International Wireless Summit 2005
Aalborg, Denmark, September 18-22

Welcome to IWS 2005

General Chair's Welcome Message

On behalf of the Organizing Committee and Steering Board, it is my great pleasure to welcome you to visit this web site for the First International Wireless Summit (IWS 2005).

Our Organizing Committee has been working very hard to make IWS 2005 a very fruitful event for everybody, i.e. people from academia, manufacturers, service providers, science parks and so on.

IWS will address every dimension of the present and future converging wired and wireless communication by acting as a platform for the unification of three major telecom activities:

- Symposium on Wireless Personal Multimedia Communication (WPMC)
- Strategic Workshop (SW)
- Business Meetings & Exhibition, Wireless Science Park (WSP)

WPMC will present the R&D results by holding keynote speeches, technical and panel sessions and tutorials on hot topics, SW will focus on the future vision by conducting three workshops; Convergence Networks, Broadband Networks and Standardization and Regulatory Issues, and WSP will be dedicated to innovation by organizing Wireless Exhibition and several other attracting activities.

Besides these three main events namely, WPMC, SW and WSP, we have planned a very special event “Grand Opening Ceremony” by organizing an executive round-table discussion between some of the most influential people from the key players in the global industry of wireless communications. There will be an extensive guest and spouse programme as well.

I am personally interested in your recommendation and advice and encourage you to call or write me when convenient to make IWS 2005 a very successful event.

Looking forward to welcoming you in Aalborg on September 17-22, 2005

Best regards

Ramjee Prasad
Professor, Director
Center for TeleInFrastruktur (CTIF)
Aalborg University

Time: 08:00 – 08:55 **Room: 31 Europahallen**	
Keynote Speech	**Speaker: Dr. Ewan Shepherd, Agilent, USA** **Title: Spatial Division Multiplex Multi-channel OFDM Measurements** **Chair: Dr. Neeli R. Prasad, Center for TeleInFrastruktur (CTIF), Aalborg University, Denmark**

Time: 09:00 – 10:30 **Room: 22 Hal Øst** **WPMC'05**	
(WM 1) Satellite and Navigation	**Organizer: TPC** **Chair: Dr. Shingo Ohmori, NICT, Japan**
Invited Track Speaker	**Speaker: Prof. Enrico Del Re , University of Florence and CNIT, Italy** **Title: Role and Research Issues of Satellite Communications**
1297 Effects of Atmosphere Turbulence On Ground-based GPS Open Loop Tracking	*Per Høeg*, Aalborg University, Denmark, *Laust Olsen*, Aalborg University, Denmark, *Anders Carlström*, Saab Ericsson Space, Sweden
1046 Iterative Carrier Phase Recovery for Turbo-Coded Systems with GMSK Modulation	*Zhuo Wu, Alister G. Burr and George White* Department of Electronics, University of York, York, UK
1096 Joint Turbo-Decoding and Carrier Phase Estimation for Differentially Encoded OQPSK in Deep Space Communications	*Tarannum Reyaz, Alister G. Burr and George White* Communications Research Group, Department of Electronics, University of York, UK
1156 An Experiment of Mobile Localization System Using a Low Altitude Stationary Flight Test Vehicle and Array Antennas	*Hiroyuki Tsuji,* National Institute of Information and Communications Technology (NICT), Japan, *Naoyuki Hirosaki,* National Institute of Information and Communications Technology (NICT), Japan and Graduate School of Science Engineering, Keio University, Japan, *Hiromi Matsuno,* National Institute of Information and Communications Technology (NICT), Japan and Yokohama National University, Japan *and Ryu Miura,* National Institute of Information and Communications Technology (NICT), Japan
1427 Extending Wireless Grids to Remote Locations	*Haresh S. Bhatt, V.H. Patel, K. Bandyopadhyay and A.R. Dasgupta* Space Applications Centre, Indian Space Research Organization (ISRO), Ahmedabad, Gujarat, India

Time: 10:50 – 12:30 **Room: 22 Hal Øst** **WPMC'05**	
(WM 7) Wireless Access IV	**Organizer: TPC** **Chair: Prof. Luc Deneire, UNICE, France**

1036 A Study on Rate Switching Decision for IEEE802.11e Block ACK	*Toshihisa Nabetani and Kiyoshi Toshimitsu* Corporate R&D Center, TOSHIBA Corporation, Japan
1064 Improvement of Downlink Throughput of CSMA/CA WLANs	*K. Nagata, S. Otsuki, M. Yoshioka, T. Kumagai and L. Luis, S. Aikawa* NTT Access Network Service Systems Laboratories， NTT Corporation, Japan
1256 RTS/CTS Systems for Ad-Hoc Wireless LAN with Adaptive Array Antenna	*Satoru Takano, Takeo Fujii, Yukihiro Kamiya and Yasuo Suzuki* Graduate School of Engineering, Tokyo University of Agriculture and Technology, Japan
1260 Multi-Radio Resource Allocation Strategies for Heterogeneous Wireless Networks	*Leonardo Badia,* Consorzio Ferrara Ricerche (CFR), Italy, *Chiara Taddia,* Department of Engineering, University of Ferrara, Italy, *Gianluca Mazzini,* Consorzio Ferrara Ricerche (CFR), Italy *and Michele Zorzi,* Department of Information Engineering, University of Padova, Italy and Consorzio Ferrara Ricerche (CFR), Italy

Time: 13:30 – 15:50 **Room: 22 Hal Øst** **WPMC'05**	
(WA 13) Antenna and Propagation V	**Organizer: TPC** **Chair: Prof. Matti Latva-Aho, University of Oulu, Finland**
1304 Reducing the Impact of Phase Noise on the MIMO Capacity Estimation	A. Taparugssanagorn and J. Ylitalo Centre for Wireless Communications, University of Oulu, Finland
1344 Radio Coverage Estimation at 5 GHz and 2.2 GHz for WLAN Systems in Indoor and Outdoor Environments	*Delphin Barankanira and Nadine Malhouroux-Gaffet* France Telecom, R&D/RESA/NET, France
1380 Automatic Clustering of MIMO Channel Parameters Using the Multi-Path Component Distance Measure	*Nicolai Czink,* Institut für Nachrichtentechnik und Hochfrequenztechnik, Technische Universität Wien, Austria, *Pierluigi Cera,* Institut für Nachrichtentechnik und Hochfrequenztechnik, Technische Universität Wien, Austria, *Jari Salo,* Institut für Nachrichtentechnik und Hochfrequenztechnik, Technische Universität Wien, Austria and Radio Laboratory/SMARAD, Helsinki University of Technology, Finland, *Ernst Bonek,* Institut für Nachrichtentechnik und Hochfrequenztechnik, Technische Universität Wien, Austria, *Jukka-Pekka Nuutinen,* Elektrobit Testing Ltd., Oulu, Finland *and Juha Ylitalo,* Centre for Wireless Communications, University of Oulu, Finland

1431 Antennas and Propagation for Body Centric Wireless Communications	*Yang Hao,* Queen Mary, University of London, London, UK, *Akram Alomainy,* Queen Mary, University of London, London, UK, *Yan Zhao,* Queen Mary, University of London, London, UK, *Clive G. Parini,* Queen Mary, University of London, London, UK, *Peter S. Hall,* The University of Birmingham, Birmingham, UK, *Yuriy I. Nechayev,* The University of Birmingham, Birmingham, UK *and Costas C. Constantinou,* The University of Birmingham, Birmingham, UK

Time: 15:50 – 17:50 **Room: 22 Hal Øst** **WPMC'05**	
(WA 19) Transmission Technology VI	**Organizer: TPC** **Chair: Dr. Uma Jha, Qualcomm, USA**
1293 Frequency-Domain MMSE Turbo Equalization --- Convergence in Spatially Correlated MIMO Channels	*Kimmo Kansanen and Tad Matsumoto* University of Oulu, Finland
1341 Geometrical Characterization of the Optimal Causal Linear MIMO-Channel Inverse	*Holger Boche and Volker Pohl* Technical University Berlin, Heinrich Hertz Chair for Mobile Communications, Germany
1360 Outdoor-Indoor MIMO Channel Measurements	*Matthews C. Mtumbuka and David J. Edwards* Department of Engineering Science, University of Oxford, UK
1377 A Fully Real-Time Wireless MIMO-OFDM Demonstrator with TX and RX Processing Capability	*Andre Bourdoux, Veerle Derudder, Maryse Wouters and Sven Janssens* IMEC vzw, DESICS, Belgium
1421 Interference Mitigation in MIMO Systems by Subset Antenna Transmission	*Kihong Kim and Gordon L. Stüber* School of Electrical and Computer Engineering Georgia Institute of Technology Atlanta, USA

Time: 09:00 – 10:30 **Room: 15 Gæstesalen** **WPMC'05**	
(WM 2) Transmission Technology III	**Organizer: TPC** **Chair: Prof. George White, University of York, U.K.**
1078 An Efficient Channel Information Feedback Method for Adaptive Multiuser OFDM Systems	*Jun-Chae Na and Min-Jeong Kim* KTF, Korea

1118 Adaptive Spatial Mode Employing Space-Time and Space-Frequency OFDM System Over IEEE 802.11 Fading Channels	N.K. Noordin, Faculty of Engineering, Universiti Putra Malaysia, Malaysia, B.M. Ali, Faculty of Engineering, Universiti Putra Malaysia, Malaysia, S.S. Jamuar, Faculty of Engineering, Universiti Putra Malaysia, Malaysia and M.B. Ismail, Faculty of Engineering, Universiti Kebangsaan Malaysia, Malaysia
1149 Reduction Technique of Modulation Level Information in Forward Link OFDM/TDD Systems with Subcarrier Adaptive Control	*Toshiaki Yamamoto, Hiroyasu Ishikawa and Toshinori Suzuki* KDDI R&D Laboratories, Japan
1229 Adaptive Modulation of OFDM using Pre-Transform of Data Symbols	

Time: 10:50 – 12:30 Room: 15 Gæstesalen WPMC'05	
(WM 8) Transmission Technology IV	**Organizer: TPC Chair: Prof. V. Sinha, IIT Kanpur, India**
1306 A Technique for Reducing the Impact of Beyond Cyclic Prefix Multi-Path in OFDM	*Mike J. Hart and Mark A. Beach* Fujitsu Laboratories of Europe, Ltd., UK
1275 Diversity Realization of Orthogonal Space-Frequency Block Coded OFDM System Over Time and Frequency Selective Fading Channels	*Yu Zhang, Alister G. Burr and George White* Communications Research Group, Department of Electronics, University of York, UK
1276 Performance Analysis of OFDM-OQAM Systems	*Antonio Assalini, Matteo Trivellato and Silvano Pupolin* University of Padova, Department of Information Engineering (DEI), Italy
1326 EM Based Joint Data Decoding and Channel Estimation in Space-Frequency Turbo Coded OFDM	*Jari Ylioinas and Markku Juntti* Centre for Wireless Communications University of Oulu, Finland

Time: 13:50 – 15:50 Room: 15 Gæstesalen WPMC'05	
(WA 14) Multimedia, Networks and Systems III	**Organizer: TPC Chair: Prof. Erik Fledderus, TNO, The Netherlands**
1136 Random Slot Allocation (RSA) for a TDD-Based Public and Ad-Hoc Hybrid Network	*Taketo Ijiri, Riaz Esmailzadeh and Masao Nakagawa* Department of Information and Computer Science, Keio University, Yokohama, Japan

1163 Constant Bit Rate H.264/AVC Compliant Stereoscopic Video Transmission Over W-CDMA Channels	*P.Y. Yip,* School of Computer Science, University of Hertfordshire, UK, *W.A.C. Fernando,* School of Engineering and Design, Brunel University, Middlesex, UK, *J.A. Malcolm,* School of Computer Science, University of Hertfordshire, UK, *K.K. Loo,* School of Engineering and Design, Brunel University, Middlesex, UK *and H. Kodikara Arachchi,* School of Engineering and Design, Brunel University, Middlesex, UK
1169 Novel Scanning Order for Improving the Bit Rate Performance of ZTE Video Coding	*H. Kodikara Arachchi,* Electronic and Computer Engineering, School of Engineering and Design, Brunel University, UK, *W.A.C. Fernando,* Electronic and Computer Engineering, School of Engineering and Design, Brunel University, UK *and E.A. Edirisinghe,* Department of Computer Science, Loughborough University, UK
1219 Joint Interpolated Motion-Disparity Estimation and Vector Refinement Technique with Evolutionary Strategy for Stereoscopic Video Compression	*K. Ponudurai, W.A.C. Fernando and K.K. Loo* School of Engineering and Design, Brunel University, UK
1259 Analysis of IP-Based Communications Over a Real Multi-Hop Test-Bed Based on the DSR Protocol	*Ramon Aguero, Johnny Choque, Luis Munoz and Jose Angel Irastorza* Department of Communications Engineering ETSIIT – University of Cantabria Santander, Spain
1164 Prioritised Modulation Scheme for H.264/AVC Compliant Stereoscopic Video Transmission Over Rayleigh Fading Channel	*P.Y. Yip,* School of Computer Science, University of Hertfordshire, UK, *W.A.C. Fernando,*School of Engineering and Design, Brunel University, UK, *K.K. Loo,* School of Engineering and Design, Brunel University, UK, *and H. Kodikara Arachchi,* School of Engineering and Design, Brunel University, UK

Time: 15:50 – 17:50
Room: 15 Gæstesalen
WPMC'05

(WA 20) Multimedia, Networks and Systems IV	**Organizer: TPC** **Chair: Prof. Gordon Stuber, Georgia Institute of Technology Atlanta, USA**
1070 Some Issues Concerning MAC Design in Ad Hoc Networks with MIMO Communications	*Paolo Casari, Marco Levorato and Michele Zorzi* DEI — University of Padova, Italy
1147 Efficient Motion Estimation Algorithm for H.264 Based Conversational Video Codecs	*S. Adedoyin, W.A.C. Fernando, H. Kodikara Arachchi, T. Kalganova and K.K. Loo* School of Engineering and Design, Brunel University, UK
1220 Performance Evaluation of H.264 Video Transmission with MIMO Wireless Systems Over Frequency Selective Channel	*R. Panchal,* School of Engineering and Design, Brunel University, UK, *K.K. Loo,* School of Engineering and Design, Brunel University, UK, *M.F. Siyau,* Dept. of Electrical, Computer & Communications Engineering, London South Bank University, UK *and W.A.C. Fernando,* School of Engineering and Design, Brunel University, UK

1338 Performance Evaluation of Point-to-Point Scheduling Strategies for the ADHOC MAC Protocol	*J.R. Gallego,* Dpto. Ingeniería Electrónica y Comunicaciones. Universidad de Zaragoza. Zaragoza, Spain, *M. Canales,* Dpto. Ingeniería Electrónica y Comunicaciones. Universidad de Zaragoza. Zaragoza, Spain, *A. Hernandez-Solana,* Dpto. Ingeniería Electrónica y Comunicaciones. Universidad de Zaragoza. Zaragoza, Spain, *L. Campelli,* Dipartimento di Elettronica e Informazione, Politecnico di Milano, Milano, Italy, *M. Cesana,* Dipartimento di Elettronica e Informazione, Politecnico di Milano, Milano, Italy *and A. Valdovinos,* Dpto. Ingeniería Electrónica y Comunicaciones. Universidad de Zaragoza. Zaragoza, Spain
1381 Dynamic Core Based Tree (DCBT): An Energy Efficient Broadcast and Multicast Routing Algorithm for Mobile Multihop Ad-Hoc Network	*Monzer Hossain, Khaled Mahmud and Miftahur Rahman* Department of Computer Science and Engineering, North South University, Bangladesh
1208 A TDD-CDMA Cellular and Ad-Hoc Hybrid Network with Multi-Hop Connection	*Yuji Horii, Riaz Esmailzadeh and Masao Nakagawa* Department of Computer and Information Science, Keio University Yokohama, Japan

Time: 09:00 – 10:30 Room: 18 Musiksalen WPMC'05	
(WM 3) Wireless Access III	**Organizer: TPC Chair: Dr. Jorma Lilleberg, Nokia, Finland**
1057 Performance Evaluation of OFDM/SDMA System with Virtual Subcarrier Assignment (VISA) Using Measured Indoor Channel Data	*Yunjian Jia, Quoc Tuan Tran and Shinsuke Hara* Graduate School of Engineering, Osaka University, Japan
1067 On the Reverse Link Capacity of the Joint Multiple Access (CDMA and SDMA) System with Inter-Cell Interference	*Chee Kyun Ng,* Department of Computer and Communication Systems, Universiti Putra Malaysia, Malaysia. Engineering, *Sabira Khatun,* Department of Computer and Communication Systems Engineering, *Borhanuddin Mohd Ali,* Department of Computer and Communication Systems Engineering *Sudhanshu Shekhar Jamuar,* Department of Electrical and Electronic Engineering, Faculty of Engineering, Universiti Putra Malaysia, Malaysia *and Mahamod Ismail,* Department of Electrical, Electronic and System Engineering, Faculty of Engineering, Universiti Kebangsaan Malaysia, Malaysia
1222 Adaptive Channel Selection Technique for Dual-Band Wireless LAN System	*Satoru Harada and Shinichi Miyamoto* Graduate School of Engineering, Osaka University, Japan
1245 Multipath Compensation by Using Template Waveform Processing in UWB Radio	*Kohei Ohno and Tetsushi Ikegami* Department of Electronics and Communication, Meiji University, Japan

Time: 10:50 – 12:30 **Room: 18 Musiksalen** **WPMC'05**	
(WM 9) Mobile Platform Security **Special Session I**	**Organizer: Dr. Anand R. Prasad, NTT DoCoMo Eurolab., Germany, Dr. A. Selim, Intel Corp., USA and Dr. N. Dabbous, GemPlus, USA** **Chair: Dr. Anand R. Prasad, NTT DoCoMo Eurolab., Germany**
2043 On Supporting Multicast and Delegation in Hi3	*Murugaraj Shanmugam,* Technical University Hamburg-Harburg, Germany, *Franz Muenz,* Fachhochschule Landshut, Germany, *Hannes Tschofenig,* Siemens AG, Germany *and Andrei Gurtov,* Helsinki Institute for Information Technology, Finland
1410 Mobile Platform Security & Seamless Roaming	*Alan Crouch, Dan Dahle and Veeraiyan M. Kandasamy* Intel Corporation, USA
2005 Secure Access Over Multi-Hop Relay Extensions of Public Networks	*Rainer Falk,* Siemens Corporate Technology, Germany, *Hannes Tschofenig,* Siemens Corporate Technology, Germany *and Anand Prasad,* DoCoMo Comm. Labs. Europe GmbH,Germany

Time: 13:30 – 15:30 **Room: 18 Musiksalen** **WPMC'05**	
(WA 15) Mobile Platform Security **Special Session II**	**Organizer: Dr. Anand R. Prasad, NTT DoCoMo Eurolab., Germany, Dr. A. Selim, Intel Corp., USA and Dr. N. Dabbous, GemPlus, USA** **Chair: Prof. Emmanuel Protonotarios, NTUA, Greece**
2017 Location-Based Key Management for Ubiquitous Wireless Network	*Ritsu Nomura,* ICT Solution Dept., Kobe Works, Mitsubishi Electric Corporation, Japan, *Masahiro Kuroda,* National Institute of Information and Communications Technology, Japan *and Daisuke Inoue,* National Institute of Information and Communications Technology, Japan
2029 Context-Awareness, Security and Trust	*Sven Lachmund,* DoCoMo Euro-Labs, Germany, *Frank Fransen,* TNO, The Netherlands *and Eddy Olk,* TNO, The Netherlands
2504 Trustworthy User-Centric Identity Management Based on Personalised Java Cards	*Mario Hoffmann and Jan Peter Stotz*Fraunhofer SIT, Germany
2041 Attribute-Based Authentication Using Trusted Platforms	*Manoj R. Sastry and Michael J. Covington* Corporate Technology Group, Intel Corporation

Time: 15:50 – 17:50 **Room: 18 Musiksalen** **WPMC'05**	
(WA 21) Wireless Security III	**Organizer: TPC** **Chair: Dr. M. Imine, CTIF, Aalborg University, Denmark**

1284 Efficient Designated Verifier Signature Scheme for Mobile Network	*Rui Zhang and Hideki Imai* University of Tokyo, Japan.
1289 Fast Transient MAC Address Scheme Based on Prearranged Update	*Daisuke Inoue, Masahiro Kuroda and Kentaro Ishizu* National Institute of Information and Communications Technology, Japan
1354 Broadcast Encryption Schemes Designed for Low-Bandwidth Wireless Communication	*Nuttapong Attrapadung, Kazukuni Kobara and Hideki Imai* Institute of Industrial Science, University of Tokyo, Japan
1371 Radio-Independent Mobile Authentication Protocol for Ubiquitous Network	*Masahiro Kuroda,* National Institute of Information and Communications Technology, Japan *and Ritsu Nomura,* ICT Solution Dept., Kobe Works, Mitsubishi Electric Corporation, Japan

Time: 09:00 – 10:30 **Room: 20 Det Lille Teater** **WPMC'05**	
(WM 4) Broadband Rollout and the Role of Wireless Special Session	**Organizer: Prof. Knud Erik Skouby, Center for Information and Communication Technologies, CICT Technical University of Denmark, Denmark** **Chair: Prof. Knud Erik Skouby, Center for Information and Communication Technologies, CICT Technical University of Denmark, Denmark**
Overview of Strategies and access technologies - results from BREAD	*Prof Peter van Daele*, IMEC/ Ghent University
A Techno/ economic model for alternative Broadband Access Technologies	*Halldor Sigurdsson*, CICT, Technical University of Denmark
Wireless Access	*Steffen Ring*, Director Motorola
DVB-H as Broadband Access Technology	*Reza Tadayoni,* CICT, Technical University of Denmark

Time: 10:50 – 12:30 **Room: 20 Det Lille Teater** **WPMC'05**	
(WM 10) Multimedia, Networks and Systems Special Session	**Organizer: TPC** **Chair: Prof. Witold A. Krzymien, University of Alberta, Cananda**
Heterogeneous Mobile Networks	*Prof. Ramon Agusti,* Universitat Politècnica de Catalunya (UPC), Spain
Mobile Multimedia Applications - Trends in Networks and Systems	*Prof. Peter Jung,* Universität Duisburg-Essen, Germany

Trends in Satellite Communications: Personal and Mobile Applications	*Dr. Sastri Kota,* Harris Corporation, U.S.A

Time: 13:30 – 15:30 Room: 20 Det Lille Teater WPMC'05	
(WA 16) Indian Wireless Mission and Future Technologies Special Session	**Organizer: Dr. Ashok Chandra, Ministry of Communications & IT, Government of India, India Chair: Dr. Ashok Chandra, Ministry of Communications & IT, Government of India, India**
2033 Surging Ahead - Changing Indian Telecom Scenario - from Rural India Perspective	P. Arun Kumar, Telepoint Services Pvt., Ltd. (India), India
2018 OFDM - An Overview in the Context of Future Generations of Mobile Communication	*Anuradha Basu,* Bharati Vidyapeeth's College of Engineering., New Delhi, India
2010 Wireless Sensor Networks - An Algorithmic Approach	*Shirshu Varma and U.S. Tiwary,* Indian Institute of Information Technology, Allahabad, India
2511 Telecom Regulation in India	*Rajendra Singh and Sapna Sharma* Telecom Regulatory Authority of India, India
2512 The Economics of 4G Mobile Communication Spectrums: Analysing Industry & Financial Implications	*Tarun Pandeya,* Birla Institute of Technology, India
2514 Growth of Mobile Telephony in India	*T.R. Dua,* Bharti Cellular Ltd., India

Time: 15:50 – 17:50 Room: 20 Det Lille Teater WPMC'05	
(WA 22) Wireless Access VI	**Organizer: TPC Chair: Dr. Sastri Kota, Harris, U.S.A.**
Invited Speaker	**Speaker: Joe Lomako, RFI Global Services Ltd., UK Title: The EMF Directive, General RF Exposure Standards and its Implications to the Wireless Industry**
1226 A Complexity-Reduced Time Alignment Control with a 2-Step Precedence Path Detection in Uplink Dynamic Parameter Controlled OF/TDMA	*Ryota Kimura,* Graduate School of Global Information and Telecommunication Studies (GITS), Waseda University, Japan, *Ryuhei Funada,* National Institute of Information and Communications Technology (NICT), Japan, *Hiroshi Harada,* National Institute of Information and Communications Technology (NICT), Japan *and Shigeru Shimamoto,* Graduate School of Global Information and Telecommunication Studies (GITS), Waseda University, Japan
1278 Multi-User Synchronization in Ad-Hoc OFDM-Based Wireless Personal Area Networks	*Victor P. Gil Jimenez and Ana Garcia Armada* Dept. Signal Theory and Communications University Carlos III de Madrid, Spain

1279 Performance Evaluation of Dynamic Parameter Controlled OF/TDMA Based on PR-DSMA	*Hidekazu Gomi,* National Institute of Information and Communications Technology, Japan and Graduate School of Science and Engineering, Chuo University, Japan, *Hiroshi Harada,* National Institute of Information and Communications Technology, Japan *and Shoji Shinoda,* Graduate School of Science and Engineering, Chuo University, Japan
1305 PAPR Reduction Method Using Rate Adaptation Scheme in OFDM System	*Tomohiro Inada, Takeshi Hattori and Kenzo Nakamura* Department of Electrical and Electronics Engineering Sophia University, Japan

Time: 09:00 – 10:30 Room: 9 Latinerstuen WPMC'05	
(WM 5) Time Reversal Special Session	**Organizer: Dr. Persefoni Kyritsi, Stanford University, USA Chair: Dr. Persefoni Kyritsi, Stanford University, USA**
2006 Optimally Designed Time Reversal and Zero Forcing Schemes	*Persefoni Kyritsi,* Department of Mathematics, Stanford University, USA, *George Papanicolaou,* Department of Mathematics, Stanford University, USA *and Chrysoula Tsogka,* Department of Mathematics, University of Chicago, USA
2015 Time Reversal Transmission Potential for Multi-User UWB Communications	*Hung Tuan Nguyen, Istvan Zsolt Kovacs and Patrick C.F. Eggers* Department of Communication Technology, Aalborg University, Denmark
2030 Experimental Wideband Time Reversal and Application to Communication	*G. Lerosey, J. de Rosny, A. Tourin, A. Derode and M. Fink* Laboratoire Ondes et Acoustique, ESPCI, CNRS, France
2048 Improving on Time-Reversal with MISO Precoding	*Robert C. Daniels and Robert W. Heath Jr.* The University of Texas at Austin, Wireless Networking and Communications Group, USA
2044 Time Reversal and Zero Forcing for WLAN Applications	*Persefoni Kyritsi,* Department of Mathematics, Stanford University, USA, *George Papanicolaou,* Department of Mathematics, Stanford University, USA *and Petre Stoica,* Department of Systems and Control, Uppsala, Sweden

Time: 10:50 – 12:30 Room: 9 Latinerstuen WPMC'05	
(WM 11) Testing for Telecom: Products, Hardware, Software Special Session	**Organizer: Dr. Sunil Godse, Flextronics Software, India Chair: Dr. Sunil Godse, Flextronics Software, India**
2026 Automated Testing of Telecom Software: Concept and Practical Realization	*Vikas Nagpal and Anoop Sharma* Flextronics Software Systems, Gurgaon, Haryana, India

2023 Introduction of Test Automation in Established Telecom Applications	*Gurpreet S. Sachdeva,* Flextronics Software Systems Ltd., Gurgaon, Haryana, India
2507 Use of DOORS for Test Design and Validation in Telecom Systems	*Sriram Jatla,* Telelogic, India
2508 Automation Solutions and Standard Languages for Telecom Testing	Sriram Jatla, Telelogic, India

Time: 13:30 – 15:30 **Room: 9 Latinerstuen** **WPMC'05**	
(WA 17) Wireless Access V	**Organizer: TPC** **Chair: Dr. Kari Pehkonen, Nokia Technology Platforms, Finland**
1084 V-BLAST Based SIMO/MIMO Multi-User Systems	*Junyi Wang and Kiyomichi Araki* Graduate School of Science and Engineering, Tokyo Institute of Technology, Japan
1104 Noise Performance Improvement in CDMA	*Rakesh Kumar Shah,* V.D.C Sukhipur,W.A.R.D.N-2,Siraha,Nepal, *Muhammad Zaid Musaddeq,* Bazar, Kishorgonj, Bangladesh *and Mohammad Ashraf Ali Khan,* Khulna University, Bangladesh
1128 End-to-End QoS Guarantee in Wireless Hierarchical Heterogeneous Networks Based on a Distributed RRM Platform	*Sofoklis A. Kyriazakos,* Center for TeleInFrastruktur (CTIF), Aalborg University, Denmark, *Evangelos Gkroustiotis,* Telecommunications Laboratory, National Technical University of Athens, Greece *and Nikolaos Papaoulakis,* Telecommunications Laboratory, National Technical University of Athens, Greece
1166 Improved Prediction-Based Closed Loop Power Control in CDMA Systems	*Adit Kurniawan,* Department of Electrical Engineering, Bandung Institute of Technology, Indonesia
1366 Pre- and Post-DFT Combining Space Diversity Receiver for Wideband Multi-Carrier Systems	*Muhammad Imadur Rahman, Suvra Sekhar Das, Frank H.P. Fitzek and Ramjee Prasad* Center for TeleInFrastruktur (CTIF), Aalborg University, Denmark

Time: 15:50 – 17:50 **Room: 9 Latinerstuen** **WPMC'05**	
(WA 23) Cross-Layer Design for Wireless Networks Special Session	**Organizer: Prof. Mary Ann Ingram, Georgia Institute of Technology, USA** **Chair: Prof. Mary Ann Ingram, Georgia Institute of Technology, USA**

2045 Network-Centric versus User-Centric Resource Allocation in Wireless Networks	*Holger Boche,* Fraunhofer Institute for Telecommunications, Heinrich-Hertz-Institut (HHI), Germany, Fraunhofer German-Sino Lab for Mobile Communications MCI, Berlin, Germany and Technical University of Berlin, Heinrich Hertz Chair for Mobile Communications *and Martin Schubert,* Fraunhofer German-Sino Lab for Mobile Communications MCI, Berlin, Germany
2058 Linear and Non-Linear Receiver Processing in MIMO Ad-Hoc Networks	*Hemabh Shekhar, Karthikeyan Sundaresan, Mary Ann Ingram and Raghupathy Sivakumar* School of Electrical and Computer Engineering Georgia Institute of Technology, Atlanta, USA
2038 Modular Cross-Layer Optimization Based on Layer Descriptions	*Johannes Brehmer and Wolfgang Utschick* Institute for Circuit Theory and Signal Processing, Munich University of Technology, Germany
2012 Power Efficient Broadcasting with Cooperative Diversity in Ad Hoc Networks	*Gentian Jakllari,* Department of Computer Science and Engineering University of California, Riverside, USA, *Srikanth V. Krishnamurthy,* Department of Computer Science and Engineering University of California, Riverside, USA, *Michalis Faloutsos,* Department of Computer Science and Engineering University of California, Riverside, USA *and Prashant Krishnamurthy,* Department of Information Sciences and Telecommunications, University of Pittsburgh, USA
2008 A Scalable Approach for Feedback in MIMO Spatial Multiplexing with Linear Receivers	*Taiwen Tang,* Wireless Networking & Communications Group, Department of Electrical & Computer Engineering, The University of Texas at Austin, USA, *Robert W. Heath Jr,* Wireless Networking & Communications Group, Department of Electrical & Computer Engineering, The University of Texas at Austin, USA, *Sunghyun Cho,* Samsung Advanced Institute of Technology, Korea *and Sangboh Yun,* Samsung Advanced Institute of Technology, Korea
2510 A Cross-Layer-Metric for IP based Resource Management in Next Generation Networks	*Armin Dekorsy and Markus Bauer* Bell Labs Europe, Lucent Technologies, Germany

Time: 09:00 – 10:30 Room: 8 Bondestuen WPMC'05	
(WM 6) Personal Networks IV	**Organizer: TPC Chair: Dr. Sonia Heemstra de Groot, WMC, The Netherlands**
1361 IR-UWB Experimental Interference Studies on Selected Legacy Services	*Beatriz Quijano, Alvaro Alvarez, Manuel Lobeira and Jose Luis Garcia* Advanced Communication Reasearch and Development (ACORDE S.A), University of Cantabria, Spain
1145 Impact of Frequency Offsets and IQ Imbalance on MC-CDMA Reception Based on Channel Tracking	*Francois Horlin, Stefaan De Rore, Eduardo Lopez-Estraviz, Frederik Naessens and Liesbet Van der Perre* IMEC, Belgium

2052 Mapping IST-MAGNET MC-SS Air Interface on the Configurable Baseband SoC of IST-4More: A Case Study	*D. Noguet, Y. Durand, L. Maret and M. des Noes* CEA / DRT / DCIS, France
1001 Multiple-Access Interference in FM-UWB Communication Systems	*John F.M. Gerrits,* Centre Suisse d'Electronique et de Microtechnique SA, Neuchâtel, Switzerland, *John R. Farserotu,* Centre Suisse d'Electronique et de Microtechnique SA, Neuchâtel, Switzerland *and John R. Long,* Electronics Research Laboratory/DIMES, Delft University of Technology, The Netherlands

Time: 10:50 – 12:30 **Room: 8 Bondestuen** **WPMC'05**	
(WM 12) Personal Networks V	**Organizer: TPC** **Chair: Prof. Ignas Niemegeers, Delft University of Technology, The Netherlands**
1144 Space-Time Block Coding for Uplink Cyclic Prefix CDMA	*Francois Horlin, Eduardo Lopez-Estraviz and Liesbet Van der Perre* IMEC, Belgium
1159 Impact and Compensation of Sample Clock Offset on Up-Link Cyclic Prefix CDMA Systems	*Stefaan De Rore, Francois Horlin and Liesbet Van der Perre* Interuniversity Micro-Electronics Center (IMEC) Wireless Research Group, Belgium
1171 A Soft-Output Sphere Decoder for MIMO Systems	*Zhan Guo, Peter Nilsson and Viktor Owall* Department of Electroscience, Lund University, Sweden
1413 Computational Platform for Real-Time Channel Measurements Using the Capon Beamforming Algorithm	*Fredrik Edman and Viktor Owall* Department of Electroscience, Lund University, Sweden
2506 Design Considerations for an Integrated Antenna/RF Transceiver for MAGNET HDR Air Interface	*Terence E. Dodgson, P. Gardner and Ee Lee* Samsung Electronics (UK) Ltd., UK

Time: 13:30 – 15:50 **Room: 8 Bondestuen** **WPMC'05**	
(WA 18) Transmission Technology V	**Organizer: TPC** **Chair: Dr. Homayoun Nikookar, Delft University of Technology, The Netherlands**
1081 A Subtractive Interference Cancellation Scheme for Single Carrier Block Transmission with Insufficient Cyclic Prefix	*Kazunori Hayashi and Hideaki Sakai* Graduate School of Informatics, Kyoto University, Japan

1172 A Consideration on LDPC Coded MIMO OFDM Receiver Structure	*Le Khoa Nguyen, Yusuke Akie, Yasunori Iwanami and Eiji Okamoto* Department of Computer Science and Engineering, Graduate School of Engineering, Nagoya Institute of Technology, Nagoya, Japan
1178 Accurate Channel Estimation Method Using Decision Feedback Data Symbols After Soft-Decision Turbo Decoding in QRM-MLD for OFDM MIMO Multiplexing	*Koichi Adachi,* Department of Information and Computer Science, Keio University, Japan, *Riaz Esmailzadeh,* Department of Information and Computer Science, Keio University, Japan, *Masao Nakagawa,* Department of Information and Computer Science, Keio University, Japan, *Hiroyuki Kawai,* IP Radio Network Development Department, NTT DoCoMo, Inc., Japan *and Kenichi Higuchi,* IP Radio Network Development Department, NTT DoCoMo, Inc., Japan
1210 Space-Path Division Multiplexing Technique Over Frequency Selective MIMO Channels	*Shinsuke Ibi,* Graduate School of Engineering, Osaka University, Japan, *Seiichi Sampei,* Graduate School of Engineering, Osaka University, Japan *and Norihiko Morinaga,* Dept. of Information Technology, Hiroshima International University, Japan
1429 Mode Adaptation Combined with Power Allocation for Guaranteed QoS Constraints in COFDM Transceivers	*Ioannis Dagres and Andreas Polydoros* National and Kapodistrian University of Athens Dept. of Physics, Electronics Laboratory, Greece

Time: 15:50 – 17:50 **Room: 8 Bondestuen** **WPMC'05**	
(WA 24) Simplification of User Access to Ubiquitous ICT Services **Special Session**	**Organizer: Dr. Stefano Salsano, University of Roma "Tor Vergata", Italy** **Chair: Dr. Stefano Salsano, University of Roma 'Tor Vergata', Italy**
2037 A Framework for Mobile Interactions with the Physical World	*Enrico Rukzio,* Media Informatics Group, University of Munich, Germany, *Sergej Wetzstein,* Media Informatics Group, University of Munich, Germany *and Albrecht Schmidt,* Embedded Interaction Group, University of Munich, Germany
2031 WiOptiMo: Optimised Seamless Handover	*S. Giordano,* SUPSI – Switzerland, *M. Kulig,* SUPSI – Switzerland, *D. Lenzarini,* Forward Information Technologies SA – Switzerland, *A. Puiatti,* SUPSI – Switzerland, *F. Schwitter,* SUPSI – Switzerland *and S. Vanini,* Forward Information Technologies SA – Switzerland
2049 Adaptive Streaming of Multimedia Content: Dealing with Both Terminal and Network Heterogeneity	*S. D'Antonio,* CINI Consortium, ITEM Laboratory, Napoli, Italy, *M. Esposito,* CRIAI Consortium, Napoli, Italy, *G. Iannello,* Universit`a Campus Bio-Medico, Rome, Italy *S.P. Romano,* Universit`a di Napoli "Federico II", Napoli, Italy *and L. Vollero,* Universit`a Campus Bio-Medico, Rome, Italy

2004 Performance Analysis of the Simplicity Project: A Layered Queueing Network Approach	*Francesco Lo Presti,* Dipartimento di Informatica, Universit`a dell'Aquila, Italy
2025 Distribution and Synchronization of Context Modeling Mechanisms Between Servers and Clients on the Web	*Michael Hinz and Zoltan Fiala* Dresden University of Technology, Department of Computer Science, Germany

Time: 09:00 – 10:30 **Room: 12 Wardrobe area below Vestibule** **WPMC'05**	
Poster Session: Multimedia, Networks and Systems I	**Organizer: TPC**
1285 Cross-Layer Error Detection for H.264 Video over UMTS	*Olivia Nemethova, Wolfgang Karner, Ameen Al-Moghrabi and Markus Rupp* Vienna University of Technology, Institute of Communications and RF Engineering, Austria
1140 MR-Proxy Based solution for Nested Mobile Network Problems	*Mehdi Sabeur, Badii Jouaber and Djamal Zeghlache* GET-INT, France
1175 Performance Evaluation of H.264 Codec in the WCDMA Wireless Environments	*L. Zhang, W.A.C. Fernando, H. Kodikara Arachchi and K.K. Loo* School of Engineering and Design, Brunel University, UK
1193 802.11 Modifications for WLAN-UMTS Integration at Radio Access Level	*Natasha Vulic,* Wireless and Mobile Communications, Delft University of Technology, Delft, The Netherlands, *Sonia Heemstra de Groot,* University of Twente and Twente Institute for Wireless and Mobile Communication, Enschede, The Netherlands *and Ignas Niemegeers,* Wireless and Mobile Communications, Delft University of Technology, Delft, The Netherlands
1209 A Statistical Modelling versus Geometrical Location Determination Approach for Static Positioning in Indoor Environment	*Reetu Singh,* D.I.B.E, University of Genova, Italy, *Carlo S. Regazzoni,* D.I.B.E, University of Genova, Italy *and Kostas N. Plataniotis,* Edward S. Rogers department, University of Toronto, Ontario, Canada
1252 An Optimized Point-to-Point MBMS Mode Scheduling Scheme	Pedro Manarte, ADETTI, Lisbon, Portugal and Americo Correia, Instituto de Telecomunicações (IT), Lisbon, Portugal
1307 Optimal Transmit Power Balancing in Multi-Hop Networks	*Mike J. Hart and Sunil Vadgama* Fujitsu Laboratories of Europe, Ltd., UK
1309 Context-Sensitive Service Discovery: Experimental Prototype and Evaluation	*Robin Balken, Jesper Haukrogh, Jens Lund Jensen, Morten Nedergaard Jensen, Lars Jessen Roost, Per Nesager Toft, Rasmus L. Olsen and Hans-Peter Schwefel* Center for TeleInFrastruktur, CTIF, Aalborg University, Denmark

1314 Performance Enhancements of UMTS Networks Using End-to-End QoS Provisioning	*Haibo Wang, Devendra Prasad, Oumer Teyeb and Hans Peter Schwefel* Center for TeleInfrastructur (CTIF), Department of Communication Technology, Aalborg University, Denmark
1322 Optimising Wireless Access Network Selection to Maintain QoS in Heterogeneous Wireless Environments	*A.L. Wilson, A. Lenaghan and R. Malyan* Networking and Communications Group, Kingston University, UK

Time: 10:50 – 12:30 **Room: 12 Wardrobe area below Vestibule** **WPMC'05**	
Poster Session: Multimedia, Networks and Systems II	**Organizer: TPC**
1037 A Cross-Layer Approach of QoS Support in Multihop Wireless Networks	*Hongtao Tian,* Positioning & Wireless Technology Center, Nanyang Technology University, Singapore, *Choi Look Law,* Positioning & Wireless Technology Center, Nanyang Technology University, Singapore, *Sanjay K. Bose,* Positioning & Wireless Technology Center, Nanyang Technology University, Singapore *and Wendong Xiao,* Pervasive Signal Processing Department Institute for Infocomm Research, Singapore
1043 A Multicast Protocol Avoiding Unnecessary Data Forwarding with Source Distinction in Mobile Ad Hoc Networks	*Motoki Shirasu, Yasuhiro Tsutsui, Takeshi Murakami and Iwao Sasase* Dept. of Information and Computer Science, Keio University Yokohama, Kanagawa, Japan
1072 Radio Performance Evaluation of an Enhanced UTRAN Architecture	*Jose Monserrat, Narcis Cardona, David Gomez-Barquero and Lorenzo Rubio* Institute for Telecommunications and Multimedia Applications (iTEAM), Mobile Communications Group, Polytechnic University of Valencia (UPV), Spain
1089 UE Distance Estimation Technique Using the RACH Propagation Delay on UMTS Networks	*David Argiles, Vicente Soler, J.M. Fernandez and Narcis Cardona* Institute of Telecommunications & Multimedia Applications (iTEAM), Mobile Communications Group, Technical University of Valencia (UPV), Spain
1120 Coexistence Performance of WiMAX in HAP and Multiple-Operator Terrestrial Deployments in Shared Frequency Bands	*Z. Yang, D. Grace and P.D. Mitchell* Communications Research Group, Department of Electronics, University of York, UK
1124 Performance of Static WCDMA Simulator	*Jarno Niemela, Jakub Borkowski and Jukka Lempiainen* Institute of Communications Engineering, Tampere University of Technology, Finland
1125 Impact of Pilot Pollution on SHO Performance	*Tero Isotalo, Jarno Niemela, Jakub Borkowski and Jukka Lempiainen* Institute of Communications Engineering, Tampere University of Technology, Finland

1126 Using Idle Mode E_c/N_0 Measurements for Network Plan Verification	*Jarno Niemela, Jakub Borkowski and Jukka Lempiainen* Institute of Communications Engineering, Tampere University of Technology, Finland
1387 Performance of IP Header Compression Over Correlated Multiple Channels	*Tatiana Kozlova Madsen, Frank H.P. Fitzek, Yasushi Takatori and Ramjee Prasad* Center for TeleInFrastruktur (CTIF), Department of Communications Technology, Aalborg University, Denmark
1419 A WLAN Planning Tool with a Practical Approach	*Ricardo Tome,* IC R&D WON - Siemens, Portugal, *Pedro Lourenco,* Business Intelligence - PARAREDE TI, Portugal, *Antonio Grilo,* INESC/IST, Portugal, *Francisco Cercas,* Instituto de Telecomunicações, Portugal, *Antonio Rodrigues,* Instituto de Telecomunicações, Portugal, *Fernando Velez and Pedro Sebastiao,* Instituto de Telecomunicações, Portugal

Time: 13:30 – 15:50 **Room: 12 Wardrobe area below Vestibule** **WPMC'05**	
Poster Session: Wireless Access II	**Organizer: TPC**
1034 A Novel Scheme of Phase Noise Suppression with Time Division Pilot Signals in OFDM System	*Shogo Fukuda, Takeshi Hattori and Kenzo Nakamura* Department of Electrical and Electronics Engineering, Sophia University, Japan
1055 Capacity Evaluation of Cellular MC-CDMA	*Filippo Giannetti and Aldo N. D'Andrea* University of Pisa, Department of Information Engineering, Italy
1111 STBC Distributed ARQ with Packet Combining for OFDM Ad-Hoc Communication Systems	*Takeo Fujii, Erina Kojima, Yukihiro Kamiya and Yasuo Suzuki* Department of Electrical and Electronic Engineering, Tokyo University of Agriculture and Technology, Japan
1116 Performance Evaluation of MIMO-MC-CDMA Using Varied Sub-Carrier Spreading Code Schemes	*Rina Pudji Astuti,* Department of Electrical Engineering, Institut Teknologi Bandung, Indonesia and Department of Electrical Engineering, Sekolah Tinggi Teknologi Telkom, Indonesia, *Gelar Budiman,* Department of Electrical Engineering, Sekolah Tinggi Teknologi Telkom, Indonesia, *Suhartono Tjondronegoro,* Department of Electrical Engineering, Institut Teknologi Bandung, Indonesia, *NULL Sugihartono, Tati L.R. Mengko,* Department of Electrical Engineering, Institut Teknologi Bandung, Indonesia *and Andriyan B. Suksmono,* Department of Electrical Engineering, Institut Teknologi Bandung, Indonesia

1121 OFDM-CDMA Transmit Diversity System with Antenna Selection and Pilot Tone	*Zoran Veljovic,* University of Montenegro, Department of Electrical Engineering, Serbia and Montenegro, *Milica Pejanovic,* University of Montenegro, Department of Electrical Engineering, Serbia and Montenegro, *Igor Radusinovic,* University of Montenegro, Department of Electrical Engineering, Serbia and Montenegro *and Elvis Babacic,* Agency for Telecomunications, Serbia and Montenegro
1141 Radio Resource Management Techniques for Balancing the Traffic on UMTS	*N. Papaoulakis and S. Kyriazakos* Telecommunications Laboratory National Technical University of Athens, Greece
1215 Performance of the OFDM Space-Time Receive Diversity System in the Presence of Frequency Offset	*Enis Kocan and Milica Pejanovic-Djurisic* Department of Electrical Engineering, University of Montenegro, Serbia and Montenegro
1315 Single Cell OFDMA/SDMA Allocation Algorithm for Multiple Users in Real Systems	*Mauro Borgo, Matteo Butussi and Silvano Pupolin* University of Padova – Department of Information Engineering, Italy
1404 Synchronization with TCH Codes	*Nuno Souto,* Instituto Superior Técnico/IT, Portugal, *Joao Carlos Silva,* Instituto Superior Técnico/IT, Portugal, *Francisco Cercas,* ADETTI/IT, Portugal, *Alexandre Almeida,* ADETTI/IT, Portugal, *Antonio Rodrigues,* Instituto Superior Técnico/IT, Portugal *and Americo Correia,* ADETTI/IT, Portugal
1411 Bluetooth Connectivity Issues for M-Health Applications	*Ying Zou, Xinheng Wang, Robert S.H. Istepanian and Nada Philip* Mobile Information and Network Technology Research Centre, Kingston Universtiy, United Kingdom
1423 The Trade-Off Between Frequency Diversity and Spreading Factor in a MC-DS-CDMA System	*Yongfeng Chen and Elvino Sousa* Dept. of ECE, University of Toronto, Canada
1313 Fairness Enhancement in a Self-Configuring Cluster-Based Wireless Ad Hoc Network	*J. Alonso,* Telecommunications Technological Centre of Catalonia (CTTC), Spain, *C. Verikoukis,* Telecommunications Technological Centre of Catalonia (CTTC), Spain *and L. Alonso,* Dept. of Signal Theory and Communications – Technical University of Catalonia (UPC), Spain

Time: 15:50 – 17:50 **Room: 12 Wardrobe area below Vestibule** **WPMC'05**	
Poster Session: Digital Signal Processing	**Organizer: TPC**

1106 A Study of Relationship Between Spatial and Temporal Entities of Space-Time Processing for MIMO Wireless Communications in Frequency Selective Channel	Ming Fei Siyau, London South Bank University, UK, Dept. of Electrical, Computer & Communications Engineering, UK, Kok Keong Loo, School of Engineering and Design, Brunel University, UK and Anjum Pervez, Dept. of Electrical, Computer & Communications Engineering, UK
1138 H.264 Based Stereoscopic Video Coding	*A.B.B. Adikari, W.A.C. Fernando, H. Kodikara Arachchi and K.K. Loo* School of Engineering and Design, Brunel University, UK
1184 Multi-Channel Bandpass Sampling with Inverse Placement in Software Defined Radio	*Miheung Choe, Jintae Park, Kyuongwoo Lee and Kiseon Kim* Kyungwon Ferrite Ind. Co., Ltd. Research Center, Republic of Korea
1195 Developing of Real-Time Mobile Tracking System Using an Efficient Subspace-Based Algorithm	*Naoyuki Hirosaki,* National Institute of Information and Communication Technology, Japan and School of Integrated Design Engineering, Keio University, Japan, *Hiroyuki Tsuji,* National Institute of Information and Communication Technology, Japan, *Ryu Miura,* National Institute of Information and Communication Technology, Japan *and Akira Sano,* School of Integrated Design Engineering, Keio University, Japan
1204 Fast System-Level Design of Wireless Applications	*Yannick Le Moullec,* Center for Embedded Systems (CISS), Aalborg University, Denmark, *Soren Skovgaard Christensen,* Center for Embedded Systems (CISS), Aalborg University, Denmark and KOM Department, Aalborg University, Denmark, *Wen Chenpeng,* KOM Department, Aalborg University, Denmark, *Peter Koch,* Center for Embedded Systems (CISS), Aalborg University, Denmark and KOM Department, Aalborg University, Denmark *and Sebastien Bilavarn,* Signal Processing Institute, EPFL, Lausanne, Switzerland
1407 Partitioned MMSE Receiver for Wideband CDMA Systems	*Joao Carlos Silva,* Instituto Superior Técnico/IT, Portugal, *Sergio Jesus,* Instituto Superior Técnico/IT, Portugal, *Nuno Souto,* Instituto Superior Técnico/IT, Portugal, *Francisco Cercas,* ADETTI/IT, Portugal, *Rui Dinis,* CAPS-IST, CAPS, Portugal, *Americo Correia,* ADETTI/IT, Portugal *and Antonio Rodrigues,* Instituto Superior Técnico/IT, Portugal
1412 Optimum Bit-Mapping for Short TCH Codes	*Joao Carlos Silva,* Instituto Superior Técnico/IT, Portugal, *Nuno Souto,* Instituto Superior Técnico/IT, Portugal, *Antonio Rodrigues,* Instituto Superior Técnico/IT, Portugal *and Francisco Cercas,* ADETTI/IT, Portugal

Coordination Action within FP6

BREAD

BRoadband in Europe for All: a multi-Disciplinary approach

Contact: peter.vandaele@intec.ugent.be

Agenda

1. BREAD Introduction
2. Why a Multi-disciplinary approach is needed
3. BREAD Roadmap planning & methodology
4. Preliminary Gap Analysis & Technical Roadmaps
5. Multi-Disciplinary analysis
6. Conclusions

BREAD Introduction

• **IMEC (co-ordinator)**	**B**
• University of Essex	UK
• Research Center COM / CTI	DK
• Groupe des Ecoles des Télécommunications	F
• FhG/HHI	D
• TELSCOM consulting	CH
• JRC - Institute of Prospective Technological Studies	E
• JCP - Consult	F

BREAD Objectives

- Develop a multi-disciplinary view for the realisation of ***'broadband for all'***
- Combine forces in the area of
  - state-of-the-art results in R&D on the technological level
  - expertise towards the economic sustainability and the in-time adoption of adequate business models
  - expertise and study towards the regulatory aspects on EU level and the re-conciliation of customers' and industries' interests
- Develop a more holistic vision encompassing technical, as well as economical and regulatory aspects
- Identify roadblocks on European, national/regional level
- Share visions and best practices on national level to EU level (ERA)
- Benchmarking the EU situation with US & AP develop.

BREAD Introduction

www.ist-bread.org

Project info
FP6 projects
News items
New reports
Links
Forum

> 150 visits / day

± 400 requests for BREAD deliverable

BREAD-newsletter to ± 600 addresses

www.bbeurope.org

Agenda

1. BREAD Introduction
2. Why Multi-disciplinary approach is needed
3. BREAD Roadmap planning & methodology
4. Preliminary Gap Analysis & Technical Roadmaps
5. Multi-Disciplinary analysis
6. Conclusions

A Multi-disciplinary approach

Information & Communication Technologies

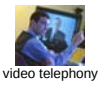
Information and communications are at the heart of human life and social development

People have always worked together by sharing information and knowledge through speech, writing, the printed word and, more recently, telephony and broadcasting

Sharing information empowers individuals and communities, and enables whole societies to benefit from the experience of everyone within them

A Multi-disciplinary approach


Teleworking / e-learning


video telephony


TV and video


eCare


Unified messaging


music


home security

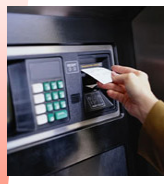

conferencing


gaming

Information **Communication** **Entertainment**

A Multi-disciplinary approach

In the developed world, ICT has become a crucial enabling factor in the functioning of society and economy


banking

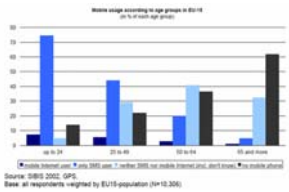

household

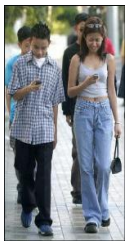

automotive

ICT becomes increasingly an important part of the product or of the service

A Multi-disciplinary approach

In the developed world, ICT has become a crucial enabling factor in the functioning of society and economy





ICT has a fast growing influence on the societal behaviour of people

A Multi-disciplinary approach

Different ICT-technologies available


Cellular & Wireless

Requires masts:
Lower capacity, lower costs

Fixed

Requires digging cable ducts:
high performance, but expensive

A Multi-disciplinary approach

Wireless connections between devices


Bleutooth
(e.g. hands-free mobile phone)


IrDa
(e.g. between mobile phone & Palm)

Mainly used for data-transfert between devices

A Multi-disciplinary approach

Wireless connections in-house

WiFi
(e.g. for LapTop in hotels, at home,…)

WiFi
(e.g. between PC's in offices)

Mainly used for wireless connection to private fixed access point

A Multi-disciplinary approach

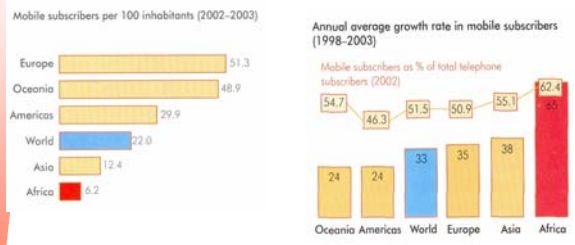
Wireless connections outdoor

WiFi
(e.g. Public Internet Access)

Mainly used for wireless connection to public fixed access point

A Multi-disciplinary approach

Wireless technologies turns out to the most efficient way of "connecting" developing countries



Mobile usage is still low in Africa but fastest growing

A Multi-disciplinary approach

Examples of applications of mobile & wireless and of internet applications

Mtoni/Zanzibar
(APC's "Community Wireless Connectivity" project : using "cantennas" to connect to a community base station

A Multi-disciplinary approach

Etc...
?

Internet Access will become a "**utility**" in the developed world with large impact on economic and societal life

But in developing countries ICT is to be seen as an "**enabler**" towards economic and societal development

Agenda

1. BREAD Introduction
2. Why Multi-disciplinary approach is needed
3. BREAD Roadmap planning & methodology
4. Preliminary Gap Analysis & Technical Roadmaps
5. Multi-Disciplinary analysis
6. Conclusions

BroadBand Roadmap: planning

- State of the art
  - March 2004 (1st version)
  - June 2005 (second issue, including detailed reports)
- Roadmap definition:
  - Technology roadmap -> BREAD + FP6-projects + other sources
  - High level « visionary » roadmap -> **BroadBand ThinkTank** Group
- BroadBand Think Tank:
  - Meeting June '05 with selected participants
  - Broad coverage of BB-areas
  - Refined output: visionary document : fall '05
  - Update Spring '06

Contact: Jean - Charles Point" <pointjc@jcp-consult.com>

Roadmap breakdown

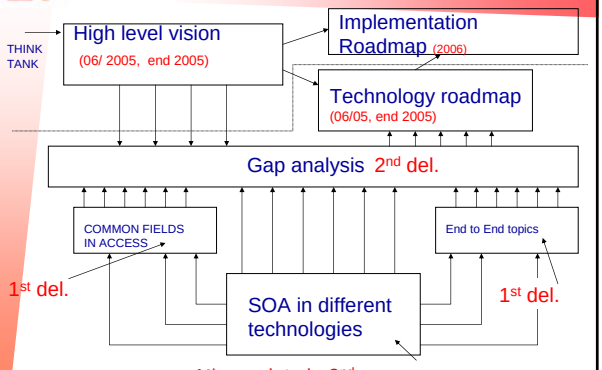
Roadmap content divided in 4 phases:

- Baseline analysis ("Where are we?"):
  - State of the Art (SOA): current technologies R&D, activities and standards
  - Current trends, users future goals and challenges
- Visioning ("where do we want to go?")
  - Desired outcome assessed through scenarios building and cases studies
- Gap analysis ("what are we missing?")
  - Comparison between the vision and the baseline, identification of missing technologies, barriers, etc.
  - Production of a set of research actions with timing and dependencies
- Implementation
  - Framework to operationalise the R&D actions defined

BREAD approach to roadmap

- Mixed bottom-up / top-down approach:
  - Technologies SOA analysis
  - Technical requirements and gap analysis
  - High level vision and derivation of gap analysis
- Multi-disciplinary approach required (technology, socio-economic, standardisation,…)
- Multi-player involvement (user, content provider, manufacturer, operator, marketing, management, ….)

Methodology and status

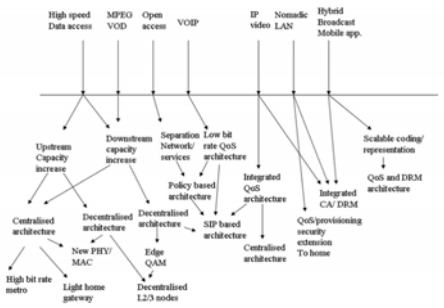


Roadmap : Current contacts with projects

- Broadband acces (DSL/ FTTx): MUSE
- Cable: ECCA, Eurocable Labs
- Satellite: SATNEX
- QoS / video: MEDIANET, DANAE, EuQoS
- Home Network: MEDIANET
- Backbone : ePhoton/ONe, NOBEL
- PLC: OPERA
- Fixed wireless: BROADWAN, WIBRACE(*)
- DVB-T/H: ATHENA, INSTINCT

(*) : WIBRACE is an international forum on wireless initiated by BROADWAN.

Cable roadmap example



Agenda

1. BREAD Introduction
2. Why Multi-disciplinary approach is needed
3. BREAD Roadmap planning & methodology
4. Preliminary Gap Analysis & Technical Roadmaps
5. Multi-Disciplinary analysis
6. Conclusions

Multi-Disciplinary analysis

- Development of the techno-economic model
- Development of a database on key national contacts on broadband
- Drafting the « European Broadband Vision »
- Completion of country studies (EU25 + interesting outside)
- Drafting of «lessons of country studies »
- Drafting of «Applications and User Needs » with discussion on broadband user segments and « service packages »

Multi-Disciplinary analysis

Some observations from country studies

- Broadband is a rapidly moving target; “snapshot” cases are not particularly useful for policy conclusions.
  - e.g. the Finland case: BB connections doubled in 2003 and grew from 500,000 to 760,000 in 2004 (from 21 % households to 30%). Prices dropped 22-40 % during the year.
  - e.g. some digital divide policies may become outdated before they are implemented
- A detailed analysis of developments in a country require in-depth work.
  - Concepts such as “unbundling” mean different things in different countries (“unbundling” was a critical success factor in Korea).
- Broadband market is organised around grabbing customers in an environment where telecoms are going through a major structural change.
  - Profitability of broadband service provision is still an open issue. VoIP might kill infrastructure investments.
- Peer-to-peer and games are key apps for BB

Multi-Disciplinary analysis

Factors influencing broadband development

- Country configuration
  - •GDP per capita
  - •population density (Canada vs Belgium)
  - •demography of a country
  - •climate
  - •cultural characteristics
    - open to foreign influences (Belgium, Netherlands),
    - embracing new technologies (South Korea, Japan)
    - not much weight on hierarchy (Iceland, Denmark) -> higher take-up
  - •knowledge of the English language

-> highest take-up:
rich country with fairly equally income distribution, high population density where a relatively young population is concentrated in urban areas rather than suburbs, bad weather and widespread knowledge of English – …….

Multi-Disciplinary analysis

Factors influencing broadband development

- Legacy situation
  - extension & configuration of telephone network -> roll out DSL
  - existence of a cable network
  - number of existing computers per capita
- Competition
  - tendency to lower the price
  - improves marketing

Multi-Disciplinary analysis

Factors influencing broadband development

- Public policy

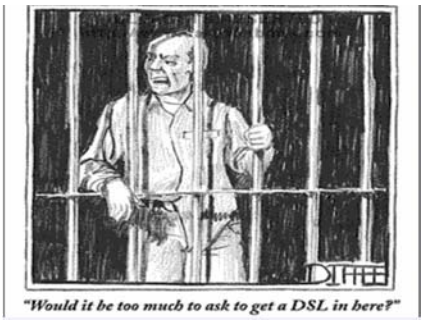
	Facilitation	Regulation	Intervention
		Demand	
Lower prices	Market transparency	Competition: prices	Tax breaks
Increase attractiveness		Competition: marketing, new services Consumer protection	e-gov, e-health… ICT training
		Supply	
Foster investment	Websites indicating potential demand	Unbundling	Subsidies

- Inhibitors
  - intellectual property
  - security

BB is used for downloading security patches that are needed because the connection is broadband

BREAD
BROADBAND FOR ALL

Impact of BB



"Would it be too much to ask to get a DSL in here?"