linda Doyle
(Trinity College Dublin, Ireland)

**A Low-Complexity Symbol Interleaving-based PAPR Reduction Scheme for OFDM Systems**

Sen-Hung Wang
(Intel-NTU Connected Context Computing Center, Taiwan)
Kuan-Chou Lee (National Taiwan University, Taiwan)
Chih-Peng Li (National Sun Yat-sen University, Taiwan)
Hsueh-Jyh Li (National Taiwan University, Taiwan)

**General Total Inter-Carrier Interference Cancellation for OFDM High Speed Aerial Vehicle Communication**

Xue Li, Qian Han (Wright State University, USA)
John Ellinger (Air Force Research Laboratory, USA)
Jian Zhang (Texas Woman’s University, USA)
Zhiquang Wu (Wright State University, USA)

**Efficient Modulation Scheme for OFDM System with ZP and MMSE Equalizer**

Hussein A. Leftah, Said Boussakta (Newcastle University, UK)

**PAPR Reduction Scheme in SFBC MIMO-OFDM Systems without Side Information**

Wei-Wen Hu, Ying-Chi Ciou, Chih-Peng Li, Wan-Jen Huang (National Sun Yat-Sen University, Taiwan)

**Doppler Scaling Correction in OFDM**

Chung Him (George) Yuen, Behrouz Farhang-Boroujeny (University of Utah, USA)

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**SPC-P1: Security and Cryptography (Poster)**

**Stochastic Wireless Secure Multicasting**

Youngmin Jeong (Kyung Hee University, Korea)
Tony Q. S. Quek (Singapore University of Technology and Design, I2R, Singapore)
Hyundong Shin (Kyung Hee University, Korea)

**A Two Dimensional Quantization Algorithm for CIR-Based Physical Layer Authentication**

Fiona Liu, Xianbin Wang, Serguei L. Primak (University of Western Ontario, Canada)

**Enhancing Security in the Cognitive Relay Assisted Co-existing Radio Systems with Interferences**

Md. Zahurul Islam Sarkar, Tharmalingam Ratnarajah (University of Edinburgh, UK)
WC-09: Hetnets I

Time Domain Bi-level Downlink Power Control for Cross-Tier Interference Mitigation in HetNet
Haining Wang, Zhi Ding (University of California, Davis, USA)
Michal Cierny, Risto Wichman (Aalto University, Finland)

Downlink Rate Distribution in Multi-RAT Heterogeneous Networks
Sarabjot Singh, Harpreet S. Dhillon, Jeffrey Andrews (University of Texas, Austin, USA)

Hierarchical Radio Resource Optimization for Heterogeneous Networks with Dynamic ABS
An Liu, Vincent Lau, Liangzhong Ruan, Junting Chen (Hong Kong University of Science and Technology, Hong Kong)
Dengkun Xiao (Huawei Technologies CO., LTD., China)

Rethinking Offload: How to Intellectually Combine Wi-Fi and Small Cells?
Meryem Simek (University of Duisburg-Essen, Germany)
Mehdi Benni (University of Oulu, Finland)
Mérouane Debbah (SUPELEC, France)
Andreas Czywic (Universität Duisburg-Essen, Germany)

3D Performance Analysis of a Heterogeneous LTE Network with Indoor Small-cells in a Real Urban Environment
Florian Letourneux, Yoann Corre (IRADEL, France)
Erwan Suteau (IRADEL, Canada)
Yves Lostanlen (IRADEL, University of Toronto, Canada)

Exploiting the Initial and the Final Conditions for the Alternating Minimization Algorithm
Che-Chen Chou, Hsin-Jui Chou, Jen-Ming Wu (National Tsing Hua University, Taiwan)

Monday, 10 June 2013 • 16:00 – 18:00
Room: Corso A, Ground Floor, Marriott

WC-11: Modulation and Coding

A Novel SISO Trellis Strategy for Relaying Distorted Signals in Wireless Networks
Xuanxuan Lu, Tiffany Jing Li, Yang Liu (Lehigh University, USA)
Chau Yuen (Singapore University of Technology and Design, Singapore)

Efficient Embedded Signaling Through Rotated Modulation Constellations for SLM-Based OFDM Systems
Mouna Sghaier, Fatma Abdelkefi, Mohamed Siala (Sup’Com, Tunisia)

On Coding Over Finite "Packets" in Wireless Communication Systems
Cenk Sahin, Lingjia Liu, Erik S. Perrins (University of Kansas, USA)

A Novel Multi-carrier Scheme: Cyclic Block Filtered Multitone Modulation
Andrea M Tonello (University of Udine, Italy)

Application of a Leakage Based Precoding Scheme to Mitigate Intrinsic Interference in FBMC
Upul Jayasinghe, Nandana Rajatheva, Matti Latva-aho (University of Oulu, Finland)

Coded Modulation Design for Two-way Relay Channels
Zhiyong Chen, Bin Xia, Hui Liu (Shanghai JiaoTong University, China)

WC-12: Cooperative Communications II

Capacity-Based MIMO Mode Switching Scheme between STBC and DSTBC for Relay-Assisted Cellular Networks
Xia Shen, Rongqing Zhang, Xiang Cheng, Zhimin Liu, Bingli Jiao (Peking University, China)

On the Impact of Backhaul Channel Reliability on Cooperative Wireless Networks
Zoltán Mayer, Jingya Li, Agisilaos Papadogiannis, Tommy Svensson (Chalmers University of Technology, Sweden)

Joint Source-Relay Design in Multi-Antenna Multi-Relay Networks with Prefixed Receivers
Aissa Ikhouen, Robert Schober (University of British Columbia, Canada)

Adaptive Beamforming Designs for MIMO AF Relaying Systems with Direct Link
Han-Bae Kong, Changick Song, Haewook Park, Inkyu Lee (Korea University, Korea)

Exact Ergodic Capacity of MIMO OSTBC Amplify-and-Forward Relay Network with Antenna Correlation
Nuwand S. Ferdinand, Nandana Rajatheva, Matti Latva-aho (University of Oulu, Finland)

An Efficient Beamforming Scheme for Generalized MIMO Two-Way X Relay Channels
Kangqi Liu, Zhengzheng Xiang, Meixia Tao (Shanghai Jiaotong University, China)
Xiaodong Wang (Columbia University, USA)
UWB Radio Channel Characterization and Design for Intra Spacecraft Communication
Johannes H.C. van den Heuvel, Jac Romme (IMEC, Holst Centre, Netherlands)
Jean-Francois Dufour (European Space Agency, ESTEC, Netherlands)
Guido Dolfmans, Nauman F. Kiyani, Kathleen Philips, Harmke de Groot (IMEC, Holst Centre, Netherlands)

UpLink Pre-Equalization for CC-CDMA Systems under Frequency Selective Fading
Syue Sun, Weixiao Meng (Harbin Institute of Technology, China)
Hsiao-Hwa Chen (National Cheng Kung University, Taiwan)

A MIMO-ANN System for Increasing Data Rates in Organic Visible Light Communications Systems
Paul Anthony Haigh Zaigh Ghassemlooy (Northumbria University, UK)
Ioannis Papakonstantinou (University College London, UK)
Francesco Arca, Sandro Tedde, Oliver Hayden (Siemens AG Corporate Technology, Germany)
Sujuan Rajbhandari (University of Oxford, UK)

Partial Time-Frequency Resource Allocation for Device-to-Device Communications Underlaying Cellular Networks
Yingqi Chai, Qinghe Du, Pinyi Ren (Xi’an Jiaotong University, China)

Resource Allocation for Two-way Relay Networks with Symmetric Data Rates: An Information Theoretic Approach
Ke Xiong (Tsinghua University, China)
Qing Shi (University of Hong Kong, Hong Kong)
Pinyi Fan (Tsinghua University, China)
Khaled B. Letaief (Hong Kong University of Science and Technology, Hong Kong)

Resource Allocation for WWAN Video Multicast with Cooperative Local Repair
Zhi Liu, Yu Mao (National Institute of Informatics, Japan)
Ning Lu (University of Waterloo, Canada)
Yusheng Ji (National Institute of Informatics, Japan)
Sherman Shen (University of Waterloo, Canada)

Uplink Resource Allocation for Interworking of WLAN and OFDMA-Based Femtocell Systems
Amila Tharapertiya Gamage, Sherman Shen (University of Waterloo, Canada)

Energy-Aware Resource Allocation for Device-to-Device Underlay Communication
Feiran Wang, Chen Xu, Lingyang Song (Peking University, China)
Qun Zhao, Xiaoli Wang (Docomo Beijing Communications Lab, China)
Zhu Han (University of Houston, USA)

Interference-Aware Energy-Efficient Resource Allocation for Heterogeneous Networks with Incomplete Channel State Information
Shengrong Bu, F. Richard Yu (Carleton University, Canada)
Gamini Senarath (Huawei Technologies Canada CO., LTD., Canada)
Tuesday, 11 June 2013 • 09:00 – 10:30
Room: Panorama IV, 1st Floor, InterContinental

**AH-06: Energy-Efficient Networks**

Resource Allocation and Scheduling for Energy Efficient Tracking
Praveen Bommannavar (Stanford University, USA)
John Apostolopoulos (Hewlett-Packard Labs, USA)
Nicholas Bambos (Stanford University, USA)

An Energy Efficient MAC Protocol for Fully-Connected Wireless Networks
Kamal Rahimi Malekshan, Weihua Zhuang (University of Waterloo, Canada)

Vibration Energy Harvesting for Wireless Underground Sensor Networks
Salman Kahrabaee, Mehmet Can Vuran (University of Nebraska-Lincoln, USA)

Range Extension of Passive Wake-up Radio Systems through Energy Harvesting
Li Chen, Stephen Cool, He Ba, Wendi Heinzelman (University of Rochester, USA)
Ilker Demirkol (Universitat Politecnica de Catalunya, i2CAT Foundation, Spain)
Uluk Muncuk, Kaushik Chowdhury, Stefano Basagni (Northeastern University, USA)

Energy-Efficient Multi-Mode Transmission in Uplink Virtual MIMO Systems
Yun Rui (SARI, CAS, China)
Lei Deng, Peng Cheng (Shanghai Jiaotong University, China)
Keith Q. T. Zhang (City University of Hong Kong, Hong Kong)
Mingqi Li (SARI, CAS, China)

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Tuesday, 11 June 2013 • 09:00 – 10:30
Room: Panorama V, 1st Floor, InterContinental

**AH-07: Scheduling I**

Efficient Multi-Path Data Aggregation Scheduling in Wireless Sensor Networks
Miloud Bagaa (CERIST, Algeria)
Mohamed Younis (University of Maryland, Baltimore County, USA)
Abdelraouf Ouadjaout, Nadjib Badache (CERIST, Algeria)

Adaptive Working Schedule for Duty-cycle Opportunistic Mobile Networks
Huan Zhou, Hongyang Zhao (Zhejiang University, China)
Chi Harold Liu (IBM Research, China)
Jiming Chen (Zhejiang University, China)

Hidden Node Collision Mitigated CSMA/CA-Based Multihop Wireless Sensor Networks
Bharat Shrestha, Ekram Hossain (University of Manitoba, Canada)
Sergio Camorlinga (TR Labs, University of Manitoba, Canada)

TDMA Scheduling with Maximum Throughput and Fair Rate Allocation in Wireless Sensor Networks
Min Yao, Chuang Lin, Peng Zhang, Yuan Tian, Shibo Xu (Tsinghua University, China)

Impact of Successive Interference Cancellation on the Capacity of Wireless Networks: Joint Optimal Link Scheduling and Power Control
Mina Yazdanpanah, Samir Sebbeh, Chadi Assi, Youssef R. Shayan (Concordia University, Canada)

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Tuesday, 11 June 2013 • 09:00 – 10:30
Room: Corso B, Ground Floor, Marriott

**AH-08: Security**

Analysis of Secure Unicast Links in Stochastic Wireless Networks
Satyanarayana Vuppala, Giuseppe Abreu (Jacobs University, Germany)

Joint Security and QoS Provisioning in Cooperative Vehicular Ad Hoc Networks
Li Zhu, E. Richard Yu (Carleton University, Canada)
Bing Ning (State Key Laboratory of Rail Traffic Control and Safety, China)
Tao Tang (Beijing Jiaotong University, China)

Enhanced Privacy and Reliability for Secure Geocasting in VANET
Antonio Prado (University of Ottawa, Canada)
Sushmita Ruj (IIT-Indore, India)
Amiya Nayak (SITE, University of Ottawa, Canada)

Matrix-based Pairwise Key Establishment in Wireless Mesh Networks Using Deployment Knowledge
Yue Xin Zhang, Li Xu (Fujian Normal University, China)
Yang Xiang (Deakin University, Australia)
Xinyi Huang (Fujian Normal University, Singapore)

Proximity-based Security Using Ambient Radio Signals
Liang Xiao (Xi'an University, WINLAB, Rutgers University, China)
Qiben Yan, Wenjing Lou, Thomas Hou (Virginia Tech, USA)

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Tuesday, 11 June 2013 • 09:00 – 10:30
Room: Duna Salon I, 1st Floor, InterContinental

**CIS-05: Anomaly and Intrusion Detection II**

Characterization and Visualization of Sophisticated Scanning Attacks
Maggie Cheng, Quanmin Ye (Missouri University of Science and Technology, USA)
Robert F. Erbacher (US Army Research Laboratory, USA)

P3D: A Parallel 3D Coordinate Visualization for Advanced Network Scans
Troy Nunnally, Penyen Chi, Kusoom Abdullah, Selcuk Uluagac, John A. Copeland, Raheem Beyah (Georgia Institute of Technology, USA)

Network Traffic Clustering Using Random Forest Proximities
Yu Wang, Yang Xiang, Jun Zhang (Deakin University, Australia)

An Unsupervised Behavior-based Method for BGP Anomaly Detection and Attribution
Georgios Theodoridis (Centre for Research and Technology Hellas, Greece)
Orestis Tsigkas (Informatics and Telematics Institute, Alexander TEI of Thessaloniki, Greece)
Dimosthenis Tzovaras (Informatics and Telematics Institute, Greece)

SPIT Callers Detection with Unsupervised Random Forests Classifier
Kentaroh Toyoda, Iwao Sasa (Keio University, Japan)

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Tuesday, 11 June 2013 • 09:00 – 10:30
Room: Duna Salon II, 1st Floor, InterContinental

**CQR-05: Traffic Modeling and Characterization I**

Volatility of YouTube Content in Orange Networks and Consequences
Fabrice M. Guillemin, Thierry Houdoin, Stephanie Moteau (Orange Labs Research, France)

Scene Change Detection-Based Discrete Autoregressive Modeling for MPEG-4 Video Traffic
Irene Spanou (University of California, Davis, USA)
Aggelos Lazaris (University of Southern California, USA)
Polychronis Koutsakis (Technical University of Crete, Greece)

Blind Estimation of Primary User Traffic Parameters under Sensing Errors
Wesam R. Gabran (University of California, Los Angeles, USA)
Przemyslaw Pawelczak (Delft University of Technology, Netherlands)
Chun-Hao Liu, Daniela Cabric (University of California, Los Angeles, USA)

Multi-Functional Emulator for Traffic Analysis
Sándor Molnár, Péter Megyesi (Budapest University of Technology and Economics, Hungary)
Géza Szabó (Ericsson Research, Hungary)
Tuesday, 11 June 2013 • 09:00 – 10:30
Room: Lanchid B, Mezzanine Level, Marriot
CRN-03: Spectrum Sharing

On Energy Efficient MIMO-Assisted Spectrum Sharing for Cognitive Radio Networks
Guangjie Huang, Jitendra Tugnait (Auburn University, USA)

Cooperative or Not: The Secondary User’s Dilemma in Hierarchical Spectrum Sharing Networks
Liping Wang, Viktoria Fodor (Royal Institute of Technology, Sweden)

Achievable Rate of Cognitive Radio Spectrum Sharing MIMO Channel with Space Alignment and Interference Term Precoding
Lokman Sobu (King Abdullah University of Science and Technology, Saudi Arabia)

Best Relay Selection in Cooperative Spectrum Sharing Systems with Multiple Primary Users
Francisco Rafael Guimarães, Daniel Benevides da Costa (Federal University of Ceará, Brazil)

Two Days of European Spectrum: Preliminary Analysis of Concurrent Spectrum Use in Seven European Sites in GSM and ISM Bands
Alexandros Palaios, Janne Riihijärvi, Petri Mähönen (Bundesnetzagentur, Germany)

Two Ways of European Spectrum: Preliminary Analysis of Concurrent Spectrum Use in Seven European Sites in GSM and ISM Bands
Alexandros Palaios, Janne Riihijärvi, Petri Mähönen (Bundesnetzagentur, Germany)

Dynamic Spectrum Scheduling for Carrier Aggregation: A Game Theoretic Approach
Yong Xiao (Massachusetts Institute of Technology, USA)
Chau Yuen (Singapore University of Technology and Design, Singapore)
Paolo Di Francesco (Trinity College Dublin, Ireland)
Luiz A. DaSilva (Virginia Polytechnic Institute and State University, USA)

Optimal Channel-Sensing Policy Based on Fuzzy Q-Learning
Fereidoun H. Panahi, Tomoaki Ohtsuki (Keio University, Japan)

Periodic Partial Soft Sensing and Spectrum Handoff in Cognitive Relay Networks
Stephen Lingfeng Wang, Fengming Cao, Zhong Fan (Toshiba Research Europe, UK)

Spatial Distributed Dynamic Spectrum Access
Ching-Yueh Kao (National Taiwan University, Taiwan)
Weng Chon Ao (University of Southern California, USA)
Kwang-Cheng Chen (National Taiwan University, Taiwan)

Spatial Opportunity in Cognitive Radio Networks with Threshold-Based Opportunistic Spectrum Access
Xiaoshi Song, Changchuan Yin, Dan Pu Liu (Beijing University of Posts & Telecommunications, China)
Rui Zhang (National University of Singapore, Singapore)

Tuesday, 11 June 2013 • 09:00 – 10:30
Room: Duna Salon III, 1st Floor, InterContinental
CT-05: Energy Efficient Networks

Optimal Packet Scheduling for an Energy Harvesting Transmitter with Processing Cost
Oner Orhan (Polytechnic Institute of NYU, USA)
Deniz Gündüz (Imperial College London, UK)
Elza Erkip (Polytechnic Institute of NYU, USA)

Two-Way Relay Beamforming for Sum-Rate Maximization and Energy Harvesting
Dandan Li, Chao Shen (Beijing Jiaotong University, China)
Zhengding Qiu (China)

Mobile Ad Hoc Networks Powered by Energy Harvesting: Battery-Level Dynamics and Spatial Throughput
Kaibin Huang (Hong Kong Polytechnic University, Hong Kong)
Energy Cooperation in Energy Harvesting Two-Way Communications
Berk Gurakan, Omur Ozel (University of Maryland, USA)
Jing Yang (University of Arkansas, USA)

Dynamic Sleep Mode Strategies in Energy Efficient Cellular Networks
Yong Sheng Shoh (California Institute of Technology, USA)
Tony Q. S. Quek (Singapore University of Technology and Design, Institute for Infocomm Research, Singapore)
Marios Kontouris (SUPELEC, France)

Tuesday, 11 June 2013 • 09:00 – 10:30
Room: Budapest Ballroom, Mezzanine Level, Marriott
CT-P1: Topics in Communication Theory (Poster)

Performance of Adaptive Subcarrier QAM Intensity Modulation in Gamma-Gamma Turbulence
Md. Zoheb Hassan, Md. Jahangir Hossain, Julian Cheng (University of British Columbia, Canada)

Average BER Analysis of Relay Selection Based Decode-and-Forward Cooperative Communication over Gamma-Gamma Fading FSO Links
Manav Bhatnagar (Indian Institute of Technology, Delhi, India)

How to Select the Pilot Carrier Positions in CP-OFDM?
Heidi Steendam (Ghent University, Belgium)

Constellation Design for Channels Affected by Phase Noise
Farbod Kayhan, Guido Montorsi (Politecnico di Torino, Italy)

A Nonlinear Diversity Combiner of Binary Signals in the Presence of Impulsive Interference
Khodr A. Saaidan, Werner Henkel (Jacobs University Bremen, Germany)

Design and Assessment of a Pure Hydrodynamic Microfluidic Switch
Elena De Leo, Lidiia Donvito (University of Catania, Italy)
Laura Galluccio (DIEEI, Italy)

Tuesday, 11 June 2013 • 09:00 – 10:30
Room: Ballroom II, 1st Floor, InterContinental
NGN-04: Content Centric Networks I

Evaluation of ALTO-enhanced Request Routing for CDN Interconnection
Mayutan Arumaithurai, Jan Seedorf (NEC Europe Ltd., Germany)
Giovanni Paraglipola (University of Napoli, Italy)
Marcin Pilarski (Warsaw University of Technology, Orange Lab Poland, Poland)
Saverio Niccolini (NEC Europe Ltd., Germany)
A Fault-Tolerant Routing Protocol for Dynamic Autonomous Unmanned Vehicular Networks
Sudip Misra (Indian Institute of Technology, Kharagpur, India)
Venkata Krishna, Harshit Agarwal (VIT University, India)
Athanasios V. Vasilakos (National Technical University of Athens, Greece)
V. Saritha (VIT University, India)
Mohammad S. Obaidat (Monmouth University, USA)

Scale Content Centric Networks via Reactive Routing
Haiyong Xie (University of Science and Technology of China, Huawei, UAE)
Yang Wang (Georgia State University, USA)
Guoqiang Wang (Huawei, USA)

IDRD: Enabling Inter-Domain Route Diversity
Xavier Misseri (TELECOM ParisTech, France)
Ivan Gojmerac (University of Vienna, Austria)
Jean-Louis Rouger (TELECOM ParisTech, France)

Performance Comparison of Modified AODV in Reference Point Group Mobility and Random Waypoint Mobility Models
Harris Simamemare, Abdusy Syarif, Abdelhafid Abouaissa (University of Haute Alsace, France)
Riri Fitri Sari (University of Indonesia, Indonesia)
Pascal Lorenz (University of Haute Alsace, France)

Tuesday, 11 June 2013 • 09:00 – 10:30
Room: Lanchid A, Mezzanine Level, Marriott
NGN-PI: Next Generation Networks (Poster)
Survivable Green Active Topology Design and Link Weight Assignment for IP Networks with NotVia Fast Failure Reroute
Steven S. W. Lee, Kuang-Yi Li (National Chung Cheng University, Taiwan)
Alice Chen (ITRI, Taiwan)

Implementing NAT Traversal with Private Realm Gateway
Jesus Llorente Santos (Aalto University, Finland)
Raimo Kantola (Helsinki University of Technology, Finland)
Nicklas Beijar, Petri Leppäaho (Aalto University, Finland)

Grainflow: Enable Data Plane Innovation at Per-Bit Level
Zhongjin Liu, Yong Li, Bo Cui, Li Su, Depeng Jin, Lieguang Zeng (Tsinghua University, China)

A Bidirectional Network Collaboration Interface for CDNs and Clouds Services Traffic Optimization
Selim Ellouze, Bertrand Mathieu (Orange Labs, France)
Tayeb Lemiouma (IRISA, France)

Tuesday, 11 June 2013 • 09:00 – 10:30
Room: Budapest Ballroom, Mezzanine Level, Marriott
TCP-ETX: A Cross Layer Path Metric for TCP Optimization in Wireless Networks
Hengheng Xie (Paradise Research Lab, Canada)
Azzedine Boukerche (University of Ottawa, Canada)
Antonio A.F. Loureiro (Federal University of Minas Gerais, Brazil)

SoftEPC - Dynamic Instantiation of Mobile Core Network Entities for Efficient Resource Utilization
Faqir Zarrar Yousaf, Johannes Lessmann, Paulo Loureiro, Stefan Schmid (NEC Europe, Germany)

Dynamic Mobile IP Anchoring
Tiago Silvestre, Susana Sargento (IT, Universidade de Aveiro, Portugal)

Broadcasting User Content over Novel Mobile Networks
Sérgio Figueiredo, Carlos Eduardo Magalhães Guimarães, Rui L. Aguai (IT, Universidade de Aveiro, Portugal)
Tien-Thinh Nguyen (EURECOM, France)
Liron Yadin (LiveU, Israel)
Nuno Filipe Carapeto, Carlos Parada (Portugal Telecom Inovação, Portugal)

Tuesday, 11 June 2013 • 09:00 – 10:30
Room: Panorama III, 1st Floor, InterContinental
SPC-08: Estimation and Detection II
Blind Identification of the Scrambling Code of a Reverse Link CDMA 2000 Transmission
Mathieu des Noes (CEA LETI Minatex, France)
Valentin Savin (CEA LETI), France
Laurent Ros (GIPSA-Lab, INPG, CNRS, France)
Jean-Marc Brossier (GIPSA-Lab/DIS, France)

On the Effect of Correlated Measurements on the Performance of Distributed Estimation
Mohammed F. A. Ahmed (King Abdullah University of Science and Technology, Canada)
Tareq Y. Al-Naffouri (King Abdullah University of Science and Technology, USA)
Mohamed-Slim Alouini (King Abdullah University of Science and Technology, Saudi Arabia)

Double-Talk Detection Using the Singular Value Decomposition for Acoustic Echo Cancellation
Mahfoud Hamida, Abderrahmane Amrouche (USTHB, Algeria)

Blind Symbol Rate Estimation using Autocorrelation and Zero Crossing Detection
Mohammed Elgeneidy (VarkonSemiconductor, ModernTechnology, Egypt)
Aymen Y. Elezabi (American University, Cairo, Egypt)
Tuesday, 11 June 2013 • 09:00 – 10:30
Room: Margit B, Mezzanine Level, Marriott

**SPC-09: Transceiver Techniques II**

**A Block-Parallel Architecture for Initial and Fine Synchronization in OFDM Systems**
Sramed Udupa, Olivier Sentieys, Pascal Scalart
(University of Rennes, France)

**New Fast Optimal Window Design Algorithm Based on the Eigen-Decomposition of the Symmetric Toeplitz Matrix**
Hongting Zhang, Hsiao-Chun Wu (Louisiana State University, USA)
Shih Yu Chang (National Tsing Hua University of Taiwan, Taiwan)

**A Polyphase-filter-based FFT for DFT Calculation in LTE Uplink**
Yanbin Yao, Yongtao Su, Shoujun Huang, Jinglin Shi
(University of Western Ontario, Canada)

**Performance Trade-Offs and DSP Evaluation of Spectrally Efficient FDM Detection Techniques**
Ryan C. Grammenos, Izzat Darwazeh (University of Cyprus, UK)

Tuesday, 11 June 2013 • 09:00 – 10:30
Room: Ballroom III, 1st Floor, InterContinental

**WC-13: Cooperative Communications III**

**Rate-Adaptive HARQ in Relay-based Cooperative Transmission**
Saeed Reza Khosravizad (McGill University, Canada)
Leszek Szczecinski (INRS-EMT, Canada)
Fabrice Labeau (McGill University, Canada)

**Multiple Access with Asynchronous Broadcasting in Wireless Cooperative Networks**
Antonios Argyriou (University of Thessaly, CERTH, Greece)

**Compress-and-Forward on a Multiaccess Relay Channel with Computation at the Receiver**
Mohieddine El Soussi (Université Catholiche de Louvain, Belgium)
Abdellatif Zaïdi (Université Paris-Est Marne La Vallée, France)
Luc Vandendorpe (University of Louvain, Belgium)

**Misbehavior Detection in Amplify-and-Forward Cooperative OFDM Systems**
Weikun Hou, Xianbin Wang, Ahmed Refaey Hussein
(University of Western Ontario, Canada)

**SNR Penalty from the Path-loss Disparity in Virtual Multiple-Input-Single-Output (VMIOS) Link**
Haejoon Jung, Mary Ann Ingram (Georgia Institute of Technology, USA)

Tuesday, 11 June 2013 • 09:00 – 10:30
Room: Panorama I, 1st Floor, InterContinental

**WC-14: Cellular Systems II**

**An Efficient Inter-site Interference Model for 4G Wireless Networks**
Ahmed Amate, Stratis Sofianos, Milos Milosavlievic, Pandelis Kourtessis,
John Meachal Senior (University of Hertfordshire, UK)

**A New Analysis of the DS-CDMA Cellular Uplink under Spatial Constraints**
Don Torrieri (US Army Research Laboratory, USA)
Matthew Valenti, Salvatore Talarico (West Virginia University, USA)

**Analysis of Fractional Frequency Reuse in OFDMA Networks for Real Time and Best Effort Traffic**
Suhrbbood Boddhi, Attri Mukhopadhyay, Prabhu Chandhar, Bigi Varghese Philip,
Suvar Sekhar Das (Indian Institute of Technology, Kharagpur, India)

**Rate Optimization for Relay-Assisted Downlink Cellular Systems Using Superposition Coding**
Stefano Rini (Stanford, USA)
Levan Ghaghanidze (Technical University Munich, Germany)
Ernest Kurniawan
(Stanford University, Institute for Infocomm Research, USA)
Andrea Goldsmith (Stanford University, USA)

**Generalized Area Spectral Efficiency: An Effective Performance Metric for Green Wireless Communications**
Lei Zhang, Hong-Chuan Yang (University of Victoria, Canada)
Mazen Omar Hasna (Qatar University, Qatar)

Tuesday, 11 June 2013 • 09:00 – 10:30
Room: Erzsebet B, Mezzanine Level, Marriott

**WC-15: Multiuser MIMO II**

**Pilot Design for Large-Scale Multi-Cell Multiuser MIMO Systems**
Anzhong Hu, Tiejun Lv
(Beijing University of Posts & Telecommunications, China)
Hui Gao (Singapore University of Technology and Design, Singapore)

**Limited Feedback Multiuser MISO Systems with Differential Codebooks in Correlated Channels**
Jawad Mirza, Pawel A. Dmochowski
(Victoria University of Wellington, New Zealand)
Peter J. Smith (University of Canterbury, New Zealand)
Mansoor Shafi (Telecom New Zealand, New Zealand)

**A Joint Adaptive Beamforming and User Scheduling Algorithm for Downlink MIMO Systems**
Sung-Hyun Moon (ETRI, Korea)
Changhee Lee, Sang-Rim Lee, Inkyu Lee (Korea University, Korea)

**Clustering Method for CoMP with Limited Backhaul Data Transfer Using Convex Relaxation**
Jian Zhao (Institute for Infocomm Research, Singapore)
Tony Q. S. Quek (Singapore University of Technology and Design, Institute for Infocomm Research, Singapore)
Zander Zhongding Lei (Institute for Infocomm Research, Singapore)

**Uplink Sum-Rate Analysis of Multi-Cell Multi-User Massive MIMO System**
Dongming Wang, Chen Ji (National Mobile Communications Research Lab., Southeast University, China)
Xiqi Gao (Southeast University, China)
Shaohui Sun (China Academy of Telecommunications Technology, China)
Xiaoou You (National Mobile Communication Research Lab., Southeast University, China)

Tuesday, 11 June 2013 • 09:00 – 10:30
Room: Budapest Ballroom, Mezzanine Level, Marriott

**WC-P4: WCS IV (Poster)**

**On Probabilistic Data Association for Achieving Near-Exponential Diversity over Fading Channels**
Atulya Yellepelli (MIT, WHOI, USA)
Kyeong Jin Kim, Chunjiue Duan, Philip Orlik
(Mitsubishi Electric Research Laboratories, USA)

**Information Transmission via Source of Opportunity Signals: Piggyback Communications**
Vincenzo Zambianchi, Enrico Paolini, Davide Dardari
(University of Bologna, Italy)

**Optimal Pilot Pattern for Time Variant Channels**
Michal Simko, Qi Wang, Markus Rupp
(Vienna University of Technology, Austria)
Tuesday, 11 June 2013 • 09:00 – 10:30
Room: Panorama II, 1st Floor, InterContinental
**WN-06: Capacity Analysis**

- Equivalent Capacity Analysis of LTE-Advanced Systems with Carrier Aggregation
  Ran Zhang, Zhongming Zheng, Miao Wang, Sherman Shen, Liangliang Xie (University of Waterloo, Canada)
- Two Vulnerabilities in Android OS Kernel
  Xiali Hei (Temple University, Guangdong University of Business Studies, USA)
  Xiaojiang Du, Shan Lin (Temple University, USA)
- Optimal Relay Assignment for Secrecy Capacity Maximization in Cooperative Ad Hoc Networks
  Biao Han, Jie Li (University of Tsukuba, Japan)

**Analysis on Dynamic of Node Storage in Space Delay/Disruption Tolerating Networks**
Hongbing Li, Zhuhua Yang, Jian Jiao, Qinju Zhang (Harbin Institute of Technology, China)
Xiaodong Lin (University of Ontario Institute of Technology, Canada)

**Multicast Capacity Analysis for Social-Proximity Urban Bus-Assisted VANETs**
Yan Huang, Xin Guan (Heilongjiang University, China)
Zhipeng Cai (Georgia State University, USA)
Tomoaki Ohatsuki (Keio University, Japan)

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Tuesday, 11 June 2013 • 14:00 – 15:30
Room: Budapest Ballroom, Mezzanine Level, Marriott
**AH-P1: Performance Evaluation (Poster)**

**Effects of Rayleigh-Lognormal Fading on IEEE 802.15.4 Networks**
Piergiuseppe Di Marco, Carlo Fischione (Royal Institute of Technology, Sweden)
Fortunato Santucci (University of L’Aquila, Italy)
Karl Henrik Johansson (Royal Institute of Technology, Sweden)

**Energy Saving Efficiency Comparison of Transmit Power Control and Link Adaptation in BANs**
Qi Zhang (Aarhus University, Denmark)

**A Generic Simulation Framework for Energy Consumption in Data Center Networks**
Chang Zhao, Bowen Ge, Xiaohua Tian (Shanghai Jiaotong University, China)
Tuesday, 11 June 2013 • 14:00 – 15:30
Room: Duna Salon I, 1st Floor, InterContinental

CIS-06: Wireless Network Security I

SDTP+: Securing a Distributed Transport Protocol for WSNs using Merkle Trees and Hash Chains
Amit Dvir (Ariel University Center, Israel)
Levente Buttyán, Ta Vinh Thong
(Budapest University of Technology and Economics, Hungary)

HoG: Hash Graph Based Key Predistribution Scheme for Multiphase Wireless Sensor Networks
Salim Sarimurat, Albert Levi (Sabanci University, Turkey)

Robust and Scalable Secure Neighbor Discovery for Wireless Ad Hoc Networks
Somayeh Taheri, Dieter Hogrefe (University of Goettingen, Germany)

A Secrecy Evaluation Scheme for Infrastructure Deployment in Radio Access Network
Li Wang (Beijing University of Posts & Telecommunications, China)
Xi Zhang (Texas A&M University, USA)
Jingwei Mo (BUPT, China)
Mei Song (China)

A Game-Theoretic View on the Physical Layer Security of Cognitive Radio Networks
Ali K Houjeij (University of Illinois, Urbana-Champaign, USA)
Wald Saad (University of Miami, USA)
Tamer Başar (University of Illinois, Urbana-Champaign, USA)

Multi-Photon Tolerant Secure Quantum Communication: From Theory to Practice
Yuhua Chen (University of Houston, USA)
Subhash Kak (Oklahoma State University, USA)
Pramode K. Verma, Gregory Macdonald, Mayssaa El Rifai, Nihkil Punekar (University of Oklahoma, USA)

An Anti-Steganographic Approach for Removing Secret Information in Digital Audio Data hidden by Spread Spectrum Methods
Fahimeh Rezaei, Tao Ma, Michael Hempel, Dongming Peng, Hamid Sharif (University of Nebraska-Lincoln, USA)

Iris Code Hashing
Umarani Jayaraman, Phalguni Gupta
(Indian Institute of Technology, Kanpur, India)

No More Backups: Toward Efficient Embedding of Survivable Virtual Networks
Rodrigo Ruas Oliveira, Daniel Stefani Marcon, Leonardo R. Bays, Miguel Neves, Luciana Salete Buriol, Luciano Paschoal Gaspar, Marinho P. Barcellos (Federal University of Rio Grande do Sul, Brazil)

Tuesday, 11 June 2013 • 14:00 – 15:30
Room: Lanchid B, Mezzanine Level, Marriott

CRN-05: Cognitive Radio Networks: Applications I

Energy Efficient Design of Cognitive Small Cells
Matthias Wildemeersch (University of Twente, I2R, Netherlands)
Tony Q. S. Quek
(Singapore University of Technology and Design, I2R, Singapore)
Alberto Rabbachin (Massachusetts Institute of Technology, USA)
Cornelis H. Slump (University of Twente, Netherlands)
Aiping Huang (Zhejiang University, China)

LTE-A Femto-Cell Interference Mitigation with MuSIC DOA Estimation and Null Steering in an Actual Indoor Environment
Giulio Bartoli, Romano Fantacci, Dania Marabissi, Marco Pucci
(University of Florence, Italy)

Collecting Fusion Gains for Detection of Spread Spectrum Signals using Compressive Wideband Radios
Ahmed O. Nasif, Zhi Tian (Michigan Technological University, USA)
A Cognitive and Cooperative Tracking Approach in Wireless Networks
Zhoubing Xiong, Mingbo Dai (Politecnico Di Torino, ISMB, Italy)
Francesco Sculte, Maurizio A. Spinto (ISMB, Italy)
Roberto Garello (Politecnico di Torino, Italy)

Seamless Real-time Content Delivery in Wireless Cognitive Radio Networks
Chin-Ya Huang, Parmesh Ramanathan (University of Wisconsin, Madison, USA)

Impact of Routing Protocols on Packet Retransmission over Wireless Networks
Thibault Bernard, Hacene Fouchal, Sebastien Linck, Estelle Perrin (University of Reims Champagne-Ardenne, France)

Time Domain Synchronous OFDM Based on Simultaneous Multi-Channel Reconstruction
Linglong Dai, Jintao Wang, Zhaocheng Wang (Tsinghua University, China)
Paschalis Tsiatilakis, Marc Moonen (KU Leuven, Belgium)

Tuesday, 11 June 2013 • 14:00 – 15:30
Room: Erzebet A, Mezzanine Level, Marriott

CRN-06: Cognitive Radio Networks: PHY I
Statistically Robust Cooperative Beamforming for Cognitive Radio Networks
Sudhir Singh (Industrial Research Ltd., New Zealand)
Paul D. Teal, Pawel A. Dmochowski (Victoria University of Wellington, New Zealand)
Alan J. Coulson (Industrial Research Ltd, New Zealand)

Dynamic Determination of Spectrum Emission Masks in the Varying Cognitive Radio Environment
Pawel Krzyszkiewicz, Hanna Bogucka (Poznan University of Technology, Poland)

Reciprocity-Based Cognitive Transmissions using a MU Massive MIMO Approach
Boris Kouassi (University of Nice Sophia Antipolis, France)
Irfan Ghauri (Intel Mobile Communications, France)
Luc Deneire (University of Nice, France)

Game Theoretic Analysis of Orthogonal Modulation Based Cooperative Cognitive Radio Networking
Bin Cao (Harbin Institute of Technology, University of Waterloo, China)
Yu Cui, Qinya Zhang (Harbin Institute of Technology, China)
Jon Mark (University of Waterloo, Canada)

Mean Value-Based Power Allocation and Ratio Selection for MIMO Cognitive Radio Systems
Kamel Tourki, Khalid A. Garaq (Texas A&M University, Qatar, USA)
Mohamed-Slim Alouini (King Abdullah University of Science and Technology, Saudi Arabia)

Tuesday, 11 June 2013 • 14:00 – 15:30
Room: Panorama I, 1st Floor, InterContinental

CSS-02: Wireless Networking: Theory and Analysis
Analytic Analysis of LTE/LTE-Advanced Power Saving and Delay with Bursty Traffic
Ranjeet S. Bhamber (Instituto de Óptica, CSIC, Spain)
Scott Fowler (Linköping University, Sweden)
Chris Braimiotis (Instituto de Óptica, Spain)
Abdelhamid Mellouk (University Paris-Est Creteil Val de Marne, France)

End-to-End Delay Distribution in Wireless Heterogeneous Networks
Wahida Mansouri, Faouzi Zarai (Sfax University, Tunisia)
Kais Mnif (Sfax University, Ecole de Technologie Supérieure, Tunisia)
Mohammad S. Obaidat (Monmouth University, USA)
Lotfi Kamoun (Sfax University, Tunisia)

A Look under the Hood:
Revealing Performance Issues in the DPI Engine
Wesley Melo, Stenio Fernandes (Federal University of Pernambuco, Brazil)
Rafael T Antonello (Instituto Federal de Alagoas, Brazil)
Djamel Hadj Sadok, Judith Kelner (Federal University of Pernambuco, Brazil)
Géza Szabó (Ericsson Research, Hungary)

Tuesday, 11 June 2013 • 14:00 – 15:30
Room: Duna Salon II, 1st Floor, InterContinental

CT-06: MIMO II
Decontaminating Pilots in Massive MIMO Systems
Haifan Yin, David Gesbert, Miladades C. Filippou (EURicom Institute, France)
Yinghuang Liu (Huazhong University of Science and Technology, China)

Error Exponents for Rayleigh Fading Multi-keyhole MIMO Channels
Jiang Xue, Md. Zahurul Islam Sarkar, Tharmalingam Ratnarajah (University of Edinburgh, UK)

Imperfect and Unmatched CSIT is Still Useful for the Frequency Correlated MISO Broadcast Channel
Chenxi Hao, Bruno Clerckx (Imperial College London, UK)

Full-Rate Integer Space-Time Block Codes for 2 X 2 MIMO channels
J. Harshan, Emanuele Viterbo (Monash University, Australia)

Improved Perfect Space-Time Block Codes
Pavan K. Srinath, B. Sundar Rajan (Indian Institute of Science, India)

Tuesday, 11 June 2013 • 14:00 – 15:30
Room: Panorama IV, 1st Floor, InterContinental

NGN-06: Content Centric Networks II
MPC: Popularity-based Caching Strategy for Content Centric Networks
César Bernardini (Université de Lorraine, INRIA LORIA, France)
Thomas Silverston (Université de Lorraine, LORIA, France)
Olivier Festor (INRIA Nancy, Grand Est, France)

A Dominating-set-based Collaborative Caching with Request Routing in Content Centric Networking
Yuemei Xu, Yang Li, Tao Lin, Guoqiang Zhang, Zihou Wang (Chinese Academy of Sciences, China)
Song Ci (University of Nebraska-Lincoln, USA)

Dynamic Adaptive Streaming over CCN:
A Caching and Overhead Analysis
Yaning Liu, Joost Geurts, Jean-Charles Point (JCP-Consult, France)
Stefan Lederer, Benjamin Rainer, Christopher Müller, Christian Timmerer, Hermann Hellwagner (Alpen-Adria-Universität Klagenfurt, Austria)

A Novel Caching Scheme for the Backbone of Named Data Networking
Hao Wu, Jun Li, Tian Pan, Bin Liu (Tsinghua University, China)

Scalable Forwarding for Information-Centric Networks
Weizhen Yang, Dirk Trossen (University of Cambridge, UK)
János Tapolcai (Budapest University of Technology and Economics, Hungary)
Tuesday, 11 June 2013 • 14:00 – 15:30
Room: Corso A, Ground Floor, Marriott

**NGN-07: Energy Efficiency**

An Ant-Swarm Inspired Energy-Efficient Ad Hoc On-demand Routing Protocol for Mobile Ad Hoc Networks

Isaac Wongang (Ryerson University, Canada)
Sanjay Kumar Dhurandhar (Netaji Subhas Institute of Technology, India)
Mohammad S. Obaidat (Monmouth University, USA)
Alexander Femworth, Waqas Shah (Ryerson University, Canada)

Energy Agile Packet Scheduling to Leverage Green Energy for Next Generation Cellular Networks

Tao Han, Xueqing Huang, Nirwan Ansari (New Jersey Institute of Technology, USA)

Energy Efficient Techniques for 802.11n Multiuser MAC WLANs

Danica Gagic (InnoRoute GmbH, Germany)
Ellit Kartsakli (Universitat Politècnica de Catalunya, Spain)
Nizar Zorba (QMIC, Qatar)
Christian Liß (InnoRoute GmbH, Germany)
Luis Alonso (Universidad Politècnica de Catalunya, Spain)
Christos Verikoukis (Telecommunications Technological Centre of Catalonia, Spain)

Bandwidth-adaptive Application Partitioning for Execution Time and Energy Optimization

Jianwei Niu, Wenfang Song (Beihang University, China)
Lei Shu (Guangdong University of Petrochemical Technology, China)
Mohammad Atiquzzaman (University of Oklahoma, USA)

CPLNC Based Energy Efficient Routing in Rayleigh Fading Networks

Auon Muhammad Akhtar (Riphah International University, Pakistan)
Mohammad Reza Nakhai, Hamid Aghvami (King’s College London, UK)

Tuesday, 11 June 2013 • 14:00 – 15:30
Room: Lanchid A, Mezzanine Level, Marriott

**NGN-08: Services and Mobile Applications**

Impact of LTE and DVB-NGH Cooperation on QoS of Mobile TV Users

Amaan Holford and Mohamed-Slim Alouini (King Abdullah University of Science and Technology, Saudi Arabia)

Salaheddine Elayoubi (Orange Labs, France)

Tijani Chahed (Telecom SudParis, France)

Bachar A. ElHassan (Lebanese University, Tripoli, Lebanon)

Distributed Discovery Services via EPC-BGP for Mobile RFID

Mazen George Khair (University of Technology, Malaysia)

M. Amin M. Amin (University of Ottawa, Canada)

Experimental Demonstration of SVC Video Streaming using QoS-Aware Multi-Path Routing over Integrated Services Routers

Zhilong Bai, Suoheng Li, Yanan Wu, Wenshuang Zhou, Ziquing Zhu (University of Science and Technology of China, China)

Cloud Aided Internet Mobility

Ping Zhang, Arjan Durresi (Indiana University, Purdue University, Indianapolis, USA)

Raj Jain (Washington University, St. Louis, USA)

Application-dependent Frame Design for the Internet of Things

Jianxin Chen, Liang Zhou, Baoqiu Zheng, Jingwu Cui (Nanjing University of Posts & Telecommunications, China)

Tuesday, 11 June 2013 • 14:00 – 15:30
Room: Panoram a III, 1st Floor, InterContinental

**SPC-10: Estimation, Detection and Localization**

Channel Estimation for Two-Way Relay Networks over Doubly-Selective Channels with Time-Multiplexed-Superimposed Training

Shun Zhang (Xidian University, China)

Xiaoji Gao (Tsinghua University, China)

Fei He (Changxing Pei (Xidian University, China)

Low Complexity Soft-input Soft-output Group Detection for Massive MIMO Systems

Jun Won Choi (Qualcomm, USA)

Byungju Lee, Byungyho Shim (Korea University, Korea)

Insung Kang (Qualcomm Inc., USA)

On Remote RF-based Orientation Detection

Jac Romme, Johannes H.C. van den Heuvel, Guido Dolmans, Georgios Selimis, Kathleen Philips, Harmke de Groot (Holst Centre, IMEC, Netherlands)

Robust Power Allocation for Active and Passive Localization

Yuan Shen, Wenhan Dai, Moe Win (Massachusetts Institute of Technology, USA)

Human Activity Classification and Localization Using Bistatic Three Frequency CW Radar

Yoshiihisa Okamoto, Tomoaki Ohtsuki (Keio University, Japan)

Tuesday, 11 June 2013 • 14:00 – 15:30
Room: Margit A, Mezzanine Level, Marriott

**SPC-11: Relay II**

Robust Relay Precoding Design for Bidirectional Multi-User Multi-Relay Networks

Meng Zhang, Ruqi Xue, Hui Yu, HanWen Luo, Wen Chen (Shanghai Jiaotong University, China)

Alamouti Coded OFDM Scheme for Frequency Asynchronous AF Relay Networks

Weile Zhang (Xi’an Jiaotong University, China)

Feifei Gao (Tsinghua University, China)

Qinye Yin, Hui-Ming Wang (Xi’an Jiaotong University, China)

Antenna Selection in the Full-Duplex Multi-Antenna Relay Channel

Himal A. Suraweera (Singapore University of Technology and Design, Singapore)

Ioannis Krikidis (University of Cyprus, Cyprus)

Chau Yuen (Singapore University of Technology and Design, Singapore)

Optimal Linear Detectors for Nonorthogonal Amplify-and-Forward Protocol

Qasim Ahmed, Ki-Hong Park, Mohamed-Slim Alouini (King Abdullah University of Science and Technology, Saudi Arabia)

Sonia Aissa (INRS, University of Quebec, Canada)

Asymmetric Signal Space Alignment for Y Channel with Single-Antenna Users

Wei Long, Tiejun Lv (Beijing University of Posts & Telecommunications, China)

Feifei Gao (Singapore University of Technology and Design, Singapore)

Tuesday, 11 June 2013 • 14:00 – 15:30
Room: Ballroom III, 1st Floor, InterContinental

**WC-16: Hetnets II**

Simple Optimizations for the Growth of Heterogeneous Networks

Jonathan Ling, Dmitry Chizhik (Bell Labs, Alcatel-Lucent, USA)

Chung Shue Chen (Alcatel-Lucent Bell Labs, LINCS, France)

Reinaldo Valenzuela (Lucent Technologies, USA)
Adaptive Resource Allocation for Heterogeneous Traffic over Heterogeneous Relay Networks
Yan Li, Lingxiao Liu (University of Kansas, USA)
Hongxiang Li (University of Louisville, USA)
Ying Li (Samsung Telecommunications America, USA)
Yang Yi (University of Missouri, Kansas City, USA)

Optimal Resource Allocation in HetNets
Phil Whiting (Bell Labs, Lucent Technologies, USA)
Sem Borst (Alcatel-Lucent, Bell Labs, Eindhoven University of Technology, USA)
Stephen Hanly (Macquarie University, Australia)

Massive MIMO and Small Cells: How to Densify Heterogeneous Networks
Kianoush Hosseini (University of Toronto, Canada)
Jakob Hoydis, Stephan ten Brink
(Alcatel-Lucent, Bell Laboratories, Germany)
Mérouane Debbah (Supélec, France)

Opportunistic Interference Alignment in Heterogenous Two-cell Uplink Network
Lu Yang, Wei Zhang (University of New South Wales, Australia)

Room: Erzsébet B, Mezzanine Level, Marriott

Tuesday, 11 June 2013 • 14:00 – 15:30
Room: Erzsébet B, Mezzanine Level, Marriott

WC-18: Relay Selection

On the Impact of Relay-side Channel State Information on Opportunistic Relaying
Anvar Turkmanov, Said Boussakta, Zhiguo Ding
(Newcastle University, UK)
Abbas Jamalipour (University of Sydney, Australia)

Performance Analysis of Triple Correlated Selection Combining for Cooperative Diversity Systems
Swaminathan Ramabadrin (IIT Kharagpur, India)
Rajarshi Roy (Indian Institute of Technology, Kharagpur, India)
Mandha Damodaran Selvaraj (Indian Institute of Information Technology, Design and Manufacturing, India)

Impact of Imperfect Power Control on Splitting and Capture-Based Fast Distributed Selection
Vikas Kumar Dewangan (DRDO, India)
Neelesh B. Mehta (Indian Institute of Science, India)

Relay Selection for Flexible Multihop Communication via Competitive Spectrum Leasing
Igor Stanojev (University of Wisconsin, Platteville, USA)
Aylin Yener (Pennsylvania State University, USA)

Signal-Space-Alignment-based Opportunistic Two-way Communication via Relay Selection
Sujei Chen, Roger Cheng
(Hong Kong University of Science & Technology, Hong Kong)

Tuesday, 11 June 2013 • 14:00 – 15:30
Room: Panorama II, 1st Floor, InterContinental

WN-08: Algorithm and Approach

A Location-based Self-Optimizing Algorithm for the Inter-RAT Handover Parameters
Ahmad Awada, Bernhard Wegmann
(Nokia Siemens Networks, Germany)
Ingo Viering (Nomor Research GmbH, Germany)
Anja Klein (TU Darmstadt, Germany)

A Justification of the Fluid Network Model Using Stochastic Geometry
Richard Combes, Jean-Marc Kelif (Orange Labs, France)

Coalitional Game Theoretic Approach for Cooperative Transmission in Vehicular Networks
Tian Zhang (Tsinghua University, Shandong University, China)
Wei Chen (Tsinghua University, China)
Zhu Han (University of Houston, USA)
Zhigang Cao (Tsinghua University, China)

Vehicle-Assisted Data Delivery for Smart Grid: An Optimal Stopping Approach
Nan Cheng, Ning Lu, Ning Zhang, Sherman Shen, Jon Mark
(University of Waterloo, Canada)

An Advanced Bandwidth Adaptation Mechanism for LTE Systems
Mehdi Khabazian (Qatar Mobility Innovations Center, INRS-EMT, University of Quebec, Qatar)
Osama Kubbar (QU Wireless Innovation Centre, Qatar)
Hossam S. Hassanein (Queen’s University, Canada)

Tuesday, 11 June 2013 • 14:00 – 15:30
Room: Corso B, Ground Floor, Marriott

WN-09: Energy Efficiency

Adaptive Fast Dormancy for Energy Efficient Wireless Packet Data Communications
Yuheng Huang, Bongyong Song, Samir S. Soliman
(Qualcomm, Inc, USA)

Power-Efficient QoS Scheduler for LTE Uplink
Mohammad Kalil, Abdallah Shami
(University of Western Ontario, Canada)
Arafat J. Al-Dweik (Khalifa University, UAE)

Auction-based Energy-Spectrum Trading in Green Cognitve Cellular Networks
Tao Han, Nirwan Ansari (New Jersey Institute of Technology, USA)

Adaptive DRX Configuration to Optimize Device Power Saving and Latency of Mobile Applications over LTE Advanced Network
Satish Chandra Jha (University of British Columbia, Canada)
Ali T Koc, Rath Vannithambry (Intel, USA)
Murat Torlak (University of Texas, Dallas, USA)

An Energy-Efficient Routing Protocol with Controllable Expected Delay in Duty-Cycled Wireless Sensor Networks
Jie Hao, Zheng Yao, Kui Huang, Baoxian Zhang
(Chinese Academy of Sciences, China)
Cheng Li (Memorial University of Newfoundland, Canada)
Tuesday, 11 June 2013 • 16:00 – 18:00
Room: Panorama IV, 1st Floor, InterContinental

**AH-11: Mobile and Vehicular Ad Hoc Networks**

*Analysis of Hybrid ARQ in Interference Dominant Mobile Ad Hoc Networks*
Haichuan Ding (Beijing Institute of Technology, China)
Guang-Hua Yang (University of Hong Kong, Hong Kong)
Shaodan Ma (University of Macau, China)
Chengwen Xing (Beijing Institute of Technology, University of Hong Kong, Hong Kong)
Zesong Fei (Beijing Institute of Technology, China)

*Handoff Time Estimation Model for Vehicular Communications*
Apollinaire Nadembeja, Abdelhakim Hafid (University of Montreal, Canada)
Tarik Taleb (NEC Europe Ltd., Germany)

*Architecture Design of Mobile Access Coordinated Wireless Sensor Networks*
Mai Abdelhakim (Michigan State University, USA)
Leonard E. Lightfoot (AFRL/RYWC, USA)
Jian Ren, Tongtong Li (Michigan State University, USA)

*Opportunistic Broadcast in Mobile Ad Hoc Networks Subject to Channel Randomness*
Zijie Zhang (ICTA, Australia)
Guogiang Mao (University of Sydney, Australia)
Brian Anderson (Australian National University, ICTA, Australia)

*Protocol Sequences for Mobile Ad Hoc Networks*
Yi Wu (Fujian Normal University, China)
Kenneth W. Shum (Institute of Network Coding, Hong Kong)
Zhihua Lin (University of Sydney, Australia)
Wing Wong (Chinese University of Hong Kong, China)
Lianfeng Shen (National Mobile Communications Research Laboratory, Southeast University, China)

*iCAR: Intersection-based Connectivity Aware Routing in Vehicular Ad hoc Networks*
Nizar Alsharif (University of Waterloo, Canada)
Sandra Céspedes (Icesi University, University of Waterloo, Colombia)
Sherman Shen (University of Waterloo, Canada)

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**TECHNICAL SYMPOSIA • TUESDAY**

Tuesday, 11 June 2013 • 16:00 – 18:00
Room: Lanchid A, Mezzanine Level, Marriott

**CQR-08: Real Time Networks and Media Traffic**

*Delay Bound Analysis in Real-Time Networks with Priority Scheduling Using Network Calculus*
Jing Xie (Det Norske Veritas, Norway)
Min Xie (University College London, UK)

*Sensing of Wireless Microphones in IEEE 802.22: A System Level Performance Evaluation*
Pål R. Gransund (Telenor, University of Oslo, Simula Research Laboratory, Norway)
Przemyslaw Pawelczak (Delft University of Technology, Netherlands)
Jihoon Park, Danijela Cabric (University of California, Los Angeles, USA)

*Quality-of-Experience Driven Adaptive HTTP Media Delivery*
Ali El Essaïli, Damien Schroeder (Technische Universität München, Germany)
Dirk Stahle, Mohammed Shehada (DOCOMO Communications Laboratories Europe GmbH, Germany)
Wolfgang Kellerer, Eckehard Steinbach (Technische Universität München, Germany)

*Dimensioning VoIP Capacity in Maritime Networks*
Lambros Lambrinos (Cyprus University of Technology, Cyprus)
Panayiotis Kolios (University of Cyprus, Cyprus)
Constantinos D jovas (Cyprus University of Technology, Cyprus)

*A Self-Adaptive Scheduling (SAS) Solution for Enhancing VoIP Service Quality in OFDM-based Mobile Networks*
Tammy Chang (Stanford University, USA)
Yang Wang, Anpeng Huang (Peking University, China)

*Soft Capacity of OFDMA Networks Is Suitable for Soft QoS Multimedia Traffic*
Davide Chiariotto (New Vision Group, Italy)
Leonardo Badia, Michele Zorzi (Università degli Studi di Padova, Italy)

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Tuesday, 11 June 2013 • 16:00 – 18:00
Room: Panorama III, 1st Floor, InterContinental

**CQR-07: Energy Efficient Communications**

*Novel Energy-Efficient Reporting Scheme for Spectrum Sensing Results in Cognitive Radio*
Saud Althunibat, Fabrizio Granelli (University of Trento, Italy)

*An Energy-efficient Point Coordination Function Using Bidirectional Transmissions of Fixed Duration for Infrastructure IEEE 802.11 WLANs*
Raul Palacios, Fabrizio Granelli (University of Trento, Italy)
Danica Gagic, Christian Lii (InnoRoute GmbH, Germany)
Dzmitry Kliazovich (University of Luxembourg, Luxembourg)

*A Novel Energy Saving MIMO Mechanism in LTE Systems*
Reema Imran (University of Jordan, Jordan)
Mutaz Shukair (Qualcomm, Wichita State University, USA)
Nizar Zorba (QMIC, Qatar)
Osama Kubbah (QU Wireless Innovation Centre, Qatar)
Christos Verikoukis (Telecommunications Technological Centre of Catalonia, Spain)

*Antenna Subset Selection for Spatial Modulation: A Novel and Energy Efficient Single RF Technique*
Konstantinos Ntontin (CTTC, Spain)
Marco Di Renzo (French National Center for Scientific Research, France)
Ana Perez-Neira (UPC, Spain)
Christos Verikoukis (Telecommunications Technological Centre of Catalonia, Spain)

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**Tuesday, 11 June 2013 • 16:00 – 18:00**
**Room: Budapest Ballroom, Mezzanine Level, Marriott**

**CRN-P1: CRN (Poster)**

*A PRMA based MAC Protocol for Cognitive Machine-to-Machine Communications*
Adnan Aijaz, Hamid Aghvami (King’s College London, UK)

*Performance Analysis of Spectrum Sensing for Phase-Modulated Signal under MAP Criterion*
Hua Fu, Pooi-Yuen Kam (National University of Singapore, Singapore)

*Resource Allocation for Spectrum Sharing Cognitive Radio Networks*
Ebrahim Bedeer, Octavia A. Dobre, Mohamed Hossam Ahmed (Memorial University, Canada)
Kareem E. Baddour (Communications Research Centre, Canada)
Novel Algorithm for STBC-OFDM Identification in Cognitive Radios
Mohamed Marey, Octavia A. Dobre
(Memorial University of Newfoundland, Canada)
Robert J. Inkin (Defence R&D Canada, Canada)

Tuesday, 11 June 2013 • 16:00 – 18:00
Room: Erzsebet B, Mezzanine Level, Marriott

CT-02: MIMO I

A Theoretical Limit for the ML Performance of MIMO Systems based on Lattices
Koralia N. Pappi, Vasileios M. Kapinas, George K. Karagiannidis
(Aristotle University of Thessaloniki, Greece)

On Low-Complexity Full-diversity Detection of Multi-User Space-Time Coding
Amr Ismail, Mohamed-Slim Alouini
(King Abdullah University of Science and Technology, Saudi Arabia)

On the Multiplexing Gain of MIMO Microwave Backhaul Links Affected by Phase Noise
Giuseppe Durisi (Chalmers University of Technology, Sweden)
Alberto Tarable (Politecnico di Torino, Italy)
Tobias Koch (Universidad Carlos III de Madrid, Spain)

An EM-based Phase-noise Estimator for MIMO Systems
Alberto Tarable, Guido Montorsi, Sergio Benedetto
(Politecnico di Torino, Italy)
Stefano Chinnici (Ericsson Telecommunicationi S.p.A., Italy)

A Novel IQ Imbalance and Channel Estimation Algorithm for Alamouti OFDM
Mohamed Marey (Memorial University, Canada)
Moataz Shoukry (SHA, Egypt)
Mohamed Hossam Ahmed (Memorial University, Canada)
Hamed El-Shenawy (El-Shorouk Academy, Egypt)
Adel Elhennawy (University of Ain Shams, Egypt)

Tuesday, 11 June 2013 • 16:00 – 18:00
Room: Erzsebet A, Mezzanine Level, Marriott

CT-07: Interference and Multiaccess Channels

On the Interference Channel with Causal Cognition
Martina Cardone (Eurecom, France)
Daniela Tuninetti (University of Illinois, Chicago, USA)
Raymond Knopp (Eurecom, France)
Umer Salim (Intel Mobile Communications, France)

A Half-Duplex Transmission Scheme for the Gaussian Causal Cognitive Interference Channel
Zhuhou Wu (McGill University, Canada)
Mai Yu (Tufs University, USA)

Achievable Degrees-of-Freedom by Distributed Scheduling in an (n,K)-user Interference Channel
Seong Ho Chae (KAIST, Korea)
Bang Chul Jung (Gyeongsang National University, Korea)
Wan Choi (KAIST, Korea)

Efficient Use of Joint Source-Destination Cooperation in the Gaussian Multiple Access Channel
Ahmad Abu Al Haja (McGill University, Canada)
Mai Yu (Tufs University, USA)

On the Capacity of Multiaccess Fading Channels with Full Channel State Information at Low Power Regime
Zouheir Rezki, Mohamed-Slim Alouini
(King Abdullah University of Science and Technology, Saudi Arabia)

Performance of Multi-Antenna Linear MMSE Receivers in the Presence of Clustered Interferers
Junjie Zhu, Siddharta Govindasamy (F.W. Olin College of Engineering, USA)

Tuesday, 11 June 2013 • 16:00 – 18:00
Room: Margit A, Mezzanine Level, Marriott

CT-08: Coding Theory

Non-Binary Low-Density Parity-Check Codes for the q-ary Erasure Channel
Giuliano Garammone (German Aerospace Center, Germany)
Enrico Paolini (DEI, University of Bologna, Italy)
Balazs Matuz, Gianlugi Liva (German Aerospace Center, Germany)
Marco Chiani (University of Bologna, Italy)

Comparison of Reweighted Message Passing Algorithms for LDPC Decoding
Henk Wymeersch (Chalmers University of Technology, Sweden)
Federico Penna (Fraunhofer Heinrich Hertz Institute, Germany)
Vladimir Savic (Linkoping University, Sweden)
Jun Zhao (Chalmers University of Technology, Sweden)

Nonbinary Spatially-Coupled LDPC Codes on the Binary Erasure Channel
Amina Piemonte (University of Parma, Italy)
Alexandre Grell and Atman (Chalmers University of Technology, Sweden)
Giulio Colavolpe (University of Parma, Italy)

Design of Rate-Compatible Efficiently-Encodable Generalized LDPC Codes
Tingjun Xie, Stephen G. Wilson (University of Virginia, USA)

Near-LSPA Performance at MSA Complexity
Joao Andrade, Gabriel Falcao (IT, University of Coimbra, Portugal)
Vitor Silva (Institute of Telecommunications, Portugal)
Joao Barreto, Nuno Goncalves (ISR, University of Coimbra, Portugal)
Valentin Savin (CEA LETI, France)

K-User Parallel Concatenated Code for Gaussian Multiple-Access Channel
Guanghui Song, Jun Cheng, Yoichiro Watanabe
(Doshisha University, Japan)

Tuesday, 11 June 2013 • 16:00 – 18:00
Room: Margit B, Mezzanine Level, Marriott

NGN-09: Data Centers

Multi-objective Virtual Machine Migration in Virtualized Data Center Environments
Daohao Huang, Yanyang Gao, Fei Song, Dong Yang
(Beijing Jiaotong University, China)
Hongke Zhang (Beijing University of Posts & Telecommunications, China)

Near-optimal Virtual Machine Placement with Product Traffic Pattern in Data Centers
Kun You (28th Research Institute of CETC, China)
Bin Tang (Nanjing University, China)
Feng Ding (28th Research Institute of CETC, China)

On Improving Latency of Geographically Distributed Key-Value Stores via Load Balancing with Side Information
Ulas Can Kozat (DOCOMO Innovations, USA)
Hiroyuki Kubo (Hitachi, Japan)

Probabilistic-Bandwidth Guarantees with Pricing in Data-Center Networks
Dnl Mon Divakaran, Mohan Gurusamy
(National University of Singapore, Singapore)

On Achieving Low Latency in Data Centers
Ali Munir (Michigan State University, USA)
Ihsan Ayub Qazi (Lahore University of Management Sciences, Pakistan)
Saad B. Qaisar (National University of Sciences & Technology, Pakistan)

PACE Your Network:
Fair and Controllable Multi-Tenant Data Center Networks
Tiago Carvalho, Hyong Kim (Carnegie Mellon University, USA)
Nuno Ferreira Neves (University of Lisbon, Portugal)
On Effectiveness of Integrating Intermittent Resources and Electricity Vehicles in the Smart Grid
Jie Lin (Xi’an Jiaotong University, China)
Wei Yu (Towsion University, USA)
Xinyu Yang, Cong Zhao, Qingyu Yang (Xi’an Jiaotong University, China)

Tuesday, 11 June 2013  •  16:00 – 18:00
Room: Duna Salon I, 1st Floor, InterContinental

SA-SSC-01: Satellite and Space Communications I

Comparison among Resource Allocation Methods with Packet Loss and Power Metrics in Geostationary Satellite Scenarios
Igor Bisio, Stefano Delucchi, Fabio Lavagetto, Mario Marchese (University of Genoa, Italy)

Optimum Header Positioning in Successive Interference Cancellation (SIC) Based Aloha
Federico Clazzer, Christian Kissling (German Aerospace Center, Germany)

On the Integration of Random Access and DAMA Channels for the Return Link of Satellite Networks
Christian Kissling, Andrea Munari (German Aerospace Center (DLR), Germany)

Utility Function Based Packet Scheduling over DVB-S2
Emmanuel Chaput (Irit-Enseirh, France)
Maaike Verloop (CNRS, France)
André-Luc Beylot (IRIT Toulouse, France)
Cédric Baudoin (Thales Alenia Space, France)

Graph Model and Network Coding Gain of Multibeam Satellite Communications
Maria-Andres Vázquez-Castro (Universidad Autónoma de Barcelona, Spain)

The Interplanetary Internet Implemented on a Terrestrial Testbed
Joyeeta Mukherjee, Byrav Ramamurthy (University of Nebraska-Lincoln, USA)

Tuesday, 11 June 2013  •  16:00 – 18:00
Room: Istvan, Mezzanine Level, Marriott

SPC-12: MIMO II

Efficient Transmitting Antenna Selection for MIMO Systems via Parallel Approach
Shih Yu Chang (National Tsing Hua University, Taiwan)
Hsiao-Chun Wu (Louisiana State University, USA)

Evaluation and Extension of a Multi-Dimensional Graph-Based Receiver Concept for MIMO-OFDM
Christopher Knievel, Dapeng Hao, Peter A. Hoeher (University of Kiel, Germany)
Petra Weitkemper, Hidekazu Taoka (DOCOMO Euro-Labs, Germany)

Approximate Channel Block Diagonalization for Open-Loop Multiuser MIMO Communications
Masayuki Harada, Kazuhiro Fukawa, Hiroshi Suzuki, Satoshi Suyama (Tokyo Institute of Technology, Japan)

Calculating LLRs via Saddlepoint Approximation in Front-end MIMO Receivers
Martin Sanst (RWTH Aachen University, Germany)
Lukasz Krzyzmien (Institut National de la Recherche Scientifique, Canada)
Leszek Szczecinski (INRS-EMT, Canada)
Fabrice Labeau (McGill University, Canada)

A Constraint Relaxation Version of the Interference Leakage Minimization Algorithm in MIMO Interference Channels
Che-Chen Chou, Hsin-Jui Chou, Jen-Ming Wu (National Tsing Hua University, Taiwan)
AH-12: Wireless Network Application

Content-Centric Internetworking for Resource-Constrained Devices in the Internet of Things
Yuning Song, Huadong Ma, Liang Liu
(University of Science and Technology of China, China)

Channel and Energy Analysis on Magnetic Induction-based Wireless Sensor Networks in Oil Reservoirs
Zhi Sun (State University of New York, Buffalo, USA)
Bochong Zhu (Peking University, China)

Investigating the Impact of Inter-User Interference in Wireless Body Sensor Networks: an Experimental Approach
Bin Cao (University of Electronic Science and Technology of China, China)
Yu Ge, Chee Wee Kim (Institute for Infocomm Research, Singapore)
Gang Feng (University of Electronic Science and Technology of China, China)
Hwee Pink Tan (Institute for Infocomm Research, Singapore)

Distributed Algorithms for the RFID Coverage Problem
Ahmed Jedda, Mazen George Khair, Hussein T. Mouftah
(Department of Electronic Engineering, University of Ottawa, Canada)

Characterizing Hidden Nodes with Experimental Evaluation in Noisy MANETs
Sung Jin Park (Korea Advanced Institute of Science and Technology, South Korea)
Seokjoo Shin (Korea University, Korea)
John A. Copeland (Georgia Institute of Technology, USA)

AH-13: Network Lifetime

Network Lifetime Optimization in Wireless Healthcare Systems: Understanding the Gap between Online and Offline Scenarios
Yu Gu, Yusheng Ji (National Institute of Informatics, Japan)
Fuji Ren, Jie He (University of Tsukuba, Japan)

Extending the Lifetime of a WSN by Partial Covers
Brendan Mumey, Kelly Spaldove, Binhai Zhu
(Montana State University, USA)

Repair Algorithms to Increase the Lifetime of Fully Connected Wireless Sensor Networks
Kevin Dorling (University of Calgary, Canada)
Stefan Valentin (Bell Labs, Alcatel-Lucent Deutschland AG, Germany)
Geoffrey G. Messier, Sebastian Magierowski (University of Calgary, Canada)

The Tradeoff between Transmission Cost and Network Lifetime of Data Gathering Tree in Wireless Sensor Networks
Xi Chen, Chen He, Lingge Jiang (Shanghai Jiaotong University, China)

The Impact of Link Unidirectionality and Reverse Path Length on Wireless Sensor Network Lifetime
Anil Ufuk Batmaz, Bulent Tavli (University of Economics and Technology, Turkey)
Davut Inci (Middle East Technical University, Turkey)
Kemal Bicakci (University of Economics and Technology, Turkey)

AH-14: Cooperative Networking

Successive Deterministic Distributed Beamforming
Ilaria Thibault (University of Bologna, Universitat Pompeu Fabra, Spain)
Azadeh Faridi (Universitat Pompeu Fabra, Spain)
Giovanni Corazza, Alessandro Vanelli-Coralli
(University of Bologna, Italy)
Angel Lozano (Universitat Pompeu Fabra, Spain)

Performance of Homogeneous and Asynchronous Ad Hoc Network with Interference Alignment
Yi Luo, Huiqin Du, Tharmalingam Ratnarajah
(University of Edinburgh, UK)
Dave Wilcox (Queen’s University Belfast, UK)

Distributed Queueing Games in Interference-limited Wireless Networks
Zhangyu Guan (SUNY, Buffalo, Shandong University, China)
Tommaso Melodia, Gesualdo Scutari
(State University of New York, Buffalo, USA)

Minimum Cost Collaborative Sensing Network with Mobile Phones
Xianling Lu, Deying Li, Biao Fei Xu, Wenzhe Chen
(Renmin University of China, China)
Zhiming Ding
(Institute of Software, Chinese Academy of Sciences, China)

Cooperating to Stream Compressively Sampled Videos
Scott M. Pudlewska, MIT Lincoln Laboratory, USA
Tommaso Melodia (State University of New York, Buffalo, USA)

AH-15: Mobile and Vehicular Ad Hoc Networks II

DTM^2: Adapting Job Market Signaling for Distributed Trust Management in Vehicular Ad Hoc Networks
Nadia Haddadou, Abderezzak Rachidi
(University Paris-Est Marne-la-Vallée, France)

Crowdsensing in Vehicular Sensor Networks with Limited Channel Capacity
Waleed Alasmary, Hamed Sadeghi, Shahrokh Valae
(University of Toronto, Canada)

AdaptAnon: Adaptive Anonymity for Service Queries in Mobile Opportunistic Networks
Milena Radenkovic (University of Nottingham, UK)
Ivan Vaghi (Early Morning, Italy)
Sameh Zakli (University of Nottingham, UK)
Abderrahim Benslimane (University of Avignon, LIA/CERI, France)

Tracking and Prediction of Mobility without Physical Distance Measurements in Sensor Networks
Yi Jiang, Dulanjale C. Dhanapala, Anura P. Jayasumana
(Colorado State University, USA)

Phenomena Discovery in WSNs: A Compressive Sensing based Approach
Dulanjale C. Dhanapala, Vidarshana W. Bandara, Ali Pezeshki, Anura P. Jayasumana
(Colorado State University, USA)
Wednesday, 12 June 2013 • 09:00 – 10:30
Room: Duna Salon I, 1st Floor, InterContinental

CIS-07: Wireless Network Security II
Detect and Identify Blocker Tags in Tree-based RFID Systems
Fei Wang, Bin Xiao, Kai Bu
(Hong Kong Polytechnic University, Hong Kong)
Jinshu Su (National University of Defence Technology, China)

Anomaly Detection in cellular Machine-to-Machine Communications
Ilona Murynets, Roger Piqueras Jover
(AT&T Security Research Center, USA)

QuantDroid: Quantitative Approach towards Mitigating Privilege Escalation on Android
Tobias Markmann (HAW Hamburg, Germany)
Dennis Gessner (NEC Laboratories Europe, Germany)
Dirk Westhoff (Hochschule Furtwangen, Germany)

SanABox: Sandboxing Third Party Advertising Libraries in a Mobile Application
Hideaki Kawabata, Takamasa Isohara, Keisuke Takemori, Ayumu Kubota
(KDDI R&D Laboratories Inc., Japan)
Junya Kani, Harunobu Agematsu, Masakatsu Nishigaki
(Shizuoka University, Japan)

Smartphone Strategic Sampling in Defending Enterprise Network Security
Feng Li, Wei Peng
(Indiana University-Purdue University, Indianapolis, USA)
Chin-Tser Huang (University of South Carolina, USA)
Xukai Zou (Purdue University, Indianapolis, USA)

Wednesday, 12 June 2013 • 09:00 – 10:30
Room: Duna Salon II, 1st Floor, InterContinental

CQR-09: Traffic Modeling and Characterization II
On the Relationship between fundamental Measurements in TCP Flows
Richard G. Clegg, João Taveira Araújo, Raul Landa, Eleni Mykoniat, David Griffin, Miguel Rio (University College London, UK)

ITMgen - A First-principles Approach to Generating Synthetic Interdomain Traffic Matrices
Jakub Mikians (UPC Barcelona Tech, Spain)
Nikolaos Laoutaris (Telefónica Research, Spain)
Amogh Dhamdhere (CAIDA, USA)
Pere Barlet-Ros (Technical University of Catalonia, Spain)

Internet Traffic Classification using Energy Time-Frequency Distributions
Angelos K. Marnerides (Lancaster University, UK)
Dimitrios P. Pezaros (University of Glasgow, UK)
Hyun-chul Kim (Sangmyung University, Korea)
David Hutchison (Lancaster University, UK)

Digital Signature to Help Network Management Using Principal Component Analysis and K-Means Clustering
Gilberto Fernandes, Jr., Alexandre Zacarón
(State University of Londrina, Brazil)
Joel J. P. C. Rodrigues (IT, University of Beira Interior, Portugal)
Mario Lemes Proença, Jr. (State University of Londrina, Brazil)

Holt-Winters Statistical Forecasting and ACO Metaheuristic for Traffic Characterization
Marcos V. O. de Assis, Luiz F. Carvalho
(State University of Londrina, Brazil)
Joel J. P. C. Rodrigues (IT, University of Beira Interior, Portugal)
Mario Lemes Proença Jr. (State University of Londrina, Brazil)
Selective Interference Alignment for MIMO Femtocell Networks
Basak Guler, Aylin Yener (Pennsylvania State University, USA)

The Public Safety Broadband Network: A Novel Architecture with Mobile Base Stations
Xu Chen, Dongming Guo (Northwestern University, USA)
John Grosspietsch (Motorola Solutions, USA)

On the Ergodic Throughput Capacity of Hybrid Wireless Networks over Fast Fading Channels
Xin Wang, Qilian Liang (University of Texas, Arlington, USA)

Ergodic Capacity Analysis of Downlink Distributed Antenna Systems Using Stochastic Geometry
Yicheng Lin, Wei Yu (University of Toronto, Canada)

Wednesday, 12 June 2013 • 09:00 – 10:30
Room: Landchid A, Mezzanine Level, Marriott

NGN-10: Content Centric Networks III

CLIP: Content Labeling in IPv6, a Layer 3 Protocol for Information Centric Networking
Laura Heath, Henry Owen, Raheem Beyah (Georgia Institute of Technology, USA)
Radu Stata (University of Luxembourg, Luxembourg)

Adaptive Flow Control via Interest Aggregation in CCN
Doyun Byun, Byoung-Joon BJ Lee, Myeong-Wuk Jang (Samsung, Korea)

Towards an Error Control Scheme for a Publish/Subscribe Network
Charilaos Stais, Alexios Voulimeneas, George Xylomenos (Athens University of Economics and Business, Greece)

Server Allocation in a CDN
Mohammad Sarwat, Junghwan Shin, Sanjiv Kapoor (Illinois Institute of Technology, USA)

A Deployable and Scalable Information-Centric Network Architecture
Yuncheng Zhu, Akishiro Nakao (University of Tokyo, Japan)

Wednesday, 12 June 2013 • 09:00 – 10:30
Room: Buda, Mezzanine Level, Marriott

SA-PLC-01: Power Line Communications

Broadband System Models Based on Zadeh's Representation for Indoor Powerline Channels: An Experimental Validation
Fabio Gianaroli (University of Modena and Reggio Emilia, Italy)
Fabrizio Pancaldi (University of Modena and Reggio Emilia, CWIT, Italy)
Giorgio M. Vitetta (University of Modena and Reggio Emilia, Italy)

Coded Modulation with APSK Constellations for Power Line Communication
Jian Song, Keqian Yan, Fang Yang, Qiuliang Xie (Tsinghua University, China)
Fei Ren, Jia Li (Sichuan Changhong Electronic Ltd. Co., China)

An Evaluation of Frequency Domain PLC Interference Cancellation for DSL Systems
Khaled M. Ali, Stephen W. Lai, Geoffrey G. Messier (University of Calgary, Canada)

Measuring Link Characteristics of Power Line Communication Systems
Wei-Xian Lee, Li-Ping Tung, Yao H. Ho (National Taiwan Normal University, Taiwan)
Ling-Jyh Chen (Academia Sinica, Taiwan)

Routing and Time Slot Assignment in PLC Access Networks
Steven S. W. Lee, Kuang-Yi Li, Yi-Fu Hung (National Chung Cheng University, Taiwan)
Alice Chen (ITRI, Taiwan)

Wednesday, 12 June 2013 • 09:00 – 10:30
Room: Panorama III, 1st Floor, InterContinental

SPC-13: Interference Management

Joint Frobenius norm and Reweighted Nuclear Norm Minimization for Interference Alignment
Huijun Du, Tharmalingam Ratnarajah (University of Edinburgh, UK)
Mathini Sellathurai (Heriot-Watt University, UK)
Constantinos B. Papadias (Athens Information Technology, Greece)

An Enhanced Interference Measurement Scheme for CoMP in LTE-Advanced Downlink
Wei Xi, Xiang Yun (DOCOMO Beijing Communications Laboratories Co., Ltd., China)
Satoshi Nagata, Yoshitisa Kishiyama (NTT DOCOMO, INC., Japan)
Lan Chen (DOCOMO Beijing Communication Laboratories Co., Ltd, China)

Sum-rate Maximization in the Multicell MIMO Broadcast Channel with Interference Coordination
Duy H. N. Nguyen, Tho Le-Ngoc (McGill University, Canada)

Blind Opportunistic Interference Alignment in Cognitive Radio Systems
Christos G. Tsinos, Kostas Berberidis (University of Patras, Greece)

Performance of the Blind Interference Alignment using ESPAR Antennas
Rongrong Qian, Mathini Sellathurai (Heriot-Watt University, UK)

Wednesday, 12 June 2013 • 09:00 – 10:30
Room: Margit A, Mezzanine Level, Marriott

SPC-14: Modulation and Coding

L2-Orthogonal ST-Code Design for Multi-h CPM with Fast Decoding
Miguel Hisojo (University of Nice, I3S Laboratory, France)
Jerome Lebrun (CNRS, France)
Luc Demeire (University of Nice, France)

Detecting Linear Block Codes in Noise using the GLRT
Arth Yardi, Saravanan Vijayakumar (IIT Bombay, India)

Near Maximum Likelihood Detection Algorithm Based on 1-flip Local Search over Uniformly Distributed Codes
Amor Nafkh (Supélec, France)

Distributed Joint Source-Channel Code for Spatial-Temporally Correlated Markov Sources
Ning Sun, Jingxian Wu, Guoq ing Zhou (University of Arkansas, USA)

Distributed Space-Time Coding of Over-the-Air Superimposed Packets in Wireless Networks
Antonios Argyriou (University of Thessaly, CERTH, Greece)

Wednesday, 12 June 2013 • 09:00 – 10:30
Room: Lanchid B, Mezzanine Level, Marriott

WC-03: Multiuser MIMO: I

Blockwise-Lattice-Reduction Aided Precoders for Multiuser MIMO with Clusters of Correlated Users
Chiao-En Chen, Tsung-Wei Cho, Yuan-Sun Chu (National Chung Cheng University, Taiwan)
Wei-Ho Chung (Academia Sinica, Taiwan)

Semidefinite Relaxation Based Beamforming in Clustered Cooperative Multicell MISO Systems
Zhiyu Zhang, Kah Chan Teh, Kwok Hung Li (Nanyang Technological University, Singapore)

Distributed Precoding for MISO Interference Channels with Channel Mean Feedback: Algorithms and Analysis
Minhua Ding, Olav Tirkkonen (Aalto University, Finland)
Randall Berry (Northwestern University, USA)
Sennur Ulukus (University of Maryland, USA)
WC-22: Cognitive Radio

On the Design of Interference Alignment Scheme for Multi-user MIMO with Limited Feedback
Yuxian Zhang, Roger Cheng
(Hong Kong University of Science and Technology, Hong Kong)

Novel Cooperative Communication Schemes with Interference Management for Multi-User Wireless Networks
Aymen Omri, Mazen Omar Hasna (Qatar University, Qatar)

Wednesday, 12 June 2013  •  09:00 – 10:30
Room: Ballroom III, 1st Floor, InterContinental

WC-23: Beamforming

On the Design of Interference Alignment Scheme for Multi-user MIMO with Limited Feedback
Yuxian Zhang, Roger Cheng
(Hong Kong University of Science and Technology, Hong Kong)

Novel Cooperative Communication Schemes with Interference Management for Multi-User Wireless Networks
Aymen Omri, Mazen Omar Hasna (Qatar University, Qatar)

Wednesday, 12 June 2013  •  09:00 – 10:30
Room: Panoroma II, 1st Floor, InterContinental

WC-24: Channel Modeling

A Ray Tracing Algorithm Using the Discrete Prolate Spheroidal Subspace
Mingming Gan
(FTW Telecommunications Research Center Vienna, Austria)

Wednesday, 12 June 2013  •  09:00 – 10:30
Room: Erzsebet B, Mezzanine Level, Marriott

WC-22: Cognitive Radio

Improved Performance of Spectrum Cartography Based on Compressive Sensing in Cognitive Radio Networks
Beeshanga Abewardana Jayawickrama, Eryk Dutkiewicz
(Macquarie University, Australia)
Ian Oppermann (CSIRO ICT Centre, Australia)
Gengfa Fang, Jie Ding (Macquarie University, Australia)

Measurement and Characterization of Broadband Indoor TVWS Radio Channel on Multipath Spread
Ming-Yu Zhou, Chunyi Song, Mohammad Azizur Rahman, Hiroshi Harada (National Institute of Information & Communications Technology, Japan)

Opportunistic Relaying for Cognitive Network with Multiple Primary Users over Nakagami-m Fading
Trung Q. Duong (Blekinge Institute of Technology, Sweden)
Kyeong Jin Kim (Mitsubishi Electric Research Laboratories, USA)
Hans-Juergen Zepernicky (Blekinge Institute of Technology, Sweden)
Chintia Tellambura (University of Alberta, Canada)

Capacity of Spectrum Sharing Cognitive Radio Systems over Nakagami Fading Channels at Low SNR
Lokman Boudi
(King Abdullah University of Science and Technology, Saudi Arabia)

Cooperative Beamforming for CR Systems with Asynchronous Interference to Primary User
Mai Hassan, Md. Jahangir Hossain
(University of British Columbia, Canada)

Automatic Clustering of Multipath Arrivals in Radio-Frequency Channels using Kurtosis
Camillo Gentile (NIST, USA)

Frequency Band Selection and Channel Modeling for WNSN Applications using SimpleNanor
Ibrahim Tariq Javed
(Lahore University of Management Sciences, Pakistan)

Wednesday, 12 June 2013  •  09:00 – 10:30
Room: Panoroma II, 1st Floor, InterContinental

WC-12: Routing and Network Management

Gain-aware Content Routing in Delay Tolerant Networks
Yogesh Piolet, Mahmoud Taghzidah, Subir Biswas
(Michigan State University, USA)

On Efficient Data Anchor Point Selection in Distributed Mobile Networks
Tarik Taleb (NEC Europe Ltd., Germany)
Adien Ksentini (University of Rennes 1, IRISA Lab, France)

Distributed Secrecy in Multilevel Wireless Networks
Jemin Lee (Massachusetts Institute of Technology, USA)
Andrea Conti
(ENDIF University of Ferrara, WiLAB University of Bologna, Italy)

Throughput and Delay of Mobile Hybrid Wireless Networks under K Length Routing Policy
Jingjing Luo, Li Yu, Shihong Hu, Chao Luo
(Huazhong University of Science and Technology, China)

Wednesday, 12 June 2013  •  09:00 – 10:30
Room: Erzsebet B, Mezzanine Level, Marriott

WC-24: Channel Modeling

A Ray Tracing Algorithm Using the Discrete Prolate Spheroidal Subspace
Mingming Gan
(FTW Telecommunications Research Center Vienna, Austria)

Wednesday, 12 June 2013  •  09:00 – 10:30
Room: Erzsebet B, Mezzanine Level, Marriott
Wednesday, 12 June 2013 • 09:00 – 10:30
Room: Corso A, Ground Floor, Marriott

**WN-13: Access Control**

*Selecting a Preferable Access Point with More Available Bandwidth*
Shibo Xu, Fengyuan Ren, Yinsheng Xu, Chuang Lin, Min Yao
(Tsinghua University, China)

*Opportunistic Access for Cooperative Cognitive Radio Networks with Requirement Constraint*
Teng Wei, Gaofei Sun, Xingbing Wang
(Shanghai Jiaotong University, P.R. China)
Mohsen Guizani (QU, USA)

*Decentralized Spatial Spectrum Access*
Bangyi Zhu (Chinese University of Hong Kong, Hong Kong)
Xu Chen (Arizona State University, USA)
Jianwei Huang (University of Hong Kong, Hong Kong)

*Adaptive Small Cell Access of Licensed and Unlicensed Bands*
Ahmed Elsherif (University of California, Davis, USA)
Wei-Peng Chen, Akira Ito (Fujitsu Laboratories of America, USA)
Zhi Ding (University of California, Davis, USA)

*Incentive Mechanism for Hybrid Access in Femtocell Network with Traffic Uncertainty*
Yanjiao Chen, Jin Zhang, Qian Zhang
(Hong Kong University of Science and Technology, Hong Kong)

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**WN-14: Communication and Information Management**

*Joint Optimization of Transmission Scheduling and Relay Assignment for Cooperative Communications*
Peng Li, Song Guo, Toshiaki Miyazaki (University of Aizu, Japan)
Victor CM Leung (University of British Columbia, Canada)

*A Cross-Layer Admission Control Scheme for High-Speed Railway Communication System*
Quansheng Xu, Xi Li, Hong Ji, Liping Yao
(Beijing University of Posts and Telecommunications, China)

*When Bacteria Talk: Time Elapse Communication for Super-Slow Networks*
Bhuvana Krishnaswamy, Cattlin Henegar, J. Patrick Bardill, Daniel Russakow, Gregory Holst, Brian Hammer, Craig Forest, Raghupathy Sivakumar (Georgia Institute of Technology, USA)

*Performance Analysis of Device-to-Device Communications with Frequency Reuse using Stochastic Petri Nets*
Lei Lei, Ye Han, Zhangdui Zhong (Beijing Jiaotong University, China)
Chuang Lin (Tsinghua University, China)

*IVE: Improving the Value of Information in Energy-constrained Intruder Tracking Sensor Networks*
Damla Turgut, Ladislau Bölöni (University of Central Florida, USA)

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**WN-15: Delay Tolerant Networks**

*Social Profile-based Multicast Routing Scheme for Delay-Tolerant Networks*
Xia Deng, Le Chang (University of Victoria, Canada)
Jun Tao (Southeast University, China)
Jianping Pan (University of Victoria, Canada)
Jianxin Wang (Central South University, China)

*Decentralized Minimum-Cost Repair for Distributed Storage Systems*
Majid Gerami, Ming Xiao, Carlo Fischione, Mikael Skoglund
(Royal Institute of Technology, Sweden)

*Stochastic Packet Collision Modeling in Coexisting Wireless Networks for Link Quality Evaluation*
Aamir Mahmood, Huseyin Vignlet, Riku Jäntti
(Aalto University, Finland)

*Feedback Considered Beneficial: Exploring Frequency Diversity in Full-duplex Rateless Codes*
Lu Wang, Mounir Hamdi
(Hong Kong University of Science and Technology, Hong Kong)
Diffusion LMS Strategies for Parameter Estimation over Fading Wireless Channels
Reza Abdolee, Benoit Champagne (McGill University, Canada)
Ali H. Sayed (University of California, Los Angeles, USA)

Estimation of Correlated and Quantized Spatial Random Fields in Wireless Sensor Networks
Ido Nevat (CSIRO, Australia)
Gareth Peters (University of New South Wales, Australia)
Iain B. Collings (CSIRO, Australia)

Wednesday, 12 June 2013  •  14:00 – 15:30
Room: Duna Salon I, 1st Floor, InterContinental
CIS-08: Wireless Communications Security I

The Eavesdropping and Jamming Dilemma in Multi-Channel Communications
Andrey Garnaev (St. Petersburg State University, Russia)
Wade Trappe (WINLAB, Rutgers University, USA)

Stochastic Optimization of Flow-Jamming Attacks in Multichannel Wireless Networks
Yu Seung Kim, Bruce DeBruhl II, Patrick Tague (Carnegie Mellon University, USA)

Sequence Sensing Jamming Attacks against Modular-Based Channel Hopping Rendezvous Algorithms for Cognitive Radio Networks
Young-Hyun Oh, David Thuente (North Carolina State University, USA)

Performance Impact of Asynchronous Off-tone Jamming Attacks against OFDM
Chowdhury Shahriar, Shabnam Sodagari (Virginia Tech, USA)
Robert McGwier (Virginia Tech, AMSAT, Inc., Flex Radio System, Inc., USA)
T. Charles Clancy (Virginia Tech, USA)

Intercept Probability Analysis of Cooperative Wireless Networks with Best Relay Selection in the Presence of Eavesdropping Attack
Yulong Zou, Xianbin Wang, Weiming Shen (University of Western Ontario, Canada)

Wednesday, 12 June 2013  •  14:00 – 15:30
Room: Buda, Mezzanine Level, Marriott
CQR-10: Quality and Performance for Networks and Services

A Dynamic Limitation Mechanism for Flow-Aware Networks
Robert Wójcik, Damian Garbacz, Andrzej Jajszczyk (AGH University of Science and Technology, Poland)

Routing in MPLS Networks with Probabilistic Failures
Jorge Crichigno, Joud Khoury, Nasir Ghani (University of New Mexico, USA)

Boosting Practicality of DNS Cache Probing: A General Estimator Based on Bayesian Forecasting
Jianfeng Li, Xiaobo Ma, Jing Tao (Xi’an Jiaotong University, China)
Xiaohong Guan (Xi’an Jiaotong University, Tsinghua University, China)

SNMP-driven Active Measurements in DiffServ Networks
George K. Xilouris, Georgios Gardikis, Katia Sarsembagieva, Anastasios Kourtis (NCSR Demokritos, Greece)

Measurement of Packet Processing Time of an Internet Host using Asynchronous Packet Capture at the Data-Link Layer
Khondaker M. Salehin, Roberto Rojas-Cessa (New Jersey Institute of Technology, USA)
CRN-10: Cognitive Radio Networks: MAC/Crosslayer

Multiple Radios for Effective Rendezvous in Cognitive Radio Networks
Lu Yu, Hai Liu, Yiu-Wing Leung, Xiaowen Chu
(Hong Kong Baptist University, Hong Kong)
Zhiyong Lin (Hong Kong Baptist University, Guangdong Polytechnic Normal University, Hong Kong)

Multi-hop Cognitive Radio Networking through Beamformed Underlay Secondary Access
Auon Muhammad Akhtar (Riphah International University, Pakistan)
Luca De Nardis (University of Rome La Sapienza, Italy)
Mohammad Reza Nakhai, Oliver D. Holland (King’s College London, UK)
Maria Gabriella Di Benedetto (University of Rome La Sapienza, Italy)
Hamid Aghvami (King’s College London, UK)

Cognitive Multihop Networks in Spectrum Sharing Environment with Multiple Licensed Users
Kyeong Jin Kim (Mitsubishi Electric Research Laboratories, USA)
Trung Q. Duong (Blekinge Institute of Technology, Sweden)
Theodoros Tsiftsis (Technological Educational Institute of Lamia, Greece)
Vo Nguyen Quoc Bao (Posts and Telecommunications Institute of Technology, Vietnam)

Who Interrupted Me? Analyzing the Effect of PU Activity on Cognitive User Performance
Fidan Mehmeti, Thrasyvoulos Spyropoulos (EURERCOM, France)

Multi-user Scheduling with Limited Feedback for Cognitive Radio
Zhe Wang, Wei Zhang (University of New South Wales, Australia)

CT-11: Relay Channels II

Degrees of Freedom Optimal Transmission for the Two-Cluster MIMO Multi-way Relay Channel
Ye Tian, Aylin Yener (Pennsylvania State University, USA)

A Zero-Forcing Partial Decode-and-Forward Scheme for the Gaussian MIMO Relay Channel
Lennart Gerdes, Lorenz Weiland, Wolfgang Utschick (Technische Universität München, Germany)

Gaussian Half-Duplex Relay Channels: Generalized Degrees of Freedom and Constant Gap Results
Martina Cardone (EURERCOM, France)
Daniela Tuninetti (University of Illinois, Chicago, USA)
Raymond Knopp (EURERCOM, France)
Umer Salim (Intel Mobile Communications, France)

En Masse Relay Selection for Decode-and-forward Relaying in Multiple Source-Destination Systems
A. Karthik, Neelesh B. Mehta (Indian Institute of Science, India)

The Capacity of the Gaussian Cooperative Two-user Multiple Access Channel to within a Constant Gap
Daniela Tuninetti (University of Illinois, Chicago, USA)

NGN-11: Scheduling and Congestion Control

An Optimal and Fully Explicit Rate Controller for High-Speed Networks
Jungang Liu, Oliver Yang (University of Ottawa, Canada)

Efficient Traffic Congestion Detection Protocol for Next Generation VANETs
Maram Bani Younes, Azzedine Boukerche (University of Ottawa, Canada)
**WC-25: OFDM/OFDMA II**

**Signature Identification Techniques with Zadoff-Chu Sequence for OFDM systems**
Khobam Lee (Korea University, Korea)
Joonsuk Kim (Broadcom Corp, USA)
Minki Ahn, Inkyu Lee (Korea University, Korea)

**A Correlating Receiver for ES-OFDM using Multiple Antennas**
Andre Kokkelers, Gerard Smit (University of Twente, Netherlands)

**Low Complexity LS and MMSE Based CFO Compensation Techniques for the Uplink of OFDMA Systems**
Arman Farhang, Nicola Marchetti, Linda Doyle (Trinity College Dublin, Ireland)

**A Low-Complexity Time-Domain Signal Processing Algorithm for N-continuous OFDM**
Peng Wei, Lilin Dan, Yue Xiao, Shaqian Li (University of Electronic Science and Technology of China, China)

**Clipping Noise-based Tone Injection for PAPR Reduction in OFDM Systems**
Jun Hou (Xidian University, State Key Laboratory of Integrated Service Networks, China)
Chintha Tellambura (University of Alberta, Canada)
Jianhua Ge (Xidian University, China)

**WC-26: MIMO**

**Full-Diversity STBC Designs for Two-User MIMO X Channels**
Long Shi, Wei Zhang (University of New South Wales, Australia)
Xiang-Gen Xia (University of Delaware, USA)

**Optimal Power Allocation for Energy Efficiency Maximization in Distributed Antenna Systems**
Heajin Kim, Sang-Rim Lee, Changick Song, Inkyu Lee (Korea University, Korea)

**Pilot Allocation and Receive Antenna Selection: A Markov Decision Theoretic Approach**
Reuben G. Stephen (Center for Development of Telematics, India)
Chandra R. Murthy (Indian Institute of Science, India)
Marceau Coupechoux (TELECOM ParisTech, France)

**Design and Analysis of Distributed Co-Phasing with Arbitary Constellations**
Manesh A. (DRDO, India)
Chandra R. Murthy (Indian Institute of Science, India)
Ramesh Annavajjala (Mitsubishi Electric Research Labs, USA)

**Multiuser Diversity for MIMO-Y Channel: Max-Min Selection and Diversity Analysis**
Hui Gao, Chau Yuen, Himal A. Suraweera (Singapore University of Technology and Design, Singapore)
Tiejun Lv (Beijing University of Posts and Telecommunications, China)

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**WC-27: Localization**

**On the Impact of a Priori Information on Localization Accuracy and Complexity**
Francesco Montorsi (University of Modena and Reggio Emilia, Italy)
Santiago Mazuelas (Massachusetts Institute of Technology, USA)
Giorgio M. Vitetta (University of Modena and Reggio Emilia, Italy)
Moe Z. Win (Massachusetts Institute of Technology, USA)

**Map-Aware RSS Localization Models and Algorithms Based on Experimental Data**
Francesco Montorsi (University of Modena and Reggio Emilia, Italy)
Fabrizio Pancaldi (University of Modena and Reggio Emilia, Consorzio Nazionale Interuniversitario per le Telecomunicazioni, Italy)
Giorgio M. Vitetta (University of Modena and Reggio Emilia, Italy)

**Ranging Likelihood for UWB Wireless Localization**
Henghui Lu (Tsinghua University, China)
Santiago Mazuelas, Moe Z. Win (Massachusetts Institute of Technology, USA)

**A New UHF Anti-Metal RFID Tag Antenna Design with Open-Circuited Stub Feed**
Yejun He, Huaxia Zhang (Shenzhen University, China)

**Single Antenna Anchor-Free UWB Positioning based on Multipath Propagation**
Yubin Kuang, Kalle Aström, Fredrik Tufvesson (Lund University, Sweden)

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**WC-28: Performance Analysis**

**Explict, Closed-Form Performance Analysis in Fading via New Bound on Gaussian Q-function**
Hua Fu (National University of Singapore, Singapore)
Ming-Wei Wu (Zhejiang University of Science and Technology, National University of Singapore, China)
Pooi-Yuen Kam (National University of Singapore, Singapore)

**Diversity Analysis over Composite Fading Channels using a Mixture Gamma Distribution**
Jaehoon Jung, Sang-Rim Lee, Haewook Park, Inkyu Lee (Korea University, Korea)

**Gallager’s Error Exponent Analysis of STBC Systems over $\eta$-$\mu$ Fading Channels**
Jiayi Zhang (Beijing Jiaotong University, China)
Michail Matthaiou (Chalmers University of Technology, Sweden)
George K. Karagiannidis (Aristotle University of Thessaloniki, Greece)
Zhenhui Tan, Haibo Wang (Beijing Jiaotong University, China)

**Novel Approximations to the Statistics of General Cascaded Nakagami-m Channels and Their Applications in Performance Analysis**
Zhong Zheng, Lu Wei, Jiри Hämäläinen (Aalto University, Finland)

**Effective Rate Analysis of MISO eta-mu Fading Channels**
Jiayi Zhang (Beijing Jiaotong University, China)
Michail Matthaiou (Chalmers University of Technology, Sweden)
Zhenhui Tan, Haibo Wang (Beijing Jiaotong University, China)
Wednesday, 12 June 2013 • 14:00 – 15:30
Room: Panorama II, 1st Floor, InterContinental

WN-15: Vehicular Networks

Roadside Units Deployment for Content Downloading in Vehicular Networks
Yazhi Liu (Hebei United University, China)
Jian Ma (Beijing University of Posts and Telecommunications, China)
Jianwei Niu (Beihang University, China)
Yan Zhang (Simula Research Laboratory, University of Oslo, Norway)
Wang Wendong (Beijing University of Posts and Telecommunications, China)

Effects of Time Slot Reservation in Cooperative ADHOC MAC for Vehicular Networks
Sailesh Bharati (University of Waterloo, BBCR Group, Canada)
Lakshmi V. Thanayankizil, Fan Bai (General Motors, USA)
Weihua Zhuang (University of Waterloo, Canada)

Opportunistic Cooperation for Infrastructure-to-Relaying-Vehicles over LTE-A Networks
Mohamed F. Feteih, Hossam S. Hassanein (Queen’s University, Canada)
Osama Kubbah (QU Wireless Innovation Centre, Qatar)

Popular Content Distribution in Vehicular Networks using Coalition Formation Games
Tianyu Wang, Lingyang Song (Peking University, China)
Zhu Han (University of Houston, USA)
Zhaohua Lu, Liujun Hu (ZTE, China)

Heterogeneous Hybrid Vehicular WiMAX-WiFi Network for in-Tunnel Surveillance Implementations
Michael Chritos (University of Patras, ISI, Greece)
Grigoris Kalivas (University of Patras, Greece)

Wednesday, 12 June 2013 • 14:00 – 15:30
Room: Ballroom II, 1st Floor, InterContinental

WN-16: Mobility, Handoff and Location Management

A Lightweight System to Authenticate Smartphones in Near Field without NFC Chips
Lingjun Li, Xinmin Zhao, Guoliang Xue (Arizona State University, USA)

Enabling Wide Deployment of GSM Localization over Heterogeneous Phones
Mohamed Ibrahim (Nile University, Egypt)
Moustafa Yousef (Egypt-Japan University of Science and Technology, USA)

Handover in the Wild: The Feasibility of Vertical Handover in Commodity Smartphones
Pehr Söderman (Royal Institute of Technology, Sweden)
Johan Ekblaw, Karl-Johan Grinnemo (Karlstad University, Sweden)
Markus Hidell (Royal Institute of Technology, Sweden)
Anna Brunstrom (Karlstad University, Sweden)

Mobile Relays Based Federation of Multiple Wireless Sensor Network Segments with Reduced-latency
Jerome Stanislaus, Mohamed Younus (University of Maryland, Baltimore County, USA)

MEDAL: A Moving Direction and Destination Location Based Routing Algorithm for Vehicular Ad Hoc Networks
Xu Wu, Hui Tong (Southeast University, China)
Nathalie Mitton (Inria Lille - Nord Europe, France)
Jun Zheng (Southeast University, China)

Wednesday, 12 June 2013 • 14:00 – 15:30
Room: Corso B, Ground Level, Marriott

WN-17: Wireless Networks

A Theoretical Framework for Mitigating Delay in 3D Wireless Data Center Networks
Kai Zhou, Xiaohua Tian (Shanghai Jiaotong University, China)
Yu Cheng (Illinois Institute of Technology, USA)

A Novel Communication-Based Train Control (CBTC) System with Cooperative Wireless Relaying
Li Zhu, F. Richard Yu (Carleton University, Canada)
Bing Ning (State Key Laboratory of Rail Traffic Control and Safety, China)
Tao Tang (Beijing Jiaotong University, China)

MFV: Mobile Femtocells utilizing WiFi
Mamoud H. Oqtut, Fadi M. Al-Turjman, Hossam S. Hassanein (Queen’s University, Canada)

Crossover Node Discovery for IEEE 802.11s Wireless Mesh Networks
Li-Hsing Yen (National University of Kaohsiung, Taiwan)
Jian-Jang Su (National Chiao Tung University, Taiwan)
Kuei-Li Huang (ITRI, Taiwan)
Chien-Chao Tseng, Kuan-Ming Liao (National Chiao-Tung University, Taiwan)

Clustering Wireless Sensors Networks with FFUCA
Said Fouchal (Université Claude Bernard Lyon 1, France)
Djamel Mansouri (USTHB, Algeria)
Lynda Mokdad (Université de Paris 12, Laboratoire LACL, France)
Jalel Ben-Othman (University of Paris 13, France)
Malika Ioualalen (USTHB, Algeria)
Wednesday, 12 June 2013 • 16:00 – 18:00
Room: Panorama III, 1st Floor, InterContinental

**CQR-11: Grid, Data Centers and Network Migration**

**Asymptotic Convex Optimization for Packing Random Malleable Demands in Smart Grid**
Gennady Shakhkhet, Mohammad Mahdi Karbasian, Evangelos Kranakis, Ioannis Lambarakis (Carleton University, Canada)

**Accounting for Load Variation in Energy-Efficient Data Centers**
Dmitry Klazovich (University of Luxembourg, Luxembourg)
Sisay Arzo, Fabrizio Granelli (University of Trento, Italy)
Pascal Bouvry (University of Luxembourg, Luxembourg)
Samee U. Khan (North Dakota State University, USA)

**Service Differentiation in Multitier Data Centers**
Kostas Katsalis (University of Thessaly, CERTH, Greece)
Nabil Seddigh (Solana Networks, Canada)
Biswajit Nandy (Solana Networks, Carleton University, Canada)

**Virtual Machines Migration in a Cloud Data Center Scenario: An Experimental Analysis**
Davide Adami, Stefano Giordano, Michele Pagano, Simone Roma (University of Pisa, Italy)

**Dynamic Correlative VM Placement for Quality-Assured Cloud Service**
Wei Wei, Xuanzhong Wei, Tao Chen, Xiaofeng Gao, Guihai Chen (Shanghai Jiaotong University, China)

**Virtual Machines Migration in a Cloud Data Center Scenario: An Experimental Analysis**
Davide Adami, Stefano Giordano, Michele Pagano, Simone Roma (University of Pisa, Italy)

**An Agent-based Modeling Approach of Network Migration to New Technologies**
Tamal Dinesh Das (Indian Institute of Technology, Bombay, India)
Marek Drogos, Admela Jukan (TU Braunschweig, Germany)
Marco Hoffmann (Nokia Siemens Networks GmbH & Co. KG, Germany)

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Wednesday, 12 June 2013 • 16:00 – 18:00
Room: Buda, Mezzanine Level, Marriott

**CRN-11: Cognitive Radio Networks: Routing**

**Spectrum-aware Cluster-based routing for Cognitive Radio Sensor Networks**
Ghalib A. Shah (University of Engineering and Technology, Pakistan)
Ozgur B. Akan (Koc University, Turkey)

**Location based Routing Protocol exploiting Heterogeneous Primary Users in Cognitive Radio Networks**
Anna Vizziello, Sanaz Kianoush, Lorenzo Favalli, Paolo Gamba (Università degli Studi di Pavia, Italy)

**Local Rerouting and Channel Recovery for Robust Multi-Hop Cognitive Radio Networks**
Po-Kai Tseng, Wei-Ho Chung (Academia Sinica, Taiwan)

**A Low-Cost Large-Scale Framework for Cognitive Radio Routing Protocols Testing**
Ahmed M. Saeed
(University of Japan University of Science and Technology, Egypt)
Mohamed Ibrahim (Nile University, Egypt)
Khaled A. Harras (Carnegie Mellon University, USA)
Moustafa Youssef
(University of Japan University of Science and Technology, Italy)

**Multi-path Routing in Dynamic Spectrum Access Networks: A Mechanism Design Approach**
Swastik Brahma (Syracuse University, USA)
Mainak Chatterjee (University of Central Florida, USA)

**Resilient Multicast Routing in CRNs using a Multilayer Hyper-graph Approach**
Sharhabeel H. Alnabelsi (Al-Balqa Applied University, USA)
Ahmed E. Kamal (Iowa State University, USA)

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Wednesday, 12 June 2013 • 16:00 – 18:00
Room: Panorama IV, 1st Floor, InterContinental

**CSS-03: Applications**

**DSVM: A Buffer Management Strategy for Video Transmission in Opportunistic Networks**
Honghai Wu, Huadong Ma (Beijing University of Posts and Telecommunications, China)

**Combining Intensification and Diversification to Maximize the Propagation of Social Influence**
Xiaoguang Fan, Victor O. K. Li (University of Hong Kong, Hong Kong)

**Priority Scheme for Window-Based Video-on-Demand Transmission on BitTorrent-Like Peer-to-Peer Networks**
Edgar Báz Esquivel (Instituto Politécnico Nacional, UPIITA, Mexico)
Mário E. Rivero-Angeles (Instituto Politecnico Nacional, UPIITA/ESCOM, Mexico)
Gerardo Rubin (INRIA, France)

**SALT: a Simple Application Logic Description using Transducers for Internet of Things**
Sylvain Cherrier (Université Paris-Est, France)
Yacine Ghamri-Doudane (ENSIEE, Université Paris-Est, France)
Stephane Lohier, Gilles Roussel (Université Paris-Est, France)

**C-LGV: A Novel Cooperative Caching Scheme for P2P Caches**
Bo Wang, Yan Zhang, Xu Zhou (IA, Chinese Academy of Science, China)
Song Ci (University of Nebraska-Lincoln, USA)
Ying Qi (IA, Chinese Academy of Sciences, China)

**Classifying P2P Activity in Netflow Records: A Case Study on BitTorrent**
Ahmed Bashir (Carleton University, Solana Networks, Canada)
Changchung Huang (Carleton University, Canada)
Biswajit Nandy (Solana Networks, Carleton University, Canada)
Nabil Seddigh (Solana Networks, Canada)

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Wednesday, 12 June 2013 • 16:00 – 18:00
Room: Erzsebet A, Mezzanine Level

**CT-12: Wireless Networks**

**Optimal Routing and Power Allocation for Wireless Networks with Imperfect Full-Duplex Nodes**
David Ramirez-Dominguez, Behnnaam Aazhang (Rice University, USA)

**On Identifying which Intermediate Nodes Should Code in Multicast Networks**
Tiago Pinto (EFACEC & FEUP, Portugal)
Daniel E. Lucani (Aalborg University, Denmark)
Muriel Médard (MIT, USA)

**Joint Estimation and Contention-Resolution Protocol for Wireless Random Access**
Čedomir Stefanović (Aalborg University, University of Novi Sad, Denmark)
Kasper Trilingsgaard, Nuno K. Pratas, Petar Popovski (Aalborg University, Denmark)

**Optimization of Two-way Communication with ARQ Feedback**
Besma Smida (Purdue University Calumet, USA)
Natalia Devroye (University of Illinois, Chicago, USA)
Tian Li (Purdue University Calumet, USA)

**Jointly Optimal Chunk and Power Allocation in Uplink SC-FDMA**
Teoman Mert (Istanbul Technical University, Turkey)
Onur Kaya (Isik University, Turkey)
Hakan A. Çırpan (Istanbul Technical University, Turkey)

**Maximum Sum Rate of a Restricted FDMA System**
Yeo Hun Yun, Joon Ho Cho (Pohang University of Science and Technology, Korea)
**CT-13: Information and Coding Theory**

Capacity Analysis for Gaussian Channels with Memoryless Nonlinear Hardware
Maryam Sabbaghian (University of Tehran, Iran)
Ahmed lyanda Sulyman (King Saud University, Saudi Arabia)
Vahid Tarokh (Harvard University, USA)

On the Strong Secrecy Capacity of Wiretap Channels with Side Information
Holger Boche, Rafael F. Wyrembelski
(Technische Universität München, Germany)

Power Allocation Strategies for OFDM Gaussian Wiretap Channels with a Friendly Jammer
Munnujahan Ara, Hugo Reboredo, Francesco Renna (Universidade do Porto, Portugal)
Miguel Rodrigues (University College London, UK)

Spatially Coupled Streaming Modulation
Dmitri Truhachev, Christian Schlegel (University of Alberta, Canada)

Beyond Turbo Codes: Rate-Compatible Punctured Polar Codes
Kai Niu, Kai Chen, Jiur Liu
(University of Posts and Telecommunications, China)

Design Criterion of Polarization-Time Codes for Optical Fiber Channels
Elie Awwad, Ghaya Rekaya-Ben Othman, Yves Jaouën
(TELECOM ParisTech, France)

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**Wednesday, 12 June 2013 • 16:00 – 18:00**
Room: Corso B, Ground Floor, Marriott

**NGN-12: Switches and Routers**

A Novel Scheduling and Queue Management Scheme for Multi-band Mobile Routers
Md Shohrab Hossain, Husu Narman, Mohammed Atiquzzaman
(University of Oklahoma, USA)

Worst-Case Delay Bounds for Uniform Load-Balanced Switch Fabrics
Spyridon Antonakopoulos (Google, USA)
Steven Fortune, Rae McLellan, Lisa Zhang
(Bell Labs, Alcatel-Lucent, USA)

Deadline Aware Packet Scheduling in Switches for Multimedia Streaming Applications
Praveen Bommanavar (Stanford University, USA)
John Apostolopoulos (Hewlett-Packard Labs, USA)
Nicholas Bambos (Stanford University, USA)

Tuning KVM to Enhance Virtual Routing Performance
Luca Abeni, Csaba Kiraly (University of Trento, Italy)
Nanfang Li, Andrea Bianco (Politecnico di Torino, Italy)

Energy Efficient Distributed Router Design
Andrea Bianco, Fikru Getachew Debele, Nanfang Li
(Politecnico di Torino, Italy)

On Memory Allocation for High-Speed Packet Analysis Applications
Nicola Bonelli (CNIT, Italy)
Loris Gazzarrini, Stefano Giordano, Gregorio Procissi
(University of Pisa, Italy)
Brian Trammell (ETH Zurich, Switzerland)

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**Wednesday, 12 June 2013 • 16:00 – 18:00**
Room: Panorama V, 1st Floor, InterContinental

**ONS-03: Free-Space Optical Communications**

Optimal Placement of FSO Relays for Network Disaster Recovery
Farshad Ahdi, Suresh Subramaniam
(Indian Institute of Technology, Japan)

Nulling Strategies for Preventing Interference and Interception of Free Space Optical Communication
Manishika Agaskar, Vincent Chan
(Massachusetts Institute of Technology, USA)

MIMO-OFDM Visible Light Communications System with Low Complexity
Liang Wu, Zaichen Zhang (Southeast University, China)
Huaping Liu (Oregon State University, USA)

Free-Space Optical Communications with Generalized Pointing Errors
Fan Yang, Julian Cheng (University of British Columbia, Canada)
Theodoros Tsiftsoglou (Technological Educational Institute of Lamia, Greece)

Rate-Adaptive FSO Communication via Rate-compatible Punctured LDPC codes
Linyan Liu, Majid Safari, Steve Hranilovic
(McMaster University, Canada)

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**Wednesday, 12 June 2013 • 16:00 – 18:00**
Room: Magrit B, Mezzanine Level, Marriott

**ONS-04: Optical Transport, Grooming and Resilience**

An Efficient Algorithm for Solving Traffic Grooming Problems in Optical Networks
Hui Wang, George N. Rouskas (North Carolina State University, USA)

Scalable Optical Traffic Grooming in WDM Rings Incorporating Fast RWA Formulation
Zeyu Liu, George N. Rouskas (North Carolina State University, USA)

FISSION: Flexible Interconnection of Scalable Systems Integrated using Optical Networks for Data Centers
Ashwin A. Gumaste, Bala Bheri, Ashwin Kshirasagar
(Indian Institute of Technology, Bombay, India)

On Integrating Failure Localization with Network Survivable Design
Wei He, Pin-Han Ho (University of Waterloo, Canada)
Bin Wu (Tianjin University, China)
János Tapolcai
(Budapest University of Technology and Economics, Hungary)

SRSLG Fault Localization via M-burst Framework
Mohammed Ali, Pin-Han Ho (University of Waterloo, Canada)
János Tapolcai
(Budapest University of Technology and Economics, Hungary)

 Modeling All-optical Phase-sensitive BPSK and QPSK Regenerators
Daniele Mazroa, Aron Szabo, Tibor Cinkler
(Budapest University of Technology and Economics, Hungary)
Benjamin J. Puttnam, Satoshi Shinada, Naoya Wada
(National Institute of Information and Communications Technology, Japan)
SA-DS-01: Data Storage

An Area-Efficient BCH Codec with Echelon Scheduling for NAND Flash Applications
Chi-Heng Yang, Yi-Hsun Chen, Hsue-Chia Chang (National Chiao Tung University, Taiwan)

Polar Codes for Partial Response Channels
Ubad Ullah Fayyaz, John Barry (Georgia Institute of Technology, USA)

Inter-track Interference Cancellation in Presence of Frequency Offset for Shingled Magnetic Recording
Naveen Kumar, Jason Bellorado, Marcus Marrow, Kai Keung Chan (Link A Media Devices, USA)

Coding for Memory with Stuck-at Defects
Yongjiun Kim, H. V. K. Vijaya Kumar (Carnegie Mellon University, USA)

Rewriting Flash Memories and Dirty-Paper Coding
Brian Michael Kurkoski (Japan Advanced Institute of Science and Technology, Japan)

General Self-repairing Codes for Distributed Storage Systems
Hanxu Hou, Hui Li (Peking University, China)
Kenneth W. Shum (Institute of Network Coding, Hong Kong)

SA-EH-01: SAC e-Health

We-Care: A Wearable Efficient Telecardiology System using Mobile 7-lead ECG Devices
Chao Chen, Kaigui Bian, Anpeng Huang, Xiaohui Duan, Hongqiao Gao, Bingli Jiao, LinZhen Xie, Shan Wang (Peking University, China)

To Enable Stable Medical Image and Video Transmission in Mobile Healthcare Services: A Best-fit Carrier Dial-up (BDD) Algorithm for GBR-Oriented Applications in LTE-A Networks
Yingrui Zhang, Anpeng Huang, Daoxian Wang, Xiaohui Duan, Bingli Jiao, LinZhen Xie (Peking University, China)

Sensor Fault and Patient Anomaly Detection and Classification in Medical Wireless Sensor Networks
Osman Salem, Alexey Guerassimov, Ahmed Mehaoua (University of Paris Descartes, France)
Anthony M. Marcus, Borko Furht (Florida Atlantic University, USA)

Brain-Computer Interface in Chronic Stroke: An Application of Sensorimotor Closed-Loop and Contingent Force Feedback
Giulia Cisotto (University of Padua, IRCCS Foundation San Camillo Hospital, Italy)
Silvano Pupolin (University of Padua, Italy)
Stefano Silvoni, Francesco Piccione, Marianna Cavinato, Michela Agostini (IRCCS Foundation San Camillo Hospital, Italy)

Economic Effect of Telecare: PSM (Propensity Score Matching) Approach
Masatsugu Tsuji (University of Hyogo, Japan)

A Mobile Health Application for Out-Patients Medication Management
Bruno Silva, Ivo Lopes, Mickael Marques, Joel J. P. C. Rodrigues (IT, University of Beira Interior, Portugal)
Mario Lemes Proença Jr. (State University of Londrina, Brazil)
Green Horizon: Looking At Backbone Networks in 2020 from the Perspective of Network Operators
Filip Iddzikowski (Technical University of Berlin, Germany)
Luca Chiaraviglio (University of Rome Sapienza, Italy)
Raúl Duque, Felipe Jiménez (Telefónica I+D, Spain)
Esther Le Rouzic (Orange Labs, France)

Exact Outage Probability of a Hybrid Satellite Terrestrial Cooperative System with Best Relay Selection
Sokhenda Srng, Benoit Escrig, Marie-Laure Boucheret (University of Toulouse, France)

Wednesday, 12 June 2013 • 16:00 – 18:00
Room: Ballroom III, 1st Floor, InterContinental
WC-29: Multiuser MIMO III

Secrecy Capacity Optimization in Coordinated Multi-Point Processing
Meng Zhang, Ruiqi Xue, Hui Yu, HanWen Luo, Wen Chen (Shanghai Jiaotong University, China)

User Admission for Multi-User Regenerative Relay MIMO Systems
Jarkko Kaleva, Antti Tölli, Markku Juntti (University of Oulu, Finland)

Coverage and Rate in Cellular Networks with Multi-User Spatial Multiplexing
T. V Sreejith, Kiran Kuchi (Indian Institute of Technology, Hyderabad, India)
Anilesh Krishnaswamy, Radha Krishna Ganti (Indian Institute of Technology, Madras, India)

Practical Considerations in Cluster Design for Coordinated Multipoint (CoMP) Systems
Venkatadheeraj Pichapati, Parul Gupta (IBM Research, India)

On Antenna Calibration for the TDD-based Network MIMO System
Jian Geng, Zaixue Wei, Xianling Wang (Beijing University of Posts and Telecommunications, China)
Xiaoyi Liu (University of California, Irvine, USA)
Wei Xiang (University of Southern Queensland, Australia)
Dacheng Yang (Beijing University of Posts and Telecommunications, China)

Wednesday, 12 June 2013 • 16:00 – 18:00
Room: Panorama I, 1st Floor, InterContinental
WC-30: Resource Allocation

Energy-Efficient Power Allocation for Multicarrier Systems with Delay-Outage Probability Constraints
Amir Helmy (McGill University, Canada)
Leila Musavian (Lancaster University, UK)
Tho Le-Ngoc (McGill University, Canada)

A Game Theoretical Approach for Reliable Packet Transmission in Noncooperative BIC-OFDM Systems
Riccardo Andreotti, Vincenzo Lotti, Filippo Giannetti (University of Pisa, Italy)
Ivan Stupia (Université Catholique de Louvain, Belgium)
Luc Vandendorpe (University of Louvain, Belgium)

Energy and Spectral Efficient Transmissions of Coded ARQ Systems
Jingxian Wu, Gang Wang (University of Arkansas, USA)
Yahong Rosa Zheng (Missouri University of Science and Technology, USA)

Power Allocation over Two Identical Gilbert-Elliott Channels
Junhua Tang (Shanghai Jiaotong University, China)
Parisa Mansourifard (University of Southern California, China)
Bhasak Krishnamachari (University of Southern California, USA)

Optimal Power Allocation Policy over Two Identical Gilbert-Elliott Channels
Wei Jiang, Junhua Tang (Shanghai Jiaotong University, China)
Bhasak Krishnamachari (University of Southern California, USA)

Dynamic Bandit with Covariates: Strategic Solutions with Application to Wireless Resource Allocation
Setareh Maghsudi (Technische Universität Berlin, Germany)
Slawomir Stanczak (Fraunhofer Heinrich Hertz Institute, Technische Universität Berlin, Germany)
WC-31: Two-way Relaying

Precoder Design for Asymmetric Multi-user Two-way AF Relaying in Cellular Systems
Rohit Budhiraja, Karthik KS, Bhaskar Ramamurthi (Indian Institute of Technology, India)

Achievable Rates and Power Allocation for Two-Way AF Relaying over Rayleigh Fading Channels
Leonardo Jiménez Rodríguez (McGill University, Canada)
Nghi H Tran (University of Akron, USA)
Tho Le-Ngoc (McGill University, Canada)

Resource Allocation for Two-way Relaying With Network Coding
Shan shan Huang, Roger Cheng (Hong Kong University of Science and Technology, Hong Kong)

Qiang Huo, Lingyang Song (Peking University, China)
Yonghui Li (University of Sydney, Australia)
Bingli Jiao (Peking University, China)

An Iterative Noncoherent Relay Receiver for the Two-way Relay Channel
Terry Ferrett, Matthew Valenti (West Virginia University, USA)
Don Torrieri (US Army Research Laboratory, USA)

Iterative MMSE Filter Design for Multi-pair Two-way Multi-relay Networks
Rakah SivaSiva Ganesan (TU Darmstadt, Germany)
Hussein A. Al-Shatri, Tobias Weber (University of Rostock, Germany)
Anja Klein (TU Darmstadt, Germany)

WN-18: Quality-of-Service Provisioning

Modeling and QoS Analysis of IEEE 802.11 Broadcast Scheme in Vehicular Ad Hoc Networks
Baozhu Li, Bo HU (Beijing University of Posts and Telecommunications, China)
Ren Ping Liu (CSIRO, Australia)
Shanzhi Chen (China Academy of Telecommunication Technology, China)

Optimal Stochastic Subcarrier and Power Allocations for QoS-Guaranteed Services in OFDMA Multicell Cooperation Networks
Ping Wang, Xi Zhang (Texas A&M University, USA)
Mei Song (China)

Cooperation of Heterogeneous Wireless Networks in End-to-End Congestion Control for QoS Provisioning
Neda Mohammadizadeh, Weihua Zhuang (University of Waterloo, Canada)

Wahyu Pramudito, Emad Alsusa (Manchester University, UK)

Traffic-aware Utility based QoS Provisioning in OFDMA Hybrid Smallcells
Ravikumar Balakrishnan (Georgia Institute of Technology, Intel, USA)
Berk Canberk (Istanbul Technical University, Turkey)
Ian F. Akyildiz (Georgia Institute of Technology, USA)
T2: Network Coding: From Theory to Practice
Authors: Muriel Médard, MIT, USA
Frank H. P. Fitzek, University of Aalborg, Denmark

The tutorial provides an introduction to the rapidly growing research area of network coding. Network coding allows intermediate nodes in a network to manipulate data, for example by sending out packets that are combinations of previously received packets instead of simply forwarding them. The initial theoretical results on network coding were followed by a wealth of applications in a number of different areas that show that the theoretical insights can be translated into practical gains.

The tutorial is divided into three parts. The first part provides the participants with the theoretical tools necessary to understand the field of network coding and focuses on the underlying algebraic principles. It will also introduce distributed randomized network codes and discuss their properties.

We will not assume any prior knowledge of advanced algebra or optimization. The second part of the tutorial gives an overview of the different application areas and discusses which types of networking problems are amenable to network coding (and which aren’t). Finally, we will discuss implementation aspects in real-world systems, covering wireless meshed networks, distributed storage, heterogeneous networks and some more.

T3: Spatial Modulation (SM) for MIMO Wireless Systems
Authors: Marco Di Renzo, French National Center for Scientific Research, France
Ali Ghayeb, Concordia University, Canada
Harald Haas, University of Edinburgh, UK

The key challenge for future wireless communications is to make these networks energy-efficient and spectrum efficient at the same time. This results in a paradigm-shifting requirement which necessitates a clean-slate approach of wireless system design. Clearly, such approach will have to embrace the rich body of knowledge that has been created especially on Multiple-Input-Multiple-Output (MIMO) technology during the last 25 years. This motivates us to give a tutorial on an emerging wireless communications concept for "massive" MIMO systems, which is today known as Spatial Modulation (SM). SM has recently established itself as a beneficial transmission paradigm, potentially subsuming all members of the MIMO family, which exploits multiple antennas in a novel fashion. The research on SM has reached sufficient maturity to substantiate its claimed advantages compared with state-of-the-art standardized MIMO concepts, as well as its applications to other emerging wireless systems such as relay-aided, cooperative, small cell, optical wireless, and green communications. Furthermore, it has received sufficient attention to be implemented in testbeds, and holds the promise of stimulating further vigorous inter-disciplinary research in the next years. We believe that this is a timely topic and that this tutorial will be of interest to many researchers/students/practitioners with different backgrounds.

T4: Medium Access Control and Routing in Cognitive Radio Networks: Review, Classification, Cross-layer Approach and Challenges
Authors:
Luca De Nardis and Maria-Gabriella Di Benedetto, Sapienza University of Rome, Italy
Liljana Gavrilovska, SS Cyril and Methodius University in Skopje, Macedonia
Oliver Holland, King’s College London, UK

The introduction of the cognitive paradigm in wireless networks requires a step beyond the definition of a single, “cognitive” smart device, calling for a novel approach in the design of algorithms and protocols determining the interaction between nodes, aiming at efficient use of information related to both internal network status and external environment.

In the above context, this tutorial focuses on the design of Medium Access Control (MAC) and routing in cognitive wireless networks, taking into account the specific requirements deriving from the need to coexist with other wireless systems.

The tutorial opens by reviewing and classifying existing approaches at MAC design, introducing a novel classification scheme that defines a set of fundamental functions of a Cognitive MAC, and identifies existing solutions and open research challenges for each of such functions. Next, the tutorial analyses the problem of routing in multi-hop overlay, interweave and underlay cognitive radio networks, and addresses the problem of routing in networks composed of devices equipped with multiple Radio Access Technologies.

Finally, the tutorial addresses the information required to support the deployment of MAC and routing protocols, focusing in particular on the exchange of information between layers either along or across the traditional OSI-like layered architecture.
   - basic scaling laws of information theory
   - what is “favorable propagation” and if we have that, then what can be ultimately achieved
   - pilot contamination as the ultimate limit, how fundamental is it and what can be done
   - transmitter precoding methods for massive MIMO
   - pushing the frontier: open problems

2. Propagation aspects.
   - Conventional MIMO vs. massive MIMO from a propagation perspective?
   - Spatial resolution, influence of antenna configuration
   - Channel richness; is that a problem for massive MIMO?
   - Shadowing effects and non-stationarities of large antennas
   - Channel modeling for massive MIMO

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**T5: Massive MIMO Systems**
Authors: Erik G. Larsson and Fredrik Tufvesson, Linköping University, Sweden

Massive MIMO, or Very large MIMO, refers to using antenna arrays with an order of magnitude more elements than in systems being built today, say a hundred antennas or more. It is a new research field both in communication theory, propagation, and electronics. In cellular systems, massive MIMO offers the prospect of increasing rates and reliability by an order of magnitude, and saving an order of magnitude in transmit power. In this tutorial we will examine the challenges and opportunities associated with scaling up MIMO technology, especially in the context of cellular communications:

- Conventional MIMO vs. massive MIMO from a propagation perspective?
- Spatial resolution, influence of antenna configuration
- Channel richness; is that a problem for massive MIMO?
- Shadowing effects and non-stationarities of large antennas
- Channel modeling for massive MIMO

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**T8: Self-Organizing Small Cell Networks: A Tutorial**
Author: Ekram Hossain, University of Manitoba, Winnipeg, Canada

The evolving small cell networks (SCNs) where macrocells are overlaid with small cells of all types (such as femtocells, picocells, microcells, and metrocells) are envisioned to provide improved spectrum efficiency (bps/Hz/km^2), capacity, and coverage in future wireless networks. After a brief overview of the SCNs, the major challenges in successful deployment of small cells will be outlined. The concept of self-organization in small cell networks will be then presented. The motivation of self-organization will be discussed, and the desirable behaviors of a self-organizing small cell network in terms of scalability, stability, robustness, and agility will be introduced. Then, a framework for self-x (self-configuration, self-optimization, and self-healing) functionalities will be discussed. In this context, the concept of cognitive small cells will be introduced which enables the system capable of observing, learning, optimizing, and adapting to environment changes. Next, a detailed review of the selected works on self-configuration, self-organization, and self-healing will be presented which use techniques from control theory, game theory, and reinforcement learning to achieve the optimal network performance while meeting the QoS requirements of both macro cell and small cell users. To this end, several major open research issues and directions for future research on self-reconfiguration in small cell networks will be discussed.

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**T1: Foundations of Network Localization and Navigation**
Author: Moe Z. Win, Massachusetts Institute of Technology, USA

Network localization and navigation give rise to a new paradigm for communications and contextual information collection, enabling a variety of diverse new applications that rely on position information of mobile nodes. These applications include logistics, security tracking, medical services, search and rescue operations, control of home appliances, automotive safety, and military systems, as well as many wireless sensor network applications. The coming years will see the emergence of techniques for high-definition location-awareness (HDLA) with sub-meter accuracy and minimal infrastructure requirements, operational in challenging indoor and harsh environments. Therefore, it becomes necessary for researchers in communications to be aware of both the fundamentals and the state of the art in location-aware networks. This tutorial will first cover four basic components of traditional positioning: fundamental performance bounds; ranging techniques; positioning algorithms; and network experimentation in real environments. Secondly, we will discuss the limitations of traditional positioning, and move on to the key enablers for HDLA: wideband transmission and cooperative processing. This tutorial is aimed at students and practicing engineers in order to provide this knowledge in a rigorous, yet concise form.

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**T6: Cartography for Cognitive Networks**
Authors: G. B. Giannakis and Gonzalo Mateos, University of Minnesota, USA

Communication networks have evolved from specialized, research and tactical transmission systems to large-scale and highly complex interconnections of intelligent devices, increasingly becoming more commercial, consumer-oriented, and heterogeneous. Propelled by emergent social networking services and high-definition streaming platforms, network traffic has grown explosively thanks to the advances in processing speed and storage capacity of state-of-the-art communication technologies. As 'netizens' demand a seamless networking experience that entails not only higher speeds, but also resilience and robustness to failures and malicious cyber-attacks, ample opportunities for signal processing (SP) research arise. The vision is for ubiquitous smart and cognitive network devices to enable data-driven statistical learning algorithms for distributed, robust, and online network operation and management, adaptable to the dynamically-evolving network landscape with minimal need for human intervention. The present tutorial aims at delineating the analytical background and relevance of SP tools to dynamic network monitoring, introducing the notion of network cartography -- a framework to construct maps of the dynamic network state in an efficient and scalable manner tailored for large-scale cognitive networks.
T7: Self-Organising Networks (SON): From Conception to Realisation

Authors: Ali Imran, Qatar Mobility Innovations Center, Qatar
Mischa Dohler, CTTC, Spain

The increasing complexity and heterogeneity of emerging cellular systems, coupled with decreasing per-bit revenues, have made a strong case for Self-Organizing Networks (SON). Indeed, achieving and maintaining optimal performance in future cellular systems is turning virtually impossible with manual configuration, optimisation and maintenance due to the increasing of parameters involved and human error, latency and accuracy limitations. SON has emerged as a paradigm that can reduce OPEX and CAPEX while yielding optimal performance. IGR forecasts $2.34 billion and $4.5 billion savings in LTE CAPEX and OPEX respectively, with full SON implementation, by 2016 in the US alone.

This tutorial will thus first introduce SON by looking at its emergence, prevalent definitions, use cases, desired characteristics and suitable taxonomies. Later we will analyze what has been achieved in literature on SON to date, including latest standardization activities and industrial progress. This will be followed by engaging technical discussion on a set of selected SON solutions, with the objective to provide deeper understanding of design processes of SON and its potential gains. The tutorial will be concluded with a comprehensive review of open research challenges; thereby, we will also examine suitability of various techniques, ranging from deterministic tools to evolutionary heuristics, to address various SON challenges.

T9: Power Line Communications: Modeling, Algorithms and Applications

Author: Andrea M. Tonello, University of Udine, Italy

This tutorial covers recent advances in Power line communication (PLC) which is a technology that exploits the power delivery network for information delivery. An overview of the various application scenarios of PLC such as in-home, in-vehicle, and smart grids will be provided. I will then discuss the important topics of channel and noise characterization and report up-to-date results about statistical channel modeling, MIMO channel modeling and noise/disturbance modeling. Similarities and differences with the wireless channel behavior will be discussed.

The main challenges of physical layer design for both narrow-band (NB-PLC) and broad-band PLC (BB-PLC) to encompass the presence of channel attenuation and frequency selectivity, interference, and various noise sources will be addressed. In particular, I will describe existing and emerging single carrier modulation approaches, filter bank modulation approaches (as OFDM, DWMT, FMT) and ultra-wide band techniques. We will show that advanced modulation techniques, combined with coding and smart resource allocation algorithms are required to grant robust performance and coexistence with other technologies. The pros and cons of different transmission techniques will be discussed and specific aspects that differentiate PLC from wireless communications will be emphasized.

I will also briefly discuss MAC protocols, adaptive scheduling and cooperative techniques (as relaying) for both home and smart grid PLC networks. Finally, an overview of the main standards will be offered covering NB-PLC, BB-PLC and their role in the Smart Grid.

T10: Energy Harvesting Wireless Communications

Authors: Sennur Ulukus, University of Maryland, USA
Aylin Yener, Penn State University, USA

Wireless communication networks composed of devices that can harvest energy from nature represent the green future of wireless. Energy harvesting technologies offer the possibility of perpetual operation and no adverse effects on the environment. By developing effective and robust communication techniques to be used under energy harvesting conditions, some of the communication devices and networks can be taken off the power grid, thereby decreasing the overall consumption of energy and the accompanying carbon footprint in the future, by a non-negligible amount. Energy harvesting brings new dimensions to communication system design in the form of randomness and intermittency of available energy, as well as additional system issues to be concerned about such as energy storage capacity and processing complexity. The goal of this tutorial is to furnish the audience with fundamental design principles of energy harvesting wireless communication networks, building on a foundation of energy efficient communications and these new ingredients that provide design insights specific to this emerging topic. The focus will be on physical and medium access layers incorporating the state of research.
Spectral efficiency of cellular networks is impaired by inter-cell interference which is avoided in current systems by under-utilizing the time/frequency/spatial degrees of freedom. An alternative solution for combating inter-cell interference in future cellular networks is the coordination and joint signal processing of multiple base stations, referred to as Coordinated Multi-Point (CoMP). The great potential of CoMP for cellular networks has been verified by theoretical research. However, the introduction of CoMP techniques into cellular communication standards has turned out to be everything but smooth. Apparently, a simple overlay of CoMP on top of current deployments does not bring the anticipated gains. This sparked research on the challenges that are faced when bringing CoMP to practice. This tutorial will span the bridge from theoretical gains to practical solutions in a conceptual framework that includes all important physical and MAC layer aspects, and show how the presented solutions could be included in 3GPP/LTE where aspects such as backward compatibility are considered. The performance of these solutions is verified by a mix of system simulations and measurements in a large urban cellular test bed. The significance of the solutions is demonstrated by a comparison with 3GPP/LTE Release 11.
Vehicular networking serves as one of the most important enabling technologies required to implement a myriad of applications related to vehicles, vehicle traffic, drivers, passengers and pedestrians providing information to support driving safety as well as convenience. Much progress has been achieved in this area during the past decade. Very large projects to validate the theoretical work by field tests have been initiated and protocols are being standardized. In this tutorial, we will look into applications and use cases of vehicular networking followed by an overview of the standardization activities. Next we cover the communication protocol design as well as the deployment plans. We will also briefly talk about performance evaluation of various protocol designs. Finally, we will conclude with open issues that require further research.

In this half-day tutorial, the instructors will present several approaches for implementing spectrally agile waveforms using a multicarrier data transmission framework in order to enable dynamic spectrum access within a wireless environment. In addition to the theoretical aspects of spectrally agile waveform design being provided during this tutorial, the instructors will also provide several practical insights on this topic by introducing to the audience a “hands-on” experience with respect to the implementation of these waveforms using software-defined radio (SDR) technology. Leveraging several pre-recorded video demonstrations of SDR experiments involving spectrally agile waveforms, the instructors will provide the tutorial audience with a first-hand experience regarding the design of these waveforms, as well as expose them to some of the key technical challenges associated with spectrally agile waveforms. This tutorial consists of four components, namely: (1) A brief introduction to Dynamic Spectrum Access (DSA); (2) An overview of multicarrier transmission fundamentals, including the spectrally agile variant known as NC-OFDM; (3) A description of several practical considerations for spectrally agile transmission; (4) Several video demonstrations of actual spectrally agile waveform implementations using SDR technology.

We will present the design principles for Autonomic or Self-Aware Networks which measure or observe their own users’ and internal behaviour as well as the external systems that they interact with, in order to modify their own behaviour so as to adaptively achieve certain objectives, such as:

- discovering services for their users,
- improving their Quality of Service (QoS),
- reducing their energy consumption,
- compensating for components which fail or malfunction,
- detect and react to intrusions, and
- defend themselves against external attacks.

The study of such networks is part of the field of Autonomic Communications. These systems exploit “self-awareness” within a network of interacting components and sub-systems so as to create a distributed internal representation of the system, coupled with the ability to discover actions that it can take, in the form of paths to destinations and services. The internal representation of the past and present experience of the network includes performance monitoring to provide an evaluation of how well the network is “doing its job”, and condition monitoring to evaluate the health, reliability and security of the network, and its level of energy consumption. These features have been implemented within the Cognitive Packet Network (CPN) protocol for packet routing in wired and wireless networks. These concepts have also been generalised to include the use of networks to enhance human security in emergency environments. The tutorial will include a hands on experiments on wireless interconnected laptops running an autonomic network. Special attention will be addressed to show how the following important considerations can be included in the design of an autonomic communication system: (a) user requirement driven QoS and QoE, (b) respect for SLAs, (c) effecting energy savings through smart adaptive network management, (d) surveillance of the network for security compromises, and investigation tools via honeypots and analytics, (e) adapting reaction against denial of service and other attacks.
**T17: Greening the Internet**  
**Author:** Jaafar Elmirghani, University of Leeds, UK

Energy efficiency is increasingly becoming a key priority for Information and Communication Technology (ICT) organizations given the ecological and economic drivers. In this tutorial we will introduce and discuss a number of measures that can be used to reduce the power consumption in the Internet and will introduce methods for the optimum use of renewable energy in core networks to reduce the Internet's carbon footprint at a given power consumption level. We will introduce network optimization through the use of mixed integer linear programming (MILP) giving a short tutorial on MILP and build on this and heuristics inspired by it to explore a number of energy and carbon footprint reduction measures including (i) Optimum use of time varying renewable energy in core networks; (ii) Optimum resource allocation and green network design with data centres; (iii) Dynamic energy-efficient content caching for video on demand, YouTube type content and IPTV; (iv) Energy-efficiency through data compression; (v) Energy-efficient peer-to-peer content distribution; (vi) Physical topology design considering operational and embodied energies.

We finish by outlining future directions and open research issues. This tutorial will be of particular benefit to researchers and practicing engineers interested in energy efficient designs applied to the Internet and broadly.

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**T18: OFDM for Optical Communications**  
**Author:** Jean Armstrong, Monash University, Australia

Orthogonal Frequency Division Multiplexing (OFDM) for wired and wireless communications has been the subject of intensive research over many years, and is now used in many broadband RF wireless and wired systems. However, it is only very recently that OFDM has been considered for optical systems. It is now a ‘hot topic’ in optical communications and optical OFDM is being applied across a range of optical fiber and optical wireless systems, including long haul transmission using single mode optical fiber, optical fiber access networks, plastic optical fiber, and indoor optical wireless systems, including visible light communications. Successful research on the topic of optical OFDM requires detailed knowledge about both OFDM, and about optical systems. This tutorial will provide an introduction to optical OFDM. It will include descriptions of the various forms of optical OFDM that have been developed in the last few years, including coherent optical OFDM (CO-OFDM), direct detection optical OFDM (DDO-OFDM), asymmetrically clipped optical OFDM (ACO-OFDM) and DC biased optical OFDM (DCO-OFDM). The tutorial is designed for an audience coming from either an OFDM or an optical communications background. It will conclude with an overview of current research in the field and a discussion of future research directions.

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**T19: Moving Forward in Cellular:**  
**Emerging Concepts and Technologies for Beyond-2020 Networks**  
**Author:** Halim Yanikomeroglu, Carleton University, Canada

Despite the recent advances in wireless technologies, the wireless community faces the challenge of enabling a further traffic increase of up to 1,000 times in the next 10 years or so, while no customer is willing to pay more for the wireless pipe itself: the so-called "traffic-revenue decoupling." Moreover, many experts warn that the low-hanging fruits in wireless research (especially in information theory, communications theory, and signal processing) have already been collected. While the research community is full of ideas (as usual), many of these ideas are either not-too-relevant (i.e., not in the bottleneck areas) or they are in areas in which progress toward a tangible implementation is too slow.

In this tutorial, I will articulate on

- the bottleneck problems in beyond-2020 wireless networks,
- the potential research directions towards coping with these problems, especially in the context of radio access network (RAN), resource allocation, layers 1, 2, and 3,
- the underlying mathematical tools.

In the absence of a clear technology roadmap towards 5G, the tutorial has, to a certain extent, an exploratory view point to stimulate further thinking and creativity. We are certainly at the dawn of a new era in wireless research and innovation; the next twenty years will be very interesting.
Mobile operators have experienced tremendous data traffic increase in recent years. It is predicted that this trend will continue in the next decade. This exponential traffic growth presents a huge challenge to the mobile industry. Small cell deployment is regarded as one of the most promising ways to address this challenge.

The deployment of small cell and heterogeneous networks (HetNets) faces many challenges such as interference, mobility management and backhauling, which will be discussed in this tutorial.

The outline of the tutorial is listed as follows:

T21: From Network based Location Estimation to Location Aided Communications
Authors: Ronald Raulefs, German Aerospace Center, Germany
Dirk T.M. Stock, EURECOM, France

Recent years have seen an explosion of location based services. On the other hand, the limitations of GPS for indoor, urban canyons etc. have led to an evolution of existing networks (e.g. LTE) to provide network based location estimation. Today’s and future mobile radio devices provide a heterogeneous portfolio of radio access technologies. We provide an overview of recent advances in cooperative communication based location estimation, fingerprinting techniques that also work in non line-of-sight, the exploitation of inertial modalities and self-learning techniques to enable context-aware network adaptions based on inferred radio maps. The availability of location information of mobile terminals, relays, femto/small cells and primary units provides opportunities to greatly enhance the operation of wireless communication systems. We provide an overview of some possibilities, starting with physical layer considerations for a single link. However, most of the opportunities concern resource allocation aspects and network management. Especially for multi-user (e.g. SDMA) and multi-cell (e.g. CoMP) systems. Location aided techniques may furthermore exploit location prediction through mobility trajectory information. This would allow slow fading (and even connectivity) predictability, something that is difficult to achieve without location information.
W1: Workshop on Optical-Wireless Integrated Technology for Systems and Networks (OWITSN)

Chair: Nathan J Gomes (University of Kent, UK)

Advances in Ultra-wideband and Adaptive Microwave Photonic Signal Processors
Robert Minasian, Erwin Chan, Xiaoke Yi
(University of Sydney, Australia)

A General Model for Hybrid Fiber-Wireless (FIWI) Access Network Virtualization
Qinglong Dai, Guochu Shou, Yihong Hu, Zhigang Guo
(University of Ottawa and Telecommunications, China)

Quality-of-Service-Aware Fiber Wireless Sensor Network Gateway Design for the Smart Grid
Nima Zaker, Burak Kantarci, Melike Erol-Kantarci, Hussein T Mouftah
(University of Ottawa, Canada)

Radio-over-Fiber Quintuple-Play Service Provision for Deep Fiber-to-the-Home Passive Networks
Robert Llorente, Maria Morant, Eloy Pellicer
(Universidad Politecnica de Valencia, Spain)

Panel Session

Chair: Volker Braun (Alcatel-Lucent, Germany)

Backhaul Requirements for Inter-site Cooperation in Heterogeneous LTE-Advanced Networks
Volker Jungnickel (Fraunhofer Heinrich Hertz Institute, Germany)
Konstantinos Manolakis (Technische Universität Berlin, Fraunhofer Heinrich Hertz Institute, Germany)
Stephan Jaeckel, Moritz Lossow, Peter Farkas, Michael Schlosser (Fraunhofer Heinrich Hertz Institute, Germany)

Very High Throughput 60GHz Wireless Enterprise Networks over GPON Infrastructure
George Kalfas (Center for Research and Technology Hellas, Technical University, Information Technologies Institute, Greece)
Stella Markou (Aristotle University of Thessaloniki, Greece)
Dimitris Tsiokos (Center for Research and Technology Hellas, Greece)

Self-organized Cooperative 5G RANs with Intelligent Optical Backhauls for Mobile Cloud Computing
Milos Milosavljevic, Stratis Sofianos, Pandelis Kourtessis, John Micheal Senior (University of Hertfordshire, UK)

A Framework for Joint Optical-Wireless Resource Management in Multi-RAT, Heterogeneous Mobile Networks
Anna Zakrzewska, Andrijana Popovska, Henrik Christiansen, Ying Yan, Aleksandra Checko, Anton Dogadaev, Sarah Ruepp, Michael S. Berger, Lars Dittmann (Technical University of Denmark, Denmark)

Networking and Interference-aware Dynamic BBU-RRU Mapping in C-RAN TOD with Cross-subframe Coordinated Scheduling/Beamforming
Dalin Zhu, Ming Lei (NEC Laboratories, China)

Converged Fiber-wireless Access Networks for Next Generation Mobile Backhaul Enabling CoMP
Yizhuo Yang (University of Melbourne, Australia)

A New Framework for Joint Optical-Wireless Resource Management in Multi-RAT, Heterogeneous Mobile Networks
Anna Zakrzewska, Andrijana Popovska, Henrik Christiansen, Ying Yan, Aleksandra Checko, Anton Dogadaev, Sarah Ruepp, Michael S. Berger, Lars Dittmann (Technical University of Denmark, Denmark)

Self-organized Cooperative 5G RANs with Intelligent Optical Backhauls for Mobile Cloud Computing
Milos Milosavljevic, Stratis Sofianos, Pandelis Kourtessis, John Micheal Senior (University of Hertfordshire, UK)
W2: Fifth Workshop on Cooperative and Cognitive Networks (CoCoNet5)

09:00 – 10:00
CoCoNet: Keynote Session
Chair: Marcus D Katz
(University of Oulu, Finland)

Performance Analysis of Amplify-and-Forward MIMO-OFDM Links with Linear ZF Equalization
Donatella Darsena
(University of Napoli Parthenope, Italy)
Giacinto Gelli, Fulvio Melito, Francesco Verde
(University of Napoli Federico II, Italy)

Analyzing Computation Offloading Energy-Efficiency Measurements
Krisztán Fekete, Kristóf Csorba,
Bertalan Forstner, Tamás Vajk, Marcell Fehér,
István Albert (Budapest University of Technology and Economics, Hungary)

Opportunistic Relaying Protocol in ARQ Based Cooperative Wireless Communications
Zhang Zhang (Alcatel-Lucent Shanghai Bell & Research and Innovation, China)

10:00 – 10:30
CoCoNet1: Cognition and Network Coding
Chair: Marcus D. Katz
(University of Oulu, Finland)

A Software Radio Implementation for Spectrum Hole Sensing in Cognitive Mobile Networks
Elena Guzzon, Francesco Benedetto, Giacomo Giunta (University of Roma TRE, Italy)
Markku K. Renfors (Tampere University of Technology, Finland)

Physical Layer Network Coding: A Cautionary Story with Interference and Spatial Reservation
Hironori Fukui (Kansai University, Japan)
Hiroyuki Yomo (Kansai University, Aalborg University, Japan)
Petr Popovski (Aalborg University, Denmark)

11:00 – 12:30
CoCoNet2: Cooperative Networking
Chair: Qi Zhang
(Aarhus University, Denmark)

Research of Synchronization and Training Sequence Design for Cooperative D2D Communications Underlaying Hyper-Cellular Networks
Yanxiang Jiang, Xiaohu You
(Southeast University, China)

Opportunistic Cooperative Routing in Multi-Radio Multi-Channel Wireless Sensor Networks
J. R. Wen, Muqing Wu, Bo Lv, Wang Dongyang (BUPT, China)

Mobile Node Localization Using Cooperation and Static Beacons
Troy Johnson, Patrick Seeling
(Central Michigan University, USA)

Social Video Consumption: Synchronized Viewing Experiences across Devices and Networks
Marie-Jose Montpetit, Henry Holtzman
/MIT Media Lab, USA
Kanti Chakrabarti
(QFactor Communications, USA)
Maja Matijasevic (University of Zagreb, Croatia)

Distributed Robust Sum Rate Maximization in Cooperative Cellular Networks
Richard Fritzsche, Gerhard Fettweis
(Technische Universität Dresden, Germany)

On the Need of Novel Medium Access Control Schemes for Network Coding enabled Wireless Mesh Networks
Achuthan Paramanathan
(Aalborg University, Denmark)
Peyman Pahlavani (APNET, Denmark)
Daniel E. Lucani, Frank H.P. Fitzek
(Aalborg University, Denmark)

Improving Reliability in Lossy Wireless Networks Using Network Coding
Li Ma, Zhihua Lin (University of Sydney, Australia)
Zijie Zhang (NICTA, Australia)
Guoqiang Mao, Branka Vucetic
(University of Sydney, Australia)

Wireless Network Coding Throughput Dependence on Node Locations
Hong Li, Henrik Lundqvist
(Huawei Technologies, Sweden)
Georgios P. Koudouridis
(Huawei Technologies, KTH, Sweden)

Outage Analysis of Coded Cooperation with Multiple Relays and Nakagami-m Fading
Prabhath Kumar Sharma, Parul Garg (Netaji Subhas Institute of Technology, New Delhi, India)

A Low Complexity Algorithm for Multiple Relay Selection in Two-Way Relaying Cognitive Radio Networks
Ahmad Alsharoa, Hakim Ghazzai, Mohamed-Slim Alouini
(King Abdullah University of Science and Technology, Saudi Arabia)

Robust Utility Scheme with Admission Control over MIMO Cognitive Radio Network
Huqin Du, Tharmalingam Ratnarajah
(University of Edinburgh, UK)

A Performance Trade-off in Wideband Cognitive Radio for Flexible Wireless Systems
JeongHun Park, Chan-Byoung Chae,
Dong Ku Kim (Yonsei University, Korea)

14:00 – 15:30
CoCoNet3: Network Coding & Cognitive Radio
Chair: Frank H.P. Fitzek
(Aalborg University, Denmark)

16:00 – 18:00
CoCoNet4: Cognitive Networks
Chair: Marcus D. Katz
(University of Oulu, Finland)

Detection of Collaborative SSDF Attacks using Abnormality Detection Algorithm in Cognitive Radio Networks
Mingchen Wang, Bin Liu, Chi Zhang
(University of Science and Technology of China, China)

Geo-location Assisted Spectrum Sensing for Cognitive Coexistent Heterogeneous Networks
Bingxuan Zhao, Shigenobu Sasaki
(Niigata University, Japan)

Proactive Channel Gain Estimation in Asymmetric TDD Primary Systems
Guodong Zhao
(Hong Kong University of Science and Technology, Hong Kong)
Lin Zhang, Lijing Li, Gang Wu
(University of Electronic Science and Technology of China, China)

Network-Aware Retransmission Strategy Selection in Ad Hoc Wireless Networks
Federico Librino (University of Padova, Italy)
Giorgio Quer
(University of California San Diego, USA)
Michele Zorzi (University of Padova, Italy)

The Cognitive Radio in TV White Space with Coexistence Constraint
Pin-Hsun Lin, Zhou Lan, Gabriel Villardi,
Hiroshi Harada (National Institute of Information & Communications Technology, Japan)

Cognitive Users with Useful Vacations
Boris Oklander, Erol Gelenbe
(Imperial College London, UK)

Statistical Analysis of Secondary Users Throughput for OFDMA Cognitive Radio Networks
Nariman Rahimian, Costas N. Georgiades
(Texas A&M University, USA)
Muhammad Zeeshan Shakir
(Texas A&M University, Qatar)
Khalid A. Qaraque
(Texas A&M University, Qatar, USA)

Outage and SER Performance of Spectrum Sharing System with TAS/MRC
Fahd Ahmed Khan (King Abdullah University of Science and Technology, Saudi Arabia)
Kamel Touki (Texas A&M University, Qatar)
Mohamed-Slim Alouini
(King Abdullah University of Science and Technology, Saudi Arabia)
Khalid A. Qaraque
(Texas A&M University, Qatar, USA)
09:00 – 09:45
B-LTE-A-01: Plenary Session I
What is the Role of MIMO Beyond LTE: Massive? Coordinated? mmWave?
Chair: Markus Rupp (Vienna University of Technology, Austria)

09:45 – 10:30
B-LTE-A-02: Future M2M and D2D Communications
Chair: Markus Rupp (Vienna University of Technology, Austria)

11:00 – 12:30
B-LTE-A-03: Enhanced Multi-Antenna Transmission
Chair: Angel Lozano (Universitat Pompeu Fabra, Spain)

14:00 – 14:45
B-LTE-A-04: Plenary Session II
Wireless Communication of the Future
Chair: Constantinos B. Papadias (Athens Information Technology, Greece)

14:45 – 15:30
B-LTE-A-05: Emerging Topics
Chair: Constantinos B. Papadias (Athens Information Technology, Greece)

16:00 – 17:30
B-LTE-A-06: Interference Mitigation Techniques
Chair: Angel Lozano (Universitat Pompeu Fabra, Spain)

Sunday, 9 June 2013 • 09:00 – 17:30
Room: Margit B, Mezzanine Level, Marriott

W3: Workshop Beyond LTE-A

Sunday, 9 June 2013 • 09:00 – 17:30
Room: Margit B, Mezzanine Level, Marriott

W3: Workshop Beyond LTE-A
B R I D G I N G  T H E  B R O A D B A N D  D I V I D E

O lav T irkkonen (Aalto U niversity, Finland)
Petteri Lunden (Nokia R esearch C enter, Finland)
S ergio Lem bo (Aalto U niversity, Finland)

Interference Coordination (eICIC) in H etN ets
Y un Hee C ho, S eung Hw an Lee (E T R I, K orea)
(S ogang U niversity, K orea)

for S elf O rganizing W ireless N etw orks
S pectrum  Breathing and Cell Load Balancing
(Nokia S iem ens Netw orks, D enm ark)
K laus Pedersen, Jens S teiner
K rystian S afjan, S tanisław  S trzy

Imp act on LTE H etN et U plink P erform ance
(Nokia S iem ens Netw orks/Aalborg, D enm ark)

K lutto M illeth (C entre of E xcellence in W ireless
S ivakishore R eddy Yerrap areddy, Nadeem  Akhtar,
X avier Gelabert, Peter Legg, Christer Q varfordt
S ven-E inar B reuer (T U  D resden, Germ any)
M ichael Grieger, Gerhard Fettw eis,
H igh Capacity Future Cellular N etw orks

10:30 – 11:00
SmallNets-P1: Power Control and
E nergy Efficiency
A Novel Power Control Scheme for Macro-
Pico Heterogeneous Networks with Biased
Association
Naga S ekhar Suruvu,
Svakshore Reddy Yerrapadddy, Nadeem Akhtar,
Klutto Milleth (Centre of Excellence in Wireless
Technology, India)

D ownlink Power Control in Two-tier OFDMA
Femtocell Networks with Firefly Algorithm
Hailun Xia, Sainan Li, Zhimin Zeng
( Beijing University of Posts and
Telecommunications, China)

S ubchannel and Power Allocation Schemes for
Clustered Femtocells in Two-Tier OFDMA HetNets
Amr Abdellnasser, Ekrarn Hossain
(University of Manitoba, Canada)

O pen Loop Power Control Parameter S ettings
Impact on LTE HetNet Uplink Performance
Krystian Safjan, Stanislaw Strzyz
(Nokia Siemens Networks, Poland)
Klaus Pedersen, Jens Steiner
(Nokia Siemens Networks, Denmark)
Claudio Rosa
(Nokia Siemens Networks/Aalborg, Denmark)

S pectrum Breathing and Cell Load B alancing
for Self Organizing W ireless Networks
Hongseok Kim, Hyea Youn Kim
(Sogang University, Korea)
Yun Hee Cho, Seung Hwan Lee (ETRI, Korea)

O ptimal muting ratio for Enhanced Inter-Cell
Interference Coordination (elCIC) in HetNets
Sergio Lembo (Aalto University, Finland)
Petteri Lunden (Nokia Research C enter, Finland)
Olav Tirkkonen (Aalto University, Finland)
Kimmo Valkealahti
(Nokia Research Center, Finland)

I mproving the Energy-Efficiency of Dense
LTE Networks by Adaptive A ctivation of Cells
Kimmo Hiltunen
(Ericsson Research, Oy L M Ericsson Ab, Finland)

09:00 – 09:20
E2Nets-01: Welcome & Keynote Session

09:20 – 10:30
E2Nets-02: Applications and Cellular
Chair: Raouf Boutaba (University of Waterloo, Canada)

Residential Demand Response with Power Adjustable and Unadjustable Appliances in Smart Grid
Guodong Zhao
(Hong Kong University of Science and Technology, Hong Kong)
Liyong Li
(University of Electronic Science and Technology of China, China)
Jun Zhang, Khaled B. Letaief
(Hong Kong University of Science and Technology, Hong Kong)

Energy-Efficient Resource Allocation for Downlink OFDMA Systems
Zhengguang Zheng, Lili Dan, Saidan Gong, Shaoqian Li
(University of Electronic Science and Technology of China, China)

Energy Consumption Tradeoff between Network and User Equipment in Small Cell Networks
Yuhuan Jiang, Guandung Yu (Zhejiang University, China)
Jinsong Wu (Bell Labs, Alcatel-Lucent, China)
Rui Yin (Zhe Jiang University, China)

11:00 – 12:30
E2Nets-P1: Poster Session

Efficient Power Allocation for Fixed-Gain Amplify-and-Forward Relaying in Rayleigh Fading
Ammar Zafar
(King Abdullah University of Science and Technology, Saudi Arabia)
Redha M. Radaydeh (Alfaisal University, Saudi Arabia)
Yunlei Chen (University of Warwick, UK)
Mohamed-Slim Alouini
(King Abdullah University of Science and Technology, Saudi Arabia)

Sustainable Medium Access Control: Implementation and Evaluation of ODMAC
Xenofon Fafoutis, Alessio Di Mauro, Nicola Dragoni
(Technical University of Denmark, Denmark)

A Heuristic Energy Efficient Scheduling Scheme for VoIP in 3GPP LTE Networks
Mohammad Reza Sabagh, Mehrdad Dianati, Muhammad Ali Imran, Rahim Tafazolli (University of Surrey, UK)

Energy-Aware Clustering for Multi-Cell Joint Transmission in LTE Networks
Efstatios Katranaras, Muhammad Ali Imran, Mehrdad Dianati
(University of Surrey, UK)

Energy Efficiency Optimization for Two-way Relay Channels
Li Fang (University of Science and Technology of China, China)
Jie Xu (National University of Singapore, University of Science and Technology of China, Singapore)
Ling Qiu (PCN&SS Lab, China)

Limited Channel Feedback for Coordinated Beamforming under SINR Requirements
Seongjin Kim, Deokki Kim, Yong H. Lee (KAIST, Korea)

14:00 – 15:30
E2Nets-02: PHY and MAC
Chair: Venkatesha Prasad
(Delft University of Technology, Netherlands)

Q-PASTE: A Cross-Layer Power Saving Solution for Wireless Data Transmission
Yang Song, Bogdan Ciubotaru, Gabriel-Miro Muntean
(Dublin City University, Ireland)

A Small World-based Energy-efficient Mechanism in Wireless Ad Hoc Networks
Wang Dongyang, Muing Wu, Bo Lv, Jingrong Wen
(Beijing University of Posts and Telecommunications, China)

Adaptive Energy Efficient Communications for Rapidly Deployable Aerial-Terrestrial Networks
Karina Mabell Gomez (Create-Net, University of Trento, Italy)
Sithamparanathan Kandeepan (RMIT University, Australia)
Laurent Reynaud (Orange Labs, France)
Tinku Rasheed (Create-Net Research, Italy)

Supportive Relay with Heterogeneous Transceivers: Quantification of Energy Efficiency Improvement
Goran Dimić, Nikola Zogović
(University of Belgrade, Institute Mihajlo Pupin, Serbia)
Dragana D. Bajić (University of Novi Sad, Serbia)

16:00 – 17:30
E2Nets-04: Routing and More
Chair: Martin Jacobsson (Uppsala University, Sweden)

An Energy Efficiency Heuristic Algorithm for Joint Optimization in Cognitive Radio Networks
Ying-pei Teng, Haoman Xu
(University of Beijing of Posts and Telecommunications, China)

Optimal Random Multiaccess in Energy Harvesting Wireless Sensor Networks
Nicolo Michelusi (University of Southern California, USA)
Michele Zorzi (University of Padova, Italy)

Energy Efficient M2M Communications for Aerospace Monitoring Applications
Florian Perget, Daniela Dragomirescu (LAAS-CNRS, University of Toulouse, France)

Cooperative Multicast Transmission Strategy for Energy-Efficient Dynamic Network Coding
Guoyan Zhang, Yonghua Li (Beijing University of Posts and Telecommunications, China)

Analysis of CAPEX and OPEX Benefits of Wireless Access Virtualization
Mohammad-Moshirul Rahman (University of Quebec, Canada)
Charles Despins (Prompt, Canada)
Sofiene Affes (INRS-EMT, Canada)
9:00 – 10:30

RSN-01: Keynote Session
Chair: Qilian Liang (University of Texas, Arlington, USA)

11:00 – 12:30

RSN-02: Target Detection and Classification
Chair: Baoju Zhang (Tianjin Normal University, China)

Target Detection - Distributed Radar Sensor Network (RSN) vs. MIMO-RSN
Yang Liu, Jing Liang
(University of Electronic Science and Technology, China)

SAR Image Superpixels by Minimizing a Statistical Model and Ratio of Mean Intensity Based Energy
Jilian Feng, Yiming Pi, Jianyu Yang
(University of Electronic Sciences and Technology, China)

Terahertz Imaging Radar with Aperture Synthetic Techniques for Object Detection
Biao Zhang, Yiming Pi, Xiaobo Yang
(University of Electronic Science and Technology, China)

Terahertz Detection of THz Radar Based on Information Geometry
Zhengwu Xu, Tong Liu, Ming Lv
(University of Electronic Science and Technology, China)

An Improved Angular Super-Resolution Approach Based on Constrained Optimization
Yuebo Zha (University of Electronic Science and Technology, China)

14:00 – 15:30

RSN-03: Radar Networks
Chair: Yiming Pi
(University of Electronic Sciences and Technology, China)

A Method of Target Identification with UWB Based on Genetic Algorithm and Fuzzy Pattern Recognition
Yanteng Wang, Ting Jiang
(University of Posts and Telecommunications, China)

Target Identification in Foliage Environment Using Selected Bispectra and Extreme Learning Machine
You Ming, Te Jiang
(University of Posts and Telecommunications, China)

Application of the Extraction of the Image Feature Points by Improved SIFT Algorithm
Rui Liu, Junsheng Zhang, Lei Wang, Baoju Zhang
(Tianjin Normal University, China)

Sparse Sampling of Non-stationary Signal for Radar Signal Processing
Qiong Wu, Qilian Liang (University of Texas, Arlington, USA)

Through Wall Detection of Human Being based on SPC and Wavelet Packet Transform by UWB Radar
Wei Wang, Baoju Zhang, Jiasong Mu (Tianjin Normal University, China)

16:00 – 17:30

RSN-04: Networking and Optimization
Chair: Ting Jiang
(Beijing University of Posts and Telecommunications, China)

Optical Transfer Function-based Micro Image Enhancement Algorithm
Yaqiu Sun, Xin Yin (Tianjin Normal University, China)

A Reconstructed Algorithm based on QPSO in Compressed Sensing
Qing Lei, Baoju Zhang, Wei Wang, Jiasong Mu, Xiaorong Wu
(Tianjin Normal University, China)

Performance Evaluation of Modified OFDM for Underwater Communications
Prashant Kumar, Preetam Kumar
(Indian Institute of Technology, Patna, India)

Information Theoretic Performance Bounds for Noisy Compressive Sensing
Junjie Chen, Qilian Liang (University of Texas, Arlington, USA)
Baoju Zhang, Xiaorong Wu (Tianjin Normal University, China)

Adaptive Compressive Sensing for Multiuser OFDM System
Ji Wu, Qilian Liang (University of Texas, Arlington, USA)
Baoju Zhang, Xiaorong Wu (Tianjin Normal University, China)
W7: Workshop on Advances in Network Localization and Navigation (ANLN)

09:00 – 10:30
**ANLN-01: Welcome and Keynote Session**

**Chairs:** Davide Dardari (University of Bologna, Italy)
Klaus Witrisal (Graz University of Technology, Austria)

11:00 - 12:30
**ANLN-02: Cooperative Localization and Sensor Networks**

**Chair:** Andrea Conti (ENDIF University of Ferrara, WiLAB University of Bologna, Italy)

The Impact of Cooperative Localization on Achieving Higher-Level Goals
Henk Wymeersch (Chalmers University of Technology, Sweden)

Cooperative and Heterogeneous Indoor Localization Experiments
Benoit Denis (CEA-Leti Minatec, France)
Ronald Raulefs (German Aerospace Center, Germany)
Bernard Henri Fleury (Aalborg University, Denmark)
Bernard Uguen (University of Rennes 1, France)
Lorenza De Celis (Acorde Technologies, Spain)
Nicolas Amiot (Université Rennes 1, France)
Jacobo Dominguez (ACORDE, Spain)
Michael Koldsgaard (Aalborg University, Denmark)
Mohamed Laaraiedh (University of Rennes 1, France)
Hadi Noureddine (Telecom Bretagne, France)
Emmanuel Staudinger (German Aerospace Center, Germany)
Gerhard Steinboeck (Aalborg University, Denmark)

A Statistical Geometry Approach to Distance Estimation in Wireless Sensor Networks
Valerio Freschi, Emanuele Lattanzi, Alessandro Bogliolo (University of Urbino, Italy)

Cooperative Multipath-Assisted Indoor Navigation and Tracking (Co-MINT) Using UWB Signals
Markus Froehle, Erik Leitinger, Paul Meissner, Klaus Witrisal (Graz University of Technology, Austria)

Using Spatial Correlation of Ocean Current for Velocity Estimate of Underwater Drifting Nodes
Roe Diamant (University of British Columbia, Canada)
Lars Wolff (University of Applied Sciences Kiel, Germany)
Lutz Lampe (University of British Columbia, Canada)

Radio Positioning based on DoA Estimation: An Implementation Perspective
Andrea M. Tonello, Daniele Inserra (Università di Udine, Italy)

14:00 – 15:30
**ANLN-03: Radar and RFID Localization**

**Chair:** Alberto Rabbachin (Massachusetts Institute of Technology, USA)

Sensor Radars with Subset Diversity
Stefania Bartoletti (ENDIF University of Ferrara, Italy)
Andrea Giorgetti (University of Bologna, Italy)
Andrea Conti (ENDIF University of Ferrara, WiLAB University of Bologna, Italy)

RFID and Radar Localization: A Position Error Bound Analysis
Nicolo Decarl, Davide Dardari (University of Bologna, Italy)

Accurate Wireless Tracking for Underground Mining
Mark Hedley, Ian Gipps (CSIRO, Australia)

Bayesian Tracking in UWB Radar Sensor Networks
Bita Sobhani (University of Bologna, CNIT, Italy)
Enrico Paolini (DEI, University of Bologna, Italy)
Andrea Giorgetti, Matteo Mazzotti, Marco Chiani (University of Bologna, Italy)

Semi-passive UHF-UWB RFID: Architecture and Localization Performance
Enrico Savioli, Marco Bottazzi, Federico Natali (Datalogic S. p. a., Italy)
Nicolo Decarl (University of Bologna, Italy)
Francesco Guidi (ENSTA – ParisTech, University of Bologna, France)
Niels Hadaschik (Fraunhofer Institute for Integrated Circuits, Germany)
Raffaele D’Errico, Laurent Ouvry (CEA-Leti Minatec, France)

16:00 – 17:30
**ANLN-04: Radio Channel Modeling for Localization**

**Chair:** Bernard Henri Fleury (Aalborg University, Denmark)

Design and Implementation of an Inertial Navigation System for Pedestrians Based on a Low-Cost MEMS IMU
Francesco Montorsi (University of Modena and Reggio Emilia, Italy)
Fabrizio Pancaldi (University of Modena and Reggio Emilia, CNIT, Italy)
Giorgetto Vitetta (University of Modena and Reggio Emilia, Italy)

GNSS Signal Acquisition in Harsh Urban Environments
Matthias Wildemarsch (University of Twente, Institute for Infocomm Research, Netherlands)
Cornelis H. Slump (University of Twente, Netherlands)
Tony Q. S. Quek (Singapore University of Technology and Design, Institute for Infocomm Research, Singapore)
Alberto Rabbachin (Massachusetts Institute of Technology, USA)

On the Use of Ray Tracing for Performance Prediction of UWB Indoor Localization Systems
Paul Meissner (Graz University of Technology, Austria)
Mingming Gan (FTW Telecommunications Research Center Vienna, Austria)
Francesco Mani (TELECOM ParisTech, France)
Erik Leitinger, Markus Froehle (Graz University of Technology, Austria)
Claude Destges (Université Catholique de Louvain, Belgium)
Thomas Zemen (FTW Telecommunications Research Center Vienna, Austria)
Klaus Witrisal (Graz University of Technology, Austria)

Wireless Indoor Positioning Relying on Observations of Received Power and Mean Delay
Stjepan Begusic (University of Zagreb, Croatia)
Daniel Urup (Aalborg University, Denmark)
Jasmina Kolonic (University of Zagreb, Croatia)
Henrik Pedersen (Aalborg University, Denmark)
Wei Wang, Ronald Raulefs (German Aerospace Center, Germany)
Morten Lomholt Jakobsen, Gerhard Steinboeck, Troels Pedersen (Aalborg University, Denmark)

Direction of Arrival Estimation with Arbitrary Virtual Antenna Arrays using Low Cost Inertial Measurement Unit
Muhammad Atif Yaqob, Fredrik Tufvesson, Anders Mannesson, Bo Bernhardsson (Lund University, Sweden)

PyLayers: An Open Source Dynamic Simulator for Indoor Propagation and Localization
Nicolas Amiot, Mohamed Laaraiedh, Bernard Uguen (University of Rennes 1, France)
W8: Second Workshop on Telecommunication Standards: From Research to Standards

08:30 – 09:30
R2S-Keynote: Academic Engagement in Standards: Getting it Right
Chair: Tarik Taleb (NEC Europe Ltd., Germany)

09:30 – 10:30
R2S-01: 3GPP / LTE
Chair: Alex Reznik (InterDigital, USA)

Disaster Response in 3GPP Mobile Networks
Andreas Kunz (NEC Europe Ltd., Germany)
Itsuma Tanaka (NTT DOCOMO, Japan)
Syed S. Husain (Telecom Consultant-Industry Standards, NTT DOCOMO, USA)

Seamless Authentication and Mobility across Heterogeneous Networks using Federated Identity Systems
Yousif Targali, Vinod Choyi, Yogendra Shah (InterDigital Communications Corp., USA)

IP Aware Radio Scheduling Introducing IP QoS Management in LTE Networks
Isabelle Hamchouki (Orange Labs, France)
Sebastien Jobert (France Telecom Orange, France)
Sarah Boufelja (Telecom Bretagne, France)

Improving 3GPP-LTE Uplink Control Signaling by Repetition across Frequency Bands
Tumula V. K. Chaitanya, Erik G. Larsson (Linköping University, Sweden)

11:00 – 13:00
R2S-02: Panel Discussion: Bridging the Standardization Gap: Do We See Light at the End of the Tunnel?
Chair: Asok Chatterjee (Ericsson, USA)

14:00 – 15:30
R2S-03: Unlicensed and White Spaces
Chair: Andreas Kunz (NEC Europe Ltd., Germany)

Shared Use of Radio Spectrum in the EU: From Research Projects to Standards
Paulo Marques, Jonathan Rodrigue (Instituto de Telecomunicações, Portugal)
Simon Delaere (IBBT-SMIT, Vrije Universiteit Brussel, Belgium)
Michael Gundlach (Nokia Siemens Networks, Germany)
Dionysia Triantafyllopoulou, Klaus Moessner (University of Surrey, UK)
Philippe Delahaye (NEC Technologies UK, France)
Benoît Lecroart (NEC Technologies, France)
Dominique Noguet (CEA LETI, France)

IEEE802.11af with Partial Subcarrier System for Effective Use of TV White Spaces
Keiichi Mizutani, Zhou Lan, Ryuei Funada, Hiroshi Harada (National Institute of Information & Communications Technology, Japan)

Autonomous Spectrum Sharing in Heterogeneous White Space Networks
Maziar Nekovee (BTexact Technologies, British Telecom, UK)

How Many Smart Meters can be Deployed in a GSM Cell?
German Corrales Madueño (Aalborg University, Denmark)
Čedomir Stefanović (Aalborg University, University of Novi Sad, Denmark)
Petar Popovski (Aalborg University, Denmark)

Advances in IEEE 802.11ah Standardization for Machine-Type Communications in Sub-1GHz WLAN
Yuan Zhou, Haiguang Wang, Shoukang Zheng, Zander Zhongding Lei (Institute for Infocomm Research, Singapore)

Future Evolution of CSMA Protocols for the IEEE 802.11 Standard
Luis Sanabria-Russo, Azadeh Faridi, Boris Bellalta, Jaume Barcelo, Miquel Oliver (Universitat Pompeu Fabra, Spain)

16:00 – 17:30
R2S-04: IP Networks
Chair: Tuncer Baykas (Tohoku University, Japan)

All-path Bridging: Path Exploration as an Efficient Alternative to Path Computation in Bridging Standards
Guillermo Ibáñez (Universidad de Alcalá, Escuela Politécnica Superior, Spain)
Elisa Rojas (Universidad de Alcalá Madrid, Spain)

Exposing Energy-Aware Capabilities in Next Generation Network Devices
Raffaele Bolla (University of Genoa, Italy)
Roberto Bruschi (CNIT, Italy)
Franco R. Davoli (University of Genoa, CNIT, Italy)
Pasquale Donadio (Alcatel-Lucent Italia, Italy)
Leonardo Fialho (University of Texas, Austin, Texas Advanced Computing Center, USA)
Martin Collier (Dublin City University, Ireland)
Alfio Lombardo, Diego Reforgiato, Vincenzo Riccobene (University of Catania, Italy)
Tivadar Szemethy (Netvisor, Hungary)

Enhancing Throughput Efficiency via Multiplexing and Header Compression over LISP Tunnels
Jose Saldana (University of Zaragoza, Spain)
Luigi Iannone (Telecom ParisTech, France)
Diego Lopez (Telefonica I+D, Spain)
Julián Fernández-Navajas, José Ruiz-Mas (University of Zaragoza, Spain)

Distributed Mobility Management: Approaches and Analysis
Hassan Ali-Ahmad (Orange Labs, Telecom Bretagne, France)
Meryem Ouzzif, Philippe Bertin (Orange Labs, France)
Xavier Lagrange (Institut Mines Telecom, Telecom Bretagne, IRISA, France)

Improving Performance of Rate Control Mechanism for UDP Traffic over Heterogeneous Networks
Hrishikesh Sharma, Aditya Sood, P. Balamuralidhar (Tata Consultancy Services, India)

Tunnel Concentrator Placement for Traffic Optimization in IPv4-IPv6 Coexisting Networks
Peng Wu, Yong Cui, Jianping Wu (Tsinghua University, China)
Minming Li (City University of Hong Kong, Hong Kong)
W9: Third International Workshop on Smart Communication Protocols and Algorithms (SCPA)

09:00 – 10:30
SCPA-01
Chair: Jaime Lloret
(Universidad Politécnica de Valencia, Spain)

Implementing and Evaluating Improved MAC Efficiency through Payload Extension in 802.11n Networks
Eduardo Rocha, Rui L. Aguiao, Daniel Corujo
(IT, Universidad de Aveiro, Portugal)

Localization System for Wireless Networks
Hugo Fonseca, António Nogueira
(IT, University of Aveiro, Portugal)

Pilot Protection Schemes over a Multi-service WiMAX Network in the Smart Grid
Reduan H. Khan, Jason Brown, Jamil Y. Khan
(University of Newcastle, Australia)

A Modified Joint Uplink-Downlink Opportunistic Scheduling for Quality of Service Guarantees
Nizar Zorba, Elias Yaacoub
(Qatar Mobility Innovations Center, Qatar)

Taking Advantage of Interference by Rate Control Algorithms in Wireless Networks
Ahmad El-Hajj, Zahir Dawy
(American University of Beirut, Lebanon)

Cooperative Multicast Exploiting Physical Layer Network Coding: A Performance Analysis
Vasileios Miliotis, Luis Alonso
(Universidad Politécnica de Catalunya, Spain)

11:00 – 12:30
SCPA-02
Chair: Sudip Misra
(Indian Institute of Technology, Kharagpur, India)

Detection and protection of the attacks to the sheep and goats using an Intelligent Wireless Sensor Network
Ferran Llario, Sandra Sendra, Lorena Parra, Jaime Lloret
(Universidad Politécnica de Valencia, Spain)

Using Multiscale Traffic Analysis to Detect WPS Attacks
Ivo Petz, Eduardo Rocha
(IT, University of Aveiro, Portugal)

Mechanism for Context-Aware Substitution of Smart-M3 Agents Based on Dataflow Network Model
Andrey Vasilyev, Ilya Paramonov
(Yaroslavl State University, Russia)

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Room: Panorama II, 1st Floor, InterContinental

12:30 – 14:00
SCPA-03
Chair: António Nogueira
(University of Aveiro, IT, Portugal)

Secure and Efficient Context Data Collection using Content-Centric Networking
Sin-seok Seo (POSTECH, Korea)

An Adaptive QoS Scheme for WSN-based Smart Grid Monitoring
Irfan S. Al-Anbagi, Melike Erol-Kantarci, Hussein T. Mouftah (University of Ottawa, Canada)

14:00 – 15:30
SCPA-04
Chair: Cristos Verikoukis
(Telecommunications Technological Centre of Catalonia, Spain)

Improved Linearized Combinatorial Model (ILCM) for Optimal Frame Size Selection in ALOHA-based RFID Systems
Petar Solić (University of Split, FESB, Croatia)

A Spanning Tree Protocol over Mobile Wireless Ad Hoc Networks
Tóme Gomes, Lucas Guadalupe
(IT, Universidade de Aveiro, Portugal)

Scalable Resource and Admission Management in Class-Based Networks
Evariste Logota, Carlos Campos, Susana Sargento
(IT, Universidade de Aveiro, Portugal)

Stochastic Modeling of Internal Wave Induced Acoustic Signal Fluctuation and Performance Evaluation of Shallow UWANs
Amit Mandal (Centre for Oceans, Rivers, Atmosphere and Land Sciences, India)

A Novel Multi-Platform Service-based Approach for Learning Environments
Augusto Jose Venancio Neto (Universidade Federal do Rio Grande do Norte, Centro de Ciências Exatas da Terra, Brazil)

Sport-Scissors-Paper Cycle of Cooperation Strategies in Opportunistic Mobile Networks
Sujata Pal, Sudip Misra, Barun Kumar Saha
(Indian Institute of Technology, Kharagpur, India)

Dynamic Coalition Formation in a Smart Grid: A Game Theoretic Approach
Ayan Mondal, Sudip Misra
(Indian Institute of Technology, Kharagpur, India)

09:00 – 09:10 Welcome

Chair: Paolo Monti
(Royal Institute of Technology, Sweden)

Green and Fast DSL via Joint Processing of Multiple Lines and Time-frequency Packed Modulation
Stefano Buzzi, Chiara Risi
(University of Cassino and Lazio Meridionale, Italy)
Giulio Colavolpe (University of Parma, Italy)

A Comparison of Sleep Mode Mechanisms for PIP and TDM-PONs
Jie Li, K. L. Lee (University of Melbourne, Australia)
Nga Dinh (Bell Labs Seoul, Korea)
Chien Aun Chan (University of Melbourne, Australia)
Peter Vetter (Alcatel-Lucent, USA)

Framework for Evaluating Energy Efficiency of Access Networks
Slavisa Alekic, Gerald Franzl (Vienna University of Technology, Austria)
Thomas Bogner, Oskar Mair (Austrian Energy Agency, Austria)

10:30 – 11:00 Poster Session & Coffee Break

09:10 – 10:10 GBA-01: Energy Efficient Wired Network Solutions

Chair: Paolo Monti
(Royal Institute of Technology, Sweden)

Energy-aware Network Planning for Non-contiguous Frequency Bands Based Cellular Networks
Shengsen Wang, Feng Chunyan, Cai Li Guo, Guoxiang Wang
(University of Posts and Telecommunications, China)

A Traffic Prediction Based Sleeping Mechanism with Low Complexity in Femtocell Networks
Guoxiang Wang, Cai Li Guo, Shengsen Wang, Feng Chunyan
(University of Posts and Telecommunications, China)

Measurement Study of Adjacent Channel Interference in Mobile WLANs
Ayaka Moruchi (Ochanomizu University, Japan)
Tutomu Murase (NEC Corporation, Japan)
Masato Oguchi (Ochanomizu University, Japan)
Akash Baid, Shweta Sagari, Ivan Seskar, Dipankar Raychaudhuri
(Rutgers University, USA)

Energy-Efficient Resource Optimization in Spectrum Sharing Two-Tier Femtocell Networks
Zhicai Zhang
(University of Posts and Telecommunications, China)

Optimized packet size for energy efficient cooperative wireless ad-hoc networks
Salah Abdulhadi, Muhammad Naeem, Muhammad Jaseemuddin, Alagan Anpalagan (Ryerson University, Canada)

10:10 – 10:30 GBA-P1: Pitch to the Audience the Idea Presented in Your Poster

Chair: Paolo Monti (Royal Institute of Technology, Sweden)

Energy-aware Network Planning for Non-contiguous Frequency Bands Based Cellular Networks
Shengsen Wang, Feng Chunyan, Cai Li Guo, Guoxiang Wang
(University of Posts and Telecommunications, China)

A Traffic Prediction Based Sleeping Mechanism with Low Complexity in Femtocell Networks
Guoxiang Wang, Cai Li Guo, Shengsen Wang, Feng Chunyan
(University of Posts and Telecommunications, China)

Measurement Study of Adjacent Channel Interference in Mobile WLANs
Ayaka Moruchi (Ochanomizu University, Japan)
Tutomu Murase (NEC Corporation, Japan)
Masato Oguchi (Ochanomizu University, Japan)
Akash Baid, Shweta Sagari, Ivan Seskar, Dipankar Raychaudhuri
(Rutgers University, USA)

Energy-Efficient Resource Optimization in Spectrum Sharing Two-Tier Femtocell Networks
Zhicai Zhang
(University of Posts and Telecommunications, China)

Optimized packet size for energy efficient cooperative wireless ad-hoc networks
Salah Abdulhadi, Muhammad Naeem, Muhammad Jaseemuddin, Alagan Anpalagan (Ryerson University, Canada)

11:00 – 12:20 GBA-02: Energy Efficient Wireless Network Solutions

Chair: Aylin Yener (Pennsylvania State University, USA)

Optimum Transmission Policies for Energy Harvesting Two-way Relay Channels
Kaya Tutuncuoglu, Burak Varan, Aylin Yener
(Pennsylvania State University, USA)

Transmission Strategies for Joint Wireless Information and Energy Transfer in a Two-User MIMO Interference Channel
Jaehyun Park
(Seoul National University, Korea)
Bruno Clerckx (Imperial College London, UK)

Towards Zero Grid Electricity Networking: Powering BSs with Renewable Energy Sources
Marco G. Ajmone Marsan
(Politecnico di Torino, IMDEA Networks, Italy)
Giuseppina Bucalo, Alfonso di Caro, Michela Meo, Yi Zhang
(Politecnico di Torino, Italy)

Practical Energy-saving in 3G Femtocells
Ivaylo J. Haratcherev, Alberto Conte
(Alcatel-Lucent, Bell Labs France, France)
### W11: First International Workshop on Mobile Cloud Networking and Services (MCN)

**09:00 – 10:30**
**MCN-01: Mobile Cloud Services and Applications**
Chair: Georgios Karagiannis (University of Twente, Netherlands)

A Resource Allocation Controller for Cloud-based Adaptive Video Streaming
Luca De Cicco, Saverio Mascolo, Dario Calamita (Politecnico di Bari, Italy)

Tradeoff between Performance Improvement and Energy Saving in Mobile Cloud Offloading Systems
Hua-ming Wu, Qiushi Wang, Katinka Wolter (Free University of Berlin, Germany)

A First Look at Quality of Experience in Personal Cloud Storage Services
Pedro Casas, Hans Ronald Fischer, Stefan Suette, Raimund Schatz (Telecommunications Research Center Vienna, Austria)

SLA-Driven Predictive Orchestration for Distributed Cloud-Based Mobile Services
Alexandru-Florian Antonescu (University Bern, SAP, Switzerland)
Andre Gomes (University of Bern, Switzerland)
Philip Robinson (SAP UK, UK)
Torsten Ingo Braun (University of Bern, Switzerland)

Moving Applications from the Host to the Network: Experiences, Challenges and Findings
Ivano Cerrato, Marco Pramotton, Fulvio Risso (Politecnico di Torino, Italy)

**11:00 – 11:54**
**MCN-02: Mobile Cloud Networking**
Chair: Torsten Ingo Braun (University of Bern, Switzerland)

Cloud Computing Models and their Application in LTE based Cellular Systems
Arjan Staring, Georgios Karagiannis (University of Twente, Netherlands)

Base Station Virtualization for OFDM Air Interfaces with Strict Isolation
Wolfgang Kiess, Petra Weltkemper (DOCOMO Communications Laboratories Europe GmbH, Germany)
Ashiq Khan (NTT DOCOMO, Inc., DOCOMO Communications Laboratories Europe GmbH, Germany)

A Secure WLAN Access Sharing System Using SNS
Jun Hyuk Choi, Yeon-Kyung Woo, Seung-Man Chun, Jong Tae Park (Kyungpook National University, Korea)

**11:54 – 12:34**
**MCN-03: Panel on Mobile Cloud Networking and Services**
Chair: Torsten Ingo Braun (University of Bern, Switzerland)

Thursday, 13 June 2013 • 09:00 – 12:34
Room: Panorama IV, 1st Floor, InterContinental

### W12: Second Workshop on Clouds, Networks and Data Centers (CNDC):
A Holistic Approach towards an Integrated Service Provider Infrastructure

**09:00 – 09:05**
Welcome
Josef Urban (NSN)

**09:05 – 09:30**
Keynote Session
Boas Betzler (IBM)

**09:30 – 10:30**
**CNDC-01: SDN**
Chair: Holger Macho (IBM, Germany)

Software-Defined Infrastructure and the Future Central Office
Joon-Myung Kang, Hadi Bannazadeh, Hesam Rahimi, Thomas Lin, Mohammad Faraji, Alberto Leon-Garcia (University of Toronto, Canada)

FSDM: Floodless Service Discovery Model based on Software-Defined Network
Wang Jian, Zhao Weichen, Yang Shouren, Liu Jiang, Huang Tao (Beijing University of Post and Telecommunication, China)
Liu Yunjie (China Unicom, China)

Dynamic, Software-defined Service Provider Network Infrastructure
Casimer DeCusati, Michael Haley (IBM, USA)
Todd Bundy (ADVA Optical Networking, USA)
Robert Cannistra, Ryan Wallner, Jason Parrage, Ryan Flaherty (Marist College, USA)

**11:00 – 12:20**
**CNDC-02: Virtualization / Clouds**
Chair: Glen Hunt (Current Analysis, USA)

Shared Protection in Virtual Networks
Isil B. Bara (Technical University of Munich, Nokia Siemens Networks, Germany)
Klaus Hoffmann, Marco Hoffmann (Nokia Siemens Networks GmbH & Co. KG, Germany)
Dominic A. Schupe (Nokia Siemens Networks, NSN Research, Germany)
Georg Carle (Technische Universität München, Germany)

A Novel Method of Virtual Network Embedding Based on Topology Convergence-Degree
Hongyan Cui, Shaohua Tang (Beijing University of Posts and Telecommunications, China)
Xu Huang (University of Canberra, Australia)
Jian-ya Chen, Yunjie Liu (Beijing University of Posts and Telecommunications, China)

NSN Mobile Core Network Elements in Cloud
Gergely Csatári, Timea László (Nokia Siemens Networks, Hungary)

Elasticity as a Service for Federated Cloud Testbeds
Giuseppe Carella (Technische Universität Berlin, Germany)
Florian Schreiner, Konrad Campowski (Fraunhofer FOKUS, Germany)
Thomas Magedanz (TU Berlin, Fraunhofer FOKUS, Germany)

**12:20 – 12:30**
Summary
Josef Urban (NSN)
W13: Workshop on Beyond Social Networks (BSN): Collective Awareness

09:00 – 10:30
BSN-CA-01
Chair: Neeli Rashmi Prasad (Center for TeleInfrastructure, Denmark)

A Dynamic Approach to Detecting Suspicious Profiles on Social Platforms
Charles Perez, Marc Lemercier, Babiga Birregah
(University of Technology of Troyes, France)

Contact Probability based Routing Protocol for Mobile Social Networks
Bo Fan, Supeng Leng
(University of Electronic Science and Technology, China)

An Architecture for Collecting Longitudinal Social Data
Jeremy Blackburn, Adriana I. Iamnitchi (University of South Florida, USA)

Sensors Talk and Humans Sense towards a Reciprocal Collective Awareness Smart City Framework
Athena Vakali, Lefteris Angelis, Maria Giatsoglou
(Aristotle University of Thessaloniki, Greece)

Collective Awareness and Action in Urban Superorganisms
Nicola Bicocchi, Damiano Fontana, Marco Mamei, Franco Zambonelli
(University of Modena and Reggio Emilia, Italy)

Measuring Net Neutrality in Mobile Internet: Towards a Crowdsensing-based Citizen Observatory
Daniele Miorandi, Iacopo Carreras (Create-Net, Italy)
Enrico Gregori (CNR-IIT, Italy)
Ian Graham (University of Edinburgh, UK)
James Stewart (University of Edinburgh, UK)

11:00 – 12:30
BSN-CA-02
Chair: Fabrizio Sestini (European Commission DG CONNECT, Belgium)

Out of the Wild: On Generating Default Policies in Social Ecosystems
Imrul Kayes, Adriana I. Iamnitchi (University of South Florida, USA)

Collective Spatial Awareness
Gualtiero Colombo, Stuart Allen, Martin J. Chorley, Vlad Tanasescu, Roger Whitaker, Chris Jones (Cardiff University, UK)

IPR Management Models for Cultural Heritage on ECLAP Best Practice Network
Paolo Nesi, Pierfrancesco Bellini (University of Florence, Italy)
Michela Paolucci (Unifi, Italy)

CROWD Democratizing Expertise
Violeta Damjanovic (Salzburg Research, Austria)
John Breslin (DERI, Galway, Ireland)
Maciej Dabrowski (National University of Ireland Galway, Ireland)
Owen Sacco (DERI, Galway, Ireland)
Rolando Trujillo-Rasua (Rovira i Virgili University, Spain)
Sissy Müller (Green Crowding, Belgium)
Manuela Tiotorencu (Government to You, Belgium)
Larry Moffett (European Young Innovators Forum, Belgium)

Speeding up the Transition to Collective Awareness
Luce Jacovella, Pietro Lio (University of Cambridge, UK)
**IIMC-01: 3D Video Transmission**

**Chair:** Tasos Dagiuklas  
(Hellenic Open University, University of Patras, Greece)

**Network Coding For Error Resilient Transmission of Stereoscopic 3D Video**  
Chamitha de Alwis, Varuna de Silva, H. Kodikara Arachchi, Anil Fernando, Ahmet Kondoz  
(University of Malta, Malta)

**Low Complexity Disparity Estimation for Immersive 3D Video Transmission**  
Brian Walter Micallef, Carl J. Debono, Reuben Farrugia  
(University of Malta, Malta)

**Bandwidth Scalability and Efficient 2D and 3D Video Transmission over LTE Networks**  
Moustafa Nasralla, Ognen Ognenoski, Maria G. Martini  
(Kingston University, UK)

**Objective Quality Prediction Model for Lost Frames in 3D Video over TS**  
Bruno Feitor, Pedro A. Amado Assuncao  
(Polytechnic Institute of Leiria, Portugal)

**IIMC-P1: Poster session**

**Chair:** Ahmet Kondoz  
(University of Surrey, UK)

**Publish/Subscribe Gateway for Voice Communication**  
Sarantorn Bisalbutra  
(Ericsson Research, NomadicLab, Finland)

**On the Performance Response of Delay-bounded Energy-aware Bandwidth Allocation Scheme in Wireless Networks**  
Christos Dimitriou  
(Department of Computer Science, University of Nicosia, Cyprus)

**Enhancing QoS/QoE in Multimedia Networks**  
Catalina Felicia Mancas  
(University of Craiova, Romania)

**Performance Evaluation in ns-3 of a Video Delivery Framework for Next Generation Cellular Networks**  
Daniele Munaretto, Marco Zanforlin, Michele Zorzi  
(University of Padova, Italy)

**Networked Music Performance over Information-Centric Networks**  
Charilaos Stais, Yannis Thomas, George Xylomenos, Christos Tsilopoulos  
(Athens University of Economics and Business, Greece)

**QoE-aware Traffic Management for Mobile Video Delivery**  
Bo Fu, Gerald Kunzmann  
(DOCOMO Communications Laboratories Europe, Germany)

**Network Video Quality Assessment Based on MDI**  
Zhiming Shi, Hui Liu  
(University of Posts and Telecommunications, China)

**A Study on the Perceived Quality of 3D Video subject to Packet Losses**  
Chaminda T. E. R. Hewage, Maria G. Martini  
(Kingston University, UK)

**Objective Measurement of Transmission Losses and Compression Artefacts in Stereoscopic 3D Video**  
Ilia Politis  
(University of Patras, Greece)

**A Failover Mechanism for Peer-to-Peer Streaming over Multiple Multicast Trees**  
Konstantinos Birkos, Christos Papageorgiou  
(University of Patras, Greece)

**Adaptive Streaming over Content Centric Networks in Mobile Networks using Multiple Links**  
Stefan Lederer, Christopher Müller, Benjamin Rainer, Christian Timmerer  
(Alpen-Adria-Universität Klagenfurt, Austria)

**A Study on Quality of Experience for Adaptive Streaming Service**  
Yitong Liu, Yun Shen  
(University of Posts and Telecommunications, China)

**A Media Aware Platform for Real-time Stereoscopic Video Streaming Adaptation**  
Athanasios Kordelas, Ilias Politis, Asimakis Lykourgiotis  
(University of Patras, Greece)

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**IIMC-02: Multimedia Streaming**

**Chair:** Luigi Atzori  
(University of Cagliari, Italy)

**A Failover Mechanism for Peer-to-Peer Streaming over Multiple Multicast Trees**  
Konstantinos Birkos, Christos Papageorgiou  
(University of Patras, Greece)

**Adaptive Streaming over Content Centric Networks in Mobile Networks using Multiple Links**  
Stefan Lederer, Christopher Müller, Benjamin Rainer, Christian Timmerer  
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**A Study on Quality of Experience for Adaptive Streaming Service**  
Yitong Liu, Yun Shen  
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**Thursday, 13 June 2013 • 09:00 – 13:00**  
Room: Lanchid A&B, Mezzanine Level, Marriott
W15: Workshop on Cloud Convergence (WCC):
Challenges for Future Infrastructures and Services

14:00 – 14:15
WCC-01: Welcome and Keynote Session
Chair: Pier Luca Montessoro (University of Udine, Italy)

14:15 – 17:30
WCC-02: Cloud Convergence: Challenges for Future Infrastructures and Services
Chairs: Riccardo Bernardini and Stefan Wieser
(University of Udine, Italy)

Efficient Routing for PPETP in Multimedia Cloud Services
Stefan Wieser, Pier Luca Montessoro (University of Udine, Italy)
Laszlo Böszörményi (Klagenfurt University, Austria)

A Hypervisor for Infrastructure-enabled Sensing Clouds
Salvatore Distefano (Politecnico di Milano, Italy)
Antonio Puliafito (University of Messina, Italy)
Alessio Vecchio (University of Pisa, Italy)
Giovanni Merlino (University of Messina, Italy)

Offloading Routing Complexity to the Cloud(s)
Hasan T Karaoglu (Cisco Systems, Inc., USA)
Murat Yuksel (University of Nevada, Reno, USA)

UCMS: User-side Cloud Management System
Antonella Di Stefano, Giovanni Morana, Daniele Zito
(University of Catania, Italy)

Copyright Protection in Peer-to-Peer Networks for Video-on-Demand Streaming
Riccardo Bernardini, Roberto Rinaldo (University of Udine, Italy)

Experimenting Content-Centric Networks in the Future Internet Testbed Environment
Pedro Henrique Guimarães, Lyno Ferraz, João Vitor Torres,
Diogo Mattos, Andrés Murillo, Martin E. Andreoni Lopez,
Igor Alvarenga, Otto Carlos M. B. Duarte
(Universidade Federal do Rio de Janeiro, Brazil)

Resource Management Policies for Cloud-based Interactive 3D Applications
Guido Marchetto, Riccardo Sisto, Luca Stanziano
(Politecnico di Torino, Italy)

W16: First Workshop on Traffic Identification and Classification for Advanced Network Services and Scenarios (TRICANS)

14:00 – 14:40
TRICANS-01: Welcome and Keynote Session
Chair: Antonio Pescapé (University of Napoli Federico II, Italy)

14:40 – 15:30
TRICANS-02: Traffic Classification Techniques
Chair: Géza Szabó (Ericsson Research, Hungary)

Training Traffic Classifiers with Arbitrary Packet Sets
Runxin Wang, Lei Shi, Brendan Jennings
(Waterford Institute of Technology, Ireland)

Network Traffic Classification Using AdaBoost Dynamic
Ericon de Souza, Stan Matwin (University of Ottawa, Canada)
Stenio Fernandes (Federal University of Pernambuco, Brazil)

Exploiting DNS Traffic to Rank Internet Domains
Luca Deri (NTOP, IIT, CNR, Italy)
Simone Mainardi (University of Pisa, Italian National Research Council, Italy)
Maurizio Martinelli, Enrico Gregori (CNR-IIT, Italy)

16:00 – 17:30
TRICANS-03: Applications of Traffic Classifiers
Chair: Stenio Fernandes (Federal University of Pernambuco, Brazil)

PCA-Based Robust Anomaly Detection Using Periodic Traffic Behavior
Takanori Kudo, Tatsuya Morita, Takahiro Matsuda, Tetsuya Takine
(Osaka University, Japan)

Empowering Software Defined Network Controller with Packet-Level Information
Sajad Shirali-Shahreza, Yashar Ganjali (University of Toronto, Canada)

How to Validate Traffic Generators?
Sándor Molnár, Péter Megyesi
(Budapest University of Technology and Economics, Hungary)
Géza Szabó (Ericsson Research, Hungary)

Investigating the trade-off between overhead and delay for full packet traffic privacy
Alfonso Iacovazzi, Andrea Baiocchi (University of Roma Sapienza, Italy)

Online IRC Botnet Detection using a SOINN Classifier
Francesco Cardone (Ancitel, Italy)
Claudio Mazzariello (Federico II University of Napoli, Ansaldo-STS, USA)
Carlo Sansone (Università’ degli Studi di Napoli Federico II, Italy)
Thursday, 13 June 2013 • 14:00 – 17:30
Room: Lanchid A&B, Mezzanine Level, Marriott

W17: Workshop on Emerging Vehicular Networks (EVN): V2V/V2I and Railroad Communications

14:00 – 15:12
EVN-01: Algorithms and Models
Chair: David G. Michelson
(University of British Columbia, Canada)

Clustered in Urban environments: Virtual forces applied to vehicles
Leandros A. Maglaras, Dimitrios Katsaros
(University of Thessaly, Greece)

A Trajectory-Based Approach to Improve Delivery in Drive-Thru Internet Scenarios
Vitor Borges Coutinho da Silva, Miguel Elias Mitre Campista, Luis Henrique M. K. Costa
(Federal University of Rio de Janeiro, Brazil)

Joint MAC Network Layer Broadcast Protocol for Vehicular Ad Hoc Networks
Celimeuge Wu, Satoshi Ohzahata, Toshihiko Kato
(University of Electro-Communications, Japan)

Limited Feedback Precoding Performance Analysis for Train-to-Wayside Communications in Subway Tunnels
Jean-Marc Kwdjane (Univ Lille Nord de France, IFSTTAR, LEOST, France)
Baptiste Vrigneau (University of Poitiers, France)

15:27 – 16:21
EVN-02: Measurements and Trials
Chair: David G. Michelson
(University of British Columbia, Canada)

Video Transmission over IEEE 802.11p: Real-world Measurements
Alexey Vinel, Evgeny Belyaev
(Tampere University of Technology, Finland)
Oliver Lamotte (HSR Rapperswil, Switzerland)
Moncef Gabouj, Yevgeni Koucheryavy, Karen Egiazarian (Tampere University of Technology, Finland)

Implementation and Test of a DSRC Prototype on OpenAirInterface SDR Platform
Philippe Agostini (Thales Communications and Security, France)
Raymond Knopp, Jérôme Härri (EURECOM, France)
Nathalie Haziza
(Thales Communications & Security, France)

Vehicle-to-Vehicle and Vehicle-to-Roadside Mult-Hop Communications for Vehicular Sensor Networks: Simulations and Field Trial
Alessandro Bazzi (WiLab, IEIIT-B0/CNR, University of Bologna, Italy)

16:36 – 17:30
EVN-03: Applications
Chair: David G. Michelson
(University of British Columbia, Canada)

Effective Implementation of Location Services for VANETs in Hybrid Network Infrastructures
Konstantinos Katsaros, Mehrdad Dianati
(University of Surrey, UK)
Long Le (NEC Laboratories Europe, Germany)

Modeling the Impact of VANET-Enabled Traffic Lights Control on the Response Time of Emergency Vehicles in Realistic Large-Scale Urban Area
Hamed Noori
(Tampere University of Technology, Finland)

Design and Analysis of a Transport-Level Solution for Content-Centric VANETs
Marica Amadeo, Claudia Campolo, Antonella Molinaro (University Mediterranea of Reggio Calabria, Italy)

Thursday, 13 June 2013 • 14:00 – 17:30
Room: Margit A, Mezzanine Level, Marriott

W18: Workshop on Networking across Disciplines: Communication Networks, Complex Systems and Statistical Physics (NETSTAT)

14:00 – 14:30
NETSTAT-01: Keynote Session I
Marc Mezard
Chair: David Saad
(Aston University, UK)

14:30 – 15:30
NETSTAT-02: Statistical Physics Methods in Network Routing, Scheduling and Resource Allocation
Chair: David Saad
(Aston University, UK)

Message-Passing Algorithms for Optimal Utilization of Cognitive Radio Networks
Hamed Mahmoudi Gheydari
(Aston University, UK)

Georgios Rodolakis (ITT, CERTH, Centre for Research and Technology, Hellas, Greece)
Leonidas Georgiadis
(Aristotle University of Thessaloniki, Greece)
David Saad (Aston University, UK)

Entropy-Driven Optimization Dynamics for Gaussian Vector Multiple Access Channels
Panayotis Merikopoulou (French National Center for Scientific Research, Laboratoire d’Informatique de Grenoble, France)
Aris Moustakas (University of Athens, Greece)

A Belief-Propagation Approach for Multicast Scheduling in Input-Queued Switches
Paolo Giaccone (Politecnico di Torino, Italy)
Marco Pretti
(Consiglio Nazionale delle Ricerche, Italy)

Non-adaptive Pooling Strategies for Detection of Rare Faulty Items
Pan Zhang, Florent Krzakala (ESPCI, France)
Marc Mezard
(Universite de Paris Sud Orsay, France)
Lenka Zdeborova (Institut de Physique Theorique, CEA Saclay, CNRS, France)

16:00 – 16:30
NETSTAT-03: Keynote Session II
John S. Baras
Chair: Iordanis Koutsopoulos
(Athens University of Economics and Business, CERTH, Greece)

16:30 – 17:30
NETSTAT-04: Fluctuations, Rare Events and Optimization in Wired and Wireless Communication
Chair: Iordanis Koutsopoulos
(Athens University of Economics and Business, CERTH, Greece)

Stochastic Optimization of Service Provision with Selfish Users
Fabrizio Altarelli, Alfredo Braunstein, Carla-Fabiana Chiasserini, Luca Dall’Asta, Paolo Giaccone, Emilio Leonardi, Riccardo Zecchina (Politecnico di Torino, Italy)

Efficient Algorithm for Routing Optimization via Statistical Mechanics
Chi Ho Yeung
(Aston University, UK)

Fluctuation-driven Traffic Congestion in a Scale-free Model of the Internet
Igor Yurkevich, Alexander Stepanenko
(Aston University, UK)
Costas Constantiou, Igor Lerner
(Birmingham University, UK)

Correcting Beliefs in the Mean-field and Bethe Approximations using Linear response
Jack Raymond, Federico Ricci-Tersenghi
(Università di Roma, La Sapienza, Italy)
W19: Third International Workshop on Molecular and Nanoscale Communication (MONACOM)

14:00 – 15:12
MONACOM-01: Channel Analysis
Chair: Falko Dressler (University of Innsbruck, Austria)

Molecular Transport in Microfluidic Channels for Flow-induced Molecular Communication
A. Ozan Bicen (Koc University, Turkey)
Ian F. Akyildiz (Georgia Institute of Technology, USA)
Synaptic Interference Channel
Derya Malak, Ozgur B. Akan (Koc University, Turkey)
A Tunnel-based Approach for Signal Shaping in Molecular Communication
Mehmet Sukru Kuran, Huseyin Birkan Yilmaz, Tuna Tugcu (Bogazici University, Turkey)
Modeling the Reception Process in Diffusion-based Molecular Communication Channels
Hoda Shahin, Geoffrey G. Messier, Sebastian Magierowski (University of Calgary, Canada)
Microfluidic Networks: Design and Test of a Pure Hydrodynamic switching Function
Elena De Leo, Lidia Donvito, Alfio Lombardo, Giacomo Morabito (University of Catania, Italy)
Laura Galluccio (DIEEI, Italy)
Channel Capacity of Calcium Signaling Based on Inter-cellular Calcium Waves in Astrocytes
Akif Cem Heren, Mehmet Sukru Kuran, Huseyin Birkan Yilmaz, Tuna Tugcu (Bogazici University, Turkey)

16:00 – 16:50
MONACOM-03: Systems and Networks
Chair: Pietro Liò (University of Cambridge, UK)

Introducing Purely Hydrodynamic Networking Mechanisms in Microfluidic Systems
Andrea Zanella, Andrea Biral (University of Padova, Italy)
Nano-scale Reservoir Computing
Oliver Obst, Adrian Trinch, Simon Hardin, Matthew Chadwick, Ivan Cole, Tim Muster, Nigel Hoschke, Diethelm Ostry, Don Price, Khoa Pham, Tim Wark (CSIRO, Australia)
Cooperative Drug Delivery through Molecular Communication among Biological Nanomachines
Tadashi Nakano, Michael J. Moore, Yutaka Okaie (Osaka University, Japan) Akihito Enomoto (University of California, Irvine, USA)
Tatsuya Suda (University Netgroup Inc., USA)
Multi Objective Design for Bacterial Communication Networks
Claudio Angione (University of Cambridge, UK)
Giovanni Carapezza, Jole Costanza (University of Catania, Italy)
Pietro Liò (University of Cambridge, UK)
Giuseppe Nicosia (University of Catania, Italy)

16:50 – 17:30
MONACOM-04: Design Analysis
Chair: Michael J. Moore (Osaka University, Japan)

Using Dimensional Analysis to Assess Scalability and Accuracy in Molecular Communication
Adam J. G. Noel, Karen C. Cheung, Robert Schober (University of British Columbia, Canada)
Reliability of Multi-path Virus Nanonetworks
Frank Walsh (Waterford Institute of Technology, Ireland)
Sasitharan Balasubramaniam (Tampere University of Technology, Finland)

W20: Workshop on Information Security over Noisy and Lossy Communication Systems (InfSec)

14:00 – 15:30
InfSec-01: Session I
Chair: Mark F. Flanagan (University College Dublin, Ireland)

Building Compressed Sensing Systems: Energy-awareness and Non-asymptotic Analyses
Fabian Lim, Vladimir Marko Stojanovic (Massachusetts Institute of Technology, USA)
Wireless Information-Theoretic Security in MANETs
Theofilos Chryssikos (University of Patras, Greece)
Tasos Dagiuklas (Hellenic Open University, University of Patras, Greece)
Stavros Kotsopoulos (Wireless Telecommunications Laboratory, Greece)
Previous Messages Provide the Key to Achieve Shannon Capacity in a Wiretap Channel
Shahid Mehraj Shah (Indian Institute of Science, India)
Parameswaran S (Indian Institute of Technology, Kharagpur, India)
Vinod Sharma (Indian Institute of Science, India)

16:00 – 17:30
InfSec-02: Session II
Chair: Mark F. Flanagan (University College Dublin, Ireland)

Blind QIM-LDPC Watermarking of 3D-Meshes
Bata Vasic (University of Nis, Silicon Studio, Serbia)
Bane Vasić (University of Arizona, USA)
Optimization of the Parity-check Matrix Density in QC-LDPC Code-based McEliece Cryptosystems
Marco Baldi, Marco Bianchi, Franco Chiaraluce (Università Politecnica delle Marche, Italy)
Unidirectional Error Correction by Crypto Functions
Wael Adi, Mustafa Ayoob, Agha (Technical University of Braunschweig, Germany)
AACI: The Mechanism for Approximate Authentication and Correction of Images
S. Amir Hossein A. E. Tabatabaei, Obaid Ur-Rehman, Natasa Zivic (University of Siegen, Germany)
Our technical committees define and implement the technical directions of the Society. As a fundamental element of the Society, all members are invited and encouraged to participate in one or more of its technical committees. Throughout the year, these committees also play a major role in determining which events (conferences, workshops, etc.) are technically co-sponsored by ComSoc. Many of these committees – networks of professionals with common interests in communications – will be meeting at IEEE ICC 2013.

Committee meetings schedule will be available at registration. We look forward to your participation.

**Ad Hoc & Sensor Networks**
The Committee will serve as ComSoc’s focal point in the area of wireless ad hoc and sensor networks technologies, stimulating and organizing leading-edge wireless ad hoc and sensor networks symposia, workshops, sessions and tutorials at ComSoc conferences. It will also serve as a proactive facilitator in the dissemination of evolving wireless ad hoc and sensor networking standards.

**Cognitive Networks**
The goal of TCCN is to provide a platform for its members in particular, and the cognitive networking research, development, policy making and standardization community in general, to interact and exchange technical ideas to identify major challenges and also derive solutions in the development of cognitive networking technologies.

**Communications & Information Security**
This committee will promote security of all types of communication networks and forms of information transported by them and through them, end to end. Our security interests start from the network physical layer and they end on the end user application layer. The committee will support conferences, symposia, technical sessions, publications, etc., where information is exchanged within the scope of interest of the TC.

**Communications Quality and Reliability**
This committee focuses on and advocates worldwide communications quality and reliability on behalf of, and within, the Communications Society. CQR serves as the catalyst for global awareness and the exchange of information relative to technical and management-related aspects of communications quality and reliability.

**Communications Software**
The mission of this committee is to advance the state of the art in communications software and its various aspects and applications. It serves as the major forum for discussion among communications software professionals in both of the communications and computer industries.

**Communications Switching & Routing**
The objective of this committee is to sponsor publications, conference technical sessions, workshops and topical meetings and discussions in the theory and applications of information switching. Specific areas include, but are not limited to theory, architecture, traffic, performance, signaling protocol and networks, call and mobility control, services and features, planning, economic factors and management of switching systems.

**Communications Systems Integration & Modeling**
This committee is concerned with the systems disciplines and modeling tools that facilitate the integration of information-transport equipment, subsystems, and networks into communications systems. The committee particularly addresses computer-aided modeling of integrated subsystems to answer architectural and performance questions.

**Communication Theory**
This committee sponsors conference sessions, workshops, tutorials, as well as promoting and reviewing papers in the broad area of communication theory, with emphasis on applications to practical systems. The technical content of these sessions and papers focuses on the analytical and theoretical aspects of many diverse areas that include modulation, coding, synchronization, equalization, signal processing and neural networks, transmission over all media, source and channel coding, spread spectrum and multiple access, data communications, and communication networks.

**Computer Communications**
This committee (TCCC) sponsors papers, discussions, and standards on all aspects of computer-communication systems. It provides a forum for members to broaden professional contacts and for technical discussions and interactions. Its areas of interest include performance of computer network and switch architectures, interfaces and protocols, configuration control, scheduling and buffer management, routing, flow control and admission control algorithms, error control, and network security, reliability, and management.

**Data Storage**
This committee (DS) promotes advances in the state of the art of coding and signal processing to enhance digital data storage systems, in order to achieve high storage densities, fast access, and low error rates. The committee is also interested in VLSI implementations of read/write channel electronics.

**e-Health**
This committee focuses on exploring ICT solution gaps and business models supporting emerging eHealth applications and services, as well as exploring project collaboration opportunities addressing global health challenges with IEEE sister societies and governments around the globe. The focused technical areas include eHealth network and system infrastructures (e.g., health grid, cloud computing, etc), net-centric health and healthcare application developments, ICT-enabled personalized healthcare and management, and ICT-enabled smart medical devices and systems. This committee provides a platform to ComSoc members not only for technical information exchange (e.g., conferences and workshops) but also for project-based collaborations with IEEE and non-IEEE organizations.

**High-Speed Networking**
This committee promotes interest within and outside the Communications Society on the emerging applications and architectural solutions for high-speed networks. A primary goal is to serve as a focal point for activities in high performance networking by participating in and sponsoring conferences and workshops; encouraging publications, fostering discussion; and providing education on the utility of high-speed networks and possible architectural alternatives required for optimum infrastructure.

**Information Infrastructure & Networking**
Working in concert with other ComSoc Technical Committees, the objective of IIN is to facilitate the cohesive advancement of information infrastructures and supportive technologies to enable global networking to guarantee distribution and accessibility of any kind of data in any format, to anywhere, at anytime, on any media, and with any access tool. Social responsibility, including green operations and the narrowing of the “digital divide” are key precepts.
**Internet**
This committee is a joint committee of the Internet Society and the IEEE Communications Society for stimulating interdisciplinary exchanges and applications of state of the art communications and related technologies to Internet infrastructure and services. The committee contributes to the emergence of an ubiquitous, multimedia, and high-performance Internet serving large segments of the world’s population.

**Multimedia Communications**
This committee examines systems, applications, services and techniques in which two or more media are used in the same session. These media include, but are not restricted to, voice, video, image, music, data, and executable code. The scope of the committee includes conversational, presentational, and transactional applications and the underlying networking systems to support them.

**Network Operations & Management**
This committee (CNOM) focuses on network and service operations and management. It encourages the exchange of information on the operational and technical management aspects of public and private networks for voice, data, image, and video, and organizes and sponsors publications and discussions of these topics. Specific technical interests include automation of network operations, customer network management and control, knowledge-based technologies, real-time management of networks, network-operations architecture, service management, and end-to-end management across several jurisdictional boundaries.

**Optical Networking**
The committee will serve as ComSoc’s focal point in the area of optical networking technologies and play an active role in stimulating/organizing leading-edge optical networking symposia, workshops, sessions and tutorials serving OFC and other premier M&C venues. ONTC will also serve as a proactive facilitator in the dissemination of evolving optical networking standards by working closely with standards forums such as OIF, IETF, and ITU-T1.

**Power Line Communications**
The Committee sponsors conference sessions, special issues, workshops, tutorials and promotes the dissemination of technical information in the broad area of communications over power lines. Our primary goal is to serve as a focal point for all activities in the area of power line communications.

**Radio Communications**
This committee sponsors and promotes technical papers, workshops, and tutorials on the engineering aspects of communications systems, equipment, and operation in which electromagnetic transmission through space near the earth’s surface is the dominant factor. Specifically included are systems in which the transmission follows the surface or takes place within the atmosphere of the earth. Technologies are considered for point-to-point, point to multipoint, mobile radio, and personal communications radio access. Commercial band broadcasting and space communications are outside the scope of the Committee.

**Satellite & Space Communications**
This committee facilitates technical exchange in the field of satellite and space communications and maintains a keen interest in the development and maintenance of standards in this area. It explores the evolution of new satellite and space-based systems and the application of new and emerging technologies.

**Signal Processing & Communications Electronics**
This committee (SPCE) sponsors papers, participates in the organization of conferences, and promotes technical workshops on those aspects of communications that pertain to the innovation, development and application of algorithms and electronic and photonic devices or subsystems for generation, processing, storage, transmission, recovery, and presentation of communications signals. In so doing, the committee also has as a goal the professional development of committee members and other practitioners that work in the above areas.

**Tactical Communications & Operations**
The mission of this committee is to sponsor conferences, workshops, technical sessions, publications, professional meetings, and standards on all aspects of tactical communications and operational situation management in military, homeland defense, and disaster recovery application areas. It provides a forum for members to exchange ideas, techniques, and applications, and share experience among researchers and engineers. Its areas of interest include military communication infrastructures including tactical radio, landline, mobile and space communications; advanced battle space command and control models, including, C4ISR, net-centric operations, asymmetric warfare, special operations command; surveillance, monitoring and control, including target identification, tracking and signal intelligence; homeland security management infrastructures, models, and architectures; disaster rescue, recovery and support missions; operational situation management, including situation awareness, decision support, information fusion, situation control, situation prediction, and situation management architectures and engineering solutions; semantic information processing, including semantic modeling, ontologies, knowledge representation, semantic modeling languages, tools and platforms.

**Transmission, Access, & Optical Systems**
This committee sponsors and organizes papers, conference sessions, workshops and standards development relating to both optical and metallic guided media transmission and access systems for the transport of speech, data, and visual information of any bandwidth. Specific areas of interest include: testing and performance of analog and digitally transmitted signals; systems and equipment for subscriber access over fiber, coaxial cable, and twisted copper pairs; analog and digital subscriber lines over wires and interfaces to wireless media; inductive coordination and electrical protection of wired media; network synchronization; and development of IEEE-oriented standards.

**Wireless Communications**
The mission of the committee TCPC is to sponsor publications, conferences, technical sessions, workshops, and other information exchanges on architectures, applications, systems, terminals and technologies to provide personal, location-independent communication and computing in voice, data and visual media. Its areas of interest include techniques for achieving portability, ubiquity and transparency using wireless networks ranging from microcellular to satellite, and wired networks ranging from narrow to broadband.
IEEE ICC 2013 Badges
IEEE ICC 2013 Badges must be worn at all times and are necessary for entrance into all IEEE ICC sessions and events. Badges will be checked at the entrance to ensure eligibility.

CONFERENCE LOCATION
IEEE ICC 2013 will be utilizing three hotels – Marriott, InterContinental and Sofitel – in the very heart of the city on the banks of river Danube. The maximum distance between the hotels is 300 meters (0.2 miles), which is a light 5 minute walk.

(1) Budapest Marriott Hotel will be the conference headquarters. It will host the registration area, exhibition, symposia sessions, workshops and tutorials.

(2) InterContinental (InterCon) Budapest Hotel will host the keynote sessions, invited talks, industry & business panels, symposia sessions, workshops and tutorials. To reach this venue from the Marriott, it is just a light 5 minute walk on the river banks.

(3) Sofitel Budapest Chain Bridge Hotel will host all the IEEE ComSoc Committee Meetings. It is located just across the street from the InterContinental.

REGISTRATION
Conference Registration will be held at the Marriott in the Lobby area. All attendees and accompanying guests must register and receive a conference badge in order to participate in conference activities.

Photo ID is required. Individuals are responsible for picking up their own Registration packages. No attendee will be allowed to pick up bags for their colleagues.

Registration and Information Desk Hours
- Saturday, 8 June: 15:00 – 18:00
- Sunday, 9 June: 08:00 – 19:00
- Monday, 10 June: 08:00 – 17:00
- Tuesday, 11 June: 08:00 – 17:00
- Wednesday, 12 June: 08:00 – 17:00
- Thursday, 13 June: 08:00 – 14:30

FOOD AND BEVERAGE
Lunch will be provided on Monday, Tuesday and Wednesday. Emails will be sent to attendees to advise the location of lunches.

Full registration: Lunch inside hotel
Limited, One Day, Industrial Panels & Exhibition: Lunch outside venue
Students and Life Members: Option to buy. Lunch outside venue
ONLY Sunday Full Day Workshops will receive a complimentary lunch.

INTERNET CAFÉ / WIRELESS ACCESS
IEEE ICC 2013 will offer free wireless access. The conference venues – Marriott, InterContinental and Sofitel – will be equipped with wireless access points.

SOCIAL EVENTS
Welcome Reception / Exhibit Opening
Sunday, 9 June • 19:00 – 21:00 • Marriott, Budapest Ballroom
Join us as we kick off the IEEE ICC 2013 EXPO. Interact with exhibitors amidst the exhibits in the Budapest Ballroom of the Marriott. This event is included with the conference registration fee.

Conference Banquet
Tuesday, 11 June • 19:00 – 21:00 • Europa Ship
Join the IEEE ICC 2013 Committee for a relaxing evening of fine dining and entertainment. This event is included with the full conference registration. Badges will be checked at the entrance to ensure eligibility.

IEEE ICC EXPO 2013
IEEE ICC EXPO 2013 is located in the Budapest Ballroom of the Marriott.

EXPO Hall Hours:
- Sunday, 9 June: 19:00 – 21:00
- Monday, 10 June: 10:30 – 18:00
- Tuesday, 11 June: 08:30 – 11:00 & 12:30 – 16:15

Coffee Breaks
Coffee breaks will be held in the Marriott and InterContinental for the duration of the conference.

Marriott: Coffee breaks will be held in the Function Lobby on Sunday, 9 June; Wednesday, 12 June and Thursday, 13 June and in the Budapest Ballroom on Monday, 10 June and Tuesday, 11 June from 10:30 – 11:00 and 15:30 – 16:00.

InterContinental: Coffee breaks will be held in Pre-Function Lobby I and II on Sunday, 9 June; Monday, 10 June; Tuesday, 11 June; Wednesday, 12 June and Thursday, 13 June from 10:30 – 11:00 and 15:30 – 16:00.

Prize Drawings
Win special prizes at the drawings during the Keynote Sessions on Tuesday, 11 June and Wednesday, 12 June. (You must be present to win.)

COMPANION HOSPITALITY
Companions are invited to begin their daily activities in the Companions Hospitality Suite with coffee and a pastry. View Room of the Marriott has been designated as the Companions Hospitality Suite. Meet your friends prior to one of the daily tours or to make your plans for the day.

SPEAKER READY ROOM
Arpád room of the Marriott and Pre-Function Area II of the InterContinental have been assigned as Speaker Ready Rooms. These rooms will be available Sunday – Thursday from 07:00 – 17:00 for any presenters who wish to rehearse and prepare for their presentations.

STUDENT TRAVEL GRANTS
Student Travel Grant Recipients can pick up their certificates at the Registration Desk during registration hours.

GENERAL ATTENDEE INFORMATION
Business Center
Marriott: Business Center is open 7 days a week from 6:30 – 22:00.
InterContinental: Business Center is open 7 days a week from 0:00 – 24:00.
Sofitel: Business Center is open 7 days a week from 0:00 – 24:00.

Language
All conference sessions and publications will be in English.

Cell Phones/PDAs/Laptops/Beepers
Please be cognizant and respectful of your fellow conference attendees and speakers. During sessions, please lower the volume on your electronic devices and put your phones on vibrate mode.

Tutorial and Workshop Materials
Tutorial materials will be provided via conference website immediately after each presentation. The Tutorial Chair will provide the web link so that the presentation can be viewed or downloaded. Workshops materials will be provided on USB.

Local Information
Maps and brochures are available at the concierge desk at each conference venues – Marriott, InterContinental and Sofitel.

Average temperature in June is 24.4°C or 75.9 °F (High) – 13.9 °C or 57°F (Low).

Standard Time Zone is Central European Time Zone (GMT +1).

Tipping is very much part of the culture in Hungary, and most people will routinely tip waiters, taxi drivers, etc.

Some suggestions:
Restaurants and Bars: 10% - 15% (Note: some restaurants include a service fee to the bill.)
Public washrooms: HUF 100-200 (This is not really a tip, it’s a fee for the use of public washrooms and toilets, as most of them still have attendants. Yes, even at places like McDonald’s. It is suggested to always carry a few hundred forints in your pocket in case you get the urge to go, while touring the city.)
Bellhops: At least $2 - $3 per bag or $5-$8 for a lot of baggage
Taxi drivers: 10%-15% of the fare
Airport attendants: $3.00 per bag or $5-$8 for a lot of baggage

At least $2- $3 per bag or $5-$8 for a lot of baggage
SOCIAL EVENTS

Sunday, 9 June 2013 • 18:00 – 19:00
Erzsebet Ballroom, Mezzanine Level, Marriott

First Time Attendee Reception
Get to know fellow first time attendees and ComSoc leaders this meet and greet. This event is by invitation only.

Sunday, 9 June • 19:00 – 21:00
Budapest Ballroom, Mezzanine Level, Marriott

Welcome Reception and Exhibition Opening
Join us as we open the conference. Enjoy some delicious Hungarian nibbles and an excellent selection of Hungarian wines while viewing the Buda Castle District, the Royal Palace and the Chain Bridge from the Ballroom Terrace. This panorama is listed as a UNESCO World Heritage since 1987.

You will also have the opportunity to explore the Exhibition, featuring booths from Magyar Telekom, Ericsson, National Instruments, BEEcube, BME-TM, CISCO, IS Wireless, Wiley, Springer and Cambridge University Press as well as upcoming major conferences such as IEEE GLOBECOM 2013, IEEE ICC 2014, IEEE GLOBECOM 2014 and IEEE ICC 2015.

This event is included with the conference registration fee. Accompanying guests are welcome to attend.

Tuesday, 11 June 2013 • 19:00 – 21:00
Europa Ship

Gala Dinner (Conference Banquet)
The Gala Dinner will take place on the Europa Ship. During a beautiful two-hour cruise on the Danube, you will see many of the landmarks of Budapest, such as the Margaret Island, the Parliament building, the Margaret Bridge, the Chain Bridge, the Erzsébet Bridge and the Liberty Bridge, the Fisherman's Bastion, the Royal Palace, the Gresham Palace or the Gellert Hill.

The Gala Dinner is included with a full conference registration. Badges will be checked to ensure eligibility.
Agilent Technologies
Booth 11
www.agilent.com

As the world’s premier measurement company, Agilent offers the broadest range of innovative measurement solutions in the industry. Agilent electronic test instruments help wireless equipment manufacturers achieve the overall quality of the user experience. Agilent products are used across the development lifecycle of computers and semiconductors, from parametric test of semiconductor wafers, to functional and production test of printed circuits boards, to the final test of computer systems to ensure proper performance. Agilent EEs of EDA is the leading supplier of Electronic Design Automation (EDA) software for communications product design.

BEEcube
Booth 12
www.beecube.com

BEEcube’s All Programmable Platforms are the most advanced approach to the research and development of new technologies for wired and wireless communications.

Companies and universities are creating the next generation of wireless communications using our commercial off-the-shelf (COTS) platforms: from early algorithm exploration with Simulink, to real-time prototyping, to the deployment of complete working solutions.

At the core of BEEcube’s technology are FPGAs, multi-Gigabit per second digital and analog interfaces, and the tools for coding and debugging your most demanding communications applications.

BEEcube products include All Programmable Rack Servers like the BEE4, All Programmable ATCA blades like the BEE7, the flexible and affordable miniBEE “R&D in a Box,” and a large family of mixed-signal FMC cards for LTE-Advanced, WLAN, E-band, radar, and SDR applications.

BME-TMIT
Booth 3
www.tmit.bme.hu/en

The Department of Telecommunications and Media Informatics of the Faculty of Electrical Engineering and Informatics of the Budapest University of Technology and Economics (BME-TMIT) was established in 1949 and renamed into present form in 2003. The education and research activity of the department is focused on infocommunication systems, particularly up-to-date IP-based networks and services, as well as media information systems, particularly multimedia, multimodal and cognitive information systems and applications, embracing both technological and management issues, as well as the related basic sciences. The department is mainly involved in the majors of Electrical Engineering and Computer Engineering, undertakes an outstanding share in the PhD education.

Cambridge University Press
Booth 4
www.cambridge.org

Cambridge University Press is a not-for-profit organization that advances learning, knowledge and research worldwide. It is an integral part of the University of Cambridge and for centuries has extended its research and teaching activities through a remarkable range of academic and educational books, journals, and examination papers. Come and visit our stand for 20% off all titles on display.

CISCO
Booth 5
www.cisco.com

Cisco (NASDAQ: CSCO) enables people to make powerful connections—whether in business, education, philanthropy, or creativity. Cisco hardware, software, and service offerings are used to create the Internet solutions that make networks possible—providing easy access to information anywhere, at any time. Cisco was founded in 1984 by a small group of computer scientists from Stanford University. Since the company’s inception, Cisco engineers have been leaders in the development of Internet Protocol (IP)-based networking technologies. Today, with more than 65,225 employees worldwide, this tradition of innovation continues with industry-leading products and solutions in the company’s core development areas of routing and switching, as well as in advanced technologies such as: Consumer Networking, Networking, Security, Unified Communication, Telepresence, Collaboration, Data Center, Virtualization, Unified Computing Systems.

Elsevier
Booth 2
www.elsevier.com/computerscience

Visit Elsevier’s booth to meet our publishers in Computer Science, discuss with them your publishing experience and requirements and find out more about publishing your articles with Elsevier.

Elsevier is a leading international publisher of Computer Science journals, books and electronic products.

Elsevier is also a founding publisher of global programs that provide free or low-cost access to science and health information in the developing world.
Ericsson
Booth 13
www.ericsson.com/hu

Ericsson is the world’s leading provider of communications technology and services. We are enabling the Networked Society with efficient real-time solutions that allow all to study, work and live our lives more freely, in sustainable societies around the world. Our offering comprises services, software and infrastructure within Information and Communications Technology for telecom operators and other industries. Communication is changing the way we live and work. Ericsson plays a key role in this evolution, using innovation to empower people, business and society. We provide communications networks, telecom services and multimedia solutions, making it easier for people all over the globe to communicate. Broadband networks are society’s new communication highways – vital infrastructure which we nowadays take for granted.

Magyar Telekom
Booth 16
www.telekom.hu

Magyar Telekom is the principal provider of fixed line telecommunications services in Hungary, with approximately 1.8 million fixed voice access lines as of March 31, 2012. We are also Hungary’s largest mobile telecommunications services provider, with almost 5.3 million mobile subscribers as of March 31, 2012. We provide fixed line and mobile telecommunications, Internet and TV products and services for consumers and infocommunication (ICT) solutions for business and corporate customers. In 2010, Magyar Telekom has entered the retail energy market offering electricity and gas services to its customers.

Magyar Telekom’s activities cover two key business areas:
• fixed line and mobile communications services for residential customers (T-Home and T-Mobile brands) and small businesses (Telekom brand);
• corporate services provided to large corporate customers and public sector (T-Systems brand).

National Instruments
Booth 14 & 15
www.ni.com

Since 1976, National Instruments (www.ni.com) has equipped engineers and scientists with tools that accelerate productivity, innovation and discovery. NI’s graphical system design approach provides an integrated software and hardware platform, speeding the development of any system needing measurement and control. Engineers and scientists use this platform from design to production in multiple industries, advanced research, and academia. NI ensures customer success with an ecosystem of services, support and more than 700 Alliance Partners worldwide. The company’s long-term vision and focus on improving society through its technology also enables the success of its employees, suppliers and shareholders.

IS-Wireless
Booth 8
www.is-wireless.com

IS-Wireless is a Warsaw-based LTE/LTE-Advanced IPR provider and software developer specializing in OFDM/OFDMA radio interfaces. Our portfolio includes implementations of PHY layers for 3GPP LTE and mobile WiMAX and tools for radio interface analysis. This is complemented by a set of design services and technical courses targeted mainly at 4G operators, manufacturers and R&D institutions. From September 2012 IS-Wireless participates in an international consortium 5GNow, acting under the EU FP7 and aiming at the development of the concept of radio interface for 5G systems.

Future IEEE Comsoc Conferences Area

IEEE GLOBECOM 2013, Atlanta, USA

The 2013 IEEE Global Communications Conference (GLOBECOM) will be held in Atlanta, GA at the Hilton Hotel, in the heart of downtown’s finest eating and tourism establishments. Please join us 9-13 December 2013 for an unforgettable conference experience.

IEEE GLOBECOM 2013 will offer cutting edge communications technology symposia, forums, panel discussions, tutorials, workshops, industry exhibits and renowned industry CEOs & CTOs in panel sessions and keynote speeches. And be sure to schedule some time for yourself and your loved ones to experience many of the nearby family-friendly attractions, such as the largest indoor aquarium in the US, numerous museums for art, history, and science (and Coca Cola, of course!), as well as one of the finest restaurant scenes in North America.

IEEE ICC 2014, Sydney, Australia
www.ieee-icc.org /2014

The 2014 IEEE International Conference on Communications (ICC) will be held in Sydney, Australia, 10-14 June 2014. The venue of the conference is at the heart of the city, only a walking distance from the key attractions of Sydney, including the Centrepoint Tower, the Harbour Bridge and the Opera House. Themed “Communications: The Centrepoint of Digital Economy,” the conference will feature a comprehensive technical program including twelve Symposia and a number of Tutorials and Workshops. IEEE ICC 2014 will also include an attractive expo program including keynote speakers, and Industry Forum & Exhibitions.

IEEE GLOBECOM 2014, Austin, USA

Austin is proud to be hosting one of the IEEE Communications Society’s flagship conference, IEEE GLOBECOM, in the heart of Silicon Hills (technology corridor of the Southwest) from 8-12 December 2014 at the Austin Hilton Hotel Complex. IEEE GLOBECOM 2014 will offer the latest technology research for the technical community along with an innovative program for industry management and engineers. Austin has a great music scene, nightlife, weather, and the conference will be held right in the heart of the most vibrant downtown in the southern United States, and one of America’s fastest growing, youngest, and most desirable cities. We look forward to seeing you in Austin.

IEEE ICC 2015, London, UK

The 2015 IEEE International Conference on Communications (ICC) will be hosted in June 2015 in ExCel London, the largest convention centre in the United Kingdom. London is the largest metropolitan area in the United Kingdom and the largest urban zone in the European Union. It is a leading global city, with strengths in the arts, commerce, education, entertainment, fashion, finance, healthcare, media, professional services, research and development, tourism and transport. London has become the first city to host the Summer Olympics three times. Please contact the Executive Chairman Professor Jiangzou Wang, University of Kent at j.z.wang@kent.ac.uk.

Springer
Booth 9 & 10
www.springer.com

Come and browse more than 68 key titles. Get 20% off print books and eBooks – and learn about MyCopy (a printed eBook for $/€ 24.99).

IEEE ICC 2013
IEEE GLOBECOM 2013

covers the entire range of communications technologies, offering in-depth information on the latest developments in software, hardware, and standards. The conference will host hundreds of tutorials, workshops, panels, and keynotes designed specifically to advance technologies, systems, and the infrastructure that are continuing to reshape the world and provide access to an unprecedented spectrum of high-speed, seamless, and cost-effective global telecommunications services.

INDUSTRY FORUM AND EXHIBITION (IF&E)

Industry Forums feature Industry-centric Forums, Workshops, and Tutorials on regulatory impact assessments, business models, applications, and design and development strategies, implementations, and challenges in today’s networking and communications environments.

Among these topics including:

- Protocols & Standards
- Emerging Applications
- Human Factors in Communications
- Advanced Networking
- Business & Communications
- Policy & Spectrum

EXHIBITION

showcases the latest technologies, applications, and services.

TECHNICAL PROGRAM

TECHNICAL SYMPOSIA

focus on technological trends in recent communication research and development from academic to the industrial laboratories throughout the world.

TUTORIALS & WORKSHOPS

feature technical and business issues in communications and networking topics.

VENUE

IEEE GLOBECOM 2013 has selected the Atlanta Hilton and Towers as its headquarters hotel.

REGISTRATIONS OPEN JULY 2013!

For conference updates, visit www.ieee-globecom/2013

IEEE GLOBECOM’13 PATRONS

SAMSUNG

Cisco

ciena

BEcubed
Cloud Computing has widespread impact across how we access today’s applications, resources, and data. The IEEE Cloud Computing Initiative (CCI) intends to lead the way by collaborating across the interested IEEE societies and groups for a well-coordinated and cohesive plan in the areas of big data, conferences, education, publications, standards, intercloud testbed, and dedicated web portal.

Get involved
The CCI offers many opportunities to participate, influence, and contribute to this technology.

Join the IEEE Cloud Community
To find out more information on what the IEEE is doing in the area of cloud computing.

Current opportunities
Submit a paper or help organize at one of our conferences. Contribute an article to our new Transactions on Cloud Computing publication. Be a part of the P2302 standards working group for intercloud interoperability and federation.

Save the Date
Cloud Computing for Emerging Markets (CCEM), 16-18 October 2013, Bangalore, India (cloudcomputing.ieee.org/ccem)

Check out
The Cloud Web Portal for the latest information on the CCI’s activities and to join the Cloud Community.

cloudcomputing.ieee.org

Contact us: cloudcomputing@ieee.org
The Information and Communications Technology (ICT) revolution has transformed our lives. With mobile phones, computers and the Internet, we are used to communicating almost anywhere, at any time. Now we are ready for an even greater evolution: machine-to-machine communications and the application of ICT to make critical social infrastructure ‘smarter’.

STIMULATING, PIONEERING, INNOVATING

As part of Toshiba Corporation’s global network of research facilities, since its inception in 1998, the Telecommunications Research Laboratory (TRL) has been at the cutting edge of research into technologies including next generation wireless networking, reconfigurable device architectures and ‘smart’ systems for energy, mobile and medical applications.

Today, TRL continues to make groundbreaking advances in emerging areas, ensuring Toshiba has the technologies to assert its position as one of the world’s leading electrical, electronic and consumer product manufacturers.

At TRL we are constantly reinventing the future.

Introducing the World’s First Vector Signal Transceiver

Vector Signal Analyzer and Generator + User-Programmable FPGA = RF Redefined

Combining a vector signal analyzer and a vector signal generator with a user-programmable FPGA for real-time signal processing and control, this vector signal transceiver is a fraction of the size and cost of a traditional solution. More importantly, the NI PXA664R is the first software-designed instrument. With NI LabVIEW system design software, you can modify its software and firmware to create an instrument that meets your exact needs.

WIRELESS TECHNOLOGIES

National Instruments supports a broad range of wireless standards including:

- WCDMA/HSPA+/HS+PA
- 802.11a/b/g/n/ac
- Bluetooth
- CDMA2000/1X/EV-DO
- GSM/EDGE
- LTE

>> Learn more at ni.com/vst
Ericsson is a world-leading provider of communications technology and services. We are enabling the Networked Society with efficient real-time solutions that allow us all to study, work and live our lives more freely, in sustainable societies around the world.

Ericsson’s offering comprises services, software and infrastructure within Information and Communications Technology for telecom operators and other industries. Today 40 percent of the world’s mobile traffic goes through Ericsson networks and we support customers’ networks servicing more than 2.5 billion subscriptions.

Ericsson has over 33,000 granted patents, comprising one of the industry’s strongest portfolios.
WE SUPPORT SMART CONVERSATIONS.
CALL FOR PAPERS AND PROPOSALS

The 2014 IEEE International Conference on Communications (ICC) will be held in the beautiful city of Sydney, Australia from 10 – 14 June 2014. Themed “Communications: The Centrepoint of Digital Economy,” 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 2014 will also include an exceptional expo program including keynote speakers and Industry Forum & Exhibition.

TECHNICAL SYMPOSIA: We invite you to submit original technical papers in the following areas:

- **Mobile and Wireless Networking Symposium**
  - Wei Zhuang, University of Waterloo, CA
  - Parzal Iranpour, University of Haute-Alsace, FR
  - Jian Tang, Syracuse University, USA
  - Nurul Sarkar, Auckland University of Technology, NZ

- **Communication Theory Symposium**
  - Fu-Hsiung Babich, University of Trieste, IT
  - Bechir Hamdaoui, Oregon State University, USA
  - Shui Yu, Deakin University, AU

- **Optical Networks and Systems Symposium**
  - Arun Somani, Iowa State University, USA
  - Philippe Perrier, Xtera Communications, USA
  - Nathan Gomes, University of Kent, UK

- **Next-Generation Networking Symposium**
  - Mohamed Alquzzamaan, University of Oklahoma, USA
  - Konstantinos Samdanis, NEC Europe, DE
  - Antonio Pescapè, University of Napoli Federico II, IT

- **Data Storage Track**
  - Najaf Golestani, University of New South Wales, AU

- **e-Health Track**
  - Nazim Agoulmine, University of Evry, FR

- **Internet of Things Track**
  - Leith Campbell, Ovum, AU

- **Communicaions for the Smart Grid Track**
  - Vincent Guillet, Landis+Gyr, FR

- **Satellite & Space Communication Track**
  - Khaled Boussetta, University Paris 13, FR

- **Greeen Communications and Computing Track**
  - John S. Thompson, University of Edinburgh, UK

- **Cloud Computing Track**
  - Yonggang Wen, Nanyang Technical University, SG

- **Access Networks and Systems Track**
  - Tarek S. El-Bawab, Jackson State University, USA

- **NanoScales, Molecular, and Quantum Network Track**
  - Tadashi Nakano, Osaka University, JP

- **Social Networking Track**
  - Neelil Prasad, Aalborg University, DK

- **Wireless Communications Symposium**
  - Yang Hong, Missouri University of Science and Technology, USA
  - Yingfeng Zhou, Chinese Academy of Sciences, CN
  - Cheng Li, Memorial University of Newfoundland, CA
  - Peter M. R. Z. Rost, NEC Labs Europe, DE
  - Jianhong Yuan, University of Sydney, AU

- **Selected Areas in Communications Symposium**
  - Jinhong Yuan, University of New South Wales, AU
  - Peter M. R. Rost, NEC Labs Europe, DE
  - Neeli Prasad, Aalborg University, DK

- **Access Networks and Systems Track**
  - Tarek S. El-Bawab, Jackson State University, USA

- **Data Storage Track**
  - Najaf Golestani, University of New South Wales, AU

- **IIIOP Symposium**
  - Farzad Safai, University of Technology, AU

- **Mobile and Wireless Networking Symposium**
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  - Parzal Iranpour, University of Haute-Alsace, FR
  - Jian Tang, Syracuse University, USA
  - Nurul Sarkar, Auckland University of Technology, NZ

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  - Shui Yu, Deakin University, AU

- **Optical Networks and Systems Symposium**
  - Arun Somani, Iowa State University, USA
  - Philippe Perrier, Xtera Communications, USA
  - Nathan Gomes, University of Kent, UK

- **Next-Generation Networking Symposium**
  - Mohamed Alquzzamaan, University of Oklahoma, USA
  - Konstantinos Samdanis, NEC Europe, DE
  - Antonio Pescapè, University of Napoli Federico II, IT

TUTORIALS: Proposals should provide a focused lecture on a new and emerging topics within the scope of communications.

WORKSHOPS: Proposals should emphasize current topics of particular interest, and should include a mix of regular papers, invited presentations and panels that encourage the participation of attendees in active discussion.

Accepted and presented technical and workshop papers will be published in the IEEE ICC 2014 Conference Proceedings and in IEEE Xplore®. See the website for requirements of accepted authors.