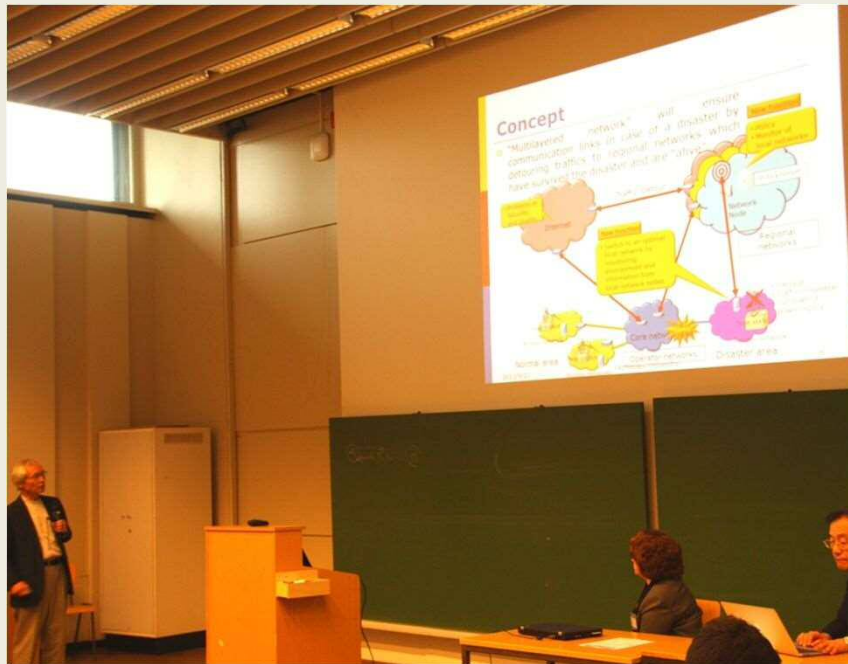


ETPSC'2013 Emerging Technologies and Workshop Trends for Public Safety Communications

Co-located with IEEE CAMAD 2013
Berlin, Germany
September 27, 2013



Prof. Fumiyuki ADACHI



Prof. Nei KATO



[Home](#) |
 [Welcome](#) |
 [Committees](#) |
 [TPC](#) |
 [Program](#) |
 [Authors](#) |
 [Sponsors](#)

Program

	Wednesday, September 25	Thursday, September 26	Friday, September 27
9:00 - 10:00	Workshop Opening	T3: Security for Smart Metering Gateways in Smart Grids	K3: Keynote: Christian Wietfeld
10:00 - 11:00	K1: Keynote: Michele Zorzi		D1: GREENET Industrial Dissemination Day K4: Keynote: Matthew Baker
11:00 - 11:30	Coffee Break	Coffee Break	
11:30 - 12:30	S1: CODELANCE S2: Energy Efficient Communications I	K2: Keynote: Eleni Patouni	D2: GREENET Industrial Dissemination Day S9: ETPSC: Emerging Technologies and Trends for Public Safety Communications I
12:30 - 13:00		P1: Panel	
13:00 - 13:30	Lunch break		Lunch break D3: GREENET IDD Panel
13:30 - 14:30		Lunch break	

14:30 -	T1: Modeling and Performance Issues for Electric Vehicles and Microgrids		ETPSC Panel
15:00 -	T2: Spatial Modulation for MIMO Wireless Systems		
15:00 -		S5: LTE Wireless Networks	
16:15 -		S6: Energy To Smart Grid	
16:15 -			Coffee Break
16:30 -	Coffee Break	Coffee Break	
17:00 -			S10: ETPSC: Emerging Technologies and Trends for Public Safety Communications II
17:00 -	S3: Energy Efficient Communications II	S7: Physical Layer Transmission	
18:00 -	S4: Data & Cloud Networks	S8: Wireless Communications	
18:00 -			
18:30 -			
18:30 -			
20:00 -		Social dinner	
22:00			

09:00 - 10:00**Workshop Opening**

Room: H0110

10:00 - 11:00**K1: Keynote: Michele Zorzi**

Cognitive Access Policies under a Primary ARQ process via Forward-Backward Interference Cancellation

Room: H0110

Abstract:

This paper introduces a novel technique for access by a cognitive Secondary User (SU) using best-effort transmission to a spectrum with an incumbent Primary User (PU), which uses Type-I Hybrid ARQ. The technique leverages the primary ARQ protocol to perform Interference Cancellation (IC) at the SU receiver (SUr_x). Two IC mechanisms that work in concert are introduced: Forward IC, where SUr_x, after decoding the PU message, cancels its interference in the (possible) following PU retransmissions of the same message, to improve the SU throughput; Backward IC, where SUr_x performs IC on previous SU transmissions, whose decoding failed due to severe PU interference. Secondary access policies are designed that determine the secondary access probability in each state of the network so as to maximize the average long-term SU throughput by opportunistically leveraging IC, while causing bounded average long-term PU throughput degradation and SU power expenditure. It is proved that the optimal policy prescribes that the SU prioritizes its access in the states where SUr_x knows the PU message, thus enabling IC. An algorithm is provided to optimally allocate additional secondary access opportunities in the states where the PU message is unknown. Numerical results are shown to assess the throughput gain provided by the proposed techniques.

Bio:

Michele Zorzi is a Professor at the Department of Information Engineering of the University of Padova. Prior to his current appointment, he was employed at the Politecnico di Milano, the University of Ferrara and the University of California at San Diego, with which he still has an active collaboration. He received a PhD in Electrical Engineering from the University of Padova in 1994. Michele was the EiC of the IEEE Wireless Communications magazine in 2003-2005, and the EiC of the IEEE Transactions on Communications in 2008-2011, and has served on the Editorial Boards of the top journals in his area of research and on the Organizing and Technical Program Committee for many international conferences. He is an IEEE Fellow. His main research interests are in the area of wireless communications and networking, sensor networks and IoT, underwater communications and networks, cognitive networking, and energy-efficient protocol design. His work is widely cited, with a total of more than 11000 citations and an h-index of 51.

11:00 - 11:30

Coffee Break

11:30 - 13:00

S1: CODELANCE

Room: H0110

On the Combination of Multi-Layer Source Coding and Network Coding for Wireless Networks

Jeppe Krigslund (Aalborg University, Denmark); Frank H.P. Fitzek (Aalborg University, Denmark); Morten V. Pedersen (Aalborg University, Denmark)

Bridging Inter-flow and Intra-flow Network Coding for Video Applications: Testbed Description and Performance Evaluation

Jonas Hansen (Aalborg University, Denmark); Jeppe Krigslund (Aalborg University, Denmark); Daniel E. Lucani (Aalborg University, Denmark); Frank H.P. Fitzek (Aalborg University, Denmark)

Improved CodeCast For SVC Video Multicast

Du Yang (Institution of Telecommunications, Portugal); Joanna Bachmatiuk (Instituto de Telecomunicações, Portugal); Vahid Talooki (IT, Aveiro, Portugal); Jonathan Rodriguez (Instituto de Telecomunicações, Portugal)

Comparison of Different Secure Network Coding Paradigms Concerning Transmission Efficiency

Stefan Pfennig (TU Dresden, Germany); Elke Franz (Technische Universität Dresden, Germany)

On the Wireless network coding with overhearing and index coding

Constantinos Fragiadakis (University of Thessaly, Greece); Georgios S. Paschos (Massachusetts Institute of Technology & CERTH-ITI, USA); Leandros Tassioulas (University of Thessaly, Greece)

S2: Energy Efficient Communications I

Room: H0107

Energy-Efficient Reporting Scheme for Cooperative Spectrum Sensing

Saud Althunibat (University of Trento, Italy); Fabrizio Granelli (University of Trento, Italy)

A Game Theoretic Framework for Energy Efficient Deployment and Operation of Heterogeneous LTE Networks

Elias Yaacoub (Qatar Mobility Innovations Center (QMIC), Qatar); Ali Imran (Qatar Mobility Innovation Center (QMIC), Qatar); Zaher Dawy (American University of Beirut, Lebanon); Adnan Abu-Dayya (QMIC, Qatar)

Energy Efficiency of an Enhanced DCF Access Method using Bidirectional Communications for Infrastructure-based IEEE 802.11 WLANs

Raul Palacios (University of Trento, Italy); Fabrizio Granelli (University of Trento, Italy); Dzmitry Kliazovich (University of Luxembourg, Luxembourg); Luis Alonso (Universidad Politécnica de Catalunya-BarcelonaTECH & Telecommunications and Aerospace Engineering School of Castelldefels, Spain); Jesus Alonso-Zarate (Centre Tecnològic de Telecomunicacions de Catalunya - CTTC, Spain)

Access Network Traffic Models for Energy Efficient Architectures

Andrea Morici (InnoRoute GmbH, Germany); Danica Gajic (InnoRoute GmbH, Germany); Lorenzo Di Gregorio (InnoRoute GmbH & Intel Mobile Communications GmbH, Germany)

On the Energy Efficiency of Low-Mobility Subsystems in Hierarchical ad hoc Networks

Victor Sucasas (Instituto de Telecomunicações, Portugal); Ayman Radwan (Instituto de Telecomunicações & Queen's University, Portugal); Hugo Marques (University of Aveiro, Portugal); Jonathan Rodriguez (Instituto de Telecomunicações, Portugal); Seiamak Vahid (University of Surrey, United Kingdom); Rahim Tafazolli (University of Surrey, United Kingdom)

13:00 - 14:30

Lunch break

14:30 - 16:30

T1: Modeling and Performance Issues for Electric Vehicles and Microgrids

Dr. George Michailidis and Dr. Michael Devetsikiotis

Room: H0107

Abstract:

These areas due to their significance in reducing dependence on fossil fuels and enhance sustainability have received a lot of attention in the SmartGrid literature recently. Note that although on the face they seem rather disparate areas, they share a lot

of common themes when it comes to systems level issues.

In this presentation, we provide the necessary background on the power technologies involved and discuss modeling and performance evaluation issues. Particular emphasis is placed on the role of distributed communications in achieving high performance.

Table of Contents:

1. Introduction to SmartGrid Technologies for Electric Vehicles and Microgrids
2. Systems Level Modeling
3. The Role of Communications in Achieving Performance

Short speakers' bio:

- Dr. George Michailidis received the Ph.D. degree in mathematics from the University of California, Los Angeles, in 1996. He was a Postdoctoral Fellow in the Department of Operations Research at Stanford University from 1996 to 1998. He joined the University of Michigan, Ann Arbor, in 1998, where he is currently a Professor of Statistics, Electrical Engineering, and Computer Science. He is a Fellow of the Institute of Mathematical Statistics, the American Statistical Association and the International Statistical Institute. He is the editor-in-chief of the Electronic Journal of Statistics and serves on a number of editorial boards. He served as symposium chair on Support for Storage, Renewable Sources and Micro-grid for SmartGridComm 2012 and is the secretary of the IEEE subcommittee on SmartGrid Communications. His research interests are in the areas of stochastic network modeling and performance evaluation, queuing analysis and congestion control, statistical modeling and analysis of Internet traffic, network tomography, and analysis of high dimensional data with network structure.

- Dr. Michael Devetsikiotis received the Diploma degree in Electrical Engineering from the Aristotle University of Thessaloniki, Greece, in 1988, and the M.Sc. and Ph.D. degrees in Electrical Engineering from North Carolina State University, Raleigh, in 1990 and 1993, respectively. In October 1993 he joined the Broadband Networks Laboratory at Carleton University, Ottawa, Canada, as a Research Associate. He became an Adjunct Professor in the Systems and Computer Engineering Department, Carleton University, in 1995, an Assistant Professor in 1996 and an Associate Professor in 1998. Since November 2000 he has been with the Department of Electrical and Computer Engineering, North Carolina State University, Raleigh, where he has been a Professor since 2006. His research work has been in the areas of telecommunication systems modeling, performance evaluation, and efficient simulation; traffic characterization and management; and optimization techniques applied to the analysis and design of communication systems. His recent focus has been on the modeling of information networks related to social media and smart grid communications.

Michael served as Chairman of the IEEE Communications Society Technical Committee on Communication Systems Integration and Modeling and as a member of the Communications Society Education Board. He has served as an Associate Editor of the IEEE Communications Letters, and is currently an Area Editor of the ACM Transactions on Modeling and Computer Simulation and a member of the editorial boards of the International Journal of Simulation and Process Modeling, the IEEE Communications Surveys and Tutorials, and the Journal of Internet Engineering. He co-chaired the Next Generation Internet symposium under IEEE ICC 2002 in New York, the High-Speed Networks symposium under IEEE ICC 2004 in Paris, the Quality, Reliability and Performance Modeling (QRPM) symposium under IEEE ICC 2006 in Istanbul, and the Quality, Reliability and Performance for Emerging Network Services symposium under IEEE Globecom 2006 in San Francisco. He served as Workshops Chair for IEEE Globecom 2008 in New Orleans, and co-chair of the workshops on "Enabling the Future Service Oriented Internet" (2007, 2008 and 2009). Michael recently co-chaired the QRPM Symposium under IEEE Globecom 2010, in Miami, and IEEE CAMAD, in Kyoto, Japan. He recently co-chaired the QRPM symposium at IEEE ICC 2012 in Ottawa, Canada and the track on Green Communications, under the SAC symposium at Globecom 2012, in Anaheim.

T2: Spatial Modulation for MIMO Wireless Systems

Dr. Marco Di Renzo, Dr. Ali Ghayeb and Prof. Harald Haas

Room: H0110

Abstract:

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.

Table of Contents:

1. SM-MIMO: Operating Principle and Generalized Transceiver Design
2. SM-MIMO: A Comprehensive Survey
3. SM-MIMO: Application Domains Beyond the PHY-Layer
4. SM-MIMO: Research Challenges and Opportunities
5. SM-MIMO: From Theory to Practice - Initial Experimental Results and

Short speakers' bio:

- Dr. Marco Di Renzo (S'05-AM'07-M'09) received the Ph.D. degree in Electrical and Information Engineering from the Department of Electrical and Information Engineering, University of L'Aquila, Italy, in 2007. Since 2010, he has been a Tenured Academic Researcher with the French National Center for Scientific Research (CNRS), as well as a faculty member of the Laboratory of Signals and Systems (L2S), a joint research laboratory of the CNRS, the Ecole Supérieure d'Electricité (SUPELEC), and the University of Paris-Sud XI, Paris, France. His main research interests are in the area of wireless communications theory, signal processing, and information theory. Dr. Di Renzo is the recipient of the special mention for the outstanding five-year (1997-2003) academic career, University of L'Aquila, Italy; the THALES Communications fellowship for doctoral studies (2003-2006), University of L'Aquila, Italy; the Torres Quevedo award for his research on ultra wide band systems and cooperative localization for wireless networks (2008-2009), Ministry of Science and Innovation, Spain; the 2012 IEEE CAMAD Best Paper Award; and the 2013 Reviewer Appreciation Award from the IEEE Wireless Communications Letters. He is an author of more than 150 IEEE journal and conference papers and he currently serves as an Editor of the IEEE COMMUNICATIONS LETTERS.

• Dr. Ali Ghayeb (S'97-M'00-SM'06) received the Ph.D. degree in electrical engineering from the University of Arizona, Tucson, USA in 2000. He is currently a Professor with the Department of Electrical and Computer Engineering, Concordia University, Montreal, QC, Canada. He is a co-recipient of the IEEE Globecom 2010 Best Paper Award. He holds a Concordia University Research Chair in Wireless Communications. He is the co-author of the book "Coding for MIMO Communication Systems" (Wiley, 2008). His research interests include wireless and mobile communications, error correcting coding, MIMO systems, wireless cooperative networks, and cognitive radio systems. Dr. Ghayeb has instructed/co-instructed technical tutorials related to MIMO systems at several major IEEE conferences, including ICC, Globecom, WCNC and PIMRC. He served as a co-chair of the Communications Theory Symposium of IEEE Globecom 2011, Houston, Texas. He serves as an Editor of the IEEE TRANSACTIONS ON WIRELESS COMMUNICATIONS, the IEEE TRANSACTIONS ON COMMUNICATIONS, and the Physical Communications Journal. He served as an Editor of the IEEE TRANSACTIONS ON SIGNAL PROCESSING, an Associate Editor of the IEEE TRANSACTIONS ON VEHICULAR TECHNOLOGY.

• Prof. Harald Haas (S'98-AM'00-M'03) holds the Chair of Mobile Communications in the Institute for Digital Communications (IDCOM) at the University of Edinburgh. He is co-founder and part-time CTO of a university spin-out company pureVLC Ltd. His main research interests are in the areas of wireless system design and analysis with a particular focus on interference coordination in wireless networks, spatial modulation, and optical wireless communication. Professor Haas holds more than 23 patents. He has published more than 55 journal papers including a Science Article and more than 160 peer-reviewed conference papers. He has co-authored a book entitled "Next Generation Mobile Access Technologies: Implementing TDD" with Cambridge University Press. Since 2007, he has been a Regular High Level Visiting Scientist supported by the Chinese "111 program" at Beijing University of Posts and Telecommunications (BUPT). He was an invited speaker at the TED Global conference 2011. He has been shortlisted for the World Technology Award for communications technology (individual) 2011. He is Associate Editor of IEEE TRANSACTIONS ON COMMUNICATIONS. He has been chair and co-chair of the Optical Wireless Communications (OWC) workshop at Globecom 2011 and 2012 respectively. He recently has been awarded the EPSRC Established Career Fellowship.

16:30 - 17:00

Coffee Break

17:00 - 18:30

S3: Energy Efficient Communications II

Room: H0110

Energy-Feedback Tradeoff in the Best-M OFDMA Systems

Hani Alyazidi (Florida Institute of Technology, USA); Ivica N. Kostanic (Florida Institute of Technology, USA)

Energy Efficient Discovery of Neighbouring Nodes via Random Linear Network Coding

Riccardo Bassoli (Instituto de Telecomunicações & University of Surrey, Portugal); Vahid Talooki (IT, Aveiro, Portugal); Hugo Marques (University of Aveiro, Portugal); Jonathan Rodriguez (Instituto de Telecomunicações, Portugal); Rahim Tafazolli (University of Surrey, United Kingdom)

Traffic-and-Interference Aware Base Station Switching for Green Cellular Networks

ATM Shafiu Alam (The Open University, United Kingdom); Laurence S Dooley (Open University, United Kingdom); Adrian Poulton (The Open University, United Kingdom)

A Base Station Switching On-Off Algorithm Using Traditional MIMO and Spatial Modulation

Athanasios Stavridis (The University of Edinburgh, United Kingdom); Sandeep Narayanan (The University of L'Aquila, Italy); Marco Di Renzo (French National Center for Scientific Research (CNRS), France); Luis Alonso (Universidad Politecnica de Catalunya-BarcelonaTECH & Telecommunications and Aerospace Engineering School of Castelldefels, Spain); Harald Haas (The University of Edinburgh, United Kingdom); Christos Verikoukis (Telecommunications Technological Centre of Catalonia, Spain)

An Integrated Bandwidth Allocation for Energy Saving in Fixed-Mobile Networks

Glenda Gonzalez (Institut Mines-Telecom, France); Tulin Atmaca (IMT/Telecom SudParis, France)

S4: Data & Cloud Networks

Room: H0107

Efficient and Precise Simulation Model of Synchronization Clocks in Packet Networks

Zdenek Chaloupka (Etisalat British Telecom Innovation Centre, UAE); Nayef A. Alsindi (Khalifa University of Science, Technology and Research - KUSTAR, UAE); James Aweya (Etisalat British Telecom Innovation Center/Khalifa University, UAE)

Joint compressed-sensing and matrix-completion for efficient data collection in WSNs

Alexandros Fragkiadakis (Institute of Computer Science, FORTH, Greece); Yannis Askoxylakis

(FORTH-ICS, Greece); Elias Tragos (Institute of Computer Science, FORTH, Greece)

On Netflix catalog dynamics and caching performance

Walter Bellante (Telecom ParisTech, France); Rosa Vilardi (Politecnico di Bari, Italy); Dario Rossi (Telecom ParisTech, France)

Cloud for Multimedia Applications and Services over Heterogeneous Networks ensuring QoE

Christos Tselios (University of Patras, Greece); Ilias Politis (University of Patras, Greece); Konstantinos Birkos (University of Patras, Greece); Tasos Dagiuklas (Hellenic Open University & University of Patras, Greece); Stavros Kotsopoulos (Wireless Telecommunications Laboratory, Greece)

Expedient Reconfiguration in the Cloud

Bruno Miguel Sousa (University of Coimbra, Portugal); Ricardo Santos (University of Coimbra, Portugal); Marilia Curado (University of Coimbra, Portugal); Soila Pertet (Carnegie Mellon University, USA); Rajeev Gandhi (Carnegie Mellon University, USA); Carlos Silva (Portugal Telecom, Portugal); Kostas Pentikousis (EICT, Germany)

09:00 - 11:00

T3: Security for Smart Metering Gateways in Smart Grids

Prof. Dr. Christoph Ruland, Dr.-Ing Obaid Ur-Rehman and Dr.-Ing. habil. Natasa Zivic

Room: H0110

Abstract:

Smart meters, in contrast to the classical meters, offer a broad range of new functionalities needed for the smart grid. One of the main functionalities is to exchange information on the consumption of commodities such as gas, water and electricity to the utility for monitoring and billing activities. Another important functionality is the exchange of management data with the remote entities, e.g., the control centers. Last but not the least, the remote firmware update is also supported by the smart meters, so that the provider can update the firmware remotely, e.g., apply a security patch, without having to physically visit all the meters. The communication between a (smart) meter and the external entities is normally done over the public and possibly insecure networks. This involves the general security risks such as intrusion in privacy of a customer by monitoring his energy consumption, malicious firmware update via forgeries etc.

The success of smart metering and therefore the smart grid systems depends on the security and protection of data. Many technologically advanced countries have either already developed or are currently working on developing a regulatory framework for the implementation of smart meters. In Germany, the German Federal Ministry of Economics and Technology tasked the German federal office for information security, known as Bundesamt für Sicherheit in der Informationstechnik (BSI), to develop a Protection Profile (PP) for the gateway of a smart metering system. In 2011, BSI developed the "Protection Profile for the Gateway of a Smart Metering System (or the Smart Metering Gateway PP)" based on the common criteria. This PP was updated recently in March 2013 with the final release of the PP. This highlights the significance of the gateway in the smart metering system architecture in Germany. According to the PP, the gateway can either be a part of the smart meter or it can be a separate device controlling the communication between smart meter(s) and external entities. The gateway acts as the first line of defense in the smart metering infrastructure. It is an interface between the Home Area Network (HAN), the smart meter(s) and the Wide Area Network (WAN). Each gateway has to pass the common criteria evaluation before it is certified and allowed to be placed in the field. The complexity has increased many folds during the transition from a classical Ferraris meter to a smart meter and a smart meter gateway. Different security aspects during the different phases of the engineering process have to be taken into account while developing a smart metering gateway.

Model Driven Engineering (MDE) has emerged as a useful tool to synthesize the artifacts from different phases of software development. More often, the developers of smart metering systems are not security experts and there is a need of expert domain knowledge for the enhanced security in the system. Such expert knowledge can be gathered in the form of security patterns, which are thoroughly tested, formally proven to work and potentially certified. These patterns can be reused including all the artifacts at various stages of the software development for further software development without reinventing the wheel. Thus security is embedded by design rather than adding security patches at a later stage.

In this tutorial, we will use the model driven engineering tools for designing the individual components of a smart metering gateway. Patterns for the gateway are identified from the BSI protection profile, which is chosen as an example. These patterns are then designed and developed at various layers of the software development architecture. The tools will then be used to demonstrate how security can be integrated in to the smart metering gateway designed from scratch. This will be shown for various layers of the software development architecture using the V-Model. The practical use of a hardware based security module and the software based communication module will also be demonstrated during the tutorial.

Table of Contents:

1. Welcome and introduction
2. Smart meter evolution / Need for a gateway
3. Security issues in a smart metering gateways
4. The BSI protection profile
5. Reusability using model driven engineering
6. Security patterns for a smart metering gateway
7. Security module and communication module of a smart metering gateway
8. Design of security patterns for a smart meter gateway at various layers of the V-Model
9. Questions and Answers

Short speakers' bio:

• Prof. Dr. Christoph Ruland received a diploma (1974) and Dr.-degree (1976) in mathematics from the University of Bonn. He worked for six years in the industry developing communication protocols and managing network projects and products. 1982 he became a professor for telecommunication at the University for Applied Sciences in Aachen. Since that time his main research area is the integration of cryptography and security into communications systems. In 1988 he founded KryptoKom, company for cryptographic information security and communications technology, which grew up to 110 employees. Christoph Ruland became a full professor for data communications systems at the University of Siegen, Department for Electrical Engineering and Computer Science, in 1992. He published more than 120 research papers and 2 books. He is member of

ISO/IEC SC 27 (Security Techniques) and co-chair of the eSafety security working group of the European Commission. He is chair of the research committee of the Faculty of Science and Technology of the University of Siegen. His research group performed 10 EU projects, 5 DFG projects and many industrial projects. He supervised more than 200 graduate students and 25 doctor students. He is a senior member of IEEE. For the last 10 years, his research is focused on security in real-time systems and industrial applications.

- Dr.-Ing Obaid Ur-Rehman is a post doctoral fellow at the University of Siegen, Germany. His main interests are in error correcting codes, communications and network security. Dr.-Ing Ur-Rehman received his M.Sc. degree in 2004 in Computer Engineering from the Faculty of Electrical Engineering, University of Engineering and Technology, Taxila. He received his Dr.-Ing degree from the University of Siegen, Germany in 2012, where he worked on soft decoding techniques for error correcting codes and their applications in various fields, such as message authentication in the presence of noise. After his doctorate, he continued working as a post doctoral fellow at the chair for data communications, University of Siegen, where he works on various industry funded research projects. He has more than 7 years of industrial and academic experience. He serves as the reviewer of various international journals and has authored more than 25 scientific research publications in international conferences and journals.

- Dr.-Ing. habil. Natasa Zivic is an Assistant Professor and a Private Docent at the University of Siegen. She works as a lecturer at the University of Siegen since 2007, teaching Basics of Communication Techniques, Digital Communications Technologies I and Digital Communications Technologies II. Dr.-Ing. habil. Natasa Zivic received Dipl.-Ing. degree (1999) and a Magister degree (2002) from the Faculty of Electrical Engineering at the University of Belgrade, Serbia. She started her research at the Chair for Data Communications Systems at the University of Siegen, Germany in October 2004. She received Dr.-Ing. Degree from the University Siegen, Faculty for Electrical and Computer Engineering in 2007 and continued her work as a lecturer and as a postdoctoral candidate. She defended her Postdoctoral Degree (Habilitation) in area of Electrical Engineering and Telecommunications from the University Siegen in 2012. Her actual areas of interest are connection between cryptography and standard communication techniques like channel coding, and applying of cryptography in communications, especially in noisy environments. She published about 100 journal and conference papers, 2 monographs and 3 patents (2 in Germany and 1 in USA). She works as a member of the German national body in ISO and as a project editor of security standards. She served as a TPC member and an organizer of several IEEE conferences/workshops and as a technical reviewer of several IEEE and other journals. She is a member of IEEE and IEEE Communication Society.

11:00 - 11:30

Coffee Break

11:30 - 12:30

K2: Keynote: Eleni Patouni

Autonomics in Future Networks: Novel Network & Resource Management Schemes

Room: H0110

Abstract:

This talk will shed light in the area of Future Internet Technologies identifying the main gaps and research challenges. The topic of network management will be approached focusing on the points that render it so difficult to approach, resulting in the dead-end network management situation faced nowadays by the network operators. Next a solution will be proposed through Novel Network & Resource Management Schemes. The concept of autonomous distributed systems as addressed by UniverSelf project will be analysed. The architectural approach of the Unified Management Framework will be presented, as a mean to foster autonomicity and intelligence in Future Networks. Special focus will be paid to the concept of Network & Service Governance: a framework for the dynamic, joint management of networks, services and the underlying resources. The impact and innovation offered by these concepts will be analysed through prototyping activities. Respective results will also presented.

Bio:

Dr. Eleni Patouni received the B.Sc. and M.Sc degrees (with honours, ranked 1st in her class) from the Department of Informatics and Telecommunications, NKUA in 2003 and 2005 respectively. In 2010, she received the phd degree from the same department. Since October 2004, she has been participating in the European IST-FP6 Integrated Projects "E2R", "E2R II" (End-to-End Reconfigurability phase I and II), IST-FP7 E3 (End-to-End Efficiency) also leading SWP4.1 "Self-management in autonomous system entities" & FP7 Self-NET. From 2009 to 2012, she has been also an adjunct lecturer in the Technological Educational Institute of Athens (TEI of Athens). Starting on September 2010, she currently serves as senior researcher & Delegate Workpackage Leader in FP7 UniverSelf. Since September 2012, he serves as a Post-Doctoral Researcher in the research programme FutureNET (Fair Synergetic Resource Management and Behaviour-Aware Adaptation in Future Internet Environments) which was submitted by Dr. Eleni Patouni and approved for funding (success rate 6%) under the action 'Support of Postdoctoral Researchers' of the Ministry of Education, Lifelong Learning & Religious Affairs, General Secretariat for Research and Technology. She has more than 35 publications in the thematic areas of beyond 3G, cognitive networks and autonomic communication systems.

In September 2006, she received the best paper award in the IFIP Autonomic Networking Conference, 2006. In May 2013, she received the best session award for organising the session "Network operators' perspective on Future Networks challenges" in Future Internet Assembly (FIA 2013). Her main research interests include network-management and decision-making mechanisms, load balancing algorithms, object-oriented design of mobile network systems, reconfigurable protocols and component-based models, as well as cognitive and autonomic networking issues.

12:30 - 13:30

P1: Panel

Towards a Smart Electric Vehicle Charging Infrastructure

Room: H0110

Participants:

George Michailidis, University of Michigan
Ann Arbor, USA
Kai Strunz, TU-Berlin, Germany
Michael Devetsikiotis, NC State University, USA

13:30 - 15:00

Lunch break

15:00 - 16:30

S5: LTE Wireless Networks

Room: H0110

Mobility Performance and Suitability of Macro Cell Power-Off in LTE Dense Small Cell HetNets

Xavier Gelabert (Huawei Technologies Sweden AB, Sweden); Zhou Guohua (Huawei Technologies Sweden, Sweden); Peter Legg (Huawei Technologies Sweden AB, Sweden)

Efficient Uplink Power Control in Multi-Service Two-Tier Femtocell Networks via a Game Theoretic Approach

Eirini Eleni Tsiropoulou (National Technical University of Athens/Institute of Comm. and Comp. Systems, Greece); Georgios Katsinis (National Technical University of Athens, Greece); Panagiotis Vamvakas (National Technical University of Athens, Greece); Symeon Papavassiliou (National Technical University of Athens, Greece)

Uplink Energy Efficiency in LTE Systems

Xavier Pons Masbernat (Cassidian, France); Raul Palacios (University of Trento, Italy); Christophe Gruet (EADS, France); Lirida Naviner (Ecole Nationale Supérieure des Télécommunications, France); Hugo Marques (University of Aveiro, Portugal); Fabrizio Granelli (University of Trento, Italy); Jonathan Rodriguez (Instituto de Telecomunicações, Portugal)

Evaluation of Cell Selection Algorithms in LTE-Advanced Relay Networks

Chao Zhao (Linköping University, Germany); Vangelis Angelakis (Linköping University, Sweden); Di Yuan (Linköping University, Sweden); Bogdan Timus (Ericsson, Sweden)

Power Efficient Uplink Scheduling in SC-FDMA: Bounding Global Optimality by Column Generation

Hongmei Zhao (Linköping University, Sweden); Lei Lei (Linköping University, Sweden); Di Yuan (Linköping University, Sweden); Torbjörn Larsson (Linköping University, Sweden); Elina Rönnerberg (Linköping University, Sweden)

S6: Energy To Smart Grid

Room: H0107

On-Chip AC/DC Converter With No-Load Over-Voltage Protection and Output Ripple Reduction

Peyman Goravanchi (RWTH Aachen University, Germany); Ralf Wunderlich (RWTH Aachen University, Germany); Stefan Heinen (RWTH Aachen, Germany)

Open Source Framework for Energy Management - Software and Hardware Aspects of an Energy Management Gateway

Peter Heusinger (Fraunhofer Institut für Integrierte Schaltungen, Germany); Michael Wagner (Fraunhofer Institut für Integrierte Schaltungen, Germany)

An Intragrid implementation embedded in an Internet of Things platform

Elisa Spanò (University of Pisa, Italy); Stefano Di Pascoli (University of Pisa, Italy); Giuseppe Iannaccone (University of Pisa - Dipartimento di Ingegneria dell'Informazione, Italy)

A Service-oriented Gateway for Remote Monitoring of Building Sensor Networks

Antonio Guerrieri (Università della Calabria, Italy); Luca Geretti (University of Udine, Italy); Giancarlo Fortino (Università della Calabria, Italy); Antonio Abramo (University of Udine, Italy)

Robustness of the Whittle estimator applied to non-linear long-memory processes

Maria-Estrella Sousa-Vieira (University of Vigo, Spain)

16:30 - 17:00

Coffee Break

17:00 - 18:30

S7: Physical Layer Transmission

Room: H0110

The Performance of Full-Rate Space-Time Codes in MIMO Environment

Ines Ben Hassine (InnovCOM@SUPCOM, Tunisia)

Effect of Pilot Ratio on Channel Estimation for Spatial Modulation

Xiping Wu (University of Edinburgh, United Kingdom); Marco Di Renzo (French National Center for Scientific Research (CNRS), France); Harald Haas (The University of Edinburgh, United Kingdom)

Performance analysis of the bit-interleaved coded modulation using turbo equalization with single carrier frequency domain equalization using subblock signal processing over fast fading channels

Chantri Polprasert (National Electronics and Computer Technology Center, USA); James A. Ritcey (University of Washington, USA); Siwaruk Siwamogsatham (NECTEC, Thailand)

Performance Analysis of Antenna Subset Selection in Space Shift Keying Systems

Konstantinos Ntontin (CTTC, Spain); Marco Di Renzo (French National Center for Scientific Research (CNRS), France); Ana Perez-Neira (UPC, Spain); Christos Verikoukis (Telecommunications Technological Centre of Catalonia, Spain)

Distributed Spatially-Modulated Space-Time-Block-Codes

Sandeep Narayanan (The University of L'Aquila, Italy); Athanasios Stavridis (The University of Edinburgh, United Kingdom); Marco Di Renzo (French National Center for Scientific Research (CNRS), France); Fabio Graziosi (University of L'Aquila, Italy); Harald Haas (The University of Edinburgh, United Kingdom)

S8: Wireless Communications

Room: H0107

Physical Layer Security vs. Network Layer Secrecy: Who Wins on the Untrusted Two-Way Relay Channel?

Johannes Richter (Dresden University of Technology, Germany); Elke Franz (Technische Universität Dresden, Germany); Sabrina Engelmann (Dresden University of Technology, Germany); Stefan Pfennig (TU Dresden, Germany); Eduard Jorswieck (Dresden University of Technology, Germany)

Energy-aware traffic engineering with elastic demands and MMF bandwidth allocation

Edoardo Amaldi (Politecnico di Milano, Italy); Antonio Capone (Politecnico di Milano, Italy); Stefano Coniglio (Politecnico di Milano, Italy); Luca Gianoli (École Polytechnique de Montréal & École Polytechnique de Montréal, Italy)

Maximizing Energy Conservation in a Centralized Cognitive Radio Network Architecture

George Mastorakis (Technological Educational Institute of Crete, Greece); Constandinos X. Mavromoustakis (University of Nicosia, Cyprus); Athina Bourdena (University of the Aegean, Greece); Georgios Kormentzas (University of the Aegean, Greece); Evangelos Pallis (Technological Educational Institute of Crete, Greece)

Fairness Evaluation of a Secondary Network Coexistence Scheme

Agapi Mesodiakaki (UPC, Spain); Ferran Adelantado (Universitat Oberta de Catalunya, Spain); Angelos Antonopoulos (Telecommunications Technological Centre of Catalonia (CTTC), Spain); Luis Alonso (Universidad Politécnica de Catalunya-BarcelonaTECH & Telecommunications and Aerospace Engineering School of Castelldefels, Spain); Christos Verikoukis (Telecommunications Technological Centre of Catalonia, Spain)

Distributed Joint Relay-Pair Selection for Buffer-Aided Successive Opportunistic Relaying

Nikolaos Nomikos (University of the Aegean, Greece); Prodromos Makris (University of the Aegean, Greece); Demosthenes Vouyioukas (University of the Aegean, Greece); Dimitrios N Skoutas (University of the Aegean, Greece); Harry Skianis (University of the Aegean, Greece)

20:00 - 22:00

Social dinner

09:00 - 10:00

K3: Keynote: Christian Wietfeld

Aerial ad-hoc Network Provisioning: Design Challenges and Solution Approaches

Room: H0110

Abstract:

A new generation of light-weight and small airborne platforms (such as multicopters) enables the design of networked aerial robotic systems for a wide range of applications, for example in environmental monitoring and emergency response. In this talk, challenges and solution approaches for a flexible self-configuring ad-hoc provisioning of aerial network services are addressed. The system design incorporates heterogeneous networking technologies such as aerial IEEE 802.11n hotspots, secure 802.11s Aerial mesh networks and the interference-aware integration of aerial LTE eNodeBs into existing cellular network infrastructure. For the optimal positioning of the aerial base stations, communication-aware algorithms for microscopic as well as macroscopic mobility control are discussed. An IP-based group communication protocol (Push-to-X) is introduced as multi-media network service specifically useful in emergency response scenarios. Due to the use of heterogeneous network technologies ranging from WLAN to satellite, QoE optimization methods of the group communication service based on statistical network classification are proposed. The performance evaluation results presented in the talk build on a model-based design approach which includes a dedicated multi-scale simulation environment, a detailed physical channel representation, analytical models and real-world experiments.

Bio:

Christian Wietfeld is full professor and head of the Communication Networks Institute (CNI) of TU Dortmund University, Germany. Christian received his Dipl.-Ing. and Dr.-Ing. degrees from RWTH Aachen University, Germany. Since more than 20 years, he has contributed to and coordinated national and international research projects on mobile and wireless data communication systems in academia and industry (Siemens AG). Currently, Christian is guiding 25 researchers in mainly 3rd party funded projects. He has published over 165 peer-reviewed publications and various patents. For his contributions to the standardization of next generation mobile network architectures, he received an ITU-T outstanding contribution award. Christian Wietfeld chairs the IEEE's German sister organization VDE/ITG committee on "Communication Networks and Systems" and has co-founded the IEEE GLOBECOM Workshop on Wireless Networking for Unmanned Autonomous Vehicles (Wi-UAV).

10:00 - 11:00**D1: GREENET Industrial Dissemination Day**

Session 1

Room: H0107

K4: Keynote: Matthew Baker

3GPP's Programme to provide integrated Public Safety Communications through LTE

Room: H0110

BIO:

Matthew Baker has been Chairman of 3GPP TSG RAN Working Group 1 since 2009 and is a Distinguished Member of Technical Staff at Alcatel-Lucent. He holds degrees in Engineering and Electrical and Information Sciences from the University of Cambridge, and he has been actively participating in the standardization of both UMTS/HSPA and LTE in 3GPP since 1999. Prior to joining Alcatel-Lucent, he worked at Philips for 12 years, where he conducted research into a variety of wireless communication systems and techniques, including propagation modeling, DECT, Hiperlan and UMTS, as well as leading the Philips 3GPP RAN standardization team. He is a Chartered Engineer, a Member of the Institution of Engineering and Technology and a Visiting Professor at the University of Reading, UK. He is co-editor of "LTE - The UMTS Long Term Evolution: From Theory to Practice" (Wiley, Second Edition 2012) and author of numerous papers.

11:30 - 13:00**D2: GREENET Industrial Dissemination Day**

Session 2

Room: H0107

S9: ETPSC: Emerging Technologies and Trends for Public Safety Communications I

Room: H0110

Temporary Cognitive Femtocell Network For Public Safety LTE

Akram Al-Hourani (RMIT University, Australia); Sithamparanathan Kandeepan (RMIT University, Australia)

Spectrum Awareness Scheme of the Rapidly Deployable eNodeB for Unexpected and Temporary Events

Hanwen Cao (Universität Duisburg-Essen, Germany); Wei Jiang (University of Duisburg-Essen, Germany); Tomaz Javornik (Jozef Stefan Institute, Slovenia); Michael Wiemeler (Universität Duisburg-Essen, Germany); Trung Thanh Nguyen (Faculty of Engineering, The University of Duisburg-Essen, Germany); Thomas Kaiser (Universität Duisburg-Essen, Germany)

Spectrum Sensing and Detection of Incumbent-UEs in Secondary-LTE based Aerial-Terrestrial Networks for Disaster Recovery

Senthuran Arunthavanathan (RMIT University, Australia); Sithamparanathan Kandeepan (RMIT University, Australia); Rob Evans (The University of Melbourne, Australia)

Power Control Game for Spectrum Sharing in Public Safety Communications

Andrey Somov (CREATE-NET, Italy); Tinku Rasheed (Create-Net Research, Italy); Venkata Kiran Yedugundla (NUS, Singapore)

An Approach for Discrete-Event Simulations of Alamouti Scheme in Ad Hoc

Networks

Éverton Andrade (University of Brasilia, Brazil); Fadhil Firyaguna (University of Brasilia, Brazil); Ana Carolina Christófaro (University of Brasilia, Brazil); Marcelo M Carvalho (University of Brasilia, Brazil)

13:00 - 14:30

Lunch break

D3: GREENET IDD Panel

Room: H0107

14:30 - 16:15

ETPSC Panel

Room: H0110

Chair: Tinku Rasheed (Create-Net Research, Italy)

Moderator: Tinku Rasheed (Create-Net, Italy)

Speakers:

Isabelle Buaille (Thales Communications & Security, France): Overview of the FP7 ABSOLUTE project.
Prof. Fumiuki Adachi (Tohoku University, Japan): Disaster-resilient Multilayered Communications Network
Prof. Katsumi Iwatsuki (Tohoku University, Japan): Overview on Activities of ROEC in Tohoku University

16:15 - 16:30

Coffee Break

16:30 - 18:00

S10: ETPSC: Emerging Technologies and Trends for Public Safety Communications II

Room: H0110

A Heuristic Computation Method for Monitoring Trails Terminated at Specified Nodes

Nagao Ogino (KDDI R&D Laboratories Inc., Japan); Hidetoshi Yokota (KDDI Labs, Japan)

Traffic analysis and network dimensioning through simulation and emulation for Ka band high capacity satellite systems

Luca Carniato (Open-sky s.r.l, Italy); Federica Fongher (Opensky, Italy); Michele Luglio (University of Rome Tor Vergata - Dip. Ing. Elettronica, Italy); Walter Munarini (Opensky, Italy); Cesare Roseti (University of Rome Tor Vergata, Italy); Francesco Zampognaro (University of Rome Tor Vergata, Italy)

Toward Terminal-to-Terminal Communication Networks: A Hybrid MANET and DTN Approach (Invited Paper)

Yuichi Kawamoto (Tohoku University, Japan); Hiroki Nishiyama (Tohoku University, Japan); Nei Kato (Tohoku University, Japan)

Realistic Deployments of LTE-based Hybrid Aerial-Terrestrial Networks for Public Safety

Karina Mabell Gomez (Create-Net & The University of Trento, Italy); Tinku Rasheed (Create-Net Research, Italy); Laurent Reynaud (Orange Labs, France); Isabelle Buaille (Thales Communications, France)

Experimental Analysis of Wireless Temporary Networks Deployed by Low Altitude Platforms

Andrej Vilhar (Jozef Stefan Institute, Slovenia); Andrej Hrovat (Jožef Stefan Institute, Slovenia); Tomaz Javornik (Jozef Stefan Institute, Slovenia); Mihael Mohorcic (Jozef Stefan Institute, Slovenia)