



*The 69th IEEE
Vehicular Technology Conference*

Programme



26 - 29 April 2009

Hilton Diagonal Mar

Barcelona, Spain

Welcome from the General Co-Chairs

The entire organizing committee welcome you to Barcelona. It is our pleasure to be hosting the 2009 IEEE 69th Vehicular Technology Conference for the first time in Spain, drawing scientific experts in academia and industry from all over the world.

The aim of this conference is to provide a forum of researches and technologists from academia and industry to present new ideas and contributions in the form of technical papers, panel discussions and tutorials, as well as to contribute to ease and extend the participant's relationship for fruitful future cooperation activities.

Barcelona is a well known city located in north east of Spain and the capital of Catalonia. The city has charming streets, and is full of life where you will find a combination of culture, cuisine, art and architecture. The old town is famed for its historical monuments, narrow streets and bohemian atmosphere. The city also has the biggest selection of modernist architecture; most

of these buildings are in the Eixample district which constitutes a unique model of European urban planning. Barcelona is the only European capital with over four kilometres of beaches where you can enjoy the most modern amenities and these beaches are not far from Barcelona's historical landmarks, and they have opened up our modern and cosmopolitan city to the sea.

Our committee has worked hard to put together an excellent technical program we wish you can share with a social program that introduces you to the friendly and welcoming people of Barcelona. Last but not least, our special thanks also go to Fundación Vodafone, our platinum sponsor, for their strong and keen support.

We wish warm welcome to Barcelona and to the VTC 2009-Spring conference

Ramon Agustí
José Luis Ripol, *General Co-Chairs*

Welcome from the TPC Co-Chairs

On behalf of the Technical Program Committee (TPC), it is our pleasure to welcome you to the 69th IEEE Vehicular Technology Conference to take place in the beautiful Mediterranean city of Barcelona in Spain. Barcelona has established itself over the years as a European technological capital, and in fact as the world's mobile and wireless communications capital with the yearly celebration of the Mobile World Congress. This year's conference theme, 'Defining the Future Wireless Landscape', captures very well the current global situation and desire to boost the mobile and wireless communications industry through the development of innovative concepts and technologies addressing the current world challenges. To contribute to such development, the conference committee has set up an impressive program that reflects the current technical and research trends, consisting of 82 oral sessions and 11 poster sessions. In total, the conference Track Chairs, with the help of 381 Technical Program Committee members and 2445 reviewers, have selected 405 oral papers and 231 poster papers, from a total of 1140 submissions. In addition to the regular sessions, the program features 20 invited papers, and offers seven tutorials addressing some of the main mobile and wireless technological challenges,

three worldwide renowned industry and academic plenary speakers (Prof. Michael Walker, Vodafone, Prof. Arogyaswami Paulraj, Stanford University and Beceem Communications, and Prof. Ian F. Akyildiz, Georgia Institute of Technology), and two industry-focused panels discussing the technical challenges in the Beyond 3G and Future Internet definition. The technical and organising committees are also pleased to announce that the 69th IEEE VTC2009 Spring conference will also host the European Commission concertation cluster "Radio Access & Spectrum" (RAS) workshop.

Creating this impressive program is not possible without the voluntary support from an outstanding team of colleagues that we would like to strongly thank. Special thanks go to our conference Track Chairs that organised a very efficient and smooth reviewing process: Sergio Palazzo and Roberto Verdone (Ad-hoc and Sensor Networks), José M. Hernando and Rafael Torres (Antennas and Propagation), Mehmet Can Vuran and Friedrich Jondral (Cognitive Radio), Sastri Kota and José I. Herrero (Mobile Satellite and Positioning Systems), Mischa Dohler and Luis Correia (Multiple Antenna Systems and Space-Time Processing), Javier R. Fonollosa and Jad Nasreddine (Transmission Technologies),

Bih-Yuan Ku (Transportation), Carolina Pinart and Wai Chen (Vehicular Communications), Antonio Valdovinos and Lorenza Giupponi (Wireless Access), Narcís Cardona and Hiroshi Harada (Wireless Networks), and Josep Paradells (Wireless Services and Applications).

We would also like to thank the great job of our dedicated TPC members and reviewers, who understood that as members of the technical community, cooperative participation in the reviewing process is required to provide the professional and timely review of our technical contributions that we all expect and demand. We are also very grateful to our tutorials (Silvano Pupolin), invited papers (Reinaldo Valenzuela and Angel Lozano), panel (Didier Bourse and Jaime Bustillo) and publications (Guillem Femenias) chairs for their great job and

contribution. Finally, we would like to thank the constant support from Sherri Walcheski and James Irvine in the technical program preparation process. Of course, making a successful technical conference is not possible without the participation from authors, to whom we would like to express our gratitude for having decided to present and share their ideas and contributions at the 69th IEEE VTC2009 Spring Conference.

Once again, we welcome you all to the 69th IEEE VTC2009-Spring Conference and hope you will appreciate and enjoy both the technical program and social opportunities that a city like Barcelona can offer you.

Oriol Sallent
Javier Gozalvez, *TPC Co-Chairs*

Welcome from the VTS President

On behalf of the IEEE Vehicular Technology Society, it is my great pleasure to welcome you to the IEEE 69th Vehicular Technology Conference in Barcelona, the capital of Catalonia. Barcelona has a very long history and has been a cross roads for many cultures, which makes it a fitting venue for the Vehicular Technology Society's flagship conference as it celebrates sixty years of connecting the mobile world. Each year we survey attendees at the conference, including questions on future venues, and Barcelona scored very highly. However, a conference cannot be held without committed support from many volunteers, and we have been very fortunate to have a very experienced team lead by Ramon Agustí and José Luis Ripoll, backed by strong support from Universitat Politècnica de Catalunya and Fundació Vodafone. TPC Co-chairs Oriol Sallent and Javier Gozalvez and their team, who have worked very hard to select a top quality technical programme, and the entire organising committee has worked to ensure that you will all get to experience an enjoyable and stimulating conference in this distinct part of Spain. The Hilton Diagonal Mar is a new hotel within a redeveloped part of the city, but the metro is a very short walk away, and I would encourage you to spend some time exploring the city and the surrounding region.

One of the most pleasing aspects of this conference is that in spite of the 'credit crunch' getting in to full swing as the call for papers was being circulated, both submissions and attendance at the conference are in line with expectations. One of the results of the credit crunch is that in many areas research is refocusing on more efficient and less wasteful technologies. Mobility technologies, which are at the heart of the VTS field of interest, are key to reducing the modern world's impact on the environment. VTS activities in hybrid vehicles and railway systems are perhaps the most obvious examples of this, but advanced communications and wireless technologies have a huge role to play. 'Green radio' will be a theme at the 70th VTC in Anchorage, but systems approaches to reduce infrastructure, promote remote working, and minimise overall energy use also show great promise. I invite you to think of these challenges as you see the research presented at the conference, and to get involved with the initiatives within VTS to help shape your profession's future. Find out more at www.vtsociety.org

Finally I would like to thank all of you for travelling to and participating in the conference. I wish you an enjoyable and stimulating visit.

James Irvine, *President*
IEEE Vehicular Technology Society

Opening Plenary

Monday, 27 April, 9.00 – 10.40 Ballroom A&B

Official Opening

Reinaldo Rodríguez Illera, *President of the Spanish Telecommunications Market Commission*

The Spanish Telecommunications Market Commission, an independent Public Body that regulates national electronic communications and audiovisual services markets, was created by Royal Decree-Act 6/1996, of June 7, 1996 (Liberalisation of Telecommunications). The objective of the Telecommunications Market Commission is to establish and supervise the specific obligations that must be met by telecommunications market operators and to promote competition in the audiovisual services markets, pursuant to its regulatory provisions, to resolve conflicts between operators and if necessary, to act as an arbitrations body in disputes between those operators.

Reinaldo Rodríguez Illera holds a Telecommunications Engineering Degree from the Polytechnic University of Madrid. From July 1991 to March 1995, he was Telecommunications Executive Advisor for the Spanish Ministry of Telecommunications. From 1995 to 1996, he was Telecommunications General Director and Government Delegate in Telefónica. During this

period, he was also a member of the Board of Directors of the Spanish Post and Telegraph Body, the National Institute for Aerospace Technology and Hispasat. He has been President of the Comisión del Mercado de las Telecomunicaciones (CMT), the Spanish Telecommunications Market Commission, since May 2005.

Broadband through Wireless – the unfolding story of the mobile Internet

Michael Walker *FREng, Vodafone*

The author will describe the emergence of wireless broadband technology with emphasis on the potential ubiquity of the 3GPP defined Long Term Evolution (LTE) technology. The author will present recent results of the performance of the technology from a user perspective as measured in pre-commercial field trials. He will discuss the potential for LTE to be the first global wireless technology without a competitor and look at likely geographical and radio frequency deployment scenarios. He will consider potential obstacles to its uptake – from technological, commercial and regulatory perspectives – and he will also contemplate how wireless broadband may ultimately become dominant over fixed. The author will consider parallel developments in web run-time technology and standards for the mobile Internet.

Professor **Michael Walker** is the Group Research and Development Director for the Vodafone Group of companies, with the responsibility for the Group's research activities, intellectual property and technology standards worldwide. He also leads technology innovation and manages engagement with start-up companies. He is a member of the board of Vodafone Ventures, the venture capital arm of the company. Michael holds the Vodafone Chair in Telecommunications at Royal Holloway, University of London, as a part-time professor, is a visiting professor at the University of Surrey, and is Vice Chairman of Mobile VCE – a group of universities and industries researching mobile communications. He sits on scientific

advisory boards for the Universities of Warwick and Surrey, the London Development Agency and some start-up companies. He has held a number of positions with standards bodies, including chairmanship of the body responsible for the security aspects of UMTS, and he was recently elected chairman of the Board of the European Telecommunications Standards Institute. Before joining Vodafone, Michael was Head of Mathematics at Racal Research, and prior to that an academic at the University of Tuebingen in Germany. Michael is a Fellow of the Royal Academy of Engineering, a member of the Council of the Academy and President Designate of the Institute of Mathematics and its Applications.

WiMAX - Technology, Deployments, Evolution and Competitive Landscape

Arogyaswami Paulraj, *Stanford University*

WiMAX (and it's soon to follow twin LTE) is a new generation MIMO-OFDMA based technology that ushers in the 4G era. This talk will discuss WiMAX covering the following issues: its early origins in the US, core technological principles, standards status, major vendors and eco-system, details of deployments around the world, typical network planning parameters being used, dual mode and 3G/WiFi co-existence, and finally the evolution roadmap in infrastructure, terminals and standards. We will conclude by looking at LTE's current status and discuss whether, in the current economic scenario, LTE and WiMAX should be rivals or find ways to cooperate to serve global needs for low cost broadband mobile internet.

Professor **Arogyaswami Paulraj**, Stanford University, is a pioneer of MIMO wireless communications, a technology break through that enables dramatically improved wireless performance. MIMO is now incorporated into all new wireless standards including WiFi, WIMAX and 3.5G, and 4G.

Paulraj is the author of over 400 research papers, two text books and holds 41 US patents. He won a number of IEEE Awards for Best Papers and the Technical Achievement. Paulraj is a member of the US National Academy of Engineering, the Royal Swedish Academy of Engineering Sciences, and the Academy

of Sciences for the Developing World and the Indian National Academy of Engineering.

In 1999, Paulraj founded Iospan Wireless Inc, which pioneered MIMO-OFDMA fixed wireless technology and developed chip sets for fixed wireless systems. Iospan was acquired in by Intel Corporation in 2003. In 2004, Paulraj co-founded Beceem Communications Inc to develop chips sets for WIMAX 802.16e standard. The company is now the leading supplier of Mobile WIMAX chipsets. He is known as the father of WIMAX in USA.

CRAHNS: Cognitive Radio Ad Hoc Networks

Ian F. Akyildiz, *Georgia Institute of Technology*

Cognitive radio (CR) technology is envisaged to solve the problems in wireless networks resulting from the limited available spectrum and the inefficiency in the spectrum usage by exploiting the existing wireless spectrum opportunistically. CR networks, equipped with the intrinsic capabilities of the cognitive radio, will provide an ultimate spectrum-aware communication paradigm in wireless communications. CR networks, however, impose unique challenges due to the high fluctuation in the available spectrum as well as diverse quality-of-service (QoS) requirements. Specifically in cognitive radio ad hoc networks (CRAHNS), the distributed multi-hop architecture, the dynamic network topology, and the time and location varying spectrum availability are some of the key distinguishing factors. In this talk, intrinsic properties and current research challenges of the CRAHNS are presented. First, novel spectrum management functionalities such as spectrum sensing, spectrum sharing, and spectrum decision, and spectrum mobility are introduced from the viewpoint of a network requiring distributed coordination. A particular emphasis is given to distributed coordination between CR users through the establishment of a common control channel. Moreover, the influence of these functions on the performance of the upper layer protocols, such as the network layer, and transport layer protocols are investigated and open research issues in these areas are also outlined. Finally, a new direction called the commons model is explained, where CRAHN users may independently regulate their own operation based on pre-decided spectrum etiquette.

Professor **Ian F. Akyildiz** received his BS, MS, and PhD degrees in Computer Engineering from the University of Erlangen-Nuernberg, Germany, in 1978, 1981 and 1984, respectively. Currently, he is the Ken Byers Distinguished Chair Professor with the School of Electrical and Computer Engineering, Georgia Institute of Technology, Director of Broadband Wireless Networking Laboratory. and Chair of the Telecommunication Group at Georgia Tech. Dr. Akyildiz is also an Honorary Professor with School of Electrical Engineering at the Universitat Politecnica de Catalunya, Barcelona, Spain since June 2008. He is the

Editor-in-Chief of Computer Networks (Elsevier) Journal, the founding Editor-in-Chief of the Ad Hoc Networks Journal (Elsevier) in 2003 and of the Physical Communication (PHYCOM) Journal (Elsevier) in 2008. Dr. Akyildiz serves on the advisory boards of several research centers, journals, conferences and publication companies.. Dr. Akyildiz is an IEEE Fellow (1996) and an ACM Fellow (1997). He received numerous awards from IEEE and ACM. His current research interests are in Cognitive Radio Networks, Wireless Sensor Networks, Wireless Mesh Networks, Nanonetworks.

Tuesday Panel

Tuesday, 28 April, 14.10 – 15.50 Ballroom C

Beyond 3G: current status

Chair: Jaime Bustillo *Director of Technology, Vodafone Spain*

Panelists:

Steve Pusey	<i>Group CTO, Vodafone</i>
Serge Willenegger	<i>VP Technology, Qualcomm</i>
Yang Chaobin	<i>Head of LTE Development, Huawei</i>
Jan Färjth	<i>Head of Ericsson Research, Ericsson</i>

The first phase of mobile communications was about voice; the current one is about data. HSPA is a major factor behind the rise in mobile broadband use. However, HSPA has still a lot of room to go.

Recently, certain 3G operators have announced plans to upgrade this year to HSPA+, while the 3GPP Rel.8 and Rel.9 standard defines new evolution steps towards HSPA multi-carrier technology allowing peak rates up to 42Mbps. As mobile data usage is now surging between 6 to 14 fold some networks may face a capacity limit in 3 years time. For these operators, there's good reason to start thinking about 4G sooner rather than later. Of the 4G technologies, LTE offers existing 3G operators the promise of a smooth migration. New spectrum availability and re-farming of existing spectrum in Europe will be another determining factor for the deployment strategy in relation to the existing 2G and 3G network as well as the technology's potential. While certain operators are already engaged in early technology trials, LTE technology readiness is expected around 2010-2011. This panel is expected to address the current status beyond 3G and some of the challenges faced by operators today, including: When first capacity limits on 3G are likely to appear? Is there an urgency to go to LTE? When LTE will be ready? What the early LTE trials are telling us? What is the spectrum situation across Europe? What are the implications and dependencies of the LTE introduction with existing 2G and 3G?

Moderator

Jaime Bustillo, Director of Technology, Vodafone Spain

Jaime Bustillo is Director of Technology at Vodafone Spain since January 2006. He obtained the MsC degree in Telecommunications Engineering from the Polytechnic University of Madrid. He starts his career in 1978 at Telettra Spain, where he becomes Manager of the Mobile Communications Engineering Department. In 1992, he joins Airtouch Spain as Technical Director. In 1994, he is part of the team that prepares the bid for Airtel to obtain the GSM license in Spain. In 1995, he joins the newly established Airtel and occupies various leading posts: Director of Radio Frequency, Regional Technical Director, Director of the Core Network, Director of Products R&D, Director of Clients Management, and currently Director of Technology.

Speakers

Vodafone – Steve Pusey, Group CTO

Steve Pusey joined Vodafone Group Plc on 1st September 2006 as Global Chief Technology Officer. Steve is responsible for all aspects of Vodafone's networks, IT capability and supply chain management.

Prior to joining Vodafone, Steve was one of the most senior executives at Nortel and held the position of Executive Vice President, and President, Nortel EMEA. He joined Nortel 1982 and gained a wealth of international experience across both the wireline and wireless industries and in enterprise applications and solutions. During his time as President of Europe from 2001 to 2005, he managed far-reaching change programmes that led the region back to significant growth.

Steve Pusey gained telecoms and microelectronics qualifications prior to spending several years with British Telecom and is a graduate of the Advanced Management Program at Harvard University.

Qualcomm –Serge Willenegger, VP Technology

Serge has been with Qualcomm since 1995, initially contributing to the IS-95 and cdma2000 system design and enhancements. Since 1997, Serge has led the design and specification of a number of UMTS radio features and has been a key participant in the 3GPP radio access network committees. Serge has been instrumental in establishing and expanding Qualcomm's commitment to UMTS and LTE systems, products, and standardization. He has had overall responsibility for Qualcomm's participation and contribution to 3GPP from 1998 to 2008 and continues to actively support and develop various 3GPP related initiatives within Qualcomm. Serge holds a Master in Telecommunication Sciences from the Swiss Federal Institute of Technology in Lausanne (1995).

Huawei – Yang Chaobin, Head of LTE Development

Chaobin Yang, president of Sweden R&D Center, took his M.Sc in telecommunication at University of science and technology of China. After graduation in 1998, he joined Huawei and started with R&D activities in UMTS. In 2000 he became Head of wireless research which has contributed to the evolution of WCDMA/HSPA/LTE, CDMA2000 and Wimax. In 2006 he was responsible for the technology strategy and Innovation in Radio access BU. Now he is the president of Huawei Sweden R&D center.

Ericsson - Jan Färjh, Head of Ericsson Research

Jan Färjh, Vice President Head of Ericsson Research, took his M.Sc in telecommunication at the Royal Institute of Technology in Stockholm, 1985. After his graduation he developed signal processing algorithms for airborne radar systems. In 1990 he joined Ericsson and started to work with radio access technologies. He was part of Ericsson's first activities in WCDMA and became manager of the unit responsible for radio access research in 1996. The research performed in this unit has contributed to the evolution of WCDMA, HSPA and 3G LTE. In 2007 he became Head of Ericsson Research.

Wednesday Panel

Wednesday, 29 April, 11.10 – 12.50 Ballroom C

The PHY Layer is Dead

Chair: Mischa Dohler *CTTC, Spain*

Panelists:

Reinaldo Valenzuela *Bell Labs, Lucent Technologies, USA*
Angel Lozano *Universitat Pompeu Fabra, Spain*
Robert Heath *The University of Texas at Austin, USA*
Constantinos Papadias *Athens Information Technology, Greece*

Ever since Claude Shannon published his work on the fundamental bounds in communications, the community has been busy in finding suitable PHY layer solutions in approaching these bounds. Indeed, after a few decades, suitable channel codes emerged which operated asymptotically close to these bounds. Whilst this issue as well as many other issues have been exposed, addressed and solved on the way, the key question on the viability of R&D issues pertaining to the PHY layer keeps coming up with increasing and worrisome frequency. This is aggravated by an observation from Martin Cooper of Arraycomm in that the growth in wireless capacity over the years has been a million fold since 1957, for which only a 5x increase come from advances at the PHY layer. Have the huge investments over the past decades been poured into PHY layer R&D in vain? Had this money been better off elsewhere? Is the PHY layer dead? This and other related questions will be core to our intriguing discussion lead by heavily opinionated experts in the field.

Moderator

Mischa Dohler, CTTC, Spain

Mischa Dohler is now Senior Researcher with CTTC in Barcelona. Prior to this, from June 2005 to February 2008, he has been Senior Research Expert in the R&D division of France Telecom working on cooperative communication systems, cognitive radios and wireless sensor networks. From September 2003 to June 2005, he has been lecturer at King's College London, Centre for Telecommunications Research. He obtained his PhD in Telecommunications from King's College London, UK, in 2003, his Diploma in Electrical Engineering from Dresden University of Technology, Germany, in 2000, and his MSc degree in Telecommunications from King's College London, UK, in 1999. Prior to Telecommunications, he studied Physics in Moscow. He has won various competitions in Mathematics and Physics, and participated in the 3rd round of the International Physics Olympics for Germany. In the framework of the Mobile VCE, he has pioneered research on distributed cooperative space-time encoded communication systems, dating back to December 1999.

Speakers

Reinaldo Valenzuela, Bell Labs, Lucent Technologies, USA

Reinaldo A. Valenzuela: Obtained his B.Sc. at the University of Chile, and his Ph.D. from Imperial College of Sc. and Tech., U. of London, England. At Bell Laboratories, he carried out indoor microwave propagation measurements and developed statistical models. He also worked on packet reservation multiple access for wireless systems and optical WDM networks. He became Manager, Voice Research Dept., at Motorola Codex, involved in the implementation

integrated voice and data packet systems. On returning to Bell Laboratories he was involved in propagation measurements and ray tracing propagation prediction. He received the Distinguished Member of Technical Staff award and is Director of the Wireless Communications Research Department. He is currently engaged in MIMO / space time systems achieving high capacities using transmit and receive antenna arrays. He has published over one hundred papers and has twelve patents. He is a Fellow of the IEEE. He has been editor for the IEEE Transactions on Communications and the IEEE Transactions on Wireless Communications.

Angel Lozano, Universitat Pompeu Fabra, Spain

Since 2008, he is a Professor in the Department of Information & Communication Technologies at Universitat Pompeu Fabra (UPF) in Barcelona, Spain. Also, since 2005, he is an Adjunct Associate Professor of Electrical Engineering at Columbia University in New York City, NY. He received his Ph.D. in 1998 from Stanford University. Between 1999 and 2007, and was a researcher at Bell Labs (Alcatel-Lucent) in Holmdel, NJ. His is a senior member of the IEEE, an editor for the IEEE Transactions on Communications, and an active participant in the organization of special issues, conferences, and technical activities. For 2009, he is in the organizing committee for the IEEE Vehicular Technology Conference (VTC2009-Spring) and the Int'l Workshop on Computational Advances in Multi-Sensor Adaptive Processing (CAMSAP'09). He participated in the MIMO standardization efforts at the 3GPP and IEEE 802.20 fora and co-authored the tutorial MIMO systems for wireless communication offered on-line by the IEEE Communications Society. In addition to MIMO, he has conducted research on dynamic resource allocation, interference management,

link adaptation, equalization, channel estimation, ARQ, and multicasting, among other themes.

Robert Heath, The University of Texas at Austin, USA

Robert Heath is an Associate Professor in the Department of Electrical and Computer Engineering at The University of Texas at Austin. His research expertise is at the intersection of wireless communication, signal processing, applied math, and communication theory. He has an active research program in all aspects of MIMO (multiple-input multiple-output) communication focusing on next generation cellular technologies, limited feedback, multiuser MIMO, multihop MIMO, antenna design, and MIMO ad hoc networks. In addition, he is pursuing a variety of problems in related areas like vector quantization, joint source-channel coding, and ad hoc networking. He is part of the DARPA ITMANET team developing a Non-Equilibrium Information Theory. His current research interests include 60GHz communication, cognitive radio, and body area networks. He is co-organizing the 2009 Signal Processing for Wireless Communications conference in Perugia, Italy, and has been an Editor for the IEEE Transactions on Communication and for the IEEE Transactions on Vehicular Technology.

Constantinos Papadias, Athens Information Technology, Greece

Constantinos B. Papadias received the Diploma of Electrical Engineering from the National Technical University of Athens in 1991 and the Doctorate degree in Signal Processing (highest honors) from ENST, Paris, in 1995. From 1992, he was at Eurécom, France before joining Stanford University in 1995. In 1997 he joined the Wireless Research Laboratory of Bell Labs. From 2004 to 2005 he was an adjunct Associate Professor at Columbia University. In 2006 he joined Athens Information Technology in Greece, as an Associate Professor and was later promoted to Professor. He is also currently an Adjunct Professor at Carnegie Mellon University's Information Networking Institute (INI). His research interests range from baseband wireless communications and smart antenna systems to scheduling and system-level optimization of wireless systems to cognitive radio and multihop wireless sensor networks. He has authored over 100 papers and book chapters on these topics. His distinctions include the 2002 Bell Labs President's Award, the 2003 IEEE Signal Processing Society's Young Author Best Paper Award and ESI's "most cited paper of the decade" citation in the area of wireless networks in 2006.

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IEEE VTS would like to thank the following patrons and exhibitors for their support for the conference.

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Registration

Registration will take place in the Ballroom Foyer. Hours are:

- Sunday 26 April 0830 – 1900
- Monday 27 April 0730 – 1730
- Tuesday 28 April 0730 – 1730
- Wednesday 29 April 0730 – 1730

Breaks

Coffee breaks will take place in the exhibit area in the Ballroom Foyer.

Social Events

Lunches, which are included in the full registration, will be served in Ballroom A&B. You will need the ticket included in your registration packet to gain entry. The same venue will host the reception on Sunday evening, which is open to all attendees.

Monday Reception – 22@Synergys



An additional networking reception – 22@Synergys – will be held on Monday evening in Ballroom A&B hosted by 22@Barcelona and the Barcelona City Council. The event will give an opportunity for delegates to meet local industry and to give Catalan industry in return a view of the internationally leading research being showcased at the conference. Barcelona attracts a number of international conferences and the first of these networking events was held last year.

Radio Access and Spectrum Workshop

The European Commission concertation cluster "Radio Access & Spectrum" (RAS) aims to provide a platform for exchanges and concertation between FP6 and FP7 projects. Different issues were identified as topics of common interest at the cluster's constituting meeting in Brussels on the 11th of March 2008, and groups of interest in e.g. Spectrum and Enablers, Radio Resource and Spectrum Management, Convergence, Requirements and Exploitation or Air Interface have been formed.

The RAS Workshop will represent an opportunity to show the latest technical results obtained in the context of FP6 and FP7 projects. Information on the RAS cluster can be found on: <http://www.newcom-project.eu:8080/Plone/ras>

Organizing Committee

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	Wenling Bai		Tiziana Calamoneri		

Mohammad M. R. Chowdhury	Hakan Delic	Miljko Eric	Alexander Frötscher	Gerardo Gomez	Yu-Cheng He
Soren Christensen	Richard Demo Souza	Mårten Ericson	Andreas Frotzscher	Paula Gómez	Robert Heath
Roland Christian	Luc Deneire	Thomas Eriksson	I-Kang Fu	David Gomez-Barquero	Andreas Hecker
Katerina Christofylaki	Yu Deng	Natalia Ermolova	Yu Fu	Luis Gonçalves	Ahmadreza Hedayat
Xiaoli Chu	Juinn-Hornng Deng	Tomaso Erseghe	Shengli Fu	Iqbal Gondal	Marc Heddebaut
Feng Seng Chu	Raffaele D'Errico	Özgür Ertug	Thomas Fügen	Shimin Gong	Mark Hedley
Tian Chunchang	Sameet Mangesh Deshpande	Francisco J. Escubano	Takeo Fujii	Yi Gong	Abdorrezza Heidari
Claudio Cicconetti	Thorben Detert	Carlos J. Escudero	Masahiro Fujii	Xitao Gong	Tiina Heikkinen
Antonio Cimmino	Carole Devlin	Joaquín Escudero-Garzás	Toshiyuki Fujisawa	Alvaro Gonzalez Font	Guenter Heinrichs
Ana Cinta Oria	Riadh Dhaou	Amir Esmailpour	Emanuele Fusco	Maria E. Gonzalez	Fabien Heliot
Stefano Cioni	Dominique Dhoutaut	Mohamed Et tolba	Haris Gacanin	Alberto J. Gonzalez	Ke Wang Helmersson
Antonio Maria Cipriano	Piergiuseppe Di Marco	David Everitt	Yibing Gai	Nuria González	Patrick Henkel
Marc Ciurana	Fabio Di Renzo	Florian Evers	Christophe Gaie	Chris Goodall	Tero Henttonen
William Clark	Marco Di Renzo	Matteo Fabbri	Slawomir Gajewski	Thawatt Gopal	Jun Heo
Vaughan Clarkson	Raluca Diaconescu	Gabriele Fabbri	Lorenzo Galati	Bo Goransson	Eleanor Hepworth
Laurent Clavier	Ugo Dias	Flavio Fabbri	Giordano	Jean-Marie Gorce	Matti H.A.J. Herben
Thorsten Clevorn	David Perez Diaz de Cerio	Carla Fabiana Chiasserini	Hiram Galeana	Ali Gorcin	Ángela Hernández-Solana
Peter Clifford	Almudena Díaz-Zayas	Joachim Fabini	Laura Galluccio	Fernando Gordejuela-Sanchez	Jose I. Herrero Zarzosa
Pau Closas	Ulrich Dietz	Roger Pierre Fabris	Hiren Gami	Gherardo Gorni	Matthias Hesse
Giuseppe Cocco	Stefan Dietzel	Hoefel	Jiansong Gan	Antonis Gotsis	Xavier Hesselbach
Yann Cocheril	Luis Diez	Ivan Fair	Ivan Ganchev	A. Goupil	Siew-Lee Hew
Elizabeth Colin	Nikos Dimitriou	Nikos Falconetti	Lassaad Gannoune	David Gozalvez	Thomas D. Hewer
Brian Collins	Imadud Din	Afshin Fallahi	Vijay Ganwani	Javier Gozálviz	Roberto Carlos Hincapie Reyes
Geoff Colman	Zhiguo Ding	Emanuela Falletti	Feng Gao	A.G. Gravalos	Radhika Hirannaiah
Ermanna Conte	Peilu Ding	Huang Fan	Feifei Gao	Fernando Gregorio	Tatsuma Hirano
Todor Cooklev	Lei Ding	Jiang Fan	Xinying Gao	Dominic Grenier	Winston Ho
Claudia Cormio	Yanwu Ding	Jiancun Fan	Zhenzhen Gao	Emanuele Grossi	Paul Ho
Antonio Correas	Americo M. C. Correia	Wei Fang	Wilfried Gappmair	Uwe Großmann	Christian Hoene
Lui M. Correia	Anna K Dinnis	Golnaz Farhadi	Pedro García del Pino	Marcus Grossmann	Oliver Holland
Joan Cortes	Jean-Francois Diouris	Julien Fasson	Manuel García Sánchez	Joel Grotz	Atsushi Honda
Virginia Corvino	Florina Dittmann	Mike Faulkner	Eduard Garcia Villegas	Cedric Gueguen	Dashyoung Hong
Ivan Cosovic	Maarten Ditzel	Lorenzo Favalli	Miguel Garcia	Isabelle Guérin Lassous	Young-Jun Hong
Paolo Costa	Soumitra Dixit	Albrecht Fehske	Mariano García	Giann-Ching Guey	Zhihong Hong
David N. Cottingham	Brice Djeumou	Guillem Femenias	Paloma Garcia-Ducar	Ratul Guha	Wang Honggang
Romain Couillet	Dejan Djonin	Minghai Feng	Manav Garg	Bo Gui	Jun Horikoshi
Marceau Coupechoux	Pawel Dmochowski	Shulan Feng	Nikolaos Gatsis	Frederic Guidec	Ekrum Hossain
Matthieu Crusnière	Octavia A. Dobre	Zhenjie Feng	Lazaros Gatzikis	Maxime Guillaud	Iraj Hosseini
Luis Cucala	Ciprian Mihai Dobre	Daniel Fernandes	Matthieu Gautier	Albert Guillen i Fabregas	Anders Host-Madsen
Angel Cuevas	Mischa Dohler	Macedo	Thierry Gayraud	Mandar Gujrathi	Avshalom Hourri
Rubén Cuevas	Sui Dong	Ana Fernandez	Yu Ge	Aaron Gulliver	Paul Houze
Cui Hongyan	Lun Dong	Aguilella	Jens Gebert	Chen Guo	Mark Howell
Tao Cui	Xuanming P. Dong	Manuel Fernandez	Hans-Florian Geerdes	Cheng Guo	Marko Höyhtyä
Íñigo Cuiñas	Liang Dong	Veiga	Glenn Geers	Yongxin Guo	Steve Hranilovic
Stephen Culver	Laura Dossi	Carles Fernández	Alain Gefflaut	Tao Guo	Nigel Hsiung
Kanapathippillai Cumanan	Angela Doufexi	Prades	Stefan Geirhofer	David Gutierrez Perez	Wei Tai Hsu
Roberto Cusani	Athanasios Doukas	Lorena Fernandez	Xavier Gelabert	Ismail Gutierrez	Chung-Hsien Hsu
Matteo Cypriani	Alexis Dowhuszko	Oscar Fernández	Jan Geldmacher	Fernando Gutiérrez	Shou-Ren Hu
Nicolai Czink	Olaf Droegehorn	M. Julia Fernández-Getino Garcia	Benoit Geller	Ismail Guvenc	Fangning Hu
Luiz Da Silva	Arpad Drozdy	Mariano Fernández-Navarro	Jacques Georgy	Majed Haddad	Jianwei Huang
Ron Dabora	Hervé Dubreil	Unai Fernandez-Plazaola	Matthias Gerlach	Lars Haering	Jane-Hwa Huang
Arek Dadej	Alexey Dudkov	Xavier Fernando Gianluigi Dutta	Wolfgang Gerstaecker	Abdulrauf Hafeez	Jane Wei Huang
Rachita Dahama	Trung Q. Duong	Pierre Ferré	Rizwan Ghaffar	Bo Hagerman	Lili Huang
Robil Daher	Salman Durrani	João Ferro	Yacine Ghamri-Doudane	Afshin Haghghat	Tommy Hult
Adel Omar Dahmane	Ashutosh Dutta	Ramon Ferrus	Mohammad Mahdi Ghandi	Nazih Hajri	David Humphrey
Gao Yang Dai	Aveek Dutta	Peter Fertl	Abdorazol Ghasemi	Matti Hämäläinen	Soojung Hur
Nicolas Dailly	Olivier Duval	Andreas Festag	Abolfazl Ghassemi	Lama Hamandi	Phillip Hurni
Vassilis Dalakas	Kim Eccleston	Bruce Fette	Mabruk Gheryani	Noureddine Hamdi	Seung-Hoon Hwang
Ameya Damle	Sebastian Echegaray	Martin Feuersänger	Birendra Ghimire	David Hammarwall	Insoo Hwang
Armin Dammann	Arnd Eden	Andrea Fiaschetti	Mir Ghoraiishi	Walaa Hamouda	Soon Up Hwang
György Dan	George Efthymoglou	Uwe Fiebig	Khanh Tran Gia	Yang Han	Taewon Hwang
Lilin Dan	Mehrdad Ehsani	Stanislav Filin	Samuele Giannetti	Zhu Han	Youngju Hwang
Robert Daniels	Robert Eigner	Antonio Fischer de Toledo	Giannis Giannoulakis	Salim Hanna	Fabio Iannello
Ramez M. Daoud	Michael Einhaus	Lars Fischer	Mikael Gidlund	Thomas Hansen	Christian Ibars
Wu Dapeng	Marcio Eisencraft	Carlo Fischione	Miguel Eduardo Gil Biraud	Yong Hao	Ibraheem A. Ibraheem Al-Naib
Omid Darvishi	Gordhan Das	Michael Fitzmaurice	Victor P. Gil Jiménez	Shinsuke Hara	Khaled Ibrahim
Gordhan Das	Christos Datsikas	Eric Fleury	Michael Gilroy	Takahiro Hara	Ali Ibrahim
Christos Datsikas	G. R. Dattatreya	Santiago J. Flores	José Manuel Giménez Guzmán	Wibowo Hardjawana	Ahmed Ibrahim
G. R. Dattatreya	Peter de Bruin	Manuel Flury	Eugenio Giordano	Leila Harfouche	Ahmed Ibrahim
Peter de Bruin	Elisabeth de Carvalho	Ellina Foutekova	Andrea Giorgetti	Ilkka Harjula	Clemens Icheln
Elisabeth de Carvalho	Antonio Nuno de castro	Christina Fragouli	Tolga Girici	Jérôme Härris	Hanan Idoudi
Antonio Nuno de castro	Santa rosa	Csilla Frakas	Lorenza Giupponi	Richard Harris	Salama Ikki
Ruben de Francisco	Leandro de Haro Ariet	Jose Francisco Crespo	Domenico Giustiniano	Fredrik Harrysson	Haci ilhan
Leandro de Haro Ariet	Antonio de la Oliva	Korbinian Frank	Apostolos Gkamas	Mark Hartong	Maja Ilic
Antonio de la Oliva	Guillaume de la Roche	Frank Frederiksen	Panagiotis Gkonis	Keigo Hasegawa	Laura Imbriglio
Guillaume de la Roche	David de la Vega	Davide Frey	Mariusz Glabowski	Hamed Hashemabadi	Mamiko Inamori
David de la Vega	Rodrigo de Lamare	Hannes Frey	Alexander Gladisch	Ahmad AbdAllah Hassan	Francois Ingelrest
Rodrigo de Lamare	Jesús de Mingo	Justus Ch. Fricke	Stefan Gläser	Khurshed Hassan	Mary Ann Ingram
Jesús de Mingo	Silvio De Nicola	Vasilis Friderikos	Dennis Goeckel	Philipp P. Hasselbach	Tim Irnich
Silvio De Nicola	Merouane Debbah	Daniel Friend	Ali Haydar Göktogan	Hiroyuki Hatano	James Irvine
Merouane Debbah	Tanmoy Debnath	Jean-François Frigon	Steven Goldberg	Christoph Hausl	Koji Ishibashi
Tanmoy Debnath	Tobias Deißler	Istvan Frigyes	Krishna Gomadam	Aawatif Hayar	Koichi Ishihara
Tobias Deißler	Alessandro Del Bianco	Carsten Fritsche	Jesús Gómez	Harun Taha Hayvaci	A.K.M.Najmul Islam
Alessandro Del Bianco	Aitor del Coso		Miguel Gómez	Mike Hazas	Apisak Ittipiboon
Aitor del Coso	Olivier Delangre			Wang He	Predrag Ivanis
Olivier Delangre				Yejun He	Naohiko Iwakiri
					Yasunori Iwanami

Haruki Izumikawa	Adnan Kavak	Iordanis Koutsopoulos	John Lee	Yang Liu	Mohamed Marey
Pedro J.Marron	Ryoichi Kawahara	Istvan Z. Kovacs	Patrick P. C. Lee	Hua Liu	Anna Maria Vegni
Katia Jaffrès-Runser	Hiroyuki Kawai	Daniel Kraft	Jemin Lee	Gianluigi Liva	V. Mariappan
K D R Jagath-Kumara	Makoto Kawai	Daniel Krajzewicz	Sangjin Lee	Chanaka J Liyana	Ninoslav Marina
Vivek Jain	Tang Pak Kay	Matthias Kranz	Sun Young Lee	Arachchige	Joše Marin-Roig
Ching-Huei Jaing	Onur Kaya	Bujar Krasniqi	Shih-Kai Lee	Mariano Lizarraga	Antonio G. Marques
Joakim Jalden	Ismail Kaya	Tomas Kratochvil	Rodolphe Legouable	Jaime Lloret	Marco Martalo
Louay Jalloul	Mariam Kaynia	Srdjan Krco	Per H Lehme	Ernest Lo	Jose M. Martin
Shau-Shiun Jan	Amine Kchiche	Andrey Krendzel	Janne Lehtomäki	Christian Lochert	Richard Martin
Thomas Jansen	Phongsak	Ioannis Krikidis	Zhongding Lei	Tino Loeffler	Sara Obeso Martin
Jean-Philippe Javaudin	Keeratiwintakorn	Jesper Kristensen	Ming Lei	Elena Simona Lohan	Philippa A. Martin
Tomaz Javornik	Ralf Keller	Yiouli Kritikou	Jing Lei	Francesca Lonetti	Ignacio Martínez Ruiz
Sara Jayousi	Chris Kellum	Lukasz Krzymien	Tim Leinmueller	Waslon Terlizzie A.	Philippe Martins
Sana Ben Jemaa	Damian Kelly	Adlen Ksentini	Christin Lélé	Lopes	David Martin-Sacristan
Moo Ryong Jeong	Andrew Kemp	Bih-Yuan Ku	Massimiliano Lenardi	Jose Lopez Vicario	Ihan Martoyo
Byung Jang Jeong	Prasert Kenpankho	Riichi Kudo	Alessandro Leonardi	David Lopez	Philippe Mary
Dong Geun Jeong	Faruk Keskin	Eisuke Kudoh	Toni Levanen	José C. López-Ardao	Ignacio Más
Cheol Jeong	Mohamed Khalaf-Allah	Frank Kuenemund	Marco Levorato	Miguel López-Benitez	Enrico Masala
Manish Kumar Jha	Imran Khan	Alexander Kuhne	Andreas Lewandowski	Eduardo Lopez-Estraviz	Jun Mashino
Lei Jiang	Noor M. Khan	Marcus Q. Kuhnen	Xiangming Li	F. Javier Lopez-	George Mastorakis
Zhan-Jun Jiang	Jamil Khan	Vikas Kukshya	Gen Li	Martinez	Joaquin Matamales
Daniel Jiang	Rana Azeem M. Khan	Muralidhar Kulkarni	Yonghua Li	Jose A. Lopez-Salcedo	David Matas
Ming Jiang	Kinda Khawam	Sanjay Kumar	Zhang Li	Francesca Lo Piccolo	Gonzalo Mateos
Weirong Jiang	Mohammed Khider	S. Sendil Kumar	Ming-Fu Li	Javier Lorca	Maja Matijasevic
Tao Jiang	Majid Nasiri Khormuji	Preetam Kumar	Anxin Li	Salvatore Loreto	David W. Matolak
Zhang Jianhua	Stefan Kiltz	Ram Kumar	Yanchun Li	Pavel Loskot	Alfredo Matos
Lei Jiao	Hojin Kim	Volkan Kumbasar	Dagang Li	Yves Lostanlen	Tadashi Matsumoto
Willy Jimenez	Sooyoung Kim	Esa Kunnari	Chuxiang Li	Vincenzo Lottici	Luigi Mattellini
Shi Jin	Jaehwan Kim	Johannes W. Kunze	Xia Li	Raymond Louie	Michail Matthaiou
Sheng Jing	Jihyung Kim	Janne Kurjenniemi	Tianji Li	Dimitris Loukatos	Balazs Matuz
Yindi Jing	Juhee Kim	Thomas Kürner	Yan Li	Malamati Louta	Gerald Matz
Jinsul	Kanghee Kim	Ernest Kurniawan	Huan-Bang Li	David J. Love	Johannes Maurer
Yutaka Jitsumatsu	Kwanghoon Kim	Byung-Jae Kwak	Jian Li	Lu ZhaoXin	Christos Mavrokefalidis
Kommate	Na Young Kim	Maurice Kwakernaat	Xi Li	Hancheng Lu	Gunther May
Jitvanichphaibool	Ji-Hoon Kim	Yeong-Hyeon Kwon	Zheng Li	Andreas Lübke	Santiago Mazuelas
Michael Joham	Jihoon Kim	Oh-Heum Kwon	Fan Li	M ^o Carmen Lucas Estañ	Gianluca Mazzini
Thienne Johnson	Youngok Kim	Hyukjoon Kwon	Sheng Li	Oswaldo Ludwig Junior	Alisdair McDiarmid
Steve Jones	Bonghoe Kim	Taek-Jin Kwon	Zhao Li	Salvador Luna Ramirez	Patrick McEvoy
Jittra Jootar	Joongheon Kim	Hyuck M. Kwon	Christos Liambas	Pietro Lungaro	Don McLaughy
Markus Jordan	Il-Min Kim	Kim Ho Kyom	Liang Min	Tao Luo	Michael McGuire
Eduard Jorswieck	Hoon Kim	Pekka Kyösti	Kuo-ching Liang	Jian Luo	Matthew McKay
Jyh-Ching Juang	Yun Young Kim	Ioannis Kyriakides	Ying-Chang Liang	Qinglin Luo	Paul McKenna
Jason Jue	Il Whan Kim	Chi-Anh La	Ting-Jung Liang	Jijun Luo	Paolo Medagliani
Hoiyoon Jung	Kyungchul Kim	Mohamed Laaraiedh	Yang-wen Liang	Paul Lusina	Jonas Medbo
Young-Bae Jung	Jaewoon Kim	Fabrice Labeau	Xuedong Liang	Erich Lutz	Abolfazl Mehbodniya
Peter Jung	Dong In Kim	Frederic Lacoste	Wanjiun Liao	Cyril Luxey	Ali Reza Mehrabian
Bang Chul Jung	Tae Hyun Kim	Thomas Lagkas	Fidel Liberal	Xingzai Lv	Hani Mehrpouyan
Volker Jungnickel	Young Gil Kim	Francisco A. Lago	Federico Librino	Changlin Ma	Neesh Mehta
Markku Juntti	Younsun Kim	Sven Lahde	Marco Liebsch	Jun Ma	Alessandro Mei
Dah-Jing Jwo	Sunmi Kim	I-Wei Lai	Dominik Lieckfeldt	Yao Ma	Tiago Hipkin Meireles
Emmanouil Kafetzakis	Jaekwon Kim	M.K. Lakshmanan	Martine Lienard	Meng Ma	Tommaso Melodia
Stella Kafetzoglou	Jongkyung Kim	Aris S. Lalos	Woo Lip Lim	Zhiyao Ma	Luis Mendo
George Kalfas	Valkealahti Kimmo	Chan Tong Lam	Boon Chin Lim	Amine Maaref	Shanthy Menezes
Mohamed Abd rabou	Ryota Kimura	Tharaka Anuradha	Wee Gin Lim	Helka Maattanen	Yu Song Meng
Ahmed Kalil	Peter King	Lamahewa	Fei Lin	Daniel MacCormac	Wolfgang Mennerich
Antonis Kalis	Thia Kirubakaran	Sangarapillai	Zinan Lin	Carlos Macián	Hamid Menouar
Ritesh Kumar Kalle	Yoshihisa Kishiyama	Lamboharan	Shiang-Jiun Lin	A.S. Madhukumar	Francesco Merico
Florian Kaltenberger	Christian Kießling	Theofanis Lambrou	Hsuanyu Lin	Andreas Maeder	Raed Mesleh
Sheetal Kalyani	Nauman Farooq Kiyani	Yang Lan	Shou-Sheu Lin	Luis Angel Maestro	Geoffrey Messier
Thomak Kamalakis	Martin Klepal	Jean-Baptiste Landre	Hsin-Piao Lin	Ruiz de Tamiño	Stefan Michaelis
Georgios Kambourakis	Joerg Kliewer	Yidong Lang	Chia-Yu Lin	Enrico Magli	Diomidis
Inès Kammoun	Adrian Kliks	Charlotte Langlais	Phone Lin	Behrouz Maham	Michalopoulos
Mohamed Kamoun	Sandra Knörzer	Christophe Laot	Zihuai Lin	Qasim Mahmood	Pietro Michiardi
Hing Kan	Ko Chi Chung	Amine Laourine	Tzu-Ming Lin	Abdullah-Al Mahmood	Bartosz Mielczarek
Triantafyllos Kanakis	Seung-Woo Ko	Peter Larsson	Anders Lindgren	Toktam Mahmoodi	Jan Mietzner
Athanasios Kanatas	Abdellatif Kobbane	Mika Lasanen	Wing-Kuen Ling	Hisham Mahmood	Luis Migue Campoy
Sithamparanathan	Chung Ha Koh	Daniela Laselva	Qing Ling	Syed Masud Mahmud	Andrej Mihailovic
Kandeepan	Tommi Koivisto	David Laurenson	Lance Linton	Petri Mahonen	Rob Miller
Megumi Kaneko	Vinay Kolar	Reihaneh Lavafi	Thomas D.C. Little	Yi-Ting Mai	Jeffrey Miller
Sugbong Kang	Aleksandar Kolarov	Yee Wei Law	Qi Liu	Huiheng Mai	Tan Chor Min
Heewon Kang	Boris Koldehofe	Fotis Lazarakis	Chia-Horng Liu	Christian Maihofer	Mahmood Minhas
Eunmo Kang	Constantinos Kolias	Mario Le Blanc	H.Y Liu	Sudhan Majhi	Francesco Mininni
Wooseok Kang	Dimitra Kollia	Daniel Le Guennec	Fang Liu	Jakub Majkowski	Hlaing Minn
Kimmo Kansanen	Ioannis Komnios	Yannick Le Moullec	Qijia Liu	Behrang Nosrat	Daniele Miorandi
Dzevdan Kapetanovic	Petri Komulainen	Dominique Le Roux	Shouyin Liu	Makouei	Marco Miozzo
Olga Kapralova	Mikhail Kondakov	Didier Le Ruyet	Wei Liu	Emigdio Malaver	Hugo Miranda
Mehmet Karaca	Peng-Yong Kong	Nikolai Lebedev	Chi Harold Liu	Ranjan Mallik	João Paulo Miranda
Stylianos Karapantazis	Lingkun Kong	Chong Hyun Lee	David Liu	Lefteris Mamatras	Alireza Mirzaee
Frank Kargl	Markus Konrad	Won-Yeol Lee	Ming Liu	Stefano Mangione	Piotr Mitoraj
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Juha Karjalainen	Ulrike Korger	Keonkook Lee	Ruoheng Liu	Josep Mangues-Bafalluy	Patrick Mitran
Holger Karl	Ilya Korisch	Moohong Lee	Guanghui Liu	Athanasios Manikas	Neeraj Mittal
Ashok Karmokar	S. Korkmaz	Gilbom Lee	Yunxue Liu	Konstantinos Manolakis	Makoto Miyake
Elli Kartsakli	Adrian Kotelba	Hyong-Woo Lee	Jianqun Liu	Jawad Manssour	Takumi Miyoshi
Vasileios Karyotis	Vincent Kotszsch	Kyoung-Jae Lee	Bo-Chieh Liu	Dirk Manteuffel	Nader Moayeri
Christos Kasparris	Anis Koubaa	Yun-Ho Lee	Chun-Hung Liu	José Manuel Riera	Klaus Moessner
Kira Kastell	Georgios P.	Jeongsang Lee	Enjie Liu	Juan Manuel Romero	Parag S. Mogre
Nei Kato	Koudouridis	HyungJune Lee	Xia Liu	Zhiwei Mao	Abbas Mohammed
Zoltan Katona	Marios Kountouris	Jong-Hyouk Lee	Hongju Liu	Jian Mao	Shantidev Mohanty

Omid Mohareri	Soon Xin Ng	Enrico Paolini	Remo Pomposini	Jim Ritcey	Luca Sanguinetti
Martti Moisio	Edith Ngai	Georgios I. Papadakis	Jari Porras	Pablo Rivas	José Sanguino
José-María Molina-García-Pardo	Telex Ngatched	Agisilaos Papadogiannis	Charly Poulliat	Mario E. Rivero-Angeles	José Santa
Antonella Molinaro	Huu-Nghia Nguyen	George Papadopoulos	Vahid Pourahmadi	Syed R Rizvi	Verónica Santalla
Begoña Molinete	Nam Tran Nguyen	Stelios Papaharalabos	Ravi Prakash	Vincent Roca	Fortunato Santucci
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Bishwarup Mondal	Ha X Nguyen	Konstantinos Papakonstantinou	Anand Prasad	Javier Rodas	M. Saquib
Jose F. Monserrat	Hung Nguyen-Le	Nikos Papandreou	Nuno Pratas	António Rodrigues	Susana Sargento
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Marco Monti	Marios Nicolau	Christos Papathanasiou	Annamalai Benjamin Premkumar	Virgilio Rodriguez	Luca Scalia
Gabriel Montoro	Le Josse Nicolas	Apóstolos Papathanassiou	Rastin Pries	Ramón Martínez Rodríguez-Osorio	Malte Schellmann
Jonathan Mora Cuevas	Monica Nicoli	S. Papavassiliou	Javier Prieto	Matthias Roeckl	Björn Scheuermann
Nektarios Moraitis	Hong Nie	Javier Paredes	Roberto Prieto-Cerdeira	Sandra Roger	Christian Schlegel
Antoni Morell	Jarmo Niemelä	Jose F. Paris	Serguei Primak	Hermann Rohling	Laurent Schmalen
Raquel Morera	Pekka Nikander	Noeyoon Park	Basuki E. Priyanto	Christian Rohner	Anke Schmeink
Sergio Morgadinho	Ajit Nimbalkar	Bumsoo Park	Chutima Prommak	Hu Rong	Robert K Schmidt
Julían David Morillo Pozo	Xu Ning	Jong Kweon Park	David Pubill	Yue Rong	Christian Schneider
Simone Morosi	Katsutoshi Nishida	Hyuncheol Park	Jeff Pugh	George Ropokis	Karol Schober
Carlos Mosquera	Kentaro Nishimori	Daeyoung Park	Alessandro Puiatti	Francisco J. Ros	Elmar Schoch
Susana Mota	Hiroshi Nishimoto	Sung-Joon Park	Beatriz Pulido	Michele Rossi	Frank Schreckenbach
Joao Moura Mota	Bo Niu	Seung Young Park	Rethnakaran Pulikkoonattu	Tommaso Rossi	Robert T. Schwarz
Zeribi Mourad	Gosan Noh	Jung-Hyun Park	Man-On Pun	Emilia Rosti	Robert Schweikert
Hessam Moussavinik	Keith Nolan	Joun Sup Park	Anjana Punchihewa	Marco Rotoloni	Riccardo Scopigno
Walaa El-Din Moustafa	Dan Noneaker	Pangun Park	Ali E Pusane	George Roussos	Sebastian Sczyslo
Mohammad Movahedian	Mohamed B. Nouné	Jung-Min Park	Jani Puttonen	Jean Michel Rouvaen	Pedro Sebastião
Omid Movahhedi	Charbel Abdel Nour	Jung Min Park	Yuan Qi	Massimo Rovini	Isil Sebuktekin
Wai Ho Mow	Abo Nouredin	Cristina Parraga Niebla	Jian Qi	Gerard Rowe	Raffaello Secchi
Christophe Moy	Antoine Pascual-Iserte	Sarantis Paskalis	Yinghao Qi	Eric Roy	Gonzalo Seco-Granados
Lina Mroueh	Clemens Novak	Oudomsack Pasquero	Li Qiang	Sumit Roy	Nima Sedaghat
Lorenzo Mucchi	Loutfi Nuaymi	Nikos Passas	Miao Qingyu	Yanhua Ruan	Akram Bin Sediq
Markus Mück	Maddalena Nurchis	Eleni Patouni	Pan Quan	Lorenzo Rubio Arjona	Hulya Seferoglu
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Andreas Mueller	Christian Oberli	Matthias Pätzold	Paula Queluz	Wang Rui	Dino Sejdinovic
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Muhammad Muhammad	Andrea Odorizzi	Przemyslaw Pawelczak	Alejandro Quintero	Pedro Ruiz	Jesus Selva
Amitav Mukherjee	Claude Oestges	Pavel Pechac	Franois Quitin	Silvia Ruiz	Indranil Sen
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VTC2009-Spring Technical Papers

Monday 27 April 2009

Monday 27 April 11.10 - 12.50 Adriatic

1A: Spectrum Sharing and Opportunistic Access

Chair: Maziar Nekovee, British Telecom

- 1. Dynamic Spectrum Sharing between Uplink and Relay-Assisted Downlink**
Bin Chen, Xia Yang, Vincent K. N. Lau and Kaibin Huang
- 2. Intra-Operator Inter-Mode Spectrum Sharing**
Sara Obeso, Jijun Luo, Rudiger Halfmann, Egon Schulz and Christian Hartman
- 3. WINNER Spectrum Sharing with Fixed Satellite Services**
Mehdi Bennis, Carl Wijting, Juan Lara, Roufi Yahy, Saied Abedi and S. Thilakawardana
- 4. Opportunistic Spectrum Access in Cognitive Radio System Employing Cooperative Spectrum Sensing**
Hui Huang, Zhaoyang Zhang, Peng Cheng and Peiliang Qiu
- 5. User Separation for OFDMA Uplink**
Mustafa E. Sahin, Ismail Guvenc, Moo-Ryong Jeong and Hüseyin Arslan

Monday 27 April 11.10 - 12.50 Marmara

1B: Beamforming

Chair: Rami Abu-alhiga, University of Edinburgh

- 1. Distributed Beamforming Coordination in Multicell MIMO Channels**
Randa Zakhour, Zuleita K. M. Ho and David Gesbert
- 2. Intercell Interference Mitigation with Long-Term Beamforming and Low SINR Feedback Rate in a Multiuser Multicell Unicast Scenario**
Guido Dartmann, Markus Jordan, Xitao Gong and Gerd Ascheid
- 3. Beamforming in Single Frequency Networks with Connection Control**
Markus Jordan, Guido Dartmann and Gerd Ascheid
- 4. Optimum Power Allocation for Beamforming-Based Regenerative Dual-Hop MISO Relay Channels**
Hee-Nam Cho, Jin-Woo Lee and Yong-Hwan Lee
- 5. Accurate Approximations and Asymptotic Results for the Sum-Rate of Random Beamforming for Multi-Antenna Gaussian Broadcast Channels**
Ki-Hong Park, Young-Chai Ko and Mohamed-Slim Alouini

Monday 27 April 11.10 - 12.50 Baltic

1C: Medium Access Control in Ad Hoc and Sensor Networks

Chair: John Dunlop, University of Strathclyde

- 1. A Fully Cooperative and Distributed Medium Access Control Protocol for Large TDMA/TDD-Based Wireless Mesh Networks**
Hyunok Lee and Donald C. Cox
- 2. A Game-Theoretic Approach to Prioritized Transmission in Wireless CSMA/CA Networks**
Laura Galluccio
- 3. Analytical Evaluation of Retransmission Schemes in Wireless Sensor Networks**
Huimin She, Zhonghai Lu, Axel Jantsch, Dian Zhou and Li-Rong Zheng
- 4. Cross-Layer Proactive Hybrid MAC to Prolong Lifetime of Wireless Sensor Networks**
Joan Cortés, Qi Wang and John Dunlop
- 5. Performance Analysis of Anti-Collision Protocols for RFID Systems**
Giuseppe Bagnato, Gaia Maselli, Chiara Petrioli and Claudio Vicari

Monday 27 April 11.10 - 12.50 Mediterrani

1D: OFDM I

Chair: Fabrice Labeau, McGill University

- 1. Industrial Prototyping: A Common Architecture and Case Study of IEEE 802.11n Transmit Beamforming**
Sadia Quadri and Russell J. Haines
- 2. Enhanced Linear Interpolation Schemes for Chunk-Based OFDMA Uplink**
Hongju Liu, Yi Ma and R. Tafazolli
- 3. Accelerating Resource Allocation for OFDMA Downlink with CNR Variation Over Users**
Chunhui Liu, Georg Böhcherer and Rudolf Mathar
- 4. Novel Predistortion Algorithm for OFDMA**
Saqib Ali, Garik Markarian and Erdal Arikian
- 5. Efficient Channel Quality Feedback Schemes For OFDMA Systems With Different Schedulers**
Badri Varadarajan, Runhua Chen, Eko N. Onggosanusi, Il Han Kim and Anand G. Dabak

Monday 27 April 11.10 - 12.50 Albora

1E: Vehicular Communications I

Chair: Pedro M. Ruiz, University of Murcia

- 1. Aggregation of Trustworthy Announcement Messages in Vehicular Ad Hoc Networks**
Alexandre Viejo, Francesc Sebé and Josep Domingo-Ferrer
- 2. Implementing Trusted Vehicular Communications**
Matthias Gerlach and Florian Friederici
- 3. A Realistic Mobility Model Based on Social Networks for the Simulation of VANETs**
Ana Gainaru, Ciprian Dobre and Valentin Cristea
- 4. Vehicular Mobility Management Schemes for Balancing Loads among WMN Access Points**
Mohamed Elshenawy, Mohamed El-Dariby and Baher Abdulhai
- 5. A Platform for Road Experiments**
Bertrand Ducourthial and Sofiane Khalfallah

Monday 27 April 11.10 - 12.50 Ballroom C1

1F: MIMO channels

Chair: Claude Oestges, Université Catholique de Louvain

- 1. A Geometrical Channel Model for MIMO Mobile-to-Mobile Fading Channels in Cooperative Networks**
Batoool Talha and Matthias Pätzold
- 2. Polarimetric Measurements for Spatial Wideband MIMO Channels**
François Quitin, Claude Oestges, François Horlin and Philippe De Doncker
- 3. The Influence of Spatial Correlation and Severity of Fading on the Statistical Properties of the Capacity of OSTBC Nakagami-m MIMO Channels**
Gulzaib Rafiq, Matthias Pätzold and Valeri Kontorovich
- 4. The Impact of Fixed and Moving Scatterers on the Statistics of MIMO Vehicle-to-Vehicle Channels**
Ali Chelli and Matthias Pätzold
- 5. Empirical Time-Spatial Propagation Model in Outdoor NLOS Environments for Wideband Mobile Communication Systems**
Teruya Fujii, Yoshichika Ohta and Hideki Omote

Monday 27 April 11.10 - 12.50 Ballroom C2

1G: E-UTRA I

Chair: Peter Moberg, Ericsson

- 1. Multi-Carrier HSPA Evolution**
Klas Johansson, Johan Bergman, Dirk Gerstenberger, Mats Blomgren and Anders Wallén
- 2. HSDPA Capacity Gain in the 900 MHz Band**
Nadia Khaji, Salah Eddine Elayoubi and Frédéric Marache
- 3. QoS Load Differentiation Application in a UTRAN Live Network**
Beatriz Garriga, Francisco Dominguez, Clara Serrano, Santiago Tenorio and Elia Asensio
- 4. Performance Enhancement of E-UTRA Uplink Control Channel in Fast Fading Environments**
Seigo Nakao, Tomofumi Takata, Daichi Imamura and Katsuhiko Hiramatsu
- 5. Realistic Performance of HSDPA Evolution 64-QAM in Macro-Cell Environment**
Ahmed Saadani and Jean-Baptiste Landre

Monday 27 April 11.10 - 12.50 Ballroom C3

1H: Wireless Access Technologies I

Chair: Javier R. Fonollosa, Universitat Politècnica de Catalunya

- 1. Cross-Layer-Optimized User Grouping Strategy in Downlink Multiuser MIMO Systems**
Tomoya Tandai, Hiroki Mori and Masahiro Takagi
- 2. An Efficient Joint Timing and Frequency Offset Estimation for OFDM Systems**
Yang Yang, Qing Huang and Zaichen Zhang
- 3. A New Blind Synchronization Algorithm for UWB-IR Systems**
Yongwei Qiao, Tiejun Lv and Lin Zhang
- 4. An Improved Reader Anti-Collision Algorithm Based on Pulse Protocol with Slot Occupied Probability in Dense Reader Mode**
InChan Song, SungHyun Hong and KyungHi Chang
- 5. Frequency Interleaved CDMA - A New Multiple Access Technique**
Laurent Cariou, Rodolphe Legouable and Rodrigue Rabineau

Monday 27 April 11.10 - 12.50 Floor 1 Foyer

1P: Multiple antenna systems and space-time processing posters I

- 1. Multiple-Decision-Feedback Detection for STBC over Time-Selective Fading Channels**
Cheolkyu Shin, Hyounkuk Kim, Hyuncheol Park, Myung-Soon Kim and Jin-Up Kim
- 2. Cross-Layer Criterion for MIMO Spatial Multiplexing Systems with Imperfect CSI**
Hassan A. Abou Saleh and Walaa Hamouda
- 3. A Polynomial QR Decomposition Based Turbo Equalization Technique for Frequency Selective MIMO Channels**
Martin Davies, Sangarapillai Lambotharan, Joanne Foster, Jonathon Chambers and John McWhirter
- 4. Development of Interference Cancellation Method using Adaptive Array Antenna for Uplink OFDMA in Mobile WiMAX**
Mitsuru Hirakawa, Takashi Yamamoto, Yoji Okada and Mitsuo Sugimoto

- 5. Relay Assisted Cooperative OSTBC Communication with SNR Imbalance and Channel Estimation Errors**
Bo Niu, Mihaela C. Beluri, Zinan Lin and Prabhakar Chitrapu
- 6. Heuristic Antenna Selection Algorithm for Multiuser Multi-Antenna Downlink**
Ernest Kurniawan, A. S. Madhukumar and Francois Chin
- 7. Improved Balanced 2^n -PSK STTCs for Any Number of Transmit Antennas from a New and General Design Method**
Pierre Viland, Gheorghe Zaharia and Jean-François Hélar
- 8. A Hybrid SS-ToA Wireless NLoS Geolocation Based on Path Attenuation: Cramér-Rao Bound**
Bamrung Tau Sieskul, Thomas Kaiser and Feng Zheng
- 9. Multiuser Orthogonal Space-Division Multiplexing with Iterative Water-Filling Algorithm**
Zhilan Xiong, Ranaji Krishna, Sangarapillai Lambotharan and Jonathon A. Chambers
- 10. Interference-Weighted Channel Sounding for Cellular SDMA-TDD Systems**
Rami Abu-Alhiga and Harald Haas
- 11. Performance of DAF Cooperative CDMA Networks in Frequency-Selective Fading Channels**
Amr Eid, Walaa Hamouda and Iyad Dayoub
- 12. Minimum Mean-Squared Error Multi-Branch Decision Feedback Detection for MIMO Systems**
R. C. de Lamare and D. Le Ruyet
- 13. SVD-Aided Unequal-Protection Spatial Multiplexing for Wireless Video Telephony**
Du Yang, Nasruminallah, Lie-Liang Yang and L. Hanzo
- 14. MIMO Performance of the Next Generation DVB-T**
P. Atanes, A. Arrinda, G. Prieto, P. Angueira, M. M. Vélez and P. Prieto
- 15. Bias Optimization for List-Sequential Detection in MIMO Systems**
Aurélien Arnoud, Olivier Mocquard and Jean-François Hélar
- 16. Performance Evaluation of MIMO Systems with Transmit Antenna Selection over Correlated Rayleigh Fading Channels**
Rongtao Xu, Zhangdui Zhong and Jiann-Mou Chen
- 17. A Vector Perturbation Technique Based on Eigenvalue Normalization for Multi-User MIMO Downlink**
Hyungjoon Song, Dongyoung Kwon, Sungmook Lim, Sungsoo Park and Daesik Hong
- 18. Spreading Strategies for MIMO-CDMA in Presence of Channel Estimation Errors and Spatial Correlation**
Adel Omar Dahmane and Claude D'Amours
- 19. A QoS-Aware Interference Balancing Scheme for Multiuser MIMO Systems**
Jinglin Shi, Xin Jin, Jiangtao Dong, Yi Huang, Jihua Zhou and Gengfa Fang
- 20. Coordinated Beamforming with Limited BS Cooperation for Multicell Multiuser MIMO Broadcast Channel**
Kyong-Hoe Kim, Jong-Ho Lee, Chang-Hoon Lee, Nam-Ryul Jeon and Seong-Cheol Kim
- 21. Capacity of the Distributed Antenna Systems over Shadowed Fading Channels**
Hua-Min Chen and Ming Chen
- 22. Peak-to-Average Power Ratio Reduction by Cross-Antenna Translation for SFBC MIMO-OFDM Systems**
Yuan Ouyang

Monday 27 April 14.10 - 15.50 Adriatic

2A: Spectrum Management

Chair: Mehdi Amirijoo, Ericsson AB

1. **On the Applicability of Image Processing Techniques in the Radio Environment Characterisation**
J. Pérez-Romero, O. Sallent and R. Agustí
2. **Comparison of Spectrum Sharing Techniques for IMT-A Systems in Local Area Networks**
Luis Gacia, Yuanye Wang, Simone Frattasi, Nicola Marchetti, Preben E. Mogensen and Klaus I. Pedersen
3. **Temporal and Spatial Spectrum Assignment in Next Generation OFDMA Networks through Reinforcement Learning**
Francisco Bernardo, Ramón Agustí, J. Pérez-Romero and O. Sallent
4. **Advanced Spectrum Management for the Downlink of WCDMA Systems using Genetic Algorithms**
J. Nasreddine, J. Pérez-Romero and O. Sallent
5. **Dynamic Frequency Planning Versus Frequency Reuse Schemes in OFDMA Networks**
David López-Pérez, Alpar Jüttner and Jie Zhang

Monday 27 April 14.10 - 15.50 Marmara

2B: Antennas and RF subsystems I

Chair: Kevin Borries, Carnegie Mellon University

1. **Fast Calculation Scheme for Frequency Characteristic Compensator of Digital Predistortion Linearizer**
Junya Ohkawara, Yasunori Suzuki and Shoichi Narahashi
2. **Analysis of the Antenna Stochastic Effective Gain in Mobile Environments**
Pedro Luis Carro, Jesús de Mingo and Paloma Garcia-Ducar
3. **FPGA-Based Channel Simulator for a Wireless Network Emulator**
Kevin C. Borries, Glenn Judd, Daniel D. Stancil and Peter Steenkiste
4. **Performance Evaluation of an Automatic Impedance Synthesizer Based on RF Switches**
César Sánchez, Jesús de Mingo, Lucía Sáenz, Paloma García, Pedro Luis Carro and Antonio Valdovinos

Monday 27 April 14.10 - 15.50 Baltic

2C: Network Aspects of Ad Hoc and Sensor Networks

Chair: Dirk Pesch, Cork Institute of Technology

1. **The Impact of Correlated Channel Fluctuations on the Connectivity of Wireless Ad-Hoc Networks**
Flavio Fabbri and Roberto Verdone
2. **Measurement-Based Analysis of Spectrum Sensing in Adaptive WSNs under Wi-Fi and Bluetooth Interference**
Federico Penna, Claudio Pastrone, Maurizio A. Spirito and Roberto Garello
3. **Using SNR to Improve Multi-Hop Routing**
Ramón Agüero, José Antonio Galache and Luis Muñoz
4. **A Continuous Communication Path Availability Analysis in Vehicular Ad Hoc Networks**
Mehdi Khabazian and Mustafa Mehmet Ali
5. **JAMES: JAVa test-bed ManagEment System**
Michele Mastrogiovanni, Alessandro Modesti and Chiara Petrioli

Monday 27 April 14.10 - 15.50 Mediterrani

2D: OFDM II

Chair: Carlos Bader, CTTC

1. **An OFDM System Concept for Joint Radar and Communications Operations**
Christian Sturm, Thomas Zwick and Werner Wiesbeck
2. **Preamble-Based SNR Estimation in Frequency Selective Channels for Wireless OFDM Systems**
Milan Zivkovic and Rudolf Mathar

3. Resource Allocation for Uplink Multiuser OFDM Relay Networks with Fairness Constraints

Hyundoo Jeong, Jae Hong Lee and Hanbyul Seo

4. Robust CSI-Based Soft Decision for COFDM Systems with Co-Channel Interference

Hwan Min Park, Se Bin Im, Hyung Jin Choi and Jin Yong Kang

5. A Low-PAPR Differential Frequency Shift Orthogonal Keying Transceiver for Multi-Carrier Spread Spectrum Communication System over High Mobility Multipath Channels

Juinn-Horng Deng and Shu-Min Liao

Monday 27 April 14.10 - 15.50 Albora

2E: Vehicular Communications II

Chair: Nicolai Czink, Stanford University

1. **Achieving High-Rate Multi-Hop Data Delivery in Vehicular Networks**
Ratul K. Guha and Wai Chen
2. **Quantifying Performance Requirements of Vehicle-to-Vehicle Communication Protocols for Rear-End Collision Avoidance**
Maziar Nekovee
3. **Adaptive Wireless Vehicular Communication Techniques under Correlated Radio Channels**
M. Sepulcre and J. Gozalvez
4. **Link Classification and Residual Time Estimation Through Adaptive Modeling for VANETs**
Nikoletta Sofra and Kin K. Leung
5. **VANBA: A Simple Handover Mechanism for Transparent, Always-On V2V Communications**
José Antonio Olivera, Ismael Cortázar, Carolina Pinart, Alberto Los Santos and Iván Lequerica

Monday 27 April 14.10 - 15.50 Ballroom C1

2F: MIMO Capacity

Chair: Marios Kountouris, The University of Texas at Austin

1. **On the Ergodic Capacity of the Wideband MIMO Channel**
Symeon Chatzinotas, Muhammad Ali Imran and Reza Hoshyar
2. **On the Effect of Imperfect Channel Estimation upon the Capacity of Correlated MIMO Fading Channels**
Emiliano Dall'Anese, Antonio Assalini and Silvano Pupolin
3. **Capacity Analysis of MIMO Systems with Dynamic Radiation Pattern Diversity**
Xingliang Li and Jean-François Frigon
4. **Capacity Analysis of Two-Hop Virtual MIMO Systems in a Poisson Field of Nodes**
Chiara Buratti and Alberto Zanella
5. **Approximation to the Capacity of Rician Fading MIMO Channels**
Rongtao Xu, Zhangdui Zhong and Jiann-Mou Chen

Monday 27 April 14.10 - 15.50 Ballroom C2

2G: E-UTRA II

Chair: Thomas Jansen, TU Braunschweig

1. **Evaluation of Inter-Frequency Quality Handover Criteria in E-UTRAN**
Muhammad Kazmi, Olof Sjöbergh, Walter Müller, Jonas Wierok and Bengt Lindoff
2. **Fixed Frequency Reuse for LTE-Advanced Systems in Local Area Scenarios**
Yuanye Wang, Sanjay Kumar, Luis Garcia, Klaus I. Pedersen, István Z. Kovács, Simone Frattasi, Nicola Marchetti and Preben E. Mogensen
3. **Improvement of LTE Handover Performance through Interference Coordination**
Danish Aziz and Rolf Sigle

4. **User Allocation Algorithm with Rate Guarantees for Multi-Rate Mobile Networks with Backhaul Constraints**
H. Galeana, Anna Lainz and R. Ferrús
5. **Performance Evaluation of Multi-Radio Transmission Diversity: QoS Support for Delay Sensitive Services**
Ali Yaver and Georgios P. Koudouridis

Monday 27 April 14.10 - 15.50 Ballroom C3

2H: Wireless Access Technologies II

Chair: David Haccoun, École Polytechnique de Montréal

1. **On the Throughput Potential of Two-Dimensional Wireless Multi-Hop Networks Using Directional Antennas**
Lemonia Dritsoula and Constantinos B. Papadias
2. **Handover Study Concerning Mobility in the Two-Hierarchy Network**
Shaohong Wu, Xin Zhang, Ruiming Zheng, Zhiwei Yin, Yinglong Fang and Dacheng Yang
3. **60 GHz High Data Rate Wireless Communication System**
Lahatra Rakotondrainibe, Yvan Kokar, Gheorghe Zaharia and Ghais El Zein
4. **Multiuser Scheduling over MIMO Nakagami-m Fading Channels: Capacity and BER Performance**
Mohammad Torabi, David Haccoun and Wessam Ajib
5. **A Hybrid CQI Feedback Scheme for 4G Wireless Systems**
Hui Tian, Qiaoyun Sun, Kun Dong and Xingmin Li

Monday 27 April 14.10 - 15.50 Floor 1 Foyer

2P: Multiple antenna systems and space-time processing posters II

1. **Parallel Stack Decoding for MIMO Schemes**
Abdellatif Salah, Samuel Guillaouard and Ghaya Rekaya Ben-Othman
2. **Performance of MUSIC and COMET Algorithms in the Presence of Scatterers in a 3-D Hemispheroid Surrounding the Source**
Moustapha Ould El Aoun, Hatem Boujemaa and Mohamed Siala
3. **Constrained Codebook Design for a MISO Beamforming System in a Rician Channel**
Joontae Kim and Dong-Jo Park
4. **Optimum Decoding of Full Decode and Forward Scheme over Cooperative Relay Channels**
Reza Hoshyar and Rahim Tafazolli
5. **Lower Bound of BER in M-QAM MIMO System with Ordered ZF-SIC Receiver**
Juan Han, Xiaofeng Tao and Qimei Cui
6. **Analysis of Beamforming and Spatial Multiplexing Strategies in WMAN Outdoor-Indoor Scenarios**
Juan José García Fernández, Matilde Sánchez Fernández, Ana García Armada, Rafael P. Torres, Marta Domingo and Oscar Fernández

Monday 27 April 16.20 - 18.00 Adriatic

3A: Spectrum Statistics

Chair: Atilio Gameiro, Instituto de Telecomunicações

1. **Outage Probability Estimation for Licensed Systems in the Presence of Cognitive Radio Interference**
Rachita Dahama, Kevin W. Sowerby and Gerard B. Rowe
2. **Spatial Spectrum Holes in Cognitive Radio with Relay Transmission**
Guodong Zhao, Jun Ma, Geoffrey Ye Li, Anthony Soong and Chenyang Yang
3. **Evaluation of Spectrum Occupancy in Spain for Cognitive Radio Applications**
Miguel López-Benitez, Anna Umbert and Fernando Casadevall

7. **On Switching Mechanisms for Beamforming and Multiuser MIMO for a WiMAX TDD System in Reverse Link**

Yejian Chen and Hardy Halbauer

8. **Flexible Multi-User MIMO with Limited Feedback**
Yongxing Zhou, Bruno Clerckx and Sungjin Kim

9. **Closed-Loop Beamspace MIMO Systems with Low Hardware Complexity**

Vlasis Barousis, Athanasios G. Kanatas, Antonis Kalis and Constantinos Papadias

10. **Cooperative Communication Using a Virtual MIMO System with a Feedback Channel for Uplink Transmission in Cellular Radio**

Yuta Saito, Yasutaka Ogawa, Takeo Ohgane and Toshihiko Nishimura

11. **Cost Comparison between SISO and MIMO Deployments in Future Wide Area Cellular Networks**

Peter Moberg, Afif Osseiran and Per Skillermark

12. **Metrics to Decide the Feedback Interval in Closed-Loop MIMO-OFDM Systems**

Michael Fitch, Hui Xiao and Alister G. Burr

13. **On the Optimality of Multiuser Zero-Forcing Precoding in MIMO Broadcast Channels**

Saeed Kaviani and Witold A. Krzymien

14. **Fast Codebook Index Searching Algorithm for a Quantized EGT in MIMO Systems**

Noe Yoon Park, Young Ju Kim, Xun Li and Kwan Seob Lee

15. **BER Analysis of STBC-OFDM Wireless Systems with RF Impairments and Imperfect Channel Estimation with Application to IEEE 802.16e**

Mohamed Jalloh and Pankaj Das

16. **Joint Transmission with Imperfect Partial Channel State Information**

Xinning Wei, Tobias Weber, Alexander Kühne and Anja Klein

17. **Experimental Assessment of the Channel Capacity in Indoor MIMO Systems Using Dual-Polarization**

Daisuke Uchida, Hiroyuki Arai, Yuki Inoue and Keizo Cho

18. **Decision Feedback Detection for Space-Time Block Coding over Time-Selective Fading Channels**

Donghun Yu

19. **Antenna Selection for Time Reversal MIMO UWB Systems**

Hieu Nguyen, Feng Zheng and Thomas Kaiser

20. **Coordinate Interleaved Hybrid Transmission For MIMO-OFDM Systems**

Wooseok Kang, Soon Up Hwang, Jin-Yong Choi, Sungho Jeon and Jong-Soo Seo

21. **An Adaptive MIMO Decoder**

Rym Ouertani, Ghaya Rekaya Ben-Othman and Jean-Claude Belfiore

4. **Radio Resource Tomography of Cognitive Radio Networks**

Chung-Kai Yu and Kwang-Cheng Chen

5. **SINR Balancing Technique and its Comparison to Semidefinite Programming Based QoS Provision for Cognitive Radios**

K. Cumanan, R. Krishna, Z. Xiong and S. Lambbotharan

Monday 27 April 16.20 - 18.00 Marmara

3B: Antennas and RF subsystems II

Chair: Guillaume Villemaud, University of Lyon

1. **Multi-Antenna Techniques in Fixed Wireless Links**

Reinaldo A. Valenzuela, Luciano Ahumada and Rodolfo Feick

2. Low-Antenna Ultra Wideband Spatial Correlation Analysis in a Forest Environment

Christopher R. Anderson, Haris I. Volos, W. Chris Headley, R. Michael Buehrer and Francisco C. B. F. Müller

3. A 802.11g and UMTS Simultaneous Reception Front-End Architecture using a Double IQ Structure

Ioan Burciu, Guillaume Villemaud, Jacques Verdier and Matthieu Gautier

4. Synthesis of Planar Arrays Using Particle Swarms with Selection

M. Lanza, J. R. Pérez, I. López and J. Basterrechea

Monday 27 April 16.20 - 18.00 Baltic

3C: Data Collection and Distributed Detection in WSNs

Chair: Dirk Pesch, Cork Institute of Technology

1. Distributed Detection in Sensor Networks: Joint Optimization via Hoeffding's Inequality

Gernot Fabeck and Rudolf Mathar

2. Energy Consumption Optimization for Data Collection with Precision Constraints in Wireless Sensor Networks

Qun Zhao, Gang Shen and Shan Jin

3. Power Allocation Based on Instantaneous Observation Quality for Distributed Detection in Wireless Sensor Networks

Yuh-Ren Tsai, Sheng-Wei Lin and Li-Cheng Lin

4. The Design and Implementation of a Gateway for IP Multimedia Subsystem/Wireless Sensor Networks Interworking

May El Barachi, Arif Kadiwal, Roch Glitho, Ferhat Khendek and Rachida Dssouli

5. Wireless Sensor Network for Data Sensing in Intelligent Transportation System

Yimin Chen, Long Cheng, Canfeng Chen and Jian Ma

Monday 27 April 16.20 - 18.00 Mediterrani

3D: OFDM III

Chair: Martin Braun, Universität Karlsruhe

1. A Differential Sliding Correlation Scheme for Symbol Timing Detection in Time Domain Synchronous OFDM Systems

Chong-Ren Sheu and Chia-Chi Huang

2. Channel Estimation in OFDM Systems with Unknown Power Delay Profile using Trans-Dimensional MCMC via Stochastic Approximation

Ido Nevat, Gareth W. Peters and Jinhong Yuan

3. Novel Scheme of Oversampling Spread Spectrum Roll-Off OFDM for PAPR Reduction

Hiroshi Kaiho and Takeshi Hattori

4. Analysis of Inter-Modulation Products and Nonlinear Distortion in RF OFDM Transmitter Systems

Máirtín O'Droma, Yiming Lei, Eduard Bertran and Pere Gilibert

5. PAPR Reduction Methods for Eigenmode MIMO-OFDM Transmission

Satoshi Suyama, Hiroto Adachi, Hiroshi Suzuki and Kazuhiko Fukawa

Monday 27 April 16.20 - 18.00 Albora

3E: Vehicular Communications III

Chair: Carolina Pinart, Telefonica I+D

1. Message Dissemination in Inter-Vehicle CDMA Networks for Safety Driving Support

O. Shagdar, T. Ohyama, M. N. Shirazi, S. Tang, R. Suzuki, R. Miura and S. Obana

2. p-IVG: Probabilistic Inter-Vehicle Geocast for Dense Vehicular Networks

Khaled Ibrahim, Michele C. Weigle and Mahmoud Abuelela

3. Reliable and Efficient Broadcasting in Vehicular Ad Hoc Networks

Francisco J. Ros, Pedro M. Ruiz and Ivan Stojmenovic

4. Design of Data Forwarding Strategies in Vehicular Ad Hoc Networks

Shou-Chih Lo and Wei-Kun Lu

5. Simulation-Based Study of Common Issues in VANET Routing Protocols

Victor Cabrera, Francisco J. Ros and Pedro M. Ruiz

Monday 27 April 16.20 - 18.00 Ballroom C1

3F: MIMO Performance

Chair: Juan M. Romero Jerez, University of Málaga

1. Performance of MMSE MIMO Receivers: A Large N Analysis for Correlated Channels

Aris L. Moustakas, K. Raj Kumar and Giuseppe Caire

2. IQ Imbalance Reduction in a SMI Multi-Antenna Receiver by Using a Code Multiplexing Front-End

Matthieu Gautier, Pierre-François Morlat and Guillaume Villemaud

3. Exact BER Analysis for Square Orthogonal Space-Time Block Codes on Arbitrary Fading Channels with Imperfect Channel Estimation

Lennert Jacobs and Marc Moeneclaey

4. Optimization of Group Layered Multi-Antenna Architectures with LDPC Codes

Hyo-Jin Lee, Dong-Min Shin and Kyeongcheol Yang

5. Finite-SNR Diversity Multiplexing Tradeoff of SIMO Diversity Combining Schemes

Nandita Lavanis and Devendra Jalihal

Monday 27 April 16.20 - 18.00 Ballroom C2

3G: E-UTRA III

Chair: Jordi Pérez-Romero, Universitat Politècnica de Catalunya

1. Investigation on Optimum Radio Parameter Design in Layered OFDMA for LTE-Advanced

Kazuaki Takeda, Satoshi Nagata, Yoshihisa Kishiyama, Motohiro Tanno, Kenichi Higuchi and Mamoru Sawahashi

2. LTE Coverage Improvement by TTI Bundling

Riikka Susitaival and Michael Meyer

3. Design and Analysis of LTE Physical Downlink Control Channel

Jialing Liu, Robert Love, Kenneth Stewart and Michael Eoin Buckley

4. Field Experimental Results on E-UTRA Downlink Throughput Using Polarization Diversity Antennas

Hideaki Takahashi, Yoshiaki Ofuji, Satoru Fukumoto, Sadayuki Abeta and Takehiro Nakamura

Monday 27 April 16.20 - 18.00 Ballroom C3

3H: Traffic and Capacity Models

Chair: Muhammad Imran, University of Surrey

1. Traffic Measurement and Analysis of a Broadband Wireless Internet Access

Rastin Pries, Florian Wamser, Dirk Staehle, Klaus Heck and Phuoc Tran-Gia

2. An Approach to Mobile IP Traffic Planning

Jahangir Dadkhah Chimeh

3. Uplink Capacity with Correlated Lognormal Shadow Fading

Dimitrios Kaltakis, Muhammad A. Imran and Reza Hoshyar

4. A Novel Architecture using NVIDIA CUDA to Speed Up Simulation of Multi-Path Fast Fading Channels

Ahmed Fathy Abdelrazek, Matthias Kaschub, Christian Blankenhorn and Marc C. Necker

5. Improving Energy Efficiency for Multiuser MIMO Systems with Effective Capacity Constraints

Jia Chen and Kai-Kit Wong

Monday 27 April 16.20 - 18.00 Floor 1 Foyer

3P: Wireless access posters I

1. A Novel Retransmission Scheme for Hierarchical Modulation Based MBMS

Minghai Feng, Xiaoming She and Lan Chen

2. A Bandwidth Efficient Pairing Strategy for the MIMO-OFDM Based WLANs

Tsern-Huei Lee, Jing-Rong Hsieh, Ming-Chih Huang and Yu-Wen Huang

3. Mixed TUSC and Band AMC Permutation Zone in OFDMA Systems with Limited Feedback

I. Gutiérrez, J. L. Pijoan and F. Bader

4. Impact of the Transport Network Congestion Control on the HSUPA Performance

Thushara Weerawardane, Yasir Zaki, Andreas Timm-Giel, Gennaro C. Malafronte, Stephan Hauth and Carmelita Görg

5. Performance Assessment of HSDPA Networks From Outdoor Drive-Test Measurements

Joaquin Matamales, David Martin-Sacristán, Jose F. Monserrat and Narcis Cardona

6. Reduced Feedback Schemes for LTE MBMS

Yi Cai, Shan Lu, Li Zhang, Chunye Wang, Peter Skov, Zhiqiang He and Kai Niu

7. Optimization of the Coverage Area for DVB-T Single Frequency Networks Using a Particle Swarm Based Method

J. R. Pérez, J. Basterrechea, J. Morgade, A. Arrinda and P. Angueira

8. Adaptive Resource Allocation for OFDMA with Mixed Frame Structure

Jin Soo Wang, Sung Bo Sim, Jae Cheol Park, Jung-Sun Um, Chang Joo Kim and Yun Hee Kim

9. Inter GW Load Balancing for Next Generation Mobile Networks with Flat Architecture

Cheng Xue, Jijun Luo, Ruediger Halfmann, Egon Schulz and Christian Hartmann

10. Improved Uplink Macro Diversity Combining in Evolved HSPA Systems

Balázs Héder and Csaba Vulkán

11. Multi-Cell Non-Cooperative Power Allocation Game in Relay Based OFDMA Systems

Lin Xiao and Laurie Cuthbert

12. Frame Aggregation and Concatenation Schemes for IEEE EDCF 802.11e: A First Order MAC and PHY Cross-Layer Model to Estimate the Throughput

Roger Pierre Fabris Hoefel

13. Joint Frequency-Spatial Resource Allocation with Bipartite Matching in OFDM-MIMO Systems

Fanglei Sun, Mingli You, Jin Liu, Pingping Wen and Shaoquan Wu

14. A Reliable and Efficient MAC Layer Multicast Protocol in Wireless LANs

Xiaoli Wang, Lan Wang, Yingjie Wang and Yongsheng Zhang

15. A Novel Relay Based Load Balancing Scheme and Performance Analysis Using Markov Models

Fan Jiang, Hui Tian, Haibo Xu and Xijun Wang

16. An Improved Scheduling Algorithm for rtPS Services in IEEE 802.16

Yanqun Le, Yi Wu and Dongmei Zhang

17. Coverage Improvements for Enhanced Uplink

Jinhua Liu, Johan Bergman, Rui Fan, Rong Hu, Márten Ericson, Stephen Craig and Nils Brännström

18. Cross-Layer Design for Joint PAPR Reduction and Multi-Resolution Resource Assignment

Yen-Chen Chen and Yuh-Ren Tsai

19. Dynamic Power Saving Mechanism for Mobile Station in the IEEE 802.16e Systems

Sang-Wook Kwon and Dong-Ho Cho

20. Coded Closed-Loop Power Control over Wireless Channels

Sangho Choe

21. Simplified SINR-Based User Pairing Scheduling for Virtual MIMO

Juan Han, Xiaofeng Tao and Qimei Cui

22. Fair and Efficient Scheduling for Telemedicine Traffic Transmission over Wireless Cellular Networks

Lu Qiao and Polychronis Koutsakis

Tuesday 28 April 2009

Tuesday 28 April 9.00 - 10.40 Adriatic

4A: Sensing

Chair: Yohannes Alemseged, NICT

1. Cognitive Radio Sensing Architecture and a Sensor Selection Case Study

Chen Sun, Yohannes D. Alemseged, Ha Nguyen Tran and Hiroshi Harada

2. Improved Spectrum Sensing by Utilizing Signal Autocorrelation

Rajesh K. Sharma and Jon W. Wallace

3. Cooperative Spectrum Sensing in Cognitive Radio Networks over Correlated Log-Normal Shadowing

Marco Di Renzo, Fabio Graziosi and Fortunato Santucci

4. Distributed Spectrum Sensing for Cognitive Radios

Yohannes D. Demessie, Chen Sun, Ha Nguyen Tran and Hiroshi Harada

5. Cooperative Spectrum Sensing with Cluster-Based Architecture in Cognitive Radio Networks

Chen Guo, Tao Peng, Shaoyi Xu, Haiming Wang and Wenbo Wang

Tuesday 28 April 9.00 - 10.40 Marmara

4B: Propagation measurements

Chair: Pablo Angueira, University of the Basque Country

1. Fixed Wireless Access Propagation Modelling and Measurements

Georgia E. Athanasiadou

2. Radar Rain Cell Identification and Modeling in the North-West of Spain

V. Pastoriza, A. Núñez, P. Mariño, F. Pérez Fontán and U.-C. Fiebig

3. Weather Effects Impact on the Optical Pulse Propagation in Free Space

M. S. Awan, Marzuki, E. Leitgeb, F. Nadeem, M. S. Khan and C. Capsoni

4. Fading Channel Measurement for Static Mobile Terminals in Outdoor NLOS Environments

Yoshichika Ohta and Teruya Fujii

5. Outdoor to Indoor Channel Characterization by Simulations and Measurements for Optimising WiMAX Relay Network Deployment

S. Reynaud, M. Mouhamadou, K. Fakh, O. Akhdar, C. Decroze, D. Carsenat, E. Douzon and T. Monédière

Tuesday 28 April 9.00 - 10.40 Baltic

4C: Transmission Techniques in Wireless Multi-Hop Networks

Chair: George Efthymoglou, University of Piraeus

- 1. A Note on the Buffer Overlap Among Nodes Performing Random Linear Network Coding in Wireless Ad Hoc Networks**
Riccardo Masiero, Daniele Munaretto, Michele Rossi, Joerg Widmer and Michele Zorzi
- 2. Fountain Codes with XOR of Encoded Packets for Broadcasting and Source Independent Backbone in Multi-Hop Networks Using Network Coding**
Khaldoun Al Agha, Nour Kadi and Ivan Stojmenovic
- 3. Half-Duplex Relay-Help Transmission with Dirty Paper Coding**
Yuli Yang
- 4. Localization of Sensor Nodes in a Wireless Sensor Network Using the nanoLOC TRX Transceiver**
Christof Röhrig and Marcel Müller

Tuesday 28 April 9.00 - 10.40 Mediterrani

4D: Transmission Performance Analysis I

Chair: Amaia Arrinda, University of the Basque Country

- 1. Bit Error Rate Analysis in MIMO Channels with Fading and Interference**
Juan M. Romero-Jerez, Juan P. Peña-Martin and Andrea J. Goldsmith
- 2. Error Performance and Throughput Evaluation of a Multi-Gbps Millimeter-Wave WPAN System in Multipath Environment in the Presence of Adjacent and Co-Channel Interference**
Chin-Sean Sum, Ryuhei Funada, Junyi Wang, Tuncer Baykas, M. A. Rahman, Hiroshi Harada and Shuzo Kato
- 3. Performance Analysis of a CSS System with M-ary PSK in the Presence of Jamming Signals**
Youngpo Lee, Taewon Yoon, Seungsoo Yoo, Sun Yong Kim and Seokho Yoon
- 4. Performance Bounds for Two-Way Amplify-and-Forward Relaying Based on Relay Path Selection**
Kyu-Sung Hwang, Young-Chai Ko and Mohamed-Slim Alouini
- 5. Performance Analysis of Amplify and Forward Based Cooperative Diversity in MIMO Relay Channels**
Vijay Ganwani, Bikash Kumar Dey, G. V. V. Sharma, S. N. Merchant and Uday B. Desai

Tuesday 28 April 9.00 - 10.40 Alborna

4E: Vehicular Communications IV

Chair: Maik Bevermeier, University of Paderborn

- 1. Channel Tracking with Zero Padding Scheme for STBC-OFDM System under Fast Fading Environment**
Masaki Takanashi, Keiichiro Hayakawa, Katsushi Sanda and Tsutayuki Shibata
- 2. Cellular In-Band Modem Solution for eCall Emergency Data Transmission**
Marc Werner, Christian Pietsch, Christoph Joetten, Christian Sgraja, Georg Frank, Wolfgang Granzow and Jeff Huang
- 3. ECall-Compliant Early Crash Notification Service for Portable and Nomadic Devices**
Carolina Pinart, J. Carlos Calvo, Laura Nicholson and José A. Villaverde
- 4. Decision-Prediction Sensor Fusion for Intelligent Mobile Device Navigation**
Chu-Hsiang Huang and Kwang-Cheng Chen
- 5. A Fast Database Correlation Algorithm for Localization of Wireless Network Mobile Nodes using Coverage Prediction and Round Trip Delay**
Rafael Saraiva Campos and Lisandro Lovisolo

Tuesday 28 April 9.00 - 10.40 Ballroom C1

4F: MIMO Transmission and Reception

Chair: Dirk Wübben, University of Bremen

- 1. Iterative Soft-In Soft-Out Sphere Detection for MIMO Systems**
Björn Mennenga, Richard Fritzsche and Gerhard Fettweis
- 2. Implementation Aspects of Fixed-Complexity Soft-Output MIMO Detection**
Di Wu, Erik G. Larsson and Dake Liu
- 3. Improved MMSE Vector Precoding Based on the MBER Criterion**
W. Yao, S. Chen and L. Hanzo
- 4. Rank Revealing QR Factorization for Jointly Time Delay and Frequency Estimation**
M. M. Qasaymeh, Gami Hireen, Tayem Nizar, Ravi Pendse and M. E. Sawan
- 5. Sequential Pre-Coding for a MIMO Hybrid ARQ**
Jin Woo Kim, Chung G. Kang, B. J. Kwak and D. S. Kwon

Tuesday 28 April 9.00 - 10.40 Ballroom C2

4G: WLAN

Chair: Jaume Barceló, Universitat Pompeu Fabra

- 1. Dynamic Contention Window Control Scheme in IEEE 802.11e Wireless LANs**
B. A. Hirantha Sithira Abeysekera, Takahiro Matsuda and Tetsuya Takine
- 2. Impact of Best Effort Frame Bursting in IEEE 802.11 Networks**
Rastin Pries, Dirk Staehle, Stefan Menth, Michael Menth and Phuoc Tran-Gia
- 3. Enhanced Protection Mechanism for Improving Co-Existence of IEEE 802.11b and IEEE 802.11g Wireless LANs**
Yong Bai, Yifan Yu and Lan Chen
- 4. Modelling Chain for Throughput Estimation in Wireless Networks**
Tatiana K. Madsen, Jesper Groenbaek, João Figueiras and Hans-Peter Schwefel
- 5. Optimal Channel Allocation for Wireless Cities**
Keith Briggs and Martin Tijmes

Tuesday 28 April 9.00 - 10.40 Ballroom C3

4H: Cooperative and Cross Layer systems

Chair: Andreas Mueller, University of Stuttgart

- 1. Multidimensional Markov Models for the Cross-Layer Design of Multi-Rate Wireless Systems Using the Effective Capacity Function**
Loren Carrasco, Jaume Ramis and Guillem Femenias
- 2. Fully Joint Diversity Combining, Adaptive Modulation, and Power Control**
Zied Bouida, Khalid A. Qaraqe and Mohamed-Slim Alouini
- 3. Total Power Control for Cooperative Base Stations Uplink**
Sara Bavarian and James K. Cavers
- 4. Downlink Multi-Cell Radio Resource Management for Coordinated Base Stations**
Olga Muñoz, Eduard Calvo, Josep Vidal and Adrián Agustín
- 5. Sum Rate of Linear Cellular Systems with Clustered Joint Processing**
E. Katranaras, M. A. Imran and R. Hoshyar

Tuesday 28 April 9.00 - 10.40 Floor 1 Foyer

4P: Wireless access posters II

- 1. Adaptive Resource Allocation in Wireless Relay Networks**
Tobias Renk, Dimitar Iankov and Friedrich K. Jondral

2. **Channel-Aware Frequency Domain Packet Scheduling for MBMS in LTE**
Shan Lu, Yi Cai, Li Zhang, Jike Li, Peter Skov, Chunye Wang and Zhiqiang He
3. **An 802.11-Based MAC Protocol for Reliable Multicast in Multihop Networks**
Claudia Campolo, Antonella Molinaro, Claudio Casetti and Carla-Fabiana Chiasserini
4. **Performance Evaluation of Multi-Radio Transmission Diversity for TCP Flows**
Georgios P. Koudouridis, Ali Yaver and Muhammad Umair Khattak
5. **Optimal MBMS Power Allocation Exploiting MIMO in LTE Networks**
Antonios Alexiou, Christos Bouras, Vasileios Kokkinos and Evangelos Rekkas
6. **Power Allocation through Revenue-Maximising Pricing on a CDMA Reverse Link Shared by Energy-Constrained and Energy-Sufficient Heterogeneous Data Terminals**
Virgilio Rodriguez, Friedrich K. Jondral and Rudolf Mathar
7. **A Joint Coding-Precoding Scheme for OFDM Systems over Fading Channels**
Jorge Ortin, Paloma García, Fernando Gutiérrez and Antonio Valdovinos
8. **Application of Information Combining to Relay Networks**
Volker Kühn and Sebastian Vorköper
9. **Utility Based Backoff (UBB) Algorithm for Initial Ranging Procedure in WiBro**
Anup Thapa and Seokjoo Shin
10. **An Adaptive Feedback Method with Channel Change Indication for Band AMC in a Femtocell**
Changyoun Kim, Jaeki Lee, Changhyun Nam, Jangho Yoon and Hwang Soo Lee
11. **A Cautionary View of Mobility and Connectivity Modeling in Vehicular Ad-Hoc Networks**
Hugo Conceição, Michel Ferreira and João Barros

12. **Investigation on Optimum Radio Link Connection Using Remote Radio Equipment in Heterogeneous Network for LTE-Advanced**
Akihito Morimoto, Motohiro Tanno, Yoshihisa Kishiyama, Kenichi Higuchi and Mamoru Sawahashi
13. **Chip-Level LMMSE Based HARQ Chase Combining for HSUPA**
Mohamed Et Tolba, Samir Saoudi, Raphaël Visoz and Tarik Ait-Idir
14. **User Reservation Approach for Peak-to-Average Power Ratio Reduction in MC-CDMA Systems**
Luis A. Paredes Hernández and Mariano García Otero
15. **Performance Analysis of UMTS/HSPA at the Cellular Level**
João Lopes, Luís M. Correia and Luís Santo
16. **Virtualization of the Wireless Medium: A Simulation-Based Study**
Susana Perez, Jose Maria Cabero and Eder Miguel
17. **Field Experimental Results of E-UTRA Downlink with Precoding and Non-Precoding MIMO**
Yoshiaki Ofuji, Hideaki Takahashi, Satoru Fukumoto, Sadayuki Abeta and Takehiro Nakamura
18. **SINR-Based Transport Channel Selection for MBMS Applications**
Alessandro Raschella, Anna Umbert, Giuseppe Araniti, Antonio Iera and Antonella Molinaro
19. **A Novel Frequency Reuse Scheme for OFDMA Based Relay Enhanced Cellular Networks**
Min Liang, Fang Liu, Zhe Chen, Ya Feng Wang and Dacheng Yang
20. **Latency in Broad-Band Mobile Networks**
Clara Serrano, Beatriz Garriga, Julia Velasco, Julio Urbano, Santiago Tenorio and Manuel Sierra
21. **Jointly Cross-Layer Scheduling and Dynamic Resource Allocation for RT and NRT Traffic Types for IEEE802.16e**
A. Nascimento and A. Gameiro

Tuesday 28 April 11.10 - 12.50 Adriatic

5A: Cognitive Detection

Chair: Paul Hallbjörner, Uppsala University

1. **Can We Find (and Use) "Spectrum Holes"? Spectrum Sensing and Spatial Reuse Opportunities in "Cognitive" Radio Systems**
Jens Zander
2. **Signal Detection for Cognitive Radios with Smashed Filtering**
Martin Braun, Jens P. Elsner and Friedrich K. Jondral
3. **Optimizing Detection Parameters for Time-Slotted Cognitive Radios**
Isameldin Suliman and Janne Lehtomäki
4. **Management Scheme and Optimal MAP Detection Threshold of Packet-based Cognitive Radio System**
Chen Sun and Hiroshi Harada
5. **Threshold-Learning in Local Spectrum Sensing of Cognitive Radio**
Shimin Gong, W. Liu, Wei Yuan, Wenqing Cheng and Shu Wang

Tuesday 28 April 11.10 - 12.50 Marmara

5B: Channel Estimation

Chair: Keith M. Briggs, BT Innovate

1. **Low Complexity Channel Estimation for Novel Bi-Directional Relaying Schemes**
Feng Hu, Hua Zhang, Xiaohu You, Haifeng Wang and Gang Wu
2. **Transmit Diversity Scheme and Flexible Channel Estimation for TDS-OFDM System**
Fang Yang, Kewu Peng, Jun Wang, Jian Song and Zhixing Yang

3. **On Improved DCT Based Channel Estimation with Very Low Complexity for MIMO-OFDM Systems**
Moussa Diallo, Rodrigue Rabineau, Laurent Cariou and Maryline Héland
4. **Modified Subspace Based Channel Estimation Algorithm for OFDM Systems**
Shih-Hao Fang, Ju-Ya Chen, Ming-Der Shieh and Jing-Shiun Lin
5. **Pilot-Aided Channel Estimation Schemes for OFDM Systems with Cyclic Delay Diversity**
Jiancun Fan, Qinye Yin, Wenjie Wang and Le Ding

Tuesday 28 April 11.10 - 12.50 Baltic

5C: Ad-Hoc and Sensors Networks

Chair: Carlo Fischione, Royal Institute of Technology

1. **CSMA with Enhanced Collision Avoidance: A Performance Assessment**
J. Barcelo, B. Bellalta, A. Sfaïropoulou, C. Cano and M. Oliver
2. **Effects of the Acknowledgment Traffic on the Capacity of Wireless Mesh Networks**
Christelle Molle and Marie-Emilie Vogé
3. **Distributed and Adaptive Channel Allocation Algorithm for a Wireless Mesh Network with Directional Antennas**
Gwanseok Lee and Saewoong Bahk
4. **Non-Colliding First Messages in Slotted ALOHA: Further Insights Toward a Practical Solution**
Günther Brandner, Udo Schilcher, Michael Gyarmati and Christian Bettstetter
5. **Call Completion Probability with Generalized Call Holding Time and Cell Dwell Time Distributions**
George P. Efthymoglou, Suwat Pattaramalai and Valentine A. Aalo

Tuesday 28 April 11.10 - 12.50 *Mediterrani*

5D: Transmission Performance Analysis II

Chair: Volker Kühn, University of Rostock

- 1. On the Performance of Downlink Beamforming with Synchronized Beam Cycles**
Patrick Hosein and Cornelius Van Rensburg
- 2. Performance Measures of Automatic Frequency Control Corrupted by Interference and Fading in Dual Dissimilar Channels**
Amin Emad and Norman C. Beaulieu
- 3. Outage Probability of Dual-Hop Relay Channels in the Presence of Interference**
Caijun Zhong, Shi Jin and Kai-Kit Wong
- 4. Average SNR and Ergodic Capacity Analysis for Proactive and Reactive DF Relaying over Rayleigh Fading Channels**
Sungeun Lee, Myeongsu Han and Daesik Hong
- 5. Soft Metrics and EXIT Chart Analysis of Noncoherent MFSK with Diversity Reception**
Sohail Ahmed, Lie-Liang Yang and L. Hanzo

Tuesday 28 April 11.10 - 12.50 *Albora*

5E: RAS Workshop

Chair: Panagiotis Demestichas, University of Piraeus

- 1. A Digital LINC Transmitter Architecture for Opportunistic Radio**
Patrick Wurm
- 2. A Multi-Hop Relay Station Software Architecture Design, on the Basis of the WiMAX IEEE 802.16j Standard**
I. P. Chochliouros, A. Mor, K. N. Voudouris, G. Agapiou, A. Aloush, M. Belesioti, E. Sfakianakis and P. Tsiakas
- 3. Channel Estimation Schemes for OFDM Relay-Assisted Systems**
Darlene Neves, Carlos Ribeiro, Adão Silva and Atilio Gameiro
- 4. Coexistence Analysis and Cognitive Opportunities Selection in GSM Bands**
Paulo Marques, Hugo Marques, José Ribeiro and Atilio Gameiro
- 5. Downlink Performance Analysis of Full-Rate STCs in 2x2 MIMO WiMAX Systems**
Rabi Kobeissi, Serdar Sezginer and Fabien Buda

Tuesday 28 April 11.10 - 12.50 *Ballroom C1*

5F: MIMO Transceivers

Chair: Alister Burr, University of York

- 1. Optimal Bit Loading for MIMO Systems with Decision Feedback Detection**
Svante Bergman, Daniel P. Palomar and Björn Ottersten
- 2. Full-Rate Differential Spatial Multiplexing from Orthogonal Designs**
Yu Deng, Alister G. Burr and Danshan Chen
- 3. Closed-Form Expressions of the V-BLAST Performance over Quadrature-Amplitude Modulation**
Dong-Min Shin, Hyo-Jin Lee and Kyeongcheol Yang
- 4. Determinant Criterion Optimizing Linear Subspace Projector for Burst Orthogonal STC CPM Modulation in MIMO Channel**
Jan Sykora and Miroslav Hekrdla
- 5. Maximum Data Rate Power Allocation for MIMO Spatial Multiplexing Systems with Imperfect CSI**
Xin Jin, Haiping Jiang, Jinlong Hu, Yao Yuan, Cuicui Zhao and Jinglin Shi

Tuesday 28 April 11.10 - 12.50 *Ballroom C2*

5G: Wireless LANs

Chair: Jesús Alonso, CTTC

- 1. IPTV over WiMAX with MIPv6 Handovers**
Jarno Pinola and Kostas Pentikousis

2. Multicast Power Control for VoIP in Mobile WiMAX

Jae-Heung Yeom and Yong-Hwan Lee

3. A Statistical Connection Admission Control Mechanism for Multiservice IEEE 802.16 Network

Ke Yu, Xuan Wang, Songlin Sun, Lin Zhang and Xiaofei Wu

4. Load Sharing in a Distributed IMS Architecture

Jochen Kögel, Stefan Wahl, Michael Scharf and Marc C. Necker

5. Towards an Optimisation of Parameters Setting in WLANs

Daniel Sebastião and Luís M. Correia

Tuesday 28 April 11.10 - 12.50 *Ballroom C3*

5H: Scheduling I

Chair: Yoshitaka Hara, Mitsubishi Electric

1. Opportunistic Scheduling and Adaptive Modulation in Wireless Networks with Network Coding

Seong-Lyong Gong, Byung-Gook Kim and Jang-Won Lee

2. Auction-Based Scheduling in Non-Cooperative Multiuser OFDM Systems

Zhen Kong, Yu-Kwong Kwok and Jiangzhou Wang

3. On Coding of Scheduling Information in OFDM

Jonas Eriksson, Reza Moosavi, Erik G. Larsson, Niclas Wiberg, Pål Frenger and Fredrik Gunnarsson

4. Joint Resource Allocation for Uplink and Downlink in Wireless Networks: A Case Study with User-Level Utility Functions

Sungyeon Kim and Jang-Won Lee

5. An Asymptotically Fair Subcarrier Allocation Algorithm in OFDM Systems

Hamed Rasouli and Alagan Anpalagan

Tuesday 28 April 11.10 - 12.50 *Floor 1 Foyer*

5Pa: Wireless Networks Posters

1. Implications of Fairness Criteria on the Techno-Economic Viability of Relaying Networks

Bogdan Timus, Pablo Soldati and Jens Zander

2. Redundancy-Based Delivery Mechanism for Error-Prone Wireless Networks

Yu-Ting Yu and Hsi-Lu Chao

3. Modelling of Integrated Broadcast and Unicast Networks with Content Adaptation Support

Gabriele Tamea, Tiziano Inzerilli, Roberto Cusani, Emiliano Guainella and Antonio Pietrabissa

4. A Novel Relay Selection Strategy for Multi-User Cooperative Relaying Networks

Jietao Zhang, Hongcheng Zhuang, Tong Liang, Jing Han and Jingyang Lv

5. A Robust Relay Selection Strategy for Cooperative Systems with Outdated CSI

Jose Lopez Vicario, Albert Bel, Antoni Morell and Gonzalo Seco-Granados

6. Analysis on Optimal Configurations of Two-Hop Relay Network

Chunchang Tian, Lin Qin, Jing Jin, Yafeng Wang and Dacheng Yang

7. Comparison of Wireless Optical Communication Availability Data and Traffic Data

F. Nadeem, B. Geiger, M. Henkel, E. Leitgeb, M. S. Awan, S. Hranilovic, M. Gebhart and G. Kandus

8. Pre-Buffering Scheme for Seamless Relay Handover in Relay Based Cellular Systems

Juyeop Kim and Dong-Ho Cho

9. On the Processor Sharing of File Transfers in Wireless LANs

G. J. Hoekstra and R. D. van der Mei

Tuesday 28 April 11.10 - 12.50 Floor 1 Foyer

5Pb: Mobile Satellite and Positioning Systems Posters

10. **Design of a GPS and Galileo Multi-Frequency Front-End**
Enrique Rivera Parada, Frédéric Chastellain, Cyril Botteron, Youssef Tawk and Pierre-André Farine
11. **Cost-Efficient Design of Hybrid Network for Video Transmission in Tropical Areas**
David Pradas Fernández, Lei Jiang, M. A. Vázquez Castro, Paolo Barsocchi and Francesco Potorti
12. **Multiicast Transmission Optimization over Hybrid DVB-SH Systems**
David Pradas Fernández and M. A. Vázquez Castro
13. **Interference Analysis Between On-the-Move Users and GEO Satellites**
Besma Smida, George P. Efthymoglou, Saeed S. Ghassemzadeh and Wahid Tarokh
14. **A Novel Approach to Indoor RSSI Localization by Automatic Calibration of the Wireless Propagation Model**
Paolo Barsocchi, Stefano Lenzi, Stefano Chessa and Gaetano Giunta

15. Robust Localization on Non-Planar Surfaces

- Mark Hedley
16. **Indoor Relative Localization with Mobile Short-Range Radar**
Kaoru Yokoo, Stéphane Beauregard and Martin Schneider
 17. **IP Overhead Comparison in a Test-Bed for Air Traffic Management Services**
Àngels Via, Eriza Hafid Fazli, Sébastien Dufлот, Núria Riera and Markus Werner
 18. **A Scheme to Compensate Time Drift in Time Difference of Arrival Localization Among Non-Synchronized Sensor Nodes**
J. X. Lee, Z. W. Lin, P. S. Chin and C. L. Law
 19. **LCRT: A ToA Based Mobile Terminal Localization Algorithm in NLOS Environment**
Lei Jiao, Frank Y. Li and Zengyou Xu
 20. **A New GNSS Acquisition Method with Signal Down Sampling in Frequency Domain**
Feng Xu and Yang Gao

Tuesday 28 April 14.10 - 15.50 Adriatic

6A: Beamforming and Cyclostationarity Based Sensing

Chair: Guido Dietl, DCOMO Euro-Labs

1. **Robust Beamforming in Cognitive Radio**
Gan Zheng, Shaodan Ma, Kai-Kit Wong and Tung-Sang Ng
2. **Adaptive OFDM Beamformer with Constrained Weights for Cognitive Radio**
Xiaohua Lian, H. Nikookar, L. P. Ligthart and Jianjiang Zhou
3. **On the Effect of Random Sampling Jitter on Cyclostationarity Based Spectrum Sensing Algorithms for Cognitive Radio**
Mengüç Öner
4. **Identification of PCP-OFDM Signals at Very Low SNR for Spectrum Efficient Communications**
Xianbin Wang, Han-Wei Chen, Yiyang Wu, Jean-Yves Chouinard and Chin-Liang Wang
5. **OFDM Recognition Based on Cyclostationary Analysis in an Open Spectrum Scenario**
Luca Bixio, Giacomo Oliveri, Marina Ottonello and Carlo S. Regazzoni

Tuesday 28 April 14.10 - 15.50 Marmara

6B: Channel modelling I

Chair: Juan Reig, iTEAM, Universidad Politecnica Valencia

1. **Indoor Propagation Effects on ToA Bias for Joint GNSS and Terrestrial Radio Based Localization**
Wei Wang, Thomas Jost, Christian Mensing, Armin Dammann and Kassem Fawaz
2. **Analysis of the Space-Time Channel Behavior in Outdoor-to-Indoor Environment**
Jean-Marc Conrat, Hristo Dekov, Abdelmottaleb Nasr and Martine Lienard
3. **Wideband Physical Channel Model for Indoor Static Mobile Terminals**
Teruya Fujii and Yoshichika Ohta
4. **The UWB-OFDM Channel Analysis in Frequency**
Gonzalo Llano, Juan Reig and Lorenzo Rubio
5. **Maximal-Ratio and Equal-Gain Combining in Hoyt (Nakagami-q) Fading**
Rausley Adriano Amaral de Souza and Michel Daoud Yacoub

Tuesday 28 April 14.10 - 15.50 Baltic

6C: Cooperative Relaying

Chair: Prabhakar Chitrapu, InterDigital

1. **Selective Partial Decode-and-Forward Schemes for Distributed Space-Time Coded Relaying Networks**
Chao Zhang, Huarui Yin, Weidong Wang and Guo Wei
2. **A Novel Multi-Layer Cooperative Decode and Forward Scheme**
Reza Hoshyar, Fabien Hélot and Rahim Tafazolli
3. **Joint Power and Time Allocation for Adaptive Distributed MIMO Multi-Hop Networks**
Yidong Lang, Dirk Wübben and Karl-Dirk Kammeyer
4. **Outage Probability for Opportunistic Relaying on Multicell Environments**
Dongwoo Lee and Jae Hong Lee
5. **Diversity Analysis of Smart Relaying over Nakagami and Hoyt Generalized Fading Channels**
Nam H. Vien, Ha H. Nguyen and Tho Le-Ngoc

Tuesday 28 April 14.10 - 15.50 Mediterrani

6D: Multiplexing Techniques

Chair: Wai Chen, Telcordia

1. **GFDM - Generalized Frequency Division Multiplexing**
Gerhard Fettweis, Marco Krondorf and Steffen Bittner
2. **Cooperative Multiplexing with Interference Suppression in Multiuser Wireless Relay Networks**
Chang Kyung Sung and Iain B. Collings
3. **BER Performance of MIMO-SM with Zero-Forcing in Spatially Correlated Ricean Fading**
Hassan A. Abou Saleh and Walaa Hamouda
4. **MAC Controlled LINC Calibration using Pilot-Aided LSE Channel Estimator for OFDM Systems**
Sangwook Suh, Kwan-Woo Kim, Joonhoi Hur, Kyutae Lim and Joy Laskar
5. **Symbol Time Synchronization Based on SINR Maximization for OFDM**
Wen-Long Chin and Sau-Gee Chen

Tuesday 28 April 14.10 - 15.50 Alborna

6E: RAS Workshop

Chair: Panagiotis Demestichas, University of Piraeus

- 1. Enhancing Positioning Accuracy through Direct Position Estimators Based on Hybrid RSS Data Fusion**
M. Laaraiedh, S. Avrillon and B. Uguen
- 2. ESPRIT-Based Estimation of Location and Motion Dependent Parameters**
Konstantinos Papakonstantinou and Dirk Slock
- 3. Experimental Analysis of 3.5 GHz WiMAX 802.16e Interference in WiMedia-defined UWB Radio Transmissions**
J. Perez, M. Beltran, M. Morant, R. Llorente, A. Rahim Biswas, R. Piesiewicz, M. Cotton, D. Führer, B. Selva, I. Bucaille and S. Zeisberg
- 4. Exploiting Cellular Networks for Road Traffic Estimation: A Survey and a Research Roadmap**
Danilo Valerio, Alessandro D'Alconzo, Fabio Ricciato and Werner Wiedermann
- 5. Flexible Amplify and Forward Relaying Protocol with Optimized Duplexing**
M. S. Fazel, R. Hoshyar and R. Tafazolli

Tuesday 28 April 14.10 - 15.50 Floor 1 Foyer

6P: Transmission technologies posters I

- 1. Low Complexity DVB-S2 LDPC Decoder**
Botao Zhang, Hengzhu Liu, Xucan Chen, Dongpei Liu and Xiaofei Yi
- 2. Analysis and Comparison of Inter-Symbol/Frame Interference in Pulsed DS- and Hybrid DS/TH-UWB Communications**
M. A. Rahman, S. Sasaki, S. T. Islam, T. Baykas, C. S. Sum, J. Wang, R. Funada, H. Harada and S. Kato
- 3. Parameter Optimization for Amplify-and-Forward Relaying with Imperfect Channel Estimation**
Yi Wu and Matthias Pätzold
- 4. Performance Analysis of Decode-and-Forward Incremental Relaying Cooperative-Diversity Networks over Rayleigh Fading Channels**
Salama S. Ikki and Mohamed H. Ahmed
- 5. Lazy Decoding for Block Fading Channels**
Emilio Calvanese Strinati
- 6. A Novel Frequency-Domain Implementation of Tomlinson-Harashima Precoding for SC-FDMA**
Mohamed Noune and Andrew Nix
- 7. IQ Imbalance Compensation Scheme in the Presence of Frequency Offset and Dynamic DC Offset for a Direct Conversion Receiver**
Mamiko Inamori, Anas M. Bostamam, Yukitoshi Sanada and Hideki Minami

- 8. On the Decoding Complexity of D-TR-STBC for Single Carrier Relay-Assisted Transmissions**
Sudharsan Ganesan and Mathini Sellathurai
- 9. Minimum MSE Relaying for Arbitrary Signal Constellations in Coded Relay Networks**
Petra Weitkemper, Dirk Wübben and Karl-Dirk Kammeyer
- 10. Efficient Structure-Based Carrier Offset Estimator for OFDM System**
Gami Hireen, M. M. Qasaymeh, Tayem Nizar, Ravi Pendse and M. E. Sawan
- 11. Low Complexity Successive Interference Cancellation for OFDM Systems over Time-Varying Multipath Channels**
Younghoon Whang, Ji-Hyun Park and Roderick Jaehoon Whang
- 12. Large CFO Acquisition using Partially Geometric Modulatable Orthogonal Sequences**
Chin-Liang Wang and Hung-Chin Wang
- 13. Group Diversity on the Uplink of a Dense Coded-Cooperation Network**
Amitav Mukherjee and Hyuck M. Kwon
- 14. Turbo-Like Codes Over Block-Fading and Time-Varying Narrowband Fading Channels**
Yavuz Yapici and Ali Özgür Yilmaz
- 15. Innovation Net Accumulation Sequential Estimation for Sequential Acquisition**
Kaizhi Huang, Jiang Ji and Liang Jin
- 16. Cramér-Rao Bounds for SNR Estimates in Multicarrier Transmissions**
Faouzi Bellili, Alex Stéphenne and Sofiène Affes
- 17. Echo Cancellation for a Wide Bandwidth Mixed-Mode WCDMA/GSM Repeater with Digital Sub-Band Filtering**
R. Neil Braithwaite, Scott Carichner and Mark Cope
- 18. UWB Channel Modeling: A Markovian Formulation Based on Degradation Level Concept**
Floriano De Rango, Fiore Veltri and Salvatore Marano
- 19. Attenuation Factor Analysis for OFDM Signals with Peak Cancellation**
Wenling Bai, Lilin Dan, Yue Xiao and Shaoqian Li
- 20. A Geographic-Based Approach to Relay Selection for Wireless Ad Hoc Relay Networks**
Chin-Liang Wang and Syue-Ju Syue
- 21. Performance Evaluation of Fast Frequency Hopping OFDM over UWB Channels**
Poramate Tarasak, Zhiwei Lin, Xiaoming Peng and Francois Chin
- 22. Nonlinear Amplification Effects on OFDM Error Rate Performance in Fading Environment**
Natalia Y. Ermolova and Olav Tirkkonen

Tuesday 28 April 16.20 - 18.00 Adriatic

7A: Cognitive Networks and Systems

Chair: Lorenza Giupponi, CTTC

- 1. Distributed Geometric-Programming-Based Power Control in Cellular Cognitive Radio Networks**
Qingqing Jin, Dongfeng Yuan and Zhangyu Guan
- 2. Overlay Cognitive Radio with Multiple Secondaries and its Application to Wireless Mesh Networks**
Ricardo Carvalho Pereira, Richard Demo Souza and Marcelo Eduardo Pellenz
- 3. Auction Based Spectrum Management of Cognitive Radio Networks**
Hung-Bin Chang, Kwang-Cheng Chen, Neeli R. Prasad and Chih-Wei Su

- 4. Average-Sense Joint Rate and Power Allocation Algorithm Combined with Admission Control in Cognitive Radio Networks**
Woo Jin Shin, Kyoung Youp Park and Dong In Kim
- 5. Common Control Channel Security Framework for Cognitive Radio Networks**
G. A. Safdar and M. O'Neill

Tuesday 28 April 16.20 - 18.00 Marmara

7B: Channel modelling II

Chair: Rodolfo Feick, Univ. Técnica Federico Santa María

- 1. Spatial Dynamics of Indoor Radio Channels**
Dana Porrat, Aawatif Hayar, Eli Kaminsky and Moshe Uziel

2. **Predicting Small-Scale Fading Distributions with Finite-Difference Methods in Indoor-to-Outdoor Scenarios**
Alvaro Valcarce, David López-Pérez, Guillaume De La Roche and Jie Zhang
3. **Conversion from Uplink to Downlink Spatio-Temporal Correlation with Cubic Splines**
Markus Jordan, Andrei Dimofte, Xitao Gong and Gerd Ascheid
4. **Performance Analysis of Wideband Sum-of-Cisoids-Based Channel Simulators with Respect to the Bit Error Probability of DPSK OFDM Systems**
Yuanyuan Ma and Matthias Pätzold
5. **A Practical Link Budget for I-UWB Systems**
Haris I. Volos, R. Michael Buehrer and Christopher R. Anderson

Tuesday 28 April 16.20 - 18.00 Baltic

7C: Mobile Ad Hoc Networks

Chair: Susana Perez, Robotiker-Tecnalia

1. **Throughput Scaling Laws for Wireless Ad Hoc Networks with Relay Selection**
Marios Kountouris and Jeffrey G. Andrews
2. **On Demand Self-Organized Public Key Management for Mobile Ad Hoc Networks**
Hisham Dahshan and James Irvine
3. **On Optimising Route Discovery in Absence of Previous Route Information in MANETs**
Huda AlAamri, Mehran Abolhasan and Tadeusz Wysocki
4. **Studying the Delay Performance of Opportunistic Communication in VANETs with Realistic Mobility Models**
Natalya An, Janne Riihijärvi and Petri Mähönen
5. **Opportunistic Localization: Modeling and Analysis**
Francesco Zorzi and Andrea Zanella

Tuesday 28 April 16.20 - 18.00 Mediterrani

7D: Cooperative Diversity

Chair: Mohamed Hossam Ahmed, Memorial University of Newfoundland

1. **Why Downlink Cyclic Delay Diversity Helps Uplink Transmit Diversity**
Louay M. A. Jalloul, Nicolai Czink, Bertrand M. Hochwald and Arogyaswami Paulraj
2. **Comparison of Relaying Strategies for Cooperative Diversity Systems with Adaptive Modulation**
Seyeong Choi, Mohamed-Slim Alouini, Hong-Chuan Yang and Mazen O. Hasna
3. **Outage-Optimal Transmit Antenna Selection for Cooperative Decode-and-Forward Systems**
Andreas Müller and Joachim Speidel
4. **Asynchronous Polarized Cooperative MIMO Communication**
Sarmad Sohaib and Daniel K. C. So
5. **Low Complexity Cooperative Communication with Switched Relay Selection and Adaptive Modulation**
Kyu-Sung Hwang, Young-Chai Ko and Mohamed-Slim Alouini

Tuesday 28 April 16.20 - 18.00 Albora

7E: RAS Workshop

Chair: Panagiotis Demestichas, University of Piraeus

1. **Modified Log-MAP Algorithm for Simplified Decoding of Turbo and Turbo TCM Codes**
Stylianos Papaharalabos, Michal Sybis, Piotr Tyczka and P. Takis Mathiopoulos
2. **Network and Channel Coded Cooperation Algorithms for Cellular Networks**
Zsolt A. Polgar, Mihai P. Stef and Vasile Bota

3. Non-Binary LDPC Codes Defined Over the General Linear Group: Finite Length Design and Practical Implementation Issues

W. Chen, C. Poulliat, D. Declercq, L. Conde-Canencia, A. Al-Ghouwayel and E. Boutillon

4. Optimisation of Radio Access Network Operation Introducing Self-x Functions: Use Cases, Algorithms, Expected Efficiency Gains

J. Belschner, P. Arnold, H. Eckhardt, E. Kühn, E. Patouni, A. Kousaridas, N. Alonistioti, A. Saatsakis, K. Tsagkaris and P. Demestichas

5. Reduced Complexity Decision Feedback Equalizer for Supporting High Mobility in Wimax

Iulia Ivan and Bertrand Muquet

Tuesday 28 April 16.20 - 18.00 Ballroom C1

7F: MIMO and OFDM

Chair: Rainer Gruenheid, Hamburg University of Technology

1. Cross-Layer Technique in a Cellular MIMO-OFDM System

Rainer Grünheid, Monique Düngen, Alireza Tassoudji and Hermann Rohling

2. MIMO-OFDM Channel Estimation with Eigenbeamforming and User-Specific Reference Signals

K. Schober and R. Wichman

3. Cooperative Control for Antenna Array Calibration in OFDMA/TDD Systems

Yoshitaka Hara, Yasuhiro Yano and Hiroshi Kubo

4. A Novel Condition Number-Based Antenna Shuffling Scheme for D-STTD OFDM System

Liang Zhou and Masahiko Shimizu

5. Interleaved Spatial Diversity Transmission with Coordinate Interleaver for MIMO-OFDM Systems

SeokJoon Hong, Jin-Yong Choi, Soon Up Hwang, Sungho Jeon and Jong-Soo Seo

Tuesday 28 April 16.20 - 18.00 Ballroom C2

7G: RAN evolution

Chair: Ramon Ferrús, Universitat Politècnica de Catalunya

1. Embedding Multiple Self-Organisation Functionalities in Future Radio Access Networks

T. Jansen, M. Amirijoo, U. Türke, L. Jorgueski, K. Zetterberg, R. Nascimento, L. C. Schmelz, J. Turk and I. Balan

2. Generation of Pathloss and Interference Maps as SON Enabler in Deployed UMTS Networks

Christopher Brunner and Dino Flore

3. Performance of TTI Bundling for VoIP In EUTRAN TDD Mode

Haiming Wang, Jing Han and Shaoyi Xu

4. Mobility Management Schemes at Radio Network Layer for LTE Femtocells

Lan Wang, Yongsheng Zhang and Zhenrong Wei

5. Channel Characterization and HSDPA Bit Rate Prediction of a Dense City Network

Lars Klockar, Arne Simonsson, Fredrik Gunnarson and Anette Borg

Tuesday 28 April 16.20 - 18.00 Ballroom C3

7H: Scheduling II

Chair: Fernando J. Velez, IT-DEM/Univ. Beira Interior

1. Interference-Aware Scheduling in the Synchronous Cellular Multi-Antenna Downlink

Lars Thiele, Malte Schellmann, Thomas Wirth and Volker Jungnickel

2. HYGIENE Scheduling for OFDMA Wireless Cellular Networks

Emilio Calvanese Strinati, Corbellini Giorgio and Dimitri Kténas

3. **Cooperative Opportunistic Scheduling in Multiple Antenna Cellular Networks**
Jun Lei, Yunzhou Li, Xiang Chen, Shidong Zhou, Jing Wang and Yan Yao
4. **Performance Analysis of Proportional Fair Scheduling with Partial Feedback Information for Multiuser Multicarrier Systems**
Mingyu Kang, Young Jin Sang, Hae Gwang Hwang, Hyung Yeol Lee and Kwang Soon Kim
5. **Interference Aware Scheduling for Soft Frequency Reuse**
Klaus Doppler, Carl Wijting and Kimmo Valkealahti

Tuesday 28 April 16.20 - 18.00 Floor 1 Foyer

7P: Transmission technologies posters II

1. **Preamble Design for Millimeter-Wave Single Carrier WPANs**
Tuncer Baykas, Junyi Wang, Ryuhei Funada, Azizur Rahman, Chin-Sean Sum, Ryota Kimura, Hiroshi Harada and Shuzo Kato
2. **Capacity Comparison of Orthogonal and Non-Orthogonal Cooperative Relay Systems**
Youngtaek Bae, Sungkyu Jung and Jungwoo Lee
3. **On the MGF and BER of Linear Diversity Schemes in Nakagami Fading Channels with Arbitrary Parameters**
Valentine A. Aalo and George P. Efthymoglou
4. **ML-Based Joint Estimation of Carrier Frequency Offset and Doubly Selective Channels for OFDM Transmissions**
Hung Nguyen-Le and Tho Le-Ngoc
5. **Joint Frequency Offset and Channel Estimation in Frequency Selective MIMO Correlated Fading Channels**
Jiandong Li, Wei Dong and Fusu Wang
6. **Effects of Quantization Noise and Distortion in EPWM Transmitters for OFDM Signal Amplification**
Edwin M. Umali, Koji Kawazoe, Yoshikazu Toyama and Yasushi Yamao
7. **Performance Analysis and Comparison of Downlink MIMO MC-CDMA and MIMO OFDMA Systems**
Antonis Phasouliotis and Daniel K. C. So
8. **Impact of Out-of-Band Emission in OFDM and in DFT-SOFDM**
Hyejung Jung, Mark Cudak, Kevin Baum and Vijay Nangia
9. **Amplify-Forward Relays with Superimposed Pilot Signals for Frequency-Selective Fading Channels**
Haksoo Kim, Sungho Choi, Heejung Yu, Youngchul Sung and Yong H. Lee

10. **Joint Multi-Filter Design for Full-Duplex MU-MIMO Relaying**
Jaturong Sangiamwong, Takahiro Asai, Junichiro Hagiwara, Yukihiro Okumura and Tomoyuki Ohya
11. **Iterative Detection Aided DL SDMA Systems Using Quantized Channel Impulse Response**
Chun-Yi Wei, Du Yang, Lie-Liang Yang and L. Hanzo
12. **Hybrid ARQ using Modulation Switching**
Bumsoo Park, Byung-Jae Kwak and Dong Seung Kwon
13. **Cooperative Communication Using Bit-Selective Adaptive Demodulation and Raptor Codes: The Gaussian Relay Channel Case**
Kandasamy Illanko and Alagan Anpalagan
14. **Clipping Formulated As an Adding Signal Technique for OFDM Peak Power Reduction**
Désiré Guel and Jacques Palicot
15. **Optimized Irregular Variable Length Coding Design for Iteratively Decoded UltraWideBand Time-Hopping Spread-Spectrum Impulse Radio**
R. A. Riaz, M. F. U. Butt, R. G. Maunder, S. X. Ng, S. Chen and L. Hanzo
16. **New Analytical Approach of MPIC Scheme for Multicode CDMA Systems over Multipath Rayleigh Fading Channels**
Kyunbyoung Ko
17. **Comparison of Low Complexity Fast Iterative Decoding Techniques for Convolutional Self-Doubly-Orthogonal Codes**
Yu-Cheng He, David Haccoun and Christian Cardinal
18. **Doppler Frequency and Noise Insensitive Sampling Frequency Offset Estimation Method for DVB-T/H Systems**
Kyung Hoon Won, Jung Su Han, Hyung Jin Choi and Bon Young Koo
19. **Analysis of Transmitter Phase Noise in OFDM System and its Mitigation**
Wanli Peng, Qunyi Gao, Xiujun Zhang, Shidong Zhou and Xibin Xu
20. **Joint Power Allocation and Interference Suppression Techniques for Cooperative CDMA Systems**
R. C. de Lamare
21. **Performance Comparison of TDE and FDE in Single-Carrier System**
Yinghao Qi, Peiwei Huang and Mengtian Rong
22. **On the Analysis of Combined Synchronization Error Effects in OFDM Systems**
Wen-Long Chin and Sau-Gee Chen

Wednesday 29 April 2009

Wednesday 29 April 9.00 - 10.40 Adriatic

8A: Cognitive Systems

Chair: Russell Haines, Toshiba Research Europe

1. **Secure Physical Layer using Dynamic Permutations in Cognitive OFDMA Systems**
Filippo Meucci, Satya Ardhy Wardana and Neeli Rashmi Prasad
2. **Fast Scanning Mechanism using Detection Probability in Cognitive Wireless Networks**
Kentaro Ishizu and Hiroshi Harada
3. **Reinforcement Learning for Load Management in DiffServ-MPLS Mobile Networks**
Nemanja Vucevic, Jordi Pérez-Romero, Oriol Sallent and R. Agustí
4. **A Bandwidth Management Scheme based on Time Multiplexing for Wireless Networks with Predictive Services**
Peppino Fazio, Floriano De Rango and Salvatore Marano

5. **A Load-Balancing Framework for Cognitive Wireless Network to Coexist with Legacy WiFi Systems**
Kentaro Ishizu and Hiroshi Harada

Wednesday 29 April 9.00 - 10.40 Marmara

8B: Equalization

Chair: Tracy Fulghum, Ericsson

1. **Iterative Decision Feedback Equalization and Decoding for Rotated Multidimensional Constellations in Block Fading Channels**
Gökhan Muzaffer Güvensesen and A. Özgür Yilmaz
2. **Joint Carrier Synchronization and Equalization Algorithm for OFDM Systems -- Closed-Loop Derivation**
Chih-Feng Wu, Muh-Tian Shiue and Chorn-Kuang Wang
3. **A SNR Mapping Scheme for ZF/MMSE Based SC-FDE Structured WPANs**
Junyi Wang, Tuncer Baykas, Ryuhei Funada, Chin-Sean Sum, Azizur Rahman, Zhou Lan, Hiroshi Harada and Shuzo Kato

4. Robust and Efficient Parametric Linear Equalization

Douglas Cairns, Gregory E. Bottomley and Tracy Fulghum

5. The MIMO and ISI Detection Problems: A Common Model and a Quasi Optimal, Quadratic Complexity Solution

D. N. Nissani

Wednesday 29 April 9.00 - 10.40 Baltic

8C: Cooperative Systems

Chair: Jordi Pérez-Romero, Universitat Politècnica de Catalunya

1. A Semidefinite Programming Based Cooperative Relaying Strategy for Wireless Mesh Networks with Relay Signal Quantization

R. Krishna, K. Cumanan, Z. Xiong and S. Lambotharan

2. MIMO On-Frequency Repeater with Self-Interference Cancellation and Mitigation

Peter Larsson and Mikael Prytz

3. Adaptive Training-Based Collaborative MIMO Beamforming for Multiuser Relay Networks

Amr El-Keyi and Benoit Champagne

4. Performance Analysis of Decode-and-Forward Cooperative Diversity Using Differential EGC over Nakagami-m Fading Channels

Salama S. Ikki and Mohamed H. Ahmed

5. Cooperative Multi-Antenna Relaying in Heterogeneous Networks

Qianqian Zhang, Wenbo Wang, Wei Lan Huang and Jie Zhang

Wednesday 29 April 9.00 - 10.40 Mediterrani

8D: Iterative Processing

Chair: Karu Esselle, Macquarie University

1. PAPR Reduction by Symbol Nulling

Dieter Van Welden and Heidi Steendam

2. Sum-Rate Maximization for Two-Way MIMO Amplify-and-Forward Relaying Systems

Kyoung-Jae Lee, Kwang Won Lee, Hakjea Sung and Inkyu Lee

3. On The Performance of Space-Time Coded Multiuser MIMO Systems with Iterative Receivers

Pei Xiao, Jinsong Wu, Mathini Sellathurai and T. Ratnarajah

4. CSI-Adaptive Encoded Pilot Symbols for Iterative OFDM Receiver with IRA Coding

Amitav Mukherjee and Hyuck M. Kwon

Wednesday 29 April 9.00 - 10.40 Albora

8E: Transportation

Chair: Xavier Gelabert, Universitat Politècnica de Catalunya

1. Discrete Methods for Urban Intersection Traffic Controlling

Jia Wu, Abdeljalil Abbas-Turki and Abdellah El Moudni

2. Fast Pedestrian Detection in Dense Environment with a Laser Scanner and a Camera

G. Gate, A. Breheret and F. Nashashibi

3. Physical Unclonable Functions and Their Applications to Vehicle System Security

Muhammad Asim, Jorge Guajardo, Sandeep S. Kumar and Pim Tuyls

4. Technical Solutions for Automotive Intermodulation Radar for Detecting Vulnerable Road Users

Ville Viikari, Mikko Kantanen, Timo Varpula, Antti Lamminen, Ari Alastalo, Tomi Mattila, Heikki Seppä, Pekka Pursula, Jone Saebboe, Shi Cheng, Mustafa Al-Nuaimi, Paul Hallbjörner and Anders Rydberg

5. UWB Radar for Railway Fall on Track Object Detection and Identification

A. Mroué, M. Heddebaut, F. Elbahhar, A. Rivenq and J. M. Rouvaen

Wednesday 29 April 9.00 - 10.40 Ballroom C1

8F: Signal detection in MIMO

Chair: Mischa Dohler, CTTC

1. Improved Markov Chain MBER Detection for Steered Linear Dispersion Coded MIMO Systems

Shinya Sugiura, Nan Wu and L. Hanzo

2. A Physical Layer Abstraction for Maximum Likelihood Demodulation of MIMO Signals

R. Ramésh, Havish Koorapaty, Jung-Fu Cheng and Kumar Balachandran

3. A Virtual Layered Space Time Receiver with Maximum Likelihood Channel Detection

Satoshi Denno, Hirofumi Maruyama, Daisuke Umehara and Masahiro Morikura

4. Low-Complexity Channel-Adaptive MIMO Detection with Just-Acceptable Error Rate

I-Wei Lai, Gerd Ascheid, Heinrich Meyr and Tzi-Dar Chiueh

5. Detection Algorithm for V-BLAST Systems with Novel Interference Cancellation Technique

Kai Wu, Lin Sang, He Wang, Cong Xiong, Dacheng Yang and Xin Zhang

Wednesday 29 April 9.00 - 10.40 Ballroom C2

8G: Wireless Services and Applications

Chair: Anna Umbert, Universitat Politècnica de Catalunya

1. Optimizing the Tradeoff between Signaling and Reconfiguration: A Novel Bi-Criteria Solution Approach for Revising Tracking Area Design

Sara Modarres Razavi, Di Yuan, Fredrik Gunnarsson and Johan Moe

2. Efficient File Sharing by Multicast - P2P Protocol using Network Coding and Rank Based Peer Selection

Simon S. Woo and Tudor M. Stoiculescu

3. A Novel Architecture for Floor Control in the IP Multimedia Subsystem of 3G Networks

Mohammed Al Rubaye, Fatma Belqasmi, Chunyan Fu and Roch Glitho

4. A Sixty GHz Intra-Car Multi-Media Communications System

Hirokazu Sawada, Tomohide Tomatsu, Gen Ozaki, Hiroyuki Nakase, Shuzo Kato, Katsuyoshi Sato and Hiroshi Harada

5. Data-Flow and Processing for Mobile In-Vehicle Weather Information Services COOPERS Service Chain for Co-operative Traffic Management

Martin Böhm and Alexander Frötscher

Wednesday 29 April 9.00 - 10.40 Ballroom C3

8H: Resource MGM

Chair: Matias Toril, University of Málaga

1. Network Elasticity to the Mobility in a Fair Cellular Radio System

Jean-Marc Kelif and Jerome Galtier

2. A Performance Study of Bandwidth Measurement Tools over Mobile Connections

Erik Bergfeldt, Svante Ekelin and Johan M. Karlsson

3. Design Principles and Performance Evaluation of mSCTP-CMT for Transport-Layer Based Handover

Lukasz Budzisz, Ramon Ferrús and Ferran Casadevall

4. Analysis of User Mobility Statistics for Cellular Network Re-Structuring

Matias Toril, Salvador Luna-Ramírez, Volker Wille and Ronan Skehill

5. Mobility-Based Network Selection Scheme in Heterogeneous Wireless Networks

Lusheng Wang and David Binet

Wednesday 29 April 9.00 - 10.40 Floor 1 Foyer

8P: Transmission technologies posters III

- 1. A Single Antenna Interference Cancellation Algorithm for OFDM Communication Systems**
Zhenyu Zhou and Takuro Sato
- 2. Improved Peak Windowing for PAPR Reduction in OFDM**
Guoguang Chen, Rashid Ansari and Yingwei Yao
- 3. Joint Source Coding and Higher-Dimension Modulation**
Tze C. Wong and Hyuck M. Kwon
- 4. Simplified Decision-Directed Channel Estimation Method for OFDM System with Transmit Diversity**
Fang Yang, Kewu Peng, Jintao Wang, Jian Song and Zhixing Yang
- 5. Efficient ARQ Protocol for Hybrid Relay Schemes with Limited Feedback**
Yinan Qi, Reza Hoshyar and R. Tafazolli
- 6. A Novel Quantization Scheme in Compress-and-Forward Relay System**
Yinan Qi, Reza Hoshyar and R. Tafazolli
- 7. Improved PTS Method with New Weighting Factor Technique for OFDM Signal**
Pornpawit Boonsrimuang, Sunisa Sanpan, Pisit Boonsrimuang, Tawil Paungma and Hideo Kobayashi
- 8. Convergence Behaviour of Iteratively Decoded Short Block-Codes in H.264 Joint Source and Channel Decoding**
Nasruminallah and L. Hanzo
- 9. Exploiting I/Q Imbalance in Direct Conversion Transceivers for Improving the Performance of a V-BLAST OFDM System**
Mario de Noronha Neto, Richard Demo Souza, André Noll Barreto and André Mendes Cavalcante
- 10. Cross-Layer Design of Adaptive Wireless Multicast Transmission with Truncated HARQ**
Tan Tai Do, Jae Cheol Park and Yun Hee Kim, Ickho Song

- 11. MIMO OFDM System with Virtual Receive Antennas**
Yang Lan and Daniel K. C. So
- 12. A MAC Protocol for Half-Duplex Multi-Packet Detection in SC-FDE Systems**
M. Pereira, L. Bernardo, R. Dinis, R. Oliveira, P. Carvalho and P. Pinto
- 13. Low-Complexity Reduced-Rank Adaptive Detection in Hybrid Direct-Sequence Time-Hopping Ultrawide Bandwidth Systems**
Qasim Zeeshan Ahmed and Lie-Liang Yang
- 14. Beamforming and Interference Cancellation for Half Duplex Relaying**
Woon Hau Chin, Chin Keong Ho and See Ho Ting
- 15. Modified Iterative Two-Stage Hybrid Decoding Algorithm for Low-Density Parity-Check (LDPC) Codes**
Hany R. Zeidan and Maha M. Elsabrouty
- 16. End-to-End Performance of Robust Multiple Description Scalar Quantizer**
Rui Ma and Fabrice Labeau
- 17. Pilot and Data Aided Channel Estimation for OFDM systems in Rapidly Time-Varying Channels**
Jungwook Wee, Wongi Jeon, Younsung Lee, Kiwon Kwon and Yongsoo Cho
- 18. An Efficient Multiuser Relaying Scheme for OFDMA Systems**
Yoshitaka Hara and Hiroshi Kubo
- 19. Single Carrier Radio Access with an Equivalent Transmission Speed of 256-QAM**
Tsuguo Maru
- 20. Velocity Estimation in Wideband Mobile Stations Equipped With Multiple Antennas**
Dmitry Umansky and Matthias Pätzold

Wednesday 29 April 11.10 - 12.50 Adriatic

9A: Interference Mitigation

Chair: Tuncer Baykas, NICT

- 1. A Low Interference Time-Slicing Code Assignment for the 2D-Spread MC-DS-CDMA Systems**
Chih-Wen Chang and Chien-Cheng Kuo
- 2. Single Antenna Interference Cancellation for 8PSK Signals in EGPRS**
R. Ramésh, Hüseyin Arslan, Abdulrauf Hafeez and Dennis Hui
- 3. Adaptive Multiband Array for Cancelling Co-Channel Interference and Image-Band Interference**
Masahiro Tamaoki, Satoshi Denno, Tatsuo Furuno and Masahiro Morikura
- 4. Enhanced Spatial Covariance Matrix Estimation for Asynchronous Inter-Cell Interference Mitigation in MIMO-OFDMA System**
Jung Su Han, Jun-Hee Jang, Hyung Jin Choi and Sung-Soo Kim
- 5. Turbo Receivers for Single User MIMO LTE-A Uplink**
Gilberto Berardinelli, Carles Navarro Manchón, Luc Deneire, Troels B. Sørensen, Preben Mogensen and Kari Pajukoski

Wednesday 29 April 11.10 - 12.50 Marmara

9B: Coding I

Chair: J. R. Cruz, University of Oklahoma

- 1. Distributed Differential Space-Time Coding for Broadband Cooperative Networks**
Sami Muhaidat, Paul Ho and Murat Uysal
- 2. Processing Gain in a Recursive Single Parity Check Product Code with Non-Gaussian Weight Distribution**
Kangchun Lee, In Jun Park, Bumgon Kim and Yong Cheol Kim

- 3. Symbol-Based Belief Propagation Decoding of Reed-Solomon Codes**
C. Zhong and J. R. Cruz
- 4. Concatenated Irregular Variable Length Coding and Irregular Unity Rate Coding**
R. G. Maunder and L. Hanzo

Wednesday 29 April 11.10 - 12.50 Baltic

9C: Relay and Cooperative Networks

Chair: Jerome Galtier, Orange Labs

- 1. Cross-Layer Analysis of Cognitive Radio Relay Networks under Quality of Service Constraints**
Leila Musavian and Sonia Aïssa
- 2. A Novel Rate Allocation Scheme for Throughput Maximization Considering Rate Fairness in Wireless Relay Systems**
Eunsung Oh, Jaemin Han, Hyungsik Ju and Daesik Hong
- 3. Effect of Relaying on Coverage in 3GPP LTE-Advanced**
Tommaso Beniero, Simone Redana, Jyri Hämäläinen and Bernhard Raaf
- 4. Distributed Point Coordination Function for Wireless Ad hoc Networks**
C. Crespo, J. Alonso-Zárate, L. Alonso and C. Verikoukis
- 5. A Simple and Efficient Data Forwarding Mechanism In Wireless Relay Networks**
Wen-Tsuen Chen, Tzu-Ming Lin and Shiao-Li Tsao

Wednesday 29 April 11.10 - 12.50 Mediterranean

9D: Limited Feedback Schemes

Chair: Pekka Jänis, TKK

1. **Multiuser Scheduling Based on Reduced Feedback Information in Cooperative Communications**
Yong-Up Jang, Won-Yong Shin and Yong H. Lee
2. **Power Allocation and Adaptive Modulation for OFDM Systems with Imperfect CSI**
Yi Liu, Qi Ma and Hailin Zhang
3. **On the Performance of Transmit and Receive Diversity OFDM Systems with Phase Noise and Imperfect Channel Estimation**
Mohamed Jalloh and Pankaj Das
4. **A New ARQ Protocol for Hybrid DF/CF Relay Scheme**
Yinan Qi, Reza Hoshyar and Rahim Tafazolli
5. **Planning of Frequency Reuse and Relay Station's Location for Cellular Relaying Networks**
Yoshitaka Hara and Hiroshi Kubo

Wednesday 29 April 11.10 - 12.50 Alborá

9E: Localization techniques

Chair: Mohamed Zhaounia, Ecole Supérieure des Communications

1. **An RSSI-Based MAP Localization Method with Channel Parameters Estimation in Wireless Sensor Networks**
Daisuke Anzai and Shinsuke Hara
2. **Approximate Maximum Likelihood Mobile Localization using Scatterer Information**
Mohamed Zhaounia, Mohamed Adnan Landolsi and Ridha Bouallegue
3. **System Capacity Analysis for High-Precision Radiolocation in the 5.8 GHz ISM Band**
R. Mosshammer, M. Huemer and R. Weigel
4. **Prior Models for Indoor Super-Resolution Time of Arrival Estimation**
David Humphrey and Mark Hedley

Wednesday 29 April 11.10 - 12.50 Floor 1 Foyer

9Pa: Transmission technologies posters IV

1. **A Pre-BSC Model for Distributed Turbo Codes**
Reza Hoshyar and R. Tafazolli
2. **Bit-Interleaved LDPC-Coded Modulation with Iterative Demapping and Decoding**
Qiuliang Xie, Kewu Peng, Jian Song and Zhixing Yang
3. **An Error Detection Aided GSC/MRC Switching Scheme in AF based Cooperative Communications**
Wan Choi, Jun-Pyo Hong, Dong In Kim and Byoung-Hoon Kim
4. **SCM-Based Retransmission Scheme in Multi-Hop Relay Networks**
Jiming Chen and Shan Jin
5. **Analysis of Clipping-Based PAPR-Reduction in Multicarrier Systems**
M. Usman Rahim, Tobias Hidalgo Stitz and Markku Renfors
6. **Multi-Dimensional Constellations for Coded Transmission in Fading Channels**
Rabih Chrabieh and Özgür Dural

7. **Analytical Resource Optimization for the DF Relay-Assisted Transmission under HARQ**
Adrián Agustín, Josep Vidal and Olga Muñoz
8. **Extended-Serial Decoding for Turbo-Coded Data Gathering Sensor Networks**
Javad Haghighat, Hamid Behroozi and David V. Plant
9. **Performance Analysis of Amplify-and-Forward Cooperative Networks with Relay Selection over Rayleigh Fading Channels**
Mohammad Torabi, Wessam Ajib and David Haccoun
10. **Static Power Allocation in Two-Hop MIMO Amplify-and-Forward Relay Systems**
Jun Ma, Philip Orlik, Jinyun Zhang, Toshiyuki Kuze, Hiroki Iura and Geoffrey Ye Li
11. **Modified Successive Interference Cancellation for MIMO OFDM on Doubly Selective Channels**
Kwanghoon Kim and Hyuncheol Park
12. **Time Delay Estimator for Frequency Hopping System using Rank-Revealing Triangular Factorization**
M. M. Qasaymeh, Gami Hireen, Tayem Nizar, Ravi Pendse and M. E. Sawan
13. **A Simple Estimation Scheme for Joint Estimation of Carrier Frequency Offset and I/Q Imbalance**
Leonardo Lanante Jr., Masayuki Kurosaki and Hiroshi Ochi
14. **Iterative LMMSE Channel Estimation, Detection, and Decoding with a Priori Information for ST-BICM Systems Over Block Fading Channels**
Wooram Shin, Seung Joon Lee and Dong Seung Kwon
15. **Performance Analysis of Dual Hop Relaying over Non-Identical Weibull Fading Channels**
Salama S. Ikki and Mohamed H. Ahmed

Wednesday 29 April 11.10 - 12.50 Floor 1 Foyer

9Pb: Transportation posters

16. **TrafficModeler: A Graphical Tool for Programming Microscopic Traffic Simulators through High-Level Abstractions**
Leontios G. Papaleondiou and Marios D. Dikaiakos
17. **Adaptive Fuzzy Urban Traffic Flow Control Using a Cooperative Multi-Agent System based on Two Stage Fuzzy Clustering**
Fateme Daneshfar, Javad RavanJamJah, Fathollah Mansoori, Hassan Bevrani and Bahram Zahir Azami
18. **Automatic Incident Detection In VANETs: A Bayesian Approach**
Mahmoud Abuelela and Stephan Olariu
19. **Wireless Sensor Networks for Intelligent Transportation Systems**
Mirko Franceschinis, Luca Gioanola, Massimiliano Messere, Riccardo Tomasi, Maurizio A. Spirito and Pierluigi Civera
20. **A Vehicle Transmission Simulator Applied to the Automated Driving**
C. Larouci, A. Chaibet and M. Boukhniifer
21. **A Battery-Less Tire Pressure Monitoring System**
I-Hsiu Ho, Jia-Min Chung, Hsiao-Chin Chen and Hung-Wei Chiu

Wednesday 29 April 14.10 - 15.50 Adriatic

10A: Interference Management

Chair: Emilio Calvanese Strinati, CEA-LETI

1. **Interference Management through Resource Allocation in Multi-Cell OFDMA Networks**
Ángela Hernández, Israel Guío and Antonio Valdivinos

2. **Autonomous Inter Cell Interference Avoidance under Fractional Load for Downlink Long Term Evolution**
Sanjay Kumar, G. Monghal, Jaume Nin, Ivan Ordas, K. I. Pedersen and P. E. Mogensen
3. **Multi-Layer Optimized Packet Scheduling for OFDMA-Based Cellular Systems**
Xiaoqiu Wang, Satoshi Konishi and Toshinori Suzuki
4. **Adjacent Channel Interference Between Asynchronous TDD Cellular Networks**
Pekka Jänis, Visa Koivunen, Olav Tirkkonen and Klaus Hugi

- 5. Interference-Aware Resource Allocation for Device-to-Device Radio Underlying Cellular Networks**
Pekka Jänis, Visa Koivunen, Cássio Ribeiro, Juha Korhonen, Klaus Doppler and Klaus Hugel

Wednesday 29 April 14.10 - 15.50 Marmara

10B: Coding II

Chair: Robert Heath, MIMO Wireless Inc.

- 1. MIMO Spatial Mode Adaptation at the Cell Edge Using Interferer Spatial Correlation**
Robert W. Heath Jr., Tao Wu and Anthony C. K. Soong
- 2. Reconfigurable Rateless Codes**
Nicholas Bonello, Rong Zhang, Sheng Chen and Lajos Hanzo
- 3. Physical-Layer Algebraic Network Coding and Superposition Coding for the Multi-Source Cooperation Aided Uplink**
Rong Zhang and Lajos Hanzo
- 4. Enhanced Soft-Handover for DS-CDMA Systems using Complementary Error Correction Codes**
Moustapha Ould El Aoun, Mohamed Siala and Hatem Boujemaa
- 5. BICM-ID Using Extended Mapping and Repetition Code with Irregular Node Degree Allocation**
Dan Zhao, Axel Dauch and Tad Matsumoto

Wednesday 29 April 14.10 - 15.50 Baltic

10C: Relay Networks

Chair: Adrian Agustin, Universitat Politècnica de Catalunya

- 1. Distributed and Centralized Architectures for Relay-Aided Cellular Systems**
Erhan Yilmaz, Federico Boccardi and Angeliki Alexiou
- 2. Multi-Hop-Aware Cooperative Relaying**
Helmut Adam, Christian Bettstetter and Sidi Mohammed Senouci
- 3. Outage Probability Analysis of Wireless Relay and Cooperative Networks in Rician Fading Channels with Different K-Factors**
Woraniiti Limpakom, Yu-Dong Yao and Hong Man
- 4. A Heuristic Relay Positioning Algorithm for Heterogeneous Wireless Networks**
Chong Shen and Dirk Pesch
- 5. Power Allocation and Subcarrier Pairing for OFDM-Based AF Cooperative Diversity Systems**
Zhenhui Shen, Xiaoxiang Wang and Hongtao Zhang

Wednesday 29 April 14.10 - 15.50 Mediterrani

10D: Multi-user detection

Chair: Vincent Kotzsch, Dresden University of Technology

- 1. Minimum Mean-Square Error and Maximum Likelihood Multiuser Detection: Statistical Properties and Applications**
Lie-Liang Yang
- 2. Multiuser Detection for Decode-and-Forward Cooperative Relaying in DS-CDMA Systems**
Xiaojuan Zhang, Yi Gong and Gaoxi Xiao
- 3. Reliability-Aided Multiuser Detection in Time-Frequency-Domain Spread Multicarrier DS-CDMA Systems**
Ke Yuan, W. Liu and Lie-Liang Yang
- 4. Multi-User Detection for Improving VoIP Capacity and Coverage in WCDMA Uplink**
Y.-P. Eric Wang and Stephen J. Grant
- 5. Joint Detection and CFO Compensation in Asynchronous Multi-User MIMO OFDM Systems**
Vincent Kotzsch, Jörg Holfeld and Gerhard Fettweis

Wednesday 29 April 14.10 - 15.50 Albora

10E: Mobile satellite and positioning systems

Chair: Alfonso Bahillo, Universidad de Valladolid

- 1. A New Neighbor Discovery Scheme Based on Spatial Correlation of Wireless Channel**
Woongsup Lee and Dong-Ho Cho
- 2. Cooperative Positioning for the Converged Networks**
Yiheng Zhang, Qimei Cui and Xiaofeng Tao
- 3. IEEE 802.11 Distance Estimation Based on RTS/CTS Two-Frame Exchange Mechanism**
A. Bahillo, J. Prieto, S. Mazuelas, R. M. Lorenzo, J. Blas and P. Fernández
- 4. A Study of Multiple Access Schemes for Wireless Sensor Network Applications via High Altitude Systems**
Z. Yang and A. Mohammed
- 5. Propagation Impairment Countermeasures in Mobile Stratospheric Operating Environment**
Miha Smolnikar, Mihael Mohorcic, Tomaz Javornik and David Grace

Wednesday 29 April 14.10 - 15.50 Ballroom C1

10F: MIMO Multiuser Techniques

Chair: Mischa Dohler, CTTC

- 1. Multiuser MIMO Downlink Made Practical: Application to IEEE 802.16m**
Bruno Clerckx, David Mazzarese, Gil Kim and Sungjin Kim
- 2. Multicell Cooperation Based SVD Assisted Multi-User MIMO Transmission**
W. Liu, S. X. Ng and L. Hanzo
- 3. Comparison of Practical Feedback Algorithms for Multiuser MIMO**
Maryam Modir Shanechi, Ron Porat and Uri Erez
- 4. Efficient User Selection and Ordering Algorithms for Successive Zero-Forcing Precoding for Multiuser MIMO Downlink**
Shreeram Sigdel and Witold A. Krzymien
- 5. 16x16 Multiuser MIMO Testbed Employing Simple Adaptive Modulation Scheme**
Kentaro Nishimori, Riichi Kudo, Naoki Honma, Yasushi Takatori and Masato Mizoguchi

Wednesday 29 April 14.10 - 15.50 Ballroom C2

10G: WiMAX I

Chair: Ferran Casadevall, Universitat Politècnica de Catalunya

- 1. A Linear-Complexity Burst Packing Scheme for IEEE 802.16e OFDMA Downlink Frames**
Jincao Zhu, Hyogon Kim and Hee Hwan Kwak
- 2. An Enhancement of Sleep Mode Operation in IEEE 802.16e Systems**
Yi Wu, Yanqun Le and Dongmei Zhang
- 3. Link Level Simulation Study of Downlink MIMO and Uplink HARQ in IEEE 802.16e WiMAX System**
Xiaojia Lu, Juho Antikainen, Visa Tapio, Juha Ylitalo, Roope Parviainen, Antti Härkönen and Markku Juntti
- 4. Optimization of Channel Quality Indication Signaling in WiMAX System**
Wenwen Chen, Li Chen, Xin Zhang, Yong Zhang and Dacheng Yang
- 5. Bandwidth Allocation for Video Streaming in WiMax Networks**
Alessandra Scicchitano, Andrea Bianco, Carla-Fabiana Chiasserini and Emilio Leonardi

Wednesday 29 April 14.10 - 15.50 Ballroom C3

10H: Power Management

Chair: Mehdi Bennis, University of Oulu

- 1. Distributed Power Control Mechanisms for HSDPA Femtocells**
Naveen Arulselvan, Vinod Ramachandran, Suresh Kalyanasundaram and Guang Han
- 2. Simplified Cross-Layer Optimization for Power Allocation in MIMO-OFDM Systems**
Yoonah Oh, Sang-Wook Han, Hoon Kim and Youngnam Han
- 3. Short-Term Power Allocation for Slowly Fading Channels Based on Markov Prediction**
Ali Sharifkhani and Norman C. Beaulieu
- 4. Throughput Improvement by Power Reallocation in Multi-Cell Coordinated Power Control**
Atsushi Nagate, Kenji Hoshino, Manabu Mikami and Teruya Fujii
- 5. On the Performance of Device-to-Device Underlay Communication with Simple Power Control**
Chia-Hao Yu, Olav Tirkkonen, Klaus Doppler and Cássio Ribeiro

Wednesday 29 April 14.10 - 15.50 Floor 1 Foyer

10P: Cognitive Radio Posters

- 1. Spectral Efficiency Analysis in OFDM and OFDM/OQAM Based Cognitive Radio Networks**
Haijian Zhang, D. Le Ruyet and Michel Terre
- 2. Inter-Operator Dynamic Spectrum Selection in UMTS**
A. Yarmohammad, M. Abaai, S. Thilakawardana and R. Tafazolli
- 3. Context Learning and Configuration Selection for Cognitive Device Management**
Dionysis Petromanolakis, Yiouli Kritikou, Vera Stavroulaki and Panagiotis Demestichas
- 4. High-Sensitivity Carrier Sensing Using Overlapped FFT for Cognitive Radio Transceivers**
Tazuko Tomioka, Takeshi Tomizawa and Takahiro Kobayashi
- 5. Double Thresholds Based Cooperative Spectrum Sensing Against Untrusted Secondary Users in Cognitive Radio Networks**
Shaoyi Xu, Yanlei Shang and Haiming Wang
- 6. Low Complexity FFT Based Spectrum Sensing in Bluetooth System**
Dong-Chan Oh and Yong-Hwan Lee
- 7. Light Cognitive Radio Enabled Flexible Spectrum Usage in Local Area Deployment**
Sanjay Kumar, Valentina Palma, Erwann Borgat, Nicola Marchetti and P. E. Mogensen
- 8. Spectrum Availability in Indoor Locations for Opportunistic Spectrum Access in Dense Urban Scenarios**
F. Novillo, H. Galeana, R. Ferrús and R. Agustí

Wednesday 29 April 16.20 - 18.00 Adriatic

11A: UWB

Chair: Kiattisak Maichalernnukul, University of Hannover

- 1. On the Empirical Evaluation of Spatial and Temporal Characteristics of Ultra-Wideband Channel**
Shuai He, X. Dong, Z. Tian, Ted C.-K. Liu, M. Ghoreishi, M. L. McGuire, S. W. Neville and Noel Tin
- 2. Spectrally Compliant Waveforms for UWB Radio with an Auto-Correlation Criterion**
Ritesh Sood and Hong Xiao
- 3. Performance Investigation of a UWB Relay System using Multiple Relays with Multiple Antennas in IEEE 802.15.3a Channel**
Kiattisak Maichalernnukul, Thomas Kaiser and Feng Zheng

9. Bayesian Tracking in Cooperative Localization for Cognitive Radio Networks

Sithamparanathan Kandeepan, Sam Reisenfeld, Tuncer Can Aysal, David Lowe and Radoslaw Piesiewicz

10. A Scheme for Learning User Preferences: Enabling Personalisation in Cognitive Wireless Systems

Yiouli Kritikou, Vera Stavroulaki, Eleni Darra and Panagiotis Demestichas

11. Distributed Cooperation in Cognitive Radio Networks: Overlay Versus Underlay Paradigm

Lorenza Giupponi and Christian Ibars

Wednesday 29 April 14.10 - 15.50 Floor 1 Foyer

10P: Wireless & Ad-hoc Systems & Services Posters

12. Adaptable Link Quality Estimation for Multi Data Rate Communication Networks

Jinglong Zhou, Cheng Guo, Przemyslaw Pawelczak and Ignas Niemegeers

13. How to Select the OOK Detection Threshold in Wireless Ad Hoc and Sensor Networks

M. D'Angelo and C. Fischione

14. Robust Extraction of Temporal Correlation from Noisy Data

Laura Imbriglio and Fabio Graziosi

15. Avoiding Timeslot Boundary Synchronization for Multihop Message Broadcast in Vehicular Networks

Jeremy J. Blum and Azim Eskandarian

16. Adaptive Resource Allocation for Multi-Resolution Multicast Services with Diversity in OFDM Systems

Yen-Chen Chen and Yuh-Ren Tsai

17. Packet Error Rate Analysis of ZigBee under Interferences of Multiple Bluetooth Piconets

Soo Young Shin, Jeong Seok Kang and Hong Seong Park

18. Overcoming Self- Interference in SM-OFDMA with ESINR and Dynamic Subcarrier Allocation

R. Nordin, S. Armour and J. P. McGeehan

19. Analysis on Multiple Access for Heterogeneous Network Diversity

Yonghoon Choi, Koudjo M. Koumadi, Seungmo Kim and Youngnam Han

20. Adaptive Radio Resource Allocation Framework for Multi-User OFDM

Emanuel B. Rodrigues and Fernando Casadevall

21. Embedded Automated Mobile Tracking & Security System

Gary O'Connor, Sebastian Weber, Antony Guinard, Donna Griffin and Dirk Pesch

22. On the Design of Efficient Vehicular Applications

Yacine Khaled, Manabu Tsukada, José Santa and Thierry Ernst

4. Impulse Radio Ultra-Wideband Ranging under Multi-User Environments

Hai Zhan, Jaouhar Ayadi, John Farserotu and Jean-Yves Le Boudec

5. Pulse Waveforms with a Correlation Criterion for Synthetic Aperture Imaging Systems

Ritesh Sood and Hong Xiao

Wednesday 29 April 16.20 - 18.00 Marmara

11B: Modulation

Chair: Anna Umbert, Universitat Politècnica de Catalunya

1. An Efficient PAPR Reduction Method for Wavelet Packet Modulation Schemes

Ngon Thanh Le, Siva D. Muruganathan and Abu B. Sesay

2. Minimizing Power Using Large Bandwidth PPM Transmission and DPCM Source Coding

Minh-Long Pham, Tor A. Ramstad and Ilangko Balasingham

3. **Efficient Coded Bit and Power Loading for BICM-OFDM**
Carsten Bockelmann, Dirk Wübben and Karl-Dirk Kammeyer
4. **Coded M-PSK Modulation using Convolutional Self-Doubly Orthogonal Codes**
Christian Cardinal and Bakitanga-Florian Mvutu

Wednesday 29 April 16.20 - 18.00 Baltic

11C: Mobility MGM

Chair: Ramon Ferrús, Universitat Politècnica de Catalunya

1. **A Comprehensive Performance Evaluation of PMIPv6 over IP-Based Cellular Networks**
Yong Li, Haibo Su, Li Su, Depeng Jin and Lieguang Zeng
2. **Evaluation of a Network Based Mobility Management Protocol: PMIPv6**
Asanga Udugama, Muhammad Umer Iqbal, Umar Toseef, Carmelita Goerg, Changpeng Fan and Morten Schlaeger
3. **Characterization of Vertical Handoff Delay for Mobile IP Based 3G/WLAN Integrated Networks**
Abdul-Aziz Al-Helali, Ashraf Mahmoud, Talal Al-Kharobi and Tarek Sheltami
4. **Enhanced Media Independent Handover Framework**
Pedro Neves, Francisco Fontes, Susana Sargento, Márcio Melo and Kostas Pentikousis
5. **Using Concurrently Executing Mechanism to Provide Secure Handoff Optimization for IPv6-Based Wireless Networks**
Qiaolong Li, Kaizhi Huang and Liang Jin

Wednesday 29 April 16.20 - 18.00 Mediterrani

11D: Synchronization

Chair: Ferran Casadevall, Universitat Politècnica de Catalunya

1. **Network Time-Synchronization in TDD Based LTE-Advanced Systems**
Yuanye Wang, Simone Frattasi, Troels B. Sørensen and Preben E. Mogensen
2. **A Suboptimal Modified Code Tracking Loop for Synchronous DS-CDMA Systems**
Y. T. Wu, S. H. Leung, W. K. Wong and Y. S. Zhu
3. **Diversity Transmission for Correlation-Based Slot Synchronization with Noncoherent Combining**
Tommi Koivisto and Visa Koivunen
4. **An Adaptive Cell Search and Integral Frequency Offset Estimation in Mobile WiMAX**
Jieun Choi, Minjae Park, Suhyun Cha and Hwang Soo Lee
5. **A Synchronous Digital Duplexing Technique for Wireless Transmission in Indoor Environments**
Chang-Hwan Park, Yo-Han Ko, Kyung-Won Park, Won-Gi Jeon, Jong-Ho Paik, Seok-Pil Lee and Yongsoo Cho

Wednesday 29 April 16.20 - 18.00 Albora

11E: Satellite systems

Chair: Nektarios Moraitis, NTUA

1. **Concept and Performance Evaluation of a Galileo-Based Emergency Short Message Service**
Andreas Lewandowski, Brian Niehoefer and Christian Wietfeld
2. **A Comparison of Multicast Adaptive Techniques in Reliable Delivery over GEO Satellite Networks**
A. Sali, G. Acar, B. Evans and G. Giambene
3. **Capacity Evaluation of a SIMO Satellite System at L, S and Ku Bands**
Argyris Kyriazos, Nektarios Moraitis, Philip Constantinou and Demosthenes Vouyioukas
4. **A New GNSS Synchronization Scheme**
Sanghun Kim, Dahae Chong and Seokho Yoon

5. **Mixture Particle Filter for Low Cost INS/Odometer/GPS Integration in Land Vehicles**
Jacques Georgy, Aboelmagd Noureldin and Mohamed Bayoumi

Wednesday 29 April 16.20 - 18.00 Ballroom C1

11F: MIMO Interference and Multiusers

Chair: Rizwan Ghaffar, Eurecom

1. **Performance Optimization for Multi-User Orthogonal Space-Time Block Coding with Maximum Likelihood and Zero-Forcing Receivers**
Stefano Sorrentino
2. **Interference Suppression for Next Generation Wireless Systems**
Rizwan Ghaffar and Raymond Knopp
3. **Iterative MIMO Signal Detection with Inter-Cell Interference Cancellation for Downlink Transmission in Coded OFDM Cellular Systems**
Manabu Mikami and Teruya Fujii
4. **A Low Complexity Capacity-Greedy User Selection Scheme for Zero-Forcing Beamforming**
Jingxiu Liu, Xiaoming She and Lan Chen
5. **Sum Rate Characterization of Distributed Antenna Systems with Circular Antenna Layout**
Wei Feng, Xibin Xu, Shidong Zhou, Jing Wang and Minghua Xia

Wednesday 29 April 16.20 - 18.00 Ballroom C2

11G: WiMAX II

Chair: Patrick Hosein, Huawei Technologies

1. **WiMax MBS Power Management, Channel Receiving and Switching Delay Analysis**
Thawatt Gopal
2. **Performance of Frequency Selective Scheduling and Fractional Frequency Reuse Schemes for WiMAX**
Chandrasekar Sankaran, Fan Wang and Amitava Ghosh
3. **Group Scheduling for Improving VoIP Capacity in IEEE 802.16e Networks**
Shweta Shrivastava and Rath Vannithamby
4. **Adaptive Algorithm for Mapping Channel Quality Information to Modulation and Coding Schemes**
Patrick Hosein
5. **Power Allocation for OFDM Based Links in Hybrid Forward Relay**
Xiaofan Li, Jianhua Zhang, Yanyan Zhang and Jiangchun Huang

Wednesday 29 April 16.20 - 18.00 Ballroom C3

11H: MAC

Chair: Francisco Bernardo, Universitat Politècnica de Catalunya

1. **MAC Layer Performance of Different Channel Estimation Techniques in UTRAN LTE Downlink**
David Martin-Sacristán, Jorge Cabrejas, Daniel Calabuig and Jose F. Monserrat
2. **Comparative Analysis of Non-Synchronized Initial Random Access for Mobile Broadband Systems**
José Ramón Gállego, Ángela Hernández-Solana, Israel Guío and Antonio Valdovinos
3. **Towards Random Access Channel Self-Tuning in LTE**
M. Amirjoo, Pål Frenger, Fredrik Gunnarsson, Johan Moe and K. Zetterberg
4. **Performance Evaluation of Memory-Less and Kalman-Based Channel Estimation for OFDMA**
Daniel Aronsson, Tommy Svensson and Mikael Sternad
5. **Link Level Investigation of ACK/NACK Bundling for LTE TDD**
Muhammad Imadur Rahman and David Astély

Wednesday 29 April 16.20 - 18.00 Floor 1 Foyer

11Pa: Antennas and Propagation Posters

1. **Modelling of Antennas in Car Communications**
John Rajeev Ojha and Hermann Sing
2. **An Improved ESPRIT Based Time-of-Arrival Estimation Algorithm for Vehicular OFDM Systems**
Vinay Uday Prabhu and Devendra Jalihal
3. **Predicting the K-Factor of Divided Paths in Wideband Mobile Propagation**
Hideki Omote, Yoshichika Ohta and Teruya Fujii
4. **A UWB Probe-Fed Dielectric Resonator Antenna**
Yuehe Ge and Karu P. Esselle
5. **Symbol Error Probability Analysis of L-Branch Maximal-Ratio Combiner for Generalized η - μ Fading**
Mirza Milisic, Mirza Hamza, Narcis Behlilovic and Mesud Hadzialic
6. **Clustering of MIMO Channel Parameters - Performance Comparison**
Christian Schneider, Martin Bauer, Milan Narandzic, W. A. Th. Kotterman and Reiner S. Thomä
7. **Modeling of Eigenvalues for MIMO Channel Capacity Based on Outdoor Measurements**
Wonsop Kim, Hyuckjae Lee, Jae Joon Park, Myung-Don Kim and Hyun Kyu Chung
8. **User's Impact on PIFA Antennas in Mobile Phones**
Mauro Pelosi, Ondrej Franek, Gert F. Pedersen and Mikael Knudsen
9. **Results from a First Approach to a Point-Scatter Simulator for MIMO Radio Channel Modeling**
Susana Mota, Nuno Almeida, Armando Rocha and Fernando Perez-Fontán
10. **On the Ultra Wideband Propagation Channel Characterizations of the Biomedical Implants**
Ali Khaleghi and Ilanko Balasingham
11. **Study of Correlation Coefficients of Complex Envelope and Phase in a Domain with Time and Frequency Axes in Narrowband Multipath Channel**
Shigeru Kozono, Kenji Ookubo and Kozue Yoshida

12. Increasing Handset Performance Using True

Polarization Diversity

Juan F. Valenzuela-Valdés and David A. Sánchez-Hernández

13. Analysis of TMC Antenna Solutions

Malgorzata Brzeska, Ramiro Quintero, Victor Mata, Cristina Domingo-Sábat and Enrique Martínez

14. Outdoor to Indoor 2x2 Wideband MIMO Channel Modelling

O. Fernandez, M. Domingo and R. P. Torres

Wednesday 29 April 16.20 - 18.00 Floor 1 Foyer

11Pb: Vehicular Communication Posters

15. Car-to-Car Communication Security on Reconfigurable Hardware

Benjamin Glas, Oliver Sander, Vitali Stuckert, Klaus D. Müller-Glaser and Jürgen Becker

16. WLAN-Based Real Time Vehicle Locating System

Mauricio Caceres, Francesco Sottile and Maurizio A. Spirito

17. Millimeter Wave Ultra Wide Band Short Range Radar Localization Accuracy

Nizar Obeid, Marc Heddebaut, Fouzia Elbahhar, Christophe Loyez and Nathalie Rolland

18. Joint Parameter Estimation and Tracking in a Multi-Stage Kalman Filter for Vehicle Positioning

Maik Bevermeier, Sven Peschke and Reinhold Haeb-Umbach

19. Analysis of Packet Forwarding in VANETs Using Probabilistic Channel Model

Wenhui Zhang

20. A Secure and Privacy Aware Data Dissemination For The Notification of Traffic Incidents

Mahmoud Abuelela, Stephan Olariu and Khaled Ibrahim

21. A Markov Chain Model of Streaming Proxy for Disconnecting Vehicular Networks

Mohammed B. Hassan and Mahbub Hassan

22. A Routing Protocol for WiMAX Based Maritime Wireless Mesh Networks

Peng-Yong Kong, Jaya Shankar Pathmasuntharam, Haiguang Wang, Yu Ge, Chee-Wei Ang, Wen Su, Ming-Tuo Zhou and Hiroshi Harada

Tutorials

A range of tutorials will be held throughout the conference given by experts from industry and academia.

Sunday, April 26, 9.00 – 12.30 Adriatic

T1: Iterative Receiver Design

Henk Wymeersch, MIT

Many researcher, students, and practicing engineers are familiar with iterative, turbo-style processing but still often lack the knowledge of the underlying mathematical framework. In this tutorial, we will provide a rigorous, yet accessible introduction to the framework of factor graphs and how it can be used in developing iterative algorithms for estimation and detection. We emphasize the use of the factor graphs for the design of iterative receivers, with applications in decoding (e.g., turbo and LDPC codes), MIMO detection, multi-user detection, and synchronization. This tutorial contains many examples and exercises.

Henk Wymeersch is a postdoctoral associate with the Laboratory for Information and Decision Systems (LIDS) at the Massachusetts Institute of Technology (MIT). His research interests include

algorithm design for wireless transmission, statistical inference and iterative processing. He obtained the Ph.D. degree in electrical engineering in 2005 from Ghent University, Belgium. In 2005-2006, Henk Wymeersch was a postdoctoral fellow of the Belgian American Educational Foundation at MIT, and in 2006 he won the Alcatel Bell Scientific Award for his Ph.D. thesis. He is a member of the IEEE, associate editor for IEEE Communication Letters, for the Journal of Computer Systems, Networks, and Communications, and author of Iterative Receiver Design (Cambridge University Press, August 2007).

Sunday, April 26, 14.00 – 17.30 Adriatic

T2: Future Gigabit/s Systems: Towards Real 4G and Cognitive Radios

Nicola Marchetti, Aalborg Univ, Denmark, and M. Imadur Rahman, Ericsson Research

Next generation wireless systems are supposed to reach ambitious targets in terms of data rate

and spectrum efficiency, which can be fulfilled only if a sufficient degree of intelligence and adaptivity can be put into future radios. This tutorial will address a number of intelligent and autonomous techniques that can be implemented in future wireless systems to realize such efficient high rate networks.

After a general introduction on future Gigabit/s systems, some advanced PHY and RRM techniques suitable for achieving "real" 4G targets in terms of data rate and spectral efficiency will be given, keeping especially an eye on smart and flexible design. The concentration will be on multi-antenna techniques, cognitive radios, advanced spectrum management, adaptive scheduling etc. Specifically, challenges and benefits related to flexible and smart spectrum utilization, spectrum sharing and cognitive radio techniques will be touched, as complementary and evolved technologies with respect to the above-mentioned PHY and RRM architectures.

Nicola Marchetti was born in Legnago, Italy, on October 2, 1978. In 2003 and 2007 he received the M.Sc. degree in electronic engineering and the Ph.D. degree in wireless communications from University of Ferrara, Italy, and Aalborg University, Denmark, respectively. From July 2003 to April 2004 he was a research assistant at the University of Ferrara and he worked a PhD Researcher from May 2004 to May 2007 at Aalborg University Denmark. Since June 2007, he is a Research Assistant Professor at Aalborg University, working on projects related to flexible spectrum usage and cognitive radios. He is a member of the Advisory Committee on Applied Mathematics at Aalborg University (AMAAU). In 2008, he was TPC-chair of the First International Workshop on Cognitive Radio and Advanced Spectrum Management (CogART) and General Co-Chair of the First International Symposium on Applied Sciences in Biomedical and Communication Technologies (ISABEL). His research interests include: multiple antenna technologies, single- and multi-carrier modulations, radio resource management, cognitive radios and advanced spectrum management techniques, applied mathematics for wireless communication.

Muhammad Imadur Rahman was born in Bangladesh on 30 January 1976. He obtained his PhD degree in Wireless Communications from Aalborg University Denmark on September 2007. Prior to that, he obtained his B.Sc degree in Electronics Engineering in 2000 from Multimedia University Malaysia and MSc degree in Radio Communications from Helsinki University of Technology Finland in 2003. Since the beginning of 2003, he was employed as a researcher in Aalborg University. He was an assistant professor in the same university in 2007, where he taught a number of MSc level courses in mobile communications, supervised 10 MSc students and 3 PhD students. Currently he is with Ericsson Research, Kista, Sweden since January 2008 working as a research engineer in Access Technologies and Signal Processing group. His main research interest is multiple access

techniques, multi-antenna issues, spectrum sharing and radio resource management in wireless systems. He has been involved in a number of conferences and workshops as organizing and technical committee member. He is an active IEEE volunteer.

Sunday, April 26, 14.00 – 17.30 Baltic

T4: Communication protocols in vehicular networks

Ivan Stojmenovic, University of Ottawa

Tutorial deals with the vehicle-to-vehicle (V2V) and vehicle-infrastructure (V2I and I2V) data communication issues. The problems covered include geocasting for congestion notification (broadcast warning and traffic information to all vehicles on a road segment or in given area, suppress multiple warning for the same event, determine boundaries for warning spreading), routing (V2V, V2I, I2V) for communication between two cars or car tracking, and enabling application services by user devices (supporting Internet connections between users and service providers in a mobile environment). All protocols deal with intermittently connected network of vehicles, whose nature is also discussed. Routing and geocasting protocols with and without the use of RSU (road side units) are covered.

Ivan Stojmenovic received Ph.D. degree in mathematics. He held positions in Serbia, Japan, USA, Canada, France, Mexico, Spain and UK (as Chair in Applied Computing at the University of Birmingham, UK), and is Full Professor the University of Ottawa, Canada. He published over 250 different papers, and edited four books on wireless, ad hoc and sensor networks and applied algorithms with Wiley/IEEE. He is currently editor of over dozen journals, and founder and editor-in-chief of three journals (Journal of Multiple-Valued Logic and Soft Computing, International Journal of Parallel, Emergent and Distributed Systems, and Ad Hoc & Sensor Networks, An International Journal). Stojmenovic is in the top 0.56% most cited authors in Computer Science (Citeseer 2006). One of his articles was recognized as the Fast Breaking Paper, for October 2003 (as the only one for all of computer science), by Thomson ISI Essential Science Indicators. He is recipient of the Royal Society Research Merit Award, UK. He is recently elected to IEEE Fellow status (Communications Society, class 2008). He chaired and/or organized >30 workshops and conferences, and served in over 100 program committees since 2004. Among others, he was/is program co/vice-chair at IEEE PIMRC 2008, IEEE AINA-07, IEEE MASS-04 and -07, EUC-05 and -08, WONS-05, MSN-05 and -06, ISPA-05 and -07, founded workshop series at IEEE MASS, IEEE ICDCS and IEEE DCSS, and Workshop Chair at ACM Mobicom/Mobihoc 2007 and ACM Mobihoc 2008. He presented over dozen tutorials.

Sunday, April 26, 9.00 – 12.30 Marmara

T5: HSDPA, HSUPA and MIMO-aided cross-layer-optimized FDD versus TDD networking for Green Radio

Lajos Hanzo, University of Southampton

This research-oriented presentation is based on the Wiley/IEEE Press monographs and considers the joint benefits of both adaptive physical and adaptive network-layer performance enhancement techniques, with special emphasis on the latter. More specifically, conventional systems would drop a call in progress, if the communications quality falls below the target quality of service and it cannot be improved by handing over to another physical channel. By contrast, the adaptive transceivers of the near future are expected to simply instantaneously drop the throughput, rather than dropping the call by reconfiguring themselves in a more robust mode of operation. It is demonstrated that the proposed beam-forming and adaptive transmission techniques may double the expected tele-traffic capacity of the system, whilst maintaining the same AVERAGE performance as their conventional fixed-mode counterparts. We explore the inherent implications of the bandwidth versus power efficiency criteria routinely employed to characterize wireless communication systems. We stress the pressing importance of the power efficiency-related green radio considerations in the context of contemporary as well as future wireless networks. Finally, we carry out a topdown analysis of a hypothetical commercial wireless network and demonstrate that the appropriate choice of the optimization criterion has a profound influence on the overall network performance.

Lajos Hanzo (<http://www-mobile.ecs.soton.ac.uk>) received his first-class Master degree in electronics in 1976, his PhD in 1983 and his Doctor of Sciences (DSc) degree in 2004. He is a Fellow of the Royal Academy of Engineering (FREng). During his career in telecommunications he has held various research and academic posts in Hungary, Germany and the UK. Since 1986 he has been with the School of ECS, University of Southampton, UK, where holds the Chair in Telecommunications.

He co-authored 15 IEEE Press - John Wiley books totaling in excess of 10 000 pages on mobile radio communications, published in excess of 800 research papers, organized and chaired conference sessions, presented overview lectures and has been awarded a number of distinctions. Currently he heads an academic research team, working on a range of research projects in the field of wireless multimedia communications sponsored by industry, the Engineering and Physical Sciences Research Council (EPSRC) UK, the European IST Program and the Mobile Virtual Centre of Excellence (VCE), UK. He is an enthusiastic supporter of industrial and academic liaison and he offers a range of industrial courses. Lajos is also an IEEE Distinguished Lecturer and a Fellow of both the IEE and IEEE. Lajos is the Editor-in-

Chief of the IEEE Press. For further information on research in progress and associated publications please refer to <http://www-mobile.ecs.soton.ac.uk/>

Sunday, April 26, 14.00 – 17.30 Marmara

T6: Multiuser MIMO Communications in Theory and Practice

Gerhard Bauch & Guido Dietl, DOCOMO Euro-Labs

Multiuser multiple-input multiple-output (MIMO) will be the next step in practical implementations of multi-antenna transmission methods in commercial systems. A very simple version of multiuser MIMO has already been standardized in 3GPP Long Term Evolution (LTE). Multiuser MIMO is likely to play a major role in standardization of 4G systems like 3GPP-LTE-Advanced and IMT-Advanced. The tutorial is based on both the authors scientific/theoretical work and their active participation in standardization in 3GPP.

We will give an introduction to multiuser MIMO techniques which aim at increasing the sum capacity and spectrum efficiency of the downlink of wireless communications systems. We will report the most important theoretical limits and methods in order to approach those limits. However, the focus of the tutorial is on practical aspects. Since multiuser MIMO has become a topic in standardization for 3GPP-LTE, we concentrate on multiuser MIMO methods and problems which have been discussed in 3GPP-LTE and lead to the respective decisions. This particularly includes design of feedback information, codebook design, actual precoding, receiver processing, and scheduling.

We will show which features of 3GPP-LTE limit the achievable gains by multiuser MIMO. Furthermore, we will make proposals for modifications and extensions in order to obtain substantial performance gains by multiuser MIMO which could be exploited in 3GPP-LTE-Advanced and IMT-Advanced systems. We will also discuss possible application scenarios and services.

Dr. Gerhard Bauch received the Dipl.-Ing. and Dr.-Ing. degree in Electrical Engineering from Munich University of Technology (TUM) in 1995 and 2001, respectively, and the Diplom-Volkswirt degree from FernUniversitaet Hagen in 2001. In 1996, he was with the German Aerospace Center (DLR), Oberpfaffenhofen, Germany. From 1996-2001 he was member of scientific staff at Munich University of Technology (TUM). In 1998 and 1999 he was visiting researcher at AT&T Labs Research, Florham Park, NJ, USA. In 2002 he joined DOCOMO Euro-Labs, Munich, Germany, where he is currently manager of the Advanced Radio Transmission Group. In 2007 he was additionally appointed Research Fellow of DoCoMo Euro-Labs. Since October 2003 he has also been an adjunct professor at Munich University of Technology, at the Alpen-Adria-University Klagenfurt in Austria. He received the best paper award of the European Personal Mobile Communications Conference

(EPMCC) 1997, the Texas Instruments Award of TUM 2001, the award of the German Information Technology Society (ITG in VDE) 2002 (ITG Foerderpreis) and the literature award of the German Information Technology Society (ITG in VDE) 2007 (ITG-Preis).

Dr. Guido Dietsch received the Dipl.-Ing. and Dr.-Ing. degree (both summa cum laude) in Electrical Engineering from Munich University of Technology (TUM), Munich, Germany, in 2001 and 2006, respectively. He has been with the TUM from 2001 to 2006 where he was working as a Research Engineer on reduced-rank signal processing in Krylov subspaces and on its application to wireless multiuser communications. In Winter 2000/2001 and Summer 2004, he was a Guest Researcher at Purdue University, West Lafayette, IN, USA. He joined DOCOMO Euro-Labs, Munich, Germany, in 2006, where he is currently Senior Researcher of the Wireless Technologies Research Group. Dr. Dietsch received the VDE Award for his diploma thesis in 2001, the Kurt Fischer Award of TUM for his doctoral thesis in 2007 and the award of the German Information Technology Society (ITG in VDE) 2007 (ITG Foerderpreis).

Sunday, April 26, 9.00 – 12.30 Baltic

T7: Mobile Network Cooperation at Its Best in Beyond 3G: Network Composition

Roch Glitho, Concordia University and Ericsson

Mobile network cooperation is well known in cellular networking where networks belonging to different operators cooperate to give roaming end-users seamless access to basic services. However mobile network cooperation as known today is not yet at its best. It relies on substantial off-line agreements and cumbersome manual configurations. Network composition is an emerging concept that brings network cooperation to its best. It is rooted in ambient networking, a beyond 3G networking approach proposed by a European Union 6th Framework project. It enables scalable and dynamic cooperation between heterogeneous networks and seamless access to new services. Off-line agreements and manual configurations are non

existent or kept to a bare minimum. This tutorial is devoted to network composition. We start by discussing roaming in 3G cellular networks and pinpointing the shortcomings. This is followed by an introduction to ambient networking, the setting for network composition. We then discuss the principles, protocols and algorithms of network composition. A concrete case study on registry composition is finally presented for illustration purpose.

Roch H. Glitho [SM] (<http://www.ece.concordia.ca/~glitho/>) holds a Ph.D. (Tekn. Dr.) in tele-informatics (Royal Institute of Technology, Stockholm, Sweden) and M.Sc. degrees in business economics (University of Grenoble, France), pure mathematics (University Geneva, Switzerland), and computer science (University of Geneva). He works in Montreal, Canada, as an Expert at Ericsson, and as an Adjunct Associate Professor at Concordia University where he teaches a graduate course on next generation networks. In the past he worked as a Senior Specialist in network management for Ericsson Telecom in Stockholm, and as an R&D engineer for a computer manufacturer in Oslo, Norway. His industrial experience includes research, international standards setting (e.g. contributions to ITU-T, ETSI, TMF, ANSI, TIA, and 3GPP), product management, project management, systems engineering and software/firmware design. He is an IEEE distinguished lecturer a senior technical editor of IEEE Communications Magazine and a technical editor of IEEE Communications Surveys and Tutorials. In the past he has served as Editor-In-Chief of IEEE Communications Magazine and IEEE Communications Surveys & Tutorials Magazine. His research areas include architectures for end-users services, network management, signalling and mobile code. In these areas, he has authored around 80 peer-reviewed papers, more than fifteen of which have been published in well-known refereed journals. He has also guest-edited some 10 special issues of refereed journals and has more than 20 patents in the aforementioned areas.

