ISWCS 2006 PROGRAM

TUESDAY, SEPTEMBER 5th

	Plenary	Room 1	Room 2	Exhibit Room
8:00	**Registration**			
9:00 **10:45**	eMOV meeting	Tutorial: Wireless AdHoc Networking	Tutorial: The rise, fall and rise again of sequential decoding algorithms	Stands & Demonstrations
	Break			
11:15 **13:00**	eMOV meeting	Tutorial: Wireless AdHoc Networking	Tutorial: The rise, fall and rise again of sequential decoding algorithms	Stands & Demonstrations
	Lunch			
14:30 **16:15**	Tutorial: Topics on Common Radio Resource Management (CRRM) Strategies for QoS provisioning over Heterogeneous (Beyond 3G) Wireless Radio Access Networks	Tutorial: Networking issues in wireless sensor networks	Tutorial: Selected Topics in Mobile Fading Channel Modelling	Stands & Demonstrations
	Break			
16:45 **18:30**	Tutorial: Topics on Common Radio Resource Management (CRRM) Strategies for QoS provisioning over Heterogeneous (Beyond 3G) Wireless Radio Access Networks	Tutorial: Networking issues in wireless sensor networks	Tutorial: Selected Topics in Mobile Fading Channel Modelling	Stands & Demonstrations

WEDNESDAY, SEPTEMBER 6th

	Plenary	Room 1	Room 2	Exhibit Room
8:00	**Registration**			
9:00 **10:40**	Opening			
	Break			
11:00 **13:00**	1A: Transmission Technologies	1B:Radio Resource Management	1C: Propagation & measurements	Stands & Demonstrations
	Lunch			
14:30 **15:50**	Panel Session: Wireless Vehicular Communications			
	Break			
16:10 **18:10**	2A: Special Session (Sensor Networks)	2B: Mobile Networks	2C: Channel Estimation & Modelling	Poster Session 1 (Transmission Technologies)
20:30	**Welcome Reception**			

THURSDAY, SEPTEMBER 7th

	Plenary	Room 1	Room 2	Exhibit Room
9:00 **11:00**	3ª: Services	3B: MIMO	3C: Ad-Hoc Networks	Stands & Demonstrations
	Break			
11:20 **13:00**	Panel Session: Mobile and Wireless Communications for Emergency & Crisis Management			
	Lunch			
14:30 **16:10**	4A: Antenna systems	4B: Mobile & Wireless Access	4C: Ad hoc Networking and Intervehicle Communications	Stands & Demonstrations
	Break			
16:30 **18:10**	5A: Cellular & Wireless Systems	5B: OFDM	5C: Broadcast	Poster Session 2 (Access & channels)
21:00	**Gala Dinner**			

FRIDAY, SEPTEMBER 8th

	Plenary	Room 1	Room 2	Exhibit Room
9:00 **11:00**	6A: UWB	6B: Space Time Coding and Diversity	6C: Wireless IP	Stands & Demonstrations
	Break			Poster Session 3 (Networks, Systems & Services)
11:20 **13:00**	7A: Special Session (Propagation in special indoor environments)	7B: Special Session (QoS Provision in Wireless Networks: Mobility, Security and Radio Resource Management)	7C: Location	
	Close of the conference			
	Lunch			

KEYNOTE SPEAKERS

1st keynote speaker : Juan Manuel Vázquez, Telefónica Móviles

Title: From e-mobility to e-mov: an overview and some views on mobile technology R&D in the EU

Abstract: During the past months, there has been an intensive activity in the European R&D sector, due to several factors. One of them is the approaching in time of the 7th framework program, which will demand for strong co-ordination of efforts and views inside all the parties involved in EU R&D. Another one is the launching of the technology platforms initiative from the EC side. One of its consequences has been the creation of the e-mobility platform, which is supposed to contribute significantly both to the introduction of new mobile technologies and to the orientation of the 7th FP proposals. According to that, the presentation gives an overview of such an initiative, emphasising the case of its Spanish mirror, the so called e-mov initiative. In addition to all this overall information, those R&D areas that are considered of special interest by Telefonica Móviles will be commented.

Biography: Juan Manuel Vázquez was born in Vigo (Spain) in 1958. He obtained the Telecommunications Engineering Degree from the ETSITM (Universidad Politécnica de Madrid) in 1983. From 1984 to 1987 he worked at the National Aerospace Institute of Spain (INTA), first as antenna test engineer and later as Deputy Project Manager. From 1987 to 1999, he worked at the Technology and Technical Standards Department of Telefónica as Project Manager in several mobile radio communication activities. Since 1999 he is with Telefónica Moviles, where he is presently responsible for the network evolution group. He has represented Telefónica in several standardization forums such as ETSI TC PS, TC RES, TC ERM, EP TETRA, SMG 2, ITU-R SG8, TG 8/1 and WP 8F, as well as in the OHG (Operators Harmonization Group). Among his present activities, he co-ordinates the analysis of new and emerging network technologies, from the mid and long term perspective, including the future evolution of UMTS and IMT-ADVANCED.

2nd keynote speaker: Dr. Paul Kolodzy, Technology Consultant in Advanced Wireless and Networking Technology

Title: Dynamic Spectrum Management: Promises and Challenges.

Abstract: Advances in technology have opened new possibilities for the design, operation, and regulation of radios. Technology is now providing capacity to sense, characterize, and to provide sophisticated signal processing techniques to adapt to the RF environment. We now are seeing the dawn of new adaptive radios and dynamic spectrum utilization. This same technology is providing an opportunity for migration away from the static regulatory rules to a more fluid, highly optimized set of dynamic spectrum policies. These new technologies provide many promises for higher utilization, easier access to the RF spectrum for new technologies and services, and a higher robustness to interference. However, there are many technical, policy, and regulatory challenges that the community still has to handle.

Biography: Dr. Paul Kolodzy a leader with almost 20 years of experience in technology development for advanced communications, networking, electronic warfare, and spectrum policy for government, commercial, and academic clients. He is currently a Technology Consultant in Advanced Wireless and Networking Technology. Prior to being a consultant, Dr. Kolodzy has been: Director of the Center for Wireless Network Security (WiNSeC) at Stevens Institute of Technology; during 2002, the Senior Spectrum Policy Advisor at the Federal Communications Commission (FCC) and Director of Spectrum Policy Task Force charged with developing the next generation spectrum policy; Program Manager at the Defense Advanced Projects Agency (DARPA) in the Advanced Technology Office managing R&D for communications programs to develop generation-after-next capabilities; Director of Signal Processing and Strategic Initiatives at Sanders, A Lockheed Martin Company; and a Group Leader/Staff Member at MIT Lincoln Laboratory in the areas of Optical Systems for Laser Radars, Signal Processing, and Target Recognition for Acoustics, RF (SAR), and Optical signatures. He received his PhD and MS in Chemical Engineering from Case Western Reserve University and his BS in Chemical Engineering.

PANEL SESSIONS

Panel: Wireless Vehicular Communications

Plenary - 6 September 2006, 14:30-15:50

The area of Wireless Vehicular Communications is enjoying a tremendous growth in recent years, as all sorts of vehicles get networked for safety, logistic and even entertainment purposes. The panel brings together experts in this area from across the world, and will cover a number of International initiatives in the area of Vehicle-to-Vehicle and Vehicle-to-Infrastructure initiatives (Canada, UK, Germany and EU in general), as well as specific issues like vehicular ad hoc networking, value added services, security and interoperability.

Panel Chair: Dr. Jorge Pereira, European Commission

Panelists:

Stephen Hope, International Technology and Research Relations Manager, France Telecom R&D UK Ltd

Title: Operator's Perspective on Wireless Vehicular Communications

Biography: Stephen started his career in the Satellite Industry in 1975. He first became involved with terrestrial Mobile Communications in 1980 through working in the Military Communications Field and then moved to Cellular Communications, managing Manufacturing test of early 1G handsets. Since then he has been involved with system aspects of all the generations 2G 900 1800 2.5G 3G Cellular interspersed with Public Safety and Transport Private Mobile Radio System design.
Stephen joined Orange in the UK in 1993 as Testbed Manager and in 1994 was additionally responsible for Orange participation in various UK DTI and European Commission Research Programmes. Then, within Orange Research and Innovation and now within the Marketing and Business Eco-Structure team in France Telecom R&D UK Ltd, Stephen has been responsible for International Relations with both Academic and Industrial Research entities not just in support of Orange but also other companies with the France Telecom Group.
Stephen is Vice-Chairman of the Software Defined Radio Forum, and on the Board of Directors of the Mobile Virtual Centre of Excellence in the UK and of innovITS – the newly established Centre of Excellence in the UK for Intelligent Transport Systems.

Hannes Hartenstein, Universität Karlsruhe, Germany

Title: Vehicular Ad Hoc Networks

Biography: Professor Hartenstein is Professor at the Institute of Telematics, Faculty of Computer Science, University of Karlsruhe since 2003 where he is the head of group "Decentralized Systems and Network Services" (dsn.tm.uni-karlsruhe.de). Prior to Karlsuhe, he was a Senior Research Staff Member of NEC Europe's Network Labs in Heidelberg, Germany and NEC's project leader (2001 - 2003) for the project "FleetNet - Internet on the Road" funded by the German Ministry of Education and Research (BMBF).
Currently, he is active in the BMBF-funded project "NOW: Network on Wheels". He is also Program Co-Chair of the ACM VANET Workshop 2006 and was General Co-Chair of the ACM VANET Workshop 2005.

Soumaya Cherkaoui, University of Sherbrooke, Canada

Title: Vehicle Communications and Applications: a project of the AUTO21 Canadian Network of Centres of Excellence

Biography: Dr. Soumaya Cherkaoui is an Associate Professor at Sherbrooke University, Canada which she joined in 1999. Since 2000, she is also the director of INTERLAB, a research group comprising more than 12 faculty and research assistants which conducts research funded both by government and industry. Before joining Sherbrooke University as a faculty member, Professor Cherkaoui worked for industry as a project leader. She has over 40 publications in the areas of network protocols and distributed systems. Since 2005, she is the project leader of the "Vehicle Communications and Applications" project funded by the AUTO21 Network of Centres of Excellence, a Canadian research initiative supported by more than 110 industry, government and institutional partners.
Pr. Cherkaoui has participated as a Co-Chair, Member of Technical Committee, Session Chair, or reviewer of more than 30 conferences or referenced journals including, IEEE Globecom, IEEE ICC, and IEEE VTC.

Christian Weiß, DaimlerChrysler, Germany

Title: Vehicle-to-X Communications in Europe

Biography: Dr. Weiß was born in Krumbach, Germany, in 1970. He received the Dipl.-Ing. and the Ph.D./Dr.-Ing. degrees in electrical engineering and information technology in 1995 and 2001, respectively, both from Munich University of Technology, Germany. In 1996, he worked for Siemens Ltd., Seoul, Korea, in the area of telecommunication networks. From 1997 until 2002 he was a member of the research and teaching staff at the Institute for Communications Engineering, Munich University of Technology. His work interests there included digital signal processing, information theory, error correction coding as well as reliable multimedia communications over mobile radio channels. In 2003 he joined DaimlerChrysler AG where he worked in various areas of research and development. In his current position he is manager of the vehicle-centric communication group that deals with vehicle-to-vehicle- and vehicle-to-infrastructure communications.

Dr. Weiß held a scholarship of the Heinz-Nixdorf Foundation in 1996. His dissertation received the Texas Instruments Award in 2002. With Jens Berkmann he was jointly awarded with the ITG Award 2003 for the publication "On Dualizing Trellis-Based APP Decoding Algorithms". He is a Member of VDE (Germany).

Panel: Mobile and Wireless Communications for Emergency & Crisis Management

Plenary - 7 September 2006, 11:20-13:00

As a number of recent events have reminded us, Emergency and Crisis Management is quite a hot topic of R&D and Wireless Communications are at the core of Emergency and Crisis Management. This Panel will cover a number of International Initiatives in this area (MESA, EMTEL and CAP), present the achievements of a number of International Projects in this area (WIDENS and CAPANINA) and introduce a number of relevant Technologies (HAPS, Gateways).

Panel Chair: Dr. Jorge Pereira, European Commission

Panelists:

Patrick Gannon, OASIS

Title: The CAP initiative

Biography: Patrick J. Gannon is President and Chief Executive Officer of OASIS (Organization for the Advancement of Structured Information Standards); an international not-for-profit non-governmental organization (NGO) whose mission is to drive the development, convergence and adoption of e-business standards.

Mr. Gannon has served on the OASIS Board of Directors since July 2000. From 2000 to 2006 Mr Gannon pioneered the Internet Enterprise Development project with the United Nations Economic Commission for Europe, serving as Chair of the Team of Specialists to assist less-advantaged countries to participate in internet-based international trade. In June 2006 he was appointed as a high-level Advisor to the United Nations Global Alliance for ICT and Development (UN GAID).

He was previously Senior Vice President of BEA Systems, a major enterprise infrastructure software company, where he was responsible for Strategic Marketing in the eCommerce Integration Division. Prior to that, he was Vice President of Marketing and Industry Programs at Netfish Technologies in California and previously Vice President of Strategic Programs at CommerceNet Consortium, directing research and development efforts in new internet commerce standards, including Extensible Mark-up Language (XML). At CommerceNet, he expanded research into interoperable catalogs in 1996, and in 1998 was the first Project Leader for RosettaNet, which is a consortium working to achieve globally networked supply chains and also served as Executive Director for the Open Buying on the Internet (OBI) project.

Mr. Gannon has provided consultation to governmental leaders (ministers and heads of state) on adoption of electronic business strategies to facilitate economic growth and support their eGovernment implementations. He was educated at Georgia Institute of Technology, and has co-authored the book, Building Database-Driven Web Catalogs. Mr Gannon is an experienced speaker and chair at many international conferences on electronic business and standards for the Internet. He participated at the World Summit on Information Society (WSIS) 2003 in Geneva and in Tunis in 2005.

Shah Talukder, General Manager, Safety, Security and Systems Business Unit, Cisco Systems.

Title: The IP Interoperability and Collaboration System

Biography: Shah Talukder has been a seasoned business leader for over 22 years in the areas of telecommunications, medical electronics, enterprise systems, and consulting. Talukder is General Manager of the Safety, Security and Systems Business Unit at Cisco. He started his career as a systems design engineer at a digital PBX start-up in 1983. He then spent 6 years at Phillips Medical Research Ultrasound Division holding positions with increasing scope and responsibility, in the areas of design and development, marketing, and product management for ultrasound imaging and servo control. Talukder moved rapidly into leadership and management positions in sales and marketing, after his MBA from Kellogg Graduate School of Management in 1994, in various companies including Gemini Strategy Consulting (Telecommunications Group), Sun Microsystems, and Cisco. In addition, Shah founded E-SchoolNet and Zayant Inc. (IEEE 1394 start-up), which was acquired by Apple Computers.

In 2000, Talukder moved to Cisco Systems as the Director of Marketing for Long-Reach Ethernet. In this role, he defined the vision, strategy, and business models for enabling the in-building broadband market and successfully launched LRE into strategic accounts such as Starwood Hotels and Sprint. He also developed ecosystem and channel partners to complement Cisco products and solutions.

Starting in 2002, Talukder has passionately worked on addressing the mobility and communications interoperability problems in many verticals, especially Public Safety and Transportation. He built a "start-up" team within Cisco that developed the vision, strategy, and road map for Cisco IPICS and formed the Safety, Security and Systems Business Unit (S3BU) dedicated to address the communications interoperability in enterprise operations, safety/security, and emergency management.

Talukder has a Bachelor's Degree in Electrical Engineering from Georgia Institute of Technology and an MBA from Kellogg Graduate School of Management, Northwestern University.

David Grace, University of York

Title: The use of High Altitude Platforms in providing Communications in Emergency and Crisis Management Situations

Biography: Dr David Grace received his MEng degree in Electronic Systems Engineering and D.Phil degree from the University of York, UK in 1993 and 1999 respectively. He is a Senior Research Fellow at the University of York, and the Principal Scientific Officer of the FP6 CAPANINA project, which is investigating aerial platform broadband communications delivery to both fixed and high-speed vehicle users. Current research interests include cognitive radio for broadband communications, particularly from high-altitude platform and terrestrial ad hoc networks. He is an author of over 100 journal and conference publications, many in the field of HAP communications. He is also a Director of SkyLARC Technologies Ltd, a spin-off company from the University of York that specialises in providing expertise and solutions for the delivery of broadband communications from aerial platforms. He is WG1 chair of COST 297 that deals with radio communications aspects of HAP systems. He is a nominated Researcher in the European NEWCOM Network of Excellence and member of the IEEE Satellite and Space Technical Committee.

Adrian Boukalov, University of Helsinki

Title: MESA and EMTEL projects

Biography: Adrian Boukalov received M.Sc degree in radio engineering from St. Petersburg Leningrad Electrotechnical Institute, Radio System department. 1984. Next 5 years he spent in industry being involved in several R&D projects. Later he has been a managing director of private company. Since 1998 he has been with Communications Laboratory of HUT. His research interests include system aspects of public safety radio communications, spatial processing, radio network planning and performance. He is responsible for research team that is working in these areas at HUT. In 2000-2001 he had been a principal investigator of the international co-operation project between HUT and Stanford University (USA) and had been a visiting scientist at Smart Antennas Research Group (SARG) at Stanford University. In 2002 Adrian became an elected chairman of the Technical Specification Group System (TSG SYS) of the transatlantic project MESA. His management responsibilities in MESA included co-ordination of MESA work on system concept definition and technology development, co-ordination of different international research initiatives related to MESA. Adrian is involved EU projects -WIDENS, DeHiGate, CHORIST, u2010 in the area of public safety communication systems. Since 2005 Adrian is a Vice Chairman of SC EMTEL at ETSI.

Erik Fernandez, Telefonica I+D

Title: The WIDENS (Wireless Deployable Network System) gateway

Biography: Erik Fernández Santos received the Telecommunications Engineer from the Universidad Politécnica de Madrid in 1995. In 1995, he worked for Indra (a spanish technological company) before joining in 1996 the Telecommunication Traffic Department of Telefónica Investigación y Desarrollo. He has participated in many Telefonica´s internal projects within the Performance Analysis Group. In 2000, he moved to Brazil working for the International Data Warehouse Systems Department, as Project Leader of a core Data Warehouse for Telefonica in Sao Paulo. From 2002, he has been working in several Data Marts and Data Warehouses for Telefónica Group in Spain.

Within the WIDENS European FP6 project, he has been working in the application & demonstration workpackage, mainly focused in the database application. This Demonstration Workpackage included integration of other packages and showed the potential of this new network in the field trials.

Currently, he is working in CELTIC´s project DeHiGate.

TUTORIALS

Wireless Ad Hoc Networking

Tuesday, 5th September 2006, Room 1 – from 9:00 to 13:00

This tutorial gives a state-of-the-art survey on the most important issues regarding the ad hoc networking concept. Ad hoc networks are temporary formed networks, without predefined infrastructure, which exist as long as their users require. Their key features comprise dynamic network topology, distributed network nature, multi-hop communication, limited bandwidth and energy constraints and vulnerability to intruders and malicious attacks. The solution of these problems imposes serious challenges in front of network researchers and designers. Ad hoc networks may be used in various situations ranging from business environments to catastrophic events. Devices enabling the ad hoc networking paradigm are becoming smaller, cheaper and with lots of embedded capabilities delivering services seamlessly to end-users and paving the path towards 4G.

The persistent efforts for ability to establish dynamic wireless connections from anywhere to anyone with any device without prerequisite embedded infrastructure move the communications boundaries towards the ad hoc networks. Ad hoc networking recently attracts grown interest due to advances in wireless communications and developed framework for running IP based protocols. The expected degree of penetration of these networks will depend on successful resolving of key features and problems. Moving towards 4G, ad hoc networks receive growing interest due to users' provisioning of mobility, usability of services and seamless communications.

The ad hoc networks pose many complex and open problems in front of the researchers. This tutorial reveals the state-of-the-art in wireless ad hoc networking and discusses some of the key research topics such as: MAC, routing, QoS, CL optimization issues, service discovery, mobility models, security. The optimization approach is implemented to improve the efficiency of ad-hoc networking in the scarce wireless environment.

The tutorial focuses on cross-layer optimisations, and presents examples of such approaches with combinations of link layer and routing techniques, MAC design, and service discovery. It provides novel solutions for more consistent QoS in ad hoc environments.

Presenter: Liljana Gavrilovska, Faculty of Electrical Engineering, Skopj

Liljana Gavrilovska received her B.Sc., M.Sc. and Ph.D. from University of Skopje (76), University of Belgrade (85) and University of Skopje (95) respectively. She worked with the R&D department at Macedonian Telecom Company in field of telephone network planning. She joined the Faculty of Electrical Engineering, University of Skopje, Republic of Macedonia, where she currently holds a position of professor at Institute for Telecommunication and chief of Telecommunications Laboratory and CWMC (Center for Wireless and Mobile Communications), working in the area of networking and mobile communications. In 1982 she was involved in research project in area of digital data transmission at University of Erlangen, Germany. During 1992/1993, on Canadian government grant, she was involved with University of Toronto in research in ATM switches. For almost two years she joined the Centre for PersonKommunikation, Aalborg University, Denmark, where she was holding a position as Associate Research Professor and was involved in several EU and national/international projects. Her major research was concentrated on ad hoc networking, wireless and personal area networks, cross layer optimisations, future mobile systems, traffic analysis, admission techniques. Recently she has been involved in IST PACWOMAN and MAGNET projects in area of wireless personal networks, working part-time for CTiF, Aalborg University, Denmark. She participated in ACTS project ASAP working on the books Towards a Global 3G System: Advanced Mobile Communications in Europe, Vol. I and II (Artech House, 2001,Boston), CPK-Siemens joint project, Danish FACE project, national strategic projects for implementation of ATM in the Macedonian backbone network, GSM implementation and testing, numeration proposal, several Tempus projects, GTZ project for WLAN Design and Performance Evaluation. She is a senior member of IEEE and serves as a Chair of Macedonian Communication Chapter. L. Gavrilovska has published number of papers in the area of ad hoc and personal networking and recently has participated on several workshops. Together with prof. Ramjee Prasad, she has recently completed a book entitled: Ad hoc networking towards seamless communications, which will be published by Springer Pbl...

The rise, fall and rise again of sequential decoding algorithms

Tuesday, 5th September 2006, Room 2 – from 9:00 to 13:00

Sequential decoding was invented by Wozencraft in 1957 as an efficient technique to decode convolutional codes. In the following years, subsequent research brought more refined algorithms (such as the Stack and Fano algorithms) and importantly proved that sequential decoding, with the proper choice of parameters, can be used to achieve error free communication over discrete memoryless channels with bounded average complexity as long as the data rates remain below the cutoff rate of the channel considered (R0 or RCOMP). However, in 1993, Turbo Codes proved that rates $R0 < R < C$ can be achieved through interleaver gains and iterative decoding, which presented a setback for sequential decoding algorithms. Recent applications, such as maximum likelihood detection and decoding in multiple-input multiple-output (MIMO) and intersymbol interference (ISI) channels, revived the interest in sequentialdecoding algorithms.

Sequential decoding offers an alternative and, sometimes, complementary method to iterative decoding over such channels, which gives different performance/complexity tradeoffs.

In this tutorial, we survey the different sequential decoding algorithms and their applications in the last 50 years. We detail the functionality of these algorithms through a unified framework and we highlight the difference between several sequential decoding algorithms. This framework also connects sequential decoding to other closest lattice point search (CLPS) algorithms, such as sphere decoding and branch and bound algorithms, allowing, thus, cross-fertilization between those research areas. We examine the role of preprocessing and show the importance of minimum mean square error decision feedback equalization (MMSE-DFE) frontend filtering. We also discuss results on average and maximum complexity analysis of sequential decoding algorithms in various scenarios. We conclude by presenting some analytical and numerical results of recent applications of sequential decoding in various AWGN, MIMO and ISI channels and give an outlook on future research and applications of sequential decoding.

Presenter: Mohamed Oussama Damen, University of Waterloo

Mohamed Oussama Damen (S'97-M'00-SM'04) received a B.Sc. degree in mathematics from the University of Paris VII in 1995, an M.Sc. degree in digital communications systems from the Ecole Nationale Superieure des Telecommunications (ENST) de Paris, France, in 1996 and a Ph.D. degree in electronics and communications from the ENST, Paris, France, in October 1999. He has done post-doctoral research at the ENST, Paris, France, from November 1999 to August 2000, and at the Electrical and Computer Engineering department of the University of Minnesota from September 2000 to March 2001. From March 2001 to June 2004, he worked the Electrical and Computer Engineering department of the University of Alberta, where he is now working as a senior research associate of Alberta Informatics Circle of Research Excellence (ICORE). In June 2004, he joined the Electrical and Computer Engineering department at the University of Waterloo, Ontario, where he is now working as an Assistant Professor and holds the NSERC/NORTEL Associate Research Chair in Advanced Telecommunications.

He is a co-author of more than 60 papers in international journals and conferences, and two US patent applications. His current research interests are in the areas of communication theory, coding theory, and information theory, with a special emphasis on coding for multiple-input multiple-output (MIMO) channels, cooperative diversity and sub-optimal detection and decoding.

Topics on Common Radio Resource Management (CRRM) Strategies for QoS provisioning over Heterogeneous (Beyond 3G) Wireless Radio Access Networks

Tuesday, 5th September 2006, Plenary – from 14:30 to 18:30

Over the last years we have witnessed an increasing deployment of new radio access technologies, including cellular (e.g. GSM/EDGE/UMTS) and non-cellular (e.g. 802.11) wireless networks. Furthermore, new technologies such as WiMax are expected to become more and more ubiquitous. This plethora of different network topologies will have to co-exist and, furthermore, interact with a certain coupling level. This concept is usually referred in the literature as Beyond 3G systems which encompass network heterogeneity.

A challenging task is to efficiently manage the available resources offered by these coupled networks. This notion is usually referred to as Common Radio Resource Management (CRRM) and has attracted a lot of attention over the past years. Radio resource management strategies are responsible for an utmost efficient utilisation of the air interface resources in the Radio Access Network (RAN). For CRRM, the available radio resources of coupled access networks will have to be managed jointly, up to the degree allowed by the coupling mechanism

Any stand-alone wireless systems or heterogeneous hybrids thereof, rely on Radio Resource Management strategies to guarantee a certain prior agreed QoS, to maintain the planned coverage area, to offer high capacity, etc. Without them, the most efficient physical transmission system coupled into the most sophisticated IP core network would fail.

The tutorial will cover the following topics: Beyond 3G/Heterogeneous Network concept, Radio Resource Management (RRM) basics, An architecture proposal for CRRM, GERAN/UTRAN coupling, 802.11/UTRAN coupling, CRRM algorithms, RAT selection procedures, Vertical Handover procedures, Congestion Control procedures and End-To-End Architecture Issues

This tutorial targets both academia and industry audiences. Students will be able to grasp some useful notions for their up-coming careers in research or industry areas. On the other side, operators and manufacturers can benefit from new concepts in order to manage/manufacture their networks/equipments more efficiently.
The target audience is expected to have some knowledge in the field of Radio Communications, with special emphasis in 3GPP standardised Radio Access Networks such as GERAN and UTRAN. Some notions of Markov modelling will be also useful.

Presenter: Xavier Gelabert, Universitat Politècnica de Catalunya (UPC)

Xavier Gelabert received the Engineer of Telecommunication degree from the Universitat Politècnica de Catalunya, Spain , in 2004. He also holds a Master of Science in Electrical Engineering degree from the Royal Institute of Technology (KTH), Sweden , issued in 2003. In 2004, he joined the Radio Communication Research Group at the Dept. of Signal Theory and Communications where he is currently pursuing a PhD degree. His current research interests are focused on the field of mobile radio communication systems, with a special emphasis on Common Radio Resource Management (CRRM) strategies in heterogeneous networks with QoS provisioning. He has participated in the IST project EVEREST and he is currently taking part in IST project AROMA, both funded by the European Commission. He is the recipient of a 4-year scholarship granted by the Spanish Ministry of Science and Education through the COSMOS project.

Networking issues in wireless sensor networks

Tuesday, 5th September 2006, Room 1 – from 14:30 to 18:30

The tutorial addresses networking issues in wireless sensor networks. After an introduction to into general features of sensor nodes such as platforms and energy consumption as well as a comparison of wireless sensor networks with mobile ad-hoc networks, we study lower layer communication protocols in wireless sensor networks. In particular, we present medium access control protocols and compare them with protocols used in wireless local area networks. Then, we discuss why mobile ad-hoc network routing protocols are not appropriate for wireless sensor networks and present routing protocols proposed for wireless sensor networks. Reliable transport protocols as required for management and reprogramming of sensor nodes will be compared. Finally, security mechanisms to ensure confidentiality, authentication and network availability will be presented.

The course consists of five parts, namely: Introduction, Medium Access Control, Routing, Reliable Transport and Security.

The tutorial could be interesting for students, researchers and developers who have a basic knowledge in networking technologies and who want to learn more about lower level communication protocols, which have been proposed for wireless sensor networks. The participants will learn the key concepts for designing communication protocols for wireless sensor networks.

They will be able to understand, compare, and evaluate different communication protocols for wireless sensor networks on medium access, routing, and transport level.

Presenter: Torsten Braun, University of Bern

Torsten Braun got his diploma and Ph.D. degrees from the University of Karlsruhe, Germany, in 1990 and 1993, respectively. From 1994 to 1995 he was a guest scientist with INRIA Sophia Antipolis. From 1995 to 1997 he worked as a project leader and senior consultant at the IBM European Networking Center , Heidelberg , Germany . Since 1998 he has been a full professor of computer science at the Institute of Computer Science and Applied Mathematics (University of Bern ,Switzerland), heading the Computer Networks and Distributed Systems research group. He has been a board member of SWITCH (Swiss Education and Research network) since 2000. During his sabbatical in 2004, he has been working as visiting scientist at the Swedish Institute of Computer Science (Kista , Sweden) on transport, routing and medium access control issues in wireless sensor networks. He held various tutorials at conferences organized by the IEEE, SPIE, and German Computer Society. He is teaching a weekly lecture on sensor networks each year at U Bern to M.Sc. level students

Selected Topics in Mobile Fading Channel Modelling

Tuesday, 5th September 2006, Room 2 – from 14:30 to 18:30

A precise knowledge of mobile radio channels is indispensable for the development, evaluation, and test of present and future mobile radio communication systems. After all, from digital modulation techniques over channel coding to network aspects, nearly all relevant components of a mobile radio system are determined by the propagation characteristics of the channel. This tutorial deals with the modelling, analysis, and simulation of mobile fading channels. It provides a fundamental understanding of many issues that are currently being investigated in the area of mobile fading channel modelling. Several classes of single-input single-output (SISO), and multiple-input multiple-output (MIMO) fading channels are treated in detail. Furthermore, the description of efficient methods for the simulation of mobile radio channels is in the centre of attention. Besides knowledge of statistics, also basic knowledge of systems theory is assumed.

Contents: Introduction, Basic concepts of fading channel modelling, Fundamentals of stochastic and deterministic channel models, Stationarity and ergodicity of fading channel models, Parameter computation methods for sum-of-sinusoids-based channel models, Test and performance evaluation of fading channel simulators, Frequency-nonselective fading channels (Rayleigh channels, Rice channels, generalized Rice channels, lognormal channels, Nakagami channels, Suzuki channels), Design of multiple uncorrelated Rayleigh fading waveforms, Frequency-hopping fading channels, Frequency-selective fading channels (WSSUS models, DGUS models, COST 207 models), Methods for modelling of specified and measured multipath power delay profiles, Modelling and simulation of MIMO mobile radio channels, Geometrical-based MIMO channels (one-ring model, two-ring model, elliptical model), Mobile-to-mobile MIMO channels, Standardized MIMO channel models (SCM, SUI, TGn).

Presenter: Matthias Pätzold, Agder University College

Matthias Pätzold was born in Engelsbach , Germany , in 1958. He received the Dipl.-Ing. and Dr.-Ing. degrees in electrical engineering from Ruhr-University Bochum, Bochum, Germany, in 1985 and 1989, respectively, and the habil. degree in communications engineering from the Technical University of Hamburg-Harburg, Hamburg, Germany, in 1998.

From 1990 to 1992, he was with ANT Nachrichtentechnik GmbH, Backnang , Germany , where he was engaged in digital satellite communications. From 1992 to 2001, he was with the Department of Digital Networks at the Technical University Hamburg-Harburg. Since 2001, he has been a full professor of mobile communications with Agder University College , Grimstad , Norway . He is author of the books “Mobile Radio Channels - Modelling, Analysis, and Simulation” (in German) (Wiesbaden, Germany: Vieweg, 1999) and “Mobile Fading Channels” (Chichester , U.K. : Wiley & Sons, 2002). His current research interests include mobile radio communications, especially multipath fading channel modelling, multi-input multi-output (MIMO) systems, channel parameter estimation, and coded-modulation techniques for fading channels.

Prof. Pätzold received the "1998 Neal Shepherd Memorial Best Propagation Paper Award" from the IEEE Vehicular Technology Society and was also the recipient of the "2002 Neal Shepherd Memorial Best Propagation Paper Award". He is the recipient of the "2003 Excellent Paper Award" of the IEEE Int. Symp. on Personal, Indoor and Mobile Radio Communications (PIMRC\'03) in Beijing , China , as well as of the "Best paper award" of the 8th Int. Symp. on Wireless Personal Multimedia Communications (WPMC'05) in Aalborg , Denmark .

ORAL SESSIONS

SESSION 1 : Wednesday - September 6 , 2006 - From 11:00 to 13:00

Session 1A – Transmission technologies
Plenary

- **Iterative Frequency-Domain Decision-Feedback Equalization**
  Frédérique Sainte-Agathe, Thales & Supelec; Hikmet Sari, Supelec
- **Staggered Trellis Coded Modulation with Increased Frame-Wise Memory**
  Axel Hof, Gerd Richter, Boris Stender, University of Ulm
- **Transmit Power Allocation for V-BLAST Systems with ZF-OSIC Detection**
  Maurizio Magarini, Politecnico di Milano
- **Opportunistic Communications with Distorted CSIT**
  Young-Han Nam, Ohio State University; Jianzhong (Charlie) Zhang, Motorola; Hesham El-Gamal, Ohio State University; Tony Reid, Nokia Networks
- **Selective interference cancellation using Kalman filtering**
  Andrey Pudeyev, Alexey Rubtsov, Alexander Maltsev, Sergey Tiraspolsky, Intel Corporation
- **Image Transmission using Adaptive M-QAM with Optimized Bit Power Allocation**
  Akram Bin Sediq, Mohamed El-Tarhuni, Mohamed Hassan, American University of Sharjah

Session 1B – Radio Resource Management
Room1

- **A Perspective on Radio Resource Management in B3G**
  Oriol Sallent, Technical University of Catalonia
- **Utility based adaptive resource allocation for heterogeneous QoS requirements**
  Beatriz Soret, Carmen Aguayo-Torres, Jose F. Paris, José Tomás Entrambasaguas; University of Málaga
- **Hopfield Neural Network Algorithm for Dynamic Resource Allocation in WCDMA Systems**
  Daniel Calabuig, José Monserrat, David Gomez-Barquero, Narcís Cardona, Polytechnic University of Valencia
- **Dimensioning and configuring cross-layer channel assignment schemes in packet mobile radio networks with mixed traffic services**
  Alberto Rodríguez-Mayol,Javier Gozálvez, Joaquín Sánchez Soriano, University Miguel Hernández
- **Strategies for Call Admission Control in Integrated Services Wireless Mobile Networks**
  Nagla O. Mohamed, University of Khartoum; Dervis Z. Deniz, Eastern Mediterranean University

Session 1C – Propagation and measurements
Room 2

- **Experimental Evaluation of Correlation Properties of Large Scale Parameters in an Indoor LOS Environment**
  Aihua Hong, Christian Schneider, Gerd Sommerkorn, Marko Milojevic, Reiner Thomä, Technische Universität Ilmenau; Wolfgang Zirwas, Siemens AG
- **On Building Modeling for Multiple Diffraction Analysis in Urban Environments considering Spherical-Wave Incidence**
  José-Víctor Rodríguez, Maraí-José García-Martínez, José-Maraí Molina García-Pardo, Leandro Juan-Llacer, Universidad Politécnica de Cartagena
- **Characterisation of signal penetration into buildings for GSM and UMTS**
  Lucio Ferreira, Martijn Kuipers, IST/IT - Technical University of Lisbon; Carlos Rodrigues, Optimus; Luis M. Correia, IST/IT - Technical University of Lisbon
- **Path loss and Wideband Channel Model Parameters for WINNER Link and System Level Evaluation**
  Christian Schneider, Aihua Hong, Gerd Sommerkorn, Marko Milojevic, Reiner Thomä, Technische Universität Ilmenau
- **Eigen/Capacity Analysis for Indoor Correlated MIMO Channels between 2 and 4 GHz**
  Alexis Paolo García Ariza, Lorenzo Rubio Arjona, Juan Antonio Díaz, Narcís Cardona, Technical University of Valencia
- **Estimating RF spectrum utilization**
  Nicolae Cotanis, LCC Intl., Inc

SESSION 2 : Wednesday - September 6 , 2006 - From 16:10 to 18:10

Session 2A - SPECIAL SESSION: Sensor Networks
Plenary

- **Optical routing in massively dense networks: practical issues and dynamic programming**
  Roberto Catanuto, Giacomo Morabito; University of Catania; Stavros Toumpis, University of Cyprus
- **On the convenience of turning off the radio interface and using multiple transmission power levels in sensor networks applying geographical forwarding**
  L. Galluccio, A. Leonardi, G. Morabito, S. Palazzo, University of Catania
- **A Distributed Direction of Arrival Estimation Algorithm for Self-Organizing UWB Wireless Sensor Networks**
  Marco Di Renzo, Alessandro D'Onofrio, Fabio Graziosi, Fortunato Santucci
- **Smart Wireless Impulse Radio Sensor Networks**
  Jacobo Domínguez, Javier Sanz, Universidad de Cantabria; Manuel Lobeira, Álvaro Álvarez, Beatriz Quijano, José Luis García, ACORDE S.A.
- **A bayesian decision model for intelligent routing in sensor networks**
  Rocío Arroyo-Valles, Antonio G. Marqués, Juan José Vinagre-Díaz, Jesús Cid-Sueiro, Universidad Carlos III de Madrid

Session 2B - Mobile Networks
Room1

- **Scalable Support for Globally Moving Networks**
  Marcelo Bagnulo, Alberto García-Martínez, J.Bernardos, Arturo Azcorra, Universidad Carlos III de Madrid
- **Optimized I-MPLS: A Fast and Transparent Micro-Mobility-Enabled MPLS Framework**
  Ali Diab, René Baringer, Andreas Mitschele-Thiel, Technische Universität Ilmenau
- **Toward A Seamless Mobility Management in Next Generation Networks**
  Nadine Akkari, ENST; Mahmoud Doughan, Lebanese University; Samir Tohme, Universite de Versailles
- **Handling the Convergence of Mobile Sub-networks in a Personal Distributed Environment**
  Kamarularifin Abd Jalil, John Dunlop, University of Strathclyde
- **Optimizing Explicit Multicast for Multicast Delivery Over IPv6 Wireless Networks**
  Rafael Vidal, Josep Paradells, Technical University of Catalonia
- **The Use of SCTP Failover Mechanism for Efficient Network Handover on Mobile IPv6**
  Ryuji Wakikawa, Keio University; Yoshifumi Nishida, Sony CSL Inc.,Jun Murai, Keio University

Session 2C - Channel estimation & modelling
Room 2

- **A Wideband MIMO Channel Model Derived From the Geometric Elliptical Scattering Model**
  Matthias Pätzold, Bjorn Olaf Hogstad, Agder University College
- **Indoor Radio Channel Fading Analysis via Deterministic Simulations at 60 GHz**
  Haibing Yang, Matti H.A.J. Herben, Peter F.M. Smulders, Eindhoven University of Technology
- **Characterization of the UWB mobile radio channel time dispersion at 0.3 - 3GHz band**
  Juan Antonio Díaz, David Argilés, José Monserrat, Lorenzo Rubio Arjona, Technical University of Valencia, Spain
- **Diffused Multipath Vector Channels for Arrayed MC-CDMA Communication Systems**
  Farrukh Rashid, Athanassios Manikas, Imperial College London, UK
- **Channel Estimation for BFDM/OQAM System in Dispersive Time-Varying Channels**
  Bayarpurev Mongol, Takaya Yamazato, Hiraku Okada, Masaaki Katayama, Nagoya University

SESSION 3 : Thursday - September 7 , 2006 - From 9:00 to 11:00

Session 3A – Services
Plenary

- **Design Principles and Requirements of future Service Platforms**
  Klaus David, Olaf Drögehorn, University of Kassel
- **Personal Assistant Agent and Content Manager for Ubiquitous Services**
  John Bush, James Irvine, University of Strathclyde
- **User-oriented Addressing in Wireless Networks: Advanced Strategies and New Technical Solutions**
  Christian Wietfeld, Joern Seger, University of Dortmund
- **Coupling Transparency and Visibility: a Translucent Middleware Approach for Positioning System Integration and Management (PoSIM)**
  Paolo Bellavista, Antonio Corradi, Carlo Giannelli; University of Bologna
- **Attacks on PKM Protocols of IEEE 802.16 and Its Later Versions**
  Sen Xu, Chin-Tser Huang, University of South Carolina
- **Video Everywhere Through a Scalable IP-Streaming Service Framework**
  Hsin-Ta Chiao, Fang-Chu Chen, Kuo-Shu Hsu, Industrial Technology Research Institute;Shyan-Ming Yuan, National Chiao Tung University

Session 3B –MIMO
Room1

- **Throughput Enhancement for MIMO OFDM using Frequency Domain Channel Length Indicator and Guard Interval Adaptation**
  Marco Krondorf, Gerhard Fettweis, Technische Universität Dresden
- **Performance Analysis of Multi-User MIMO Downlink with Partial Channel State Information**
  Carmen Botella, Gema Piñero, Alberto González, María de Diego, Technical University of Valencia
- **Improved Technique for Estimating the Number of Paths in a MIMO Context**
  Abdelmottaleb Nasr, Martine Lienard, Pierre Degauque, University of Lille
- **DEMIURGO, an SDR Testbed for Distributed MIMO**
  Juan Manuel Vázquez, Efrein Gago-Cerezal, Telefónica Móviles España; Valentín Alonso García, Luis Miguel Campoy, Telefónica I+D
- **On the Impact of Spatial Correlation on the Finite Diversity-Multiplexing Tradeoff**
  Zouheir Rezki, David Haccoun, École Polytechnique Montréal; Francois Gagnon, Ecole de Technologie Superieure; Wessam Ajib, Univ. du Quebec a Montreal
- **Multi-Mode Multi-User MIMO System with Finite Rate Feedback**
  James S. Kim, Hojin Kim, Yongxing Zhou, Jianjun Li, Samsung Advanced Institute of Technology

Session 3C - Ad-hoc Netwotks
Room 2

- **Path Efficiency in Mobile Ad Hoc Networks**
  Antonio Caamaño-Fernández, Juan José Vinagre, Inmaculada Mora, Carlos Figuera, Javier Ramos, Universidad Rey Juan Carlos
- **A study of local connectivity maintenance strategies of MANET reactive routing protocol implementations**
  Carles Gomez, Didac Mediavilla, Pere Salvatella, Xavier Mantecón, Josep Paradells, Technical University of Catalonia
- **Anticipated DAD for Global Connectivity in Hybrid MANETs**
  Alicia Triviño-Cabrera, Gonzalo Casado-Hernández, Eduardo Casilari, Francisco Javier González-Cañete, Universidad de Málaga
- **Fast Layer 3 Handoffs in AODV-based IEEE 802.11 Wireless Mesh Networks**
  Sebastian Speicher, Clemens H. Cap, University of Rostock
- **ViStA-XL: A Cross-Layer Design for Video-Streaming over Ad hoc Networks**
  Guillermo Díaz Delgado, Technical University of Catalonia (UPC) & Queretaro State University (UAQ); Víctor Carrascal Frías, Mónica Aguilar Igartua, Technical University of Catalonia (UPC)
- **A TDMA Power Controlled MAC Protocol for Wireless Ad Hoc Networks**
  José Ramón Gállego, María Canales, Ángela Hernández-Solana, Antonio Valdovinos, University of Zaragoza

SESSION 4 : Thursday - September 7 , 2006 - From 14:30 to 16:10

Session 4A - Antenna systems
Plenary

- **Antenna matching for capacity maximization in compact MIMO systems**
  Buon Kiong Lau, Lund University; Jørgen Bach Andersen, Aalborg University; Andreas F. Molisch, Lund University & MERL; Gerhard Kristensson, Lund University

- **Multi-Antenna Relay Nodes in OFDM Systems**
  Klaus Doppler, Ari Hottinen, Nokia Research Center

- **Reduced Hardware Complexity Receive Antenna Subarray Formation for MIMO Systems Based on Frobenius Norm Criterion**
  Panagiotis Theofilakos, Athanasios Kanatas, University of Piraeus

- **Beam Pattern Synthesis in Presence of Interference and Multipath**
  Lin Qu, Ser Wee, Nanyang Technological Univeristy; Zhenhai SHAO, Masayuki Fujise, National Institute of Information and Communications Technology

- **A Receive Antenna Directivity Diversity Method for MIMO-OFDM**
  Shinsuke Hara, Osaka City University; Quoc Tuan Tran, Osaka University; Atsushi Honda, Yuuta Nakaya, Ichirou Ida, Yasuyuki Oishi, Fujitsu Limited

Session 4B - Mobile & Wireless Access
Room1

- **OFDMA with Resource and Traffic Constraints: Sum Rate Maximization with no CSI**
  Thomas Deckert, Gerhard Fettweis, Technische Universität Dresden

- **Low-Bandwidth Channel Quality Indication for OFDMA Frequency Domain Packet Scheduling**
  Troels E. Kolding, Frank Frederiksen, Nokia Networks; Akhilesh Pokhariyal, Aalborg University

- **Investigations on Random Access Channel Structure in Evolved UTRA Uplink**
  Yoshihisa Kishiyama, Kenichi Higuchi, NTT DoCoMo, Inc.; Mamoru Sawahashi, Musashi Institute of Technology

- **Direct Link Aware Cooperative Relaying**
  Carlos Figuera, Eduardo Morgado, Antonio Caamaño, Alfonso Cano; Universidad Rey Juan Carlos, Madrid

- **Analytical Performance Evaluation of Mixed Services with Variable Data Rates of the Uplink of UMTS**
  Popova Larissa, Wolfgang Koch, University of Erlangen-Nuremberg

Session 4C - Ad-hoc Networking and Intervehicle Communications
Room 2

- **Performance evaluation of safety communication for vehicles**
  Ioan Chisalita, Nahid Shahmehri, Linkoping University

- **Self-organized and Context-Adaptive Information Diffusion in Vehicular Ad Hoc Networks**
  Christian Adler, University of Munich; Stephan Eichler, Technische Universität München; Timo Kosch, BMW Group Forschung und Technik; Christoph Schroth, Technische Universität München; Markus Strassberger, BMW Group

- **Dimensioning Wave-based Inter-Vehicle Communication Systems for Vehicular Safety Applications**
  Miguel Sepulcre, Javier Gozálvez,University Miguel Hernández

- **Synchronised Dynamic p-Persistent MAC Protocol for Mobile Ad Hoc Networks**
  Mátyás Péter, Tamás Simon, Tamás Radvánszki, Sándor Imre, Budapest University of Technology and Economics

- **Neighbour-Aware, Collision Avoidance MAC Protocol (NCMac) for Mobile Ad Hoc Networks**
  Sylwia Romaszko, Chris Blodia, University of Antwep

SESSION 5 : Thursday - September 7 , 2006 - From 16:30 to 18:10

Session 5A - Cellular & Wireless Systems
Plenary

- **Transport Protocol Performance over 4G Links: Emulation Methodology and Results**
  Stefan Alfredsson, Anna Brunstrom, Karlstad University; Mikael Sternad, Uppsala University
- **Blanking Gaps in Uplink Cellular UMTS in the IMT-2000 Extension Band to Solve the Bluetooth Coexistence Problem**
  Markus Konrad, Wolfgang Koch, University of Erlangen-Nuremberg
- **Comparison of Techniques for Capacity Increase in UMTS Data Services**
  Gonçalo Martins, Sofia Correia, Technical University of Lisbon, Luis Santo, Optimus; Luis M. Correia, Technical University of Lisbon
- **x-AppMonitor uAgent: a tool for QoS measurements in cellular networks**
  Almudena Díaz Zayas, Pedro Merino, University of Malaga; Alejandro Gil, Javier Muñoz, Optimi
- **Planning Issues for Point-to-MultiPoint OFDMA-based Networks**
  Romeo Giuliano, Pierpaolo Loreti, Franco Mazzenga, Cristiano Monti, University of Rome Tor Vergata
- **Mobile WiMAX : Deployment Scenarios Performance Analysis**
  Sergey Tiraspolsky, Alexander Maltsev, Alexey Rubtsov, Alexei Davydov, Intel Corporation

Session 5B – OFDM
Room1

- **OFDM Equalization in Nonlinear Time-varying Channels**
  Natalia Ermolova, Helsinki University of Technology
- **Tackling MIMO-OFDMA Feedback Load Through Feedback Encoding**
  Na Wei, Aalborg University; Lars Torsten Berger, Universidad Carlos III de Madrid; Troels B. Sarensen, Aalborg University; Troels E. Kolding, Nokia Networks; Preben E. Mogensen, Aalborg University & Nokia Networks
- **A Multi-Carrier Based Approach to Wireless Duplex: Orthogonal Frequency Division Duplex (OFDD)**
  Ryota Kimura, Shigeru Shimamoto, Waseda University
- **Frequency Sharing Hotspot Communication using OFDM Adaptive Array Antenna under Uplink Multi-Carrier CDMA Cellular System**
  Nguyen Tran Khoa, Tokyo University of Agriculture and Technology; Takeo Fujii, University of Electro-Communications; Yukihiro Kamiya, Yasuo Suzuki, Tokyo University of Agriculture and Technology
- **Adaptive bit and power-loading for multicast OFDM transmissions in Rayleigh fading channels**
  Adrien Demarez, David Boulinguez, ISEN Lille; Yves Delignon, ENIC
- **Investigations on Optimum Roll-off Factor for DFT-Spread OFDM Based SC-FDMA Radio Access in Evolved UTRA Uplink**
  Teruo Kawamura, Yoshihisa Kishiyama, Kenichi Higuchi,Mamoru Sawahashi, NTT DoCoMo, Inc.

Session 5C –Broadcast
Room 2

- **Resource Allocation for OFDM Broadcast Channels Allowing User-Wise Coding**
  Carolin Huppert, Boris Stender, Axel Hof, University of Ulm
- **Adaptive RED for Cross-layer DVB-S2 systems**
  Fausto Vieira, Maria Angeles Vázquez Castro, Gonzalo Seco-Granados, Universitat Autònoma de Barcelona
- **Repair Mechanisms for Broadcast Transmissions in Hybrid Cellular and DVB-H Systems**
  David Gomez-Barquero, Polytechnic University of Valencia; Aurelian Bria, Royal Institute of Technology
- **Impact of the Hybrid (DVB-H/UMTS) Network Structure on the Electromagnetic Exposure**
  Peter Unger, Moritz Schack, Thomas Kürner, TU Braunschweig
- **Fast Broadcasting**
  Boris Stender, Carolin Huppert, Gerd Richter, University of Ulm
- **Half-Normal Run Length Packet Channel Models Applied in DVB-H Simulations**
  Jussi Poikonen, University of Turku

SESSION 6 : Friday - September 8 , 2006 - From 9:00 to 11:00

Session 6A – Ultrawideband
Plenary

- **UWB antenna performance evaluation from the communication system point of view**
  Alain Sibille, Serge Bories, Raffaele D'Errico, and Christophe Roblin, ENSTA
- **High Speed Orthogonal Waveform Based Indoor Wireless Transmission by UWB and 60 GHz Dual Band Systems**
  Tao Chen, Honggang Zhang, Imrich Chlamtac, CREATE-NET
- **Detect and Avoid Procedure for UWB Interference Mitigation on Narrowband Systems**
  Annalisa Durantini, Romeo Giuliano, Franco Mazzenga, University of Rome Tor Vergata; Jorge Hernandez, M. B. Villarroya, Telefonica I+D
- **Reconfigurable, Power Efficient, and High IP3 Passive FET Mixers For UWB Communication Systems**
  Ulrich L. Rohde, Ajay K. Poddar, Synergy Microwave Corporation
- **Throughput assessment for DS and TH UWB Systems in Multipath Environment**
  Annalisa Durantini, Romeo Giuliano, Franco Mazzenga, University of Rome tor Vergata
- **Blind Adaptive Channel Shortening by Unconstrained Optimization for Simplified UWB Receiver**
  Syed Imtiaz Husain, Jinho Choi, University of New South Wales

Session 6B - Space Time Coding and Diversity
Room1

- **Coded Space-Time Single Carrier Transmission with MMSE MIMO Turbo Equalization**
  Mariella Särestöniemi, University of Oulu; Tad Matsumoto, Ilmenau University of Technology & University of Oulu; Marcus Großmann, Ilmenau University of Technology
- **SER Performance of OFDM Polarization Diversity System in Ricean Fading Environment**
  Maja Ilic, Milica Pejanovic-Djurisic, Enis Kocan, University of Montenegro
- **An Optimal 2x2 Space-Time Code for Time-Hopping Ultra Wideband Systems with binary Pulse Position Modulation**
  Chadi Abou-Rjeily, Daniele Norbert, CEA-LETI; Jean-Claude Belfiore, Ecole Nationale Supérieure des Télécommunications de Paris
- **On Punctured Pragmatic Space-Time Codes in Block Fading Channel**
  Samuele Bandi, Luca Stabellini, Andrea Conti, Velio Tralli, University of Ferrara
- **Analytical approximations for the capacity of orthogonal SFBC**
  Jesús Pérez, Jesús Ibáñez, Luis Vielva, Ignacio Santamaría, University of Cantabria
- **Space-time Code Selection for OFDM-MISO Systems**
  Dimas Mavares, Universidad Nacional Politécnica UNEXPO; Rafael P. Torres, Universidad de Cantabria

Session 6C - Wireless IP
Room 2

- **QoS adaptation in SIP-based VoIP calls in multi-rate 802.11 environments**
  Anna Sfairopoulou, Carlos Macián, Boris Bellalta, Universitat Pompeu Fabra
- **Improving TCP performance over 3G links with an ACK rate control algorithm**
  Juan José Alcaraz, Fernando Cerdan, Polytechnic University of Cartagena
- **VoIP over HSUPA: link-level performance study**
  Massimo Bertinelli, Jussi Jaatinen, Nokia Research Center
- **Analysis of IP-based Real-time Multimedia Group Communication in heterogenous wireless Networks**
  Joern Seger, Andreas Wolff, Christian Wietfeld, University of Dortmund
- **A comparison of the performance of TCP-Reno and TCP-Vegas over MANETs**
  Dongkyun Kim, Kyungpook National University; Juan-Carlos Cano, Pietro Manzoni, Polytechnic University of Valencia; C.K. Toh, Queen Mary University of London
- **Modeling Link Adaptation Algorithm for IEEE 802.11 Wireless LAN Networks**
  Jianhua He, Dritan Kaleshi, Alistair Munro, Joe McGeehan, University of Bristol

SESSION 7 : Friday - September 8 , 2006 - From 11:20 to 13:00

Session 7A - SPECIAL SESSION: Propagation in Special Indoor Environments
Plenary

- **Cross-correlation values for dual-polarised indoor MIMO links and realistic antenna elements**
  W.A.Th. Kotterman, G. Sommerkorn, R.S. Thomä, Technische Universität Ilmenau
- **MIMO measurements in a small tunnel**
  José-María Molina García-Pardo, Jose-Victor Rodriguez, Leandro Juan-Llacer, Universidad Politécnica de Cartagena
- **Wave Propagation in Hospitals with Composite Wall Structures**
  Thomas M. Schäfer, Thorsten Kayser, Sandra Knörzer, Werner Wiesbeck, University of Karlsruhe
- **Characterization and modeling of a wireless channel at 2,4GHz and 5.8GHz in underground tunnels**
  Mathieu Boutin, Ahmed Benzakour, INRS-EMT; Charles Despins, Prompt-Quebec & INRS-EMT; Sofiène Affes, INRS-EMT
- **Optimisation of antennas array for communication in tunnel**
  A.Nasr, J.M Molina, M. Liénard and P. Degauque, Université Lille

Session 7B - SPECIAL SESSION: Qos Provisioning in Wireless Networks: Mobility, Security and Radio Resource Management
Room1

- **Scheduling of Mixed Traffic over MC-CDMA under Varying Load and Channel Conditions**
  Virginia Corvino, University of Bologna; Guenther Liebl, Munich University of Technology (TUM); Luca Giuliani, University of Bologna; Velio Tralli, University of Ferrara; Timo Mayery, Munich University of Technology (TUM); Roberto Verdone, University of Bologna
- **A Conceptual Model of Tunable Security Services**
  Stefan Lindskog, Anna Brunstrom, Reine Lundin, Karlstad University; Zoltán Faigl, Budapest University of Technology and Economics
- **Impact of shadowing modelling on TD-CDMA system-level simulations**
  Ruben Fraile, José Monserrat, Narcís Cardona, Technical University of Valencia; Jad Nasredinne, Universitat Politècnica de Catalunya
- **A Proposal on Frequency Management Methodologies for WCDMA Systems using Statistical Coupling Matrices**
  Jad Nasredinne, Jordi Pérez-Romero, Oriol Sallent, Ramon Agusti, Universitat Politecnica de Catalunya (UPC); Xavier Lagrange, ENST Bretagne
- **Analysis of packet level QoS in wireless data networks**
  Péter Fazekas, BUTE

Session 7C - Location Techniques
Room 2

- **On the Use of Cooperation to Enhance the Location Estimation Accuracy**
  Simone Frattasi, Aalborg University; Marco Monti, Konica srl
- **Source location via subspace based methods through WLAN frequency measurements**
  Jonathan Mora Cuevas, Leandro de Haro Ariet, Technical University of Madrid
- **Maximum Likelihood Positioning of Network Nodes Using Range Measurements**
  Anthony J. Weiss, Joseph Picard, Tel Aviv University
- **Mobile Station Location Estimation for MIMO Communication Systems**
  Ji Li, Jean Conan, Samuel Pierre, Ecole Polytechnique of Montreal
- **A Novel Iterative Technique for Collaborative Location Estimations**
  Rihito Mino, Kazuya Iwamoto, Masahiro Takashima, Radim Zemek, Osaka University; Kentaro Yanagihara, Oki Electric Industry Co., Ltd.; Shinsuke Hara, Osaka City University; Ken-ichi Kitayama, Osaka University

POSTER PRESENTATIONS

POSTER SESSION 1: Transmission Technologies

Wednesday - September 6 , 2006 - From 16:10 to 18:10
Exhibit Room

- **Block differential modulation with boosted midamble symbols**
  Alexandre Vanaev, Hermann Rohling, Hamburg University of Technology
- **Precise Leading Edge Detection using a Forward Error Correction Coding**
  Kenichi Takizawa, Huan-Bang Li, Ryuji Kohno, National Institute of Information and Communications Technology (NICT)
- **Performance Comparison of Low-Complexity Detection Schemes for V-BLAST Coded MIMO OFDM**
  Ming Lei, Hiroshi Harada, National Institute of Information and Communications Technology (NICT)
- **Employing Simple FFT-Interpolation for Improved Complex Tone Detection and Fine Estimation**
  Ivan Periša, Jürgen Lindner, University of Ulm
- **Optimized Puncturing Distributions for long LDPC Codes and Different Channels**
  Gerd Richter, Axel Hof, Carolin Huppert, University of Ulm
- **Full-Information Rate Distance-4 Block Codes**
  Gökmen Altay, Bahcesehir University; Osman N. Ucan, Istanbul University; Nejla Altay, Bahcesehir University
- **A Novel Anti-Collision Algorithm for EPC Gen2 RFID Systems**
  Liang-Chin Wang, Hsin-Chin Liu, National Taiwan University of Science and Technology
- **A Comparison of Rate Compatible PCCC and SCCC for Next Generation Wireless Communication Systems**
  Tetsushi Abe, Gerhard Bauch, DoCoMo Eurolabs; Christoph Hausl, Munich University of Technology
- **Designing a reconfigurable MC-CDMA for beyond 3G applications**
  Fabienne Nouvel, Arnaud Massiani, IETR/INSA
- **A Flexible Testbed for the Rapid Prototyping of MIMO Baseband Modules**
  David Ramirez, Ignacio Santamaría, Jesús Pérez, Javier Vía, Antonio Tazón, University of Cantabria; J. A. Garcia-Naya, T. Fernández-Caramés, M. González López, H. Pérez-Iglesias, Luis Castedo, University of A Coruña
- **Coexistence among Ultra Wideband Devices and Fixed Wireless Systems in a distributed scenario**
  Romeo Giuliano, Gianluca Guidoni, Franco Mazzenga, University of Rome tor Vergata
- **Predistortion Method for Nonlinear Distortion Cancellation in WiMAX Transmitters**
  Paloma Garcia-Ducar, Jesús de Mingo, Antonio Valdovinos, University of Zaragoza
- **Optimization of E-DCH Channel Power Ratios to Maximize Link Level Efficiency**
  Carlos Delgado, Jaime Tito, Aalborg University; Jeroen Wigard, Frank Frederiksen, Troels E. Kolding, Nokia Networks
- **A Novel Frequency Synchronization Method for OFDM System with Frequency Domain Selection Combining Diversity**
  Enis Kocan, Milica Pejanovic-Djurisic, Maja Ilic,University of Montenegro
- **Improved Architectures for VLC MAP decoders**
  Jesús M. Pérez Llano, Víctor Fernández Solórzano, University of Cantabria
- **MIMO iterative receiver with bit per bit interference cancellation**
  Laurent Boher, Maryline Helard, Rodrigue Rabineau, France Telecom Research & Development Division
- **An Adaptive MIMO - OFDM system: Design and Performance evaluation**
  Víctor P. Gil-Jiménez, Ana García-Armada, Universidad Carlos III de Madrid
- **Effiecient Stochastic LASF codes for MIMO-OFDM systems**
  Evan Mella, Ian J. Wassell, University of Cambridge

POSTER SESSION 2: Access & Channels

Thursday - September 7 , 2006 - From 16:30 to 18:10

Exhibit Room

- **High-Speed and Large-Capacity RFID Inventory Method Using 1-Bit Flag**
  Suguru Kameda, Atsuyoshi Yamaguchi, Satoru Fukuyo, Hiroshi Oguma, Hiroyuki Nakase, Tadashi Takagi, Kazuo Tsubouchi, Tohoku University

- **Fuzzy Logic Based Call Admission Control for Next Generation Wireless Networks**
  Olabisi E. Falowo, H. Anthony Chan, University of Cape Town

- **Congestion Control Strategies In Multi-Access Networks**
  Xavier Gelabert, Jordi Perez-Romero, Oriol Sallent, Ramon Agusti, Universitat Politecnica de Catalunya (UPC)

- **CDMA Access Channel Performance under Idle-Mode Ping-Pong Effect in Inter-MSC Handoffs**
  Taha Landolsi, American University of Sharjah; Marwan Abu Amara, King Fahd University of Petroleum and Minerals

- **Optimal Energy Allocation, Relay Selection and Ordering in Orthogonal Relay Networks**
  Jesús Gómez-Vilardebó, Centre Tecnologic de Telecomunicacions de Catalunya; Ana I. Pérez-Neira, Technical University of Catalonia

- **QoS Metrics for Cross-Layer Design and Network Planning for B3G Systems**
  Nuno Anastácio, Francisco Merca, Orlando Cabral, Fernando J Velez, University of Beira Interior

- **Radio resource allocation strategies to guarantee data traffic in cellular networks**
  Carlos M. Ramírez Casañas, Josep Paradells, Sonia P. Mansilla, Technical University of Catalonia

- **On A Novel Medium Access Control Protocol for Wireless Ad Hoc Networks**
  Kaveh Ghaboosi, Iran Telecommunication Research Center (ITRC)

- **Wideband MIMO measurements in a street corner environment**
  Rubén Ibernón-Fernández, José-María Molina García-Pardo, Leandro Juan-Llacer, Universidad Politécnica de Cartagena

- **Performance Investigation of a Line-of-Sight Optimised 2x2 MIMO System**
  Ioannis Sarris, Mitsubishi ITE VIL; Andrew Nix, University of Bristol

- **Dual Frequency MIMO measurements in the 2.26-2.5GHz band**
  Matthaiou Michail, David Laurenson, University of Edinburgh; Nima Razavi-Ghods, Sana Salous, University of Durham

- **Modeling Spatial Aspects of Mobile Channel for Macrocells using Gaussian Scattering Distribution**
  Noor M Khan, Mohammed T Simsim, Rodica Ramer, The University of New South Wales

- **Path Loss Models for IEEE 802.11a Wireless Local Area Network**
  Fabiana Capulli, Cristiano Monti, Marco Vari, Consorzio Universit`a Industria Laboratori di Radiocomunicazioni; Franco Mazzenga, University of Rome Tor Vergata

- **Indoor Coverage Prediction and Optimization for UMTS Macro Cells**
  Wolfgang Karner, Alexander Paier, Marcus Rupp, Tech. University of Vienna

- **Performance Of Ultra-Wide Band OFDM Sytems Using Adaptive MPSK Modulation Over Nakagami-m Channel**
  Juan Reig, Gonzalo Llano, Technical University of Valencia

- **Channel Estimation and Frequency Synchronization for a Multi-Antenna Wimax System**
  Jose A. Rivas Cantero, M. Julia Fernandez-Getino García, Universidad Carlos III de Madrid

- **Indoor MIMO channel modeling by using ray-tracing techniques based on GO/UTD**
  Susana Loredo, Alberto Rodríguez-Alonso, University of Oviedo; Rafael P. Torres, Universidad de Cantabria

POSTER SESSION 3: Networks, Systems & Services

Friday - September 8 , 2006 - From 11:00 to 13:00

Exhibit Room

- **On the Impact of Ultra Wide Band (UWB) System on Macrocell Downlink of IS-136 Systems**
  Bazil Taha Ahmed, Miguel Calvo Ramon, Leandro Haro-Ariet, Universidad Politecnica de Madrid

- **Cross-layer Optimization of Reliable Transmissions over IEEE 802.11 Multi-hop Networks**
  Marisa Catalan, Anna Calveras, Sergio Galvez, Technical University of Catalonia

- **End-To-End Qos Provision And Control In Wireless Communication Systems By Means Of Digital Watermarking Signal Processing**
  Francesco Benedetto, Gaetano Giunta, Alessandro Neri, Univ. of Roma Tre

- **Bluetooth transmission quality measures for Wireless Body Area Networks (WBAN)**
  Lara Traver, Cristina Tarín, Narcís Cardona, Technical University of Valencia

- **An Adaptive Scheme for Active Periods Schedule in IEEE 802.15.4 Wireless Networks**
  Matteo Ferrari, Luca Pizziniaco, Politecnico di Milano

- **Performance Analysis by measurement results in operating 3G network**
  Francisco Falcone, Ignacio Dominguez Escauriaza, Telefonica Moviles España; Amaya Vicente Fernández, Francisco Blanco Mañú, Universidad Pública de Navarra

- **A MANET autoconfiguration system based on Bluetooth technology**
  José Cano Reyes, Eduardo Burgoa, Carlos T. Calafate, Juan-Carlos Cano, Pietro Manzoni, Polytechnic University of Valencia

- **Using Design Patterns in a HSDPA System Simulator**
  Gaspar Pedreño López, Juan José Alcaraz, Fernando Cerdan, Polytechnic University of Cartagena

- **On the Performance of Limited Feedback Single-/Multi-User MIMO in 3GPP LTE Systems**
  Hojin Kim, Jianjun Li, Yongxing Zhou, James S. Kim, Samsung Advanced Institute of Technology

- **MEMS Enabled Signal Source For Wireless Communication Systems**
  Ulrich L. Rohde, Ajay K. Poddar, Synergy Microwave Corporation

- **The Impact of Link Error Modeling on the Quality of Streamed Video in Wireless Networks**
  Wolfgang Karner, Olivia Nemethova, Marcus Rupp,, Vienna University of Technology

- **An Efficient Code Structure of Block Coded Modulations with Iterative Viterbi Decoding Algorithm**
  Huan-Bang Li, NICT; Ryuji Kohno, Yokohama National University

- **On the UMTS-HSDPA in High Altitude Platforms (HAPs) Communications**
  Bazil Taha Ahmed, Universidad Autónoma de Madrid; Miguel Calvo Ramón, Leandro Haro Ariet, Universidad Politécnica de Madrid

- **Selection Diversity for BT Coverage Extension**
  Barbara Masini, University of Bologna; Andrea Conti, University of Ferrara; Gianni Pasolini, Davide Dardari, University of Bologna

- **A Comparative Study of Antenna Array Algorithm Implementations using FPGA and DSP for cdma2000**
  Suhap Sahin, Sener Dikmese, Kerem Kucuk, Adnan Kavak, Kocaeli University

- **A Satellite Connections Approach Based on Spatial Footprints**
  Jaime Lloret, Juan Ramón Diaz, Fernando Boronat, Manuel Esteve, Polytechnic University of Valencia

- **Implementing a cellular IPv6 network with dormant mode support using IP paging**
  Rafael Vidal, Josep Paradells, Marcos García, Jéssica Reyes, Fernando López, Technical University of Catalonia (UPC)

- **Channel Measurement Data Based Performance Evaluation of Space-Time Coded SC-MMSE MIMO Turbo Equalization**
  Mariella Sarestoniemi, University of Oulu; Tad Matsumoto, Ilmenau University of Technology, University of Oulu; Christian Schneider, Ilmenau University of Technology; Reiner Thomä, Technische Universität Ilmenau

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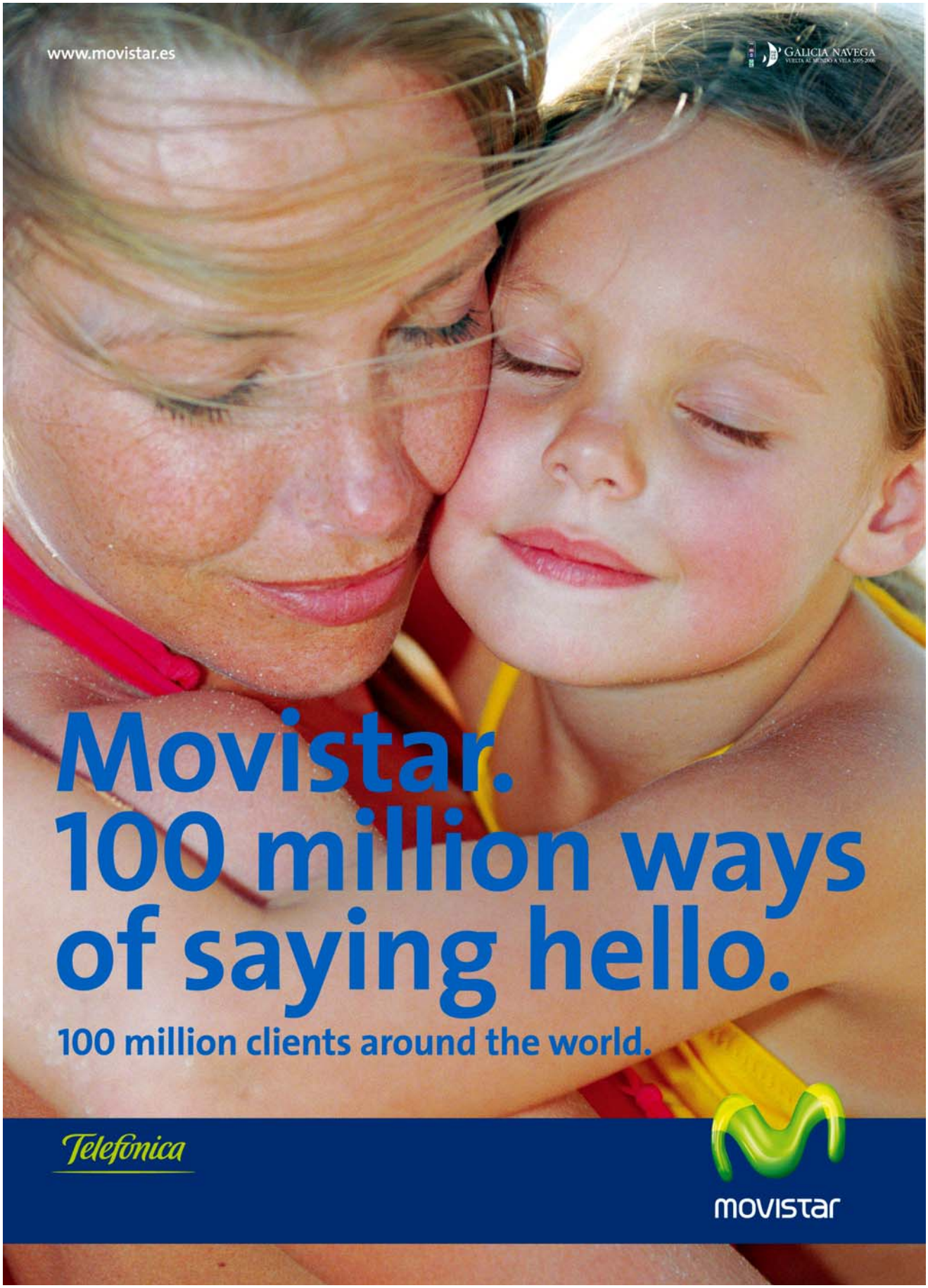
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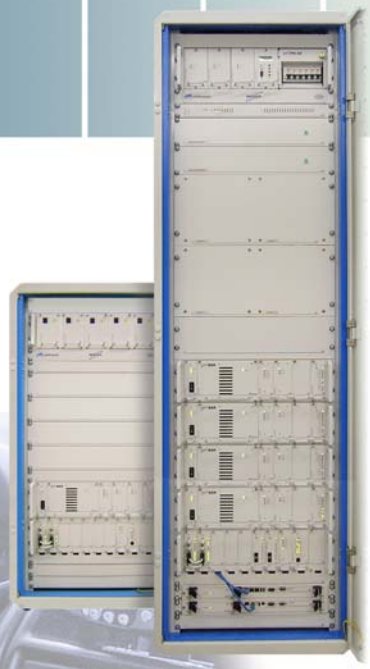

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