



*The 61st IEEE  
Vehicular Technology Conference*

**Final Program**



30 May - 1 June 2005

Clarion Hotel

**Stockholm, Sweden**

## Welcome from the General Chair



On behalf of the VTC2005-Spring Conference Committee, I would like to welcome you to this 61st VTC. This year, VTC returns to Stockholm, which hosted the first European conference in 1994. Stockholm is the wireless centre of the world, with the Kista suburb just to the north home to the 'Mobile Valley' – the Scandinavian equivalent of Silicon Valley. The area has more than 400 IT companies, ensuring the conference strong local support and innovation.

These are exciting times for the mobile industry. 3G is coming of age, with large commercial WCDMA networks in Europe and Japan, and cdma2000 deployments in North America and South Korea. Growth is faster than it was for GSM at a similar stage in its

development, which bodes well for its future. That future will also depend on the technologies showcased in the 660 papers we have for you at the conference.

Technology aside, we hope that you will find some time to explore some of the rest of what Stockholm, and Sweden, has to offer. The Conference reception will be held in the City Hall, famous as the venue for Nobel Prize Banquet. The Conference venue is on Södermalm, one of the city's islands, which is filled with shops and restaurants. Between the City Hall and the Conference venue is the Gamla Stan (The Old Town), with its narrow cobbled streets and picturesque buildings.

It is with great pleasure that I extend a warm welcome to you all.

Jan Uddenfeldt, *General Chairman*  
VTC2004-Spring

## Welcome from the TPC Co-Chairs

Welcome to VTC2005-Spring!

There are big changes ahead for entire the mobile communication sector as we stand at the cross-road before making our leap in the Beyond-3G era. VTC 2005 spring is indeed the right place to discuss the new technologies and architectures that are forming at this very moment. Although the conference focuses on mobile systems, wireless solutions that are entering other areas of our life can no longer be ignored. Wireless laptops and PDAs are freeing people to access information at their convenience and are gradually taking a larger and large bite out of the local access market. More and more wireless standards and systems appear on the scene – and they won't go away – creating a diverse, highly heterogeneous "network of networks". The global wireless world faces two key challenges: efficient and scalable management of increasingly diverse network components, and increasingly capable air interfaces to meet the demands of new services at a cost consumers are going to be willing to pay.

Many of these challenges are addressed within the over 650 papers which will be presented in

Stockholm. An entire track is devoted to Systems and Architectures beyond 3G as well as a panel session. As usual, the Transmission Technology and Wireless Access track proved particularly popular. Novel solutions for wireless networks is a theme of the Mobile Networks sessions whereas the large interest in innovative antenna solutions is reflected in the large number of papers in the Antennas & propagation track. Mobile services and Satellite application do also have their place in the program. Transportation topics have not been ignored, with guest speakers from industry.

VTC2005-Spring attracted over 1600 submissions, making it one of the most popular VTCs of all times. Reviewing and fairly assessing these papers was a considerable task, and was only possible with the efforts of a number of dedicated volunteers. Our sincere thanks go to all Vice-Chairs, TPC members, and reviewers, in particular Vice-Chairs Prof Andreas Molisch (Antennas and Propagation), Prof Kristina Höök (Mobile Applications and Services), Prof Gerald Q. Maguire (Mobile Networks), Prof Giovanni Giambene (Satellite

Networks and Services), Dr Norbert Niebert (System Architecture for Beyond 3G), Prof Anders Ahlen (Transmission Technology), Dr James M. Irvine (Transportation), and Dr. Stefan Parkvall (Wireless Access). All the time they spent and the care they have taken ensure a good quality programme for the conference. Dr Javier Gozalvez Sempere has done an excellent job in preparing an invited speaker programme to complement the technical sessions, and last but not least we must thank Dr Jan Uddenfeldt, Senior Vice President, LM Ericsson, for his help and guidance as General Chair.

Others without whom we could not have delivered the programme you now have in your hands are Lynn Guarente, Production Editor and Laura Hyslop, Senior Program Coordinator, from IEEE Conference and Custom Publishing, who were responsible for the proceedings, and

TPC Secretary Alisdair McDiarmid, who worked hard in the background ensuring problems were solved quickly and effectively.

We hope you have a very enjoyable conference, and manage to make time to see some of the delights Stockholm has to offer.



Jens Zander & Ben Slimane, *TPC Co-Chairs*  
VTC2005-Spring

## Welcome from the VTS President



On behalf of the IEEE Vehicular Technology Society, it is my pleasure to welcome you to the 61st Vehicular Technology Conference (VTC) in Stockholm, Sweden. Stockholm is one of Europe's leading economic regions with its high concentration of information technology, health care industry and research. It is a city filled with many items of interest for visitors including the mounted changing of the royal guards at the Royal Palace. The Vehicular Technology Society objectives are scientific, literary, and educational in nature. Its field of interests includes mobile radio, motor vehicles, land transportation and wireless communications.

On behalf of the IEEE Vehicular Technology Society, it is my pleasure to welcome you to the 61st Vehicular Technology Conference (VTC) in Stockholm, Sweden. Stockholm is one of Europe's leading economic regions with its high concentration of information

A large technical conference requires an organizational structure, which comprises mostly volunteers, who are Vehicular Technology Society members. Our success is dependent on the quality of work of these volunteers, who have given greatly of their time to making this event a success. I wish to convey a special thank you to the General Chair, Jan Uddenfeldt, for his leadership and implementation of an outstanding technical program; to the members of the VTS Conference Committee; and to S. Ben Slimane and Jens Zander, the Technical Program Committee Co-chairs.

Finally, I wish to thank all of the delegates attending this conference, and wish you a most enjoyable stay in Stockholm.

Dennis Bodson, *President*  
IEEE Vehicular Technology Society

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Magnus Jansson	Andreas Köpke	Tao Lin	Mecklenbräuker	Johan Nyström	Lorenzo Piazza
Kalle Jegers	Hend Koubaa	Yuan-Pei Lin	Jonas Medbo	Hideki Ochiai	José Picheral
Michael Jensen	Istvan Kovacs	Susan Lincke-Salecker	Telemaco Melia	Toshikane Oda	Steven Pietrobon
Yeon Kyoong Jeong	Robin Kravets	Lars Lindbom	Marco Mellia	Geir Oein	Cai Jue Ping
Ola Jetlund	Bhaskar	Juergen Lindner	Tommaso Melodia	Claude Oestges	Claude Ping
Sanjay Jha	Krishnamachari	Erik Lindskog	Umberto Mengali	Hüseyin Oezcelik	Simon Plass
Jinjing Jiang	Joonas Krogerus	Jianhua Liu	Seble Mengesha	Yoram Ofek	Fanny Platbrood
Ming Jiang	Witold Krzymien	Michela Meo	Michela Meo	Yasutaka Ogawa	Volker Pohl
Tao Jiang	Adlen Ksentini	Ping Liu	Michael Meyer	Seong-Jun Oh	Adam Pollard
Nihar Jindal	Bon-Jun Ku	Yong Liu	Pietro Michiardi	Ser Wah Oh	Carlos Pomalaza-Ráez
Michael Joham	Martin Kubisch	Youjian Liu	Bartosz Mielczarek	Kazuhiisa Ohbuchi	Dimitrie Popescu
Mathias Johansson	Hiroshi Kubo	Zhiqiang Liu	Joaquin Miguez	Takeo Ohgane	Otilia Popescu
Niklas Johansson	Hans-Peter	Andrew Logothetis	Gyorgy Miklos	Takashi Ohira	Larissa Popova
George Jongren	Kuchenbecker	Tat Lok	Nikola Milanovic	Shuichi Ohno	Francesco Potorti
Christof Jonietz	Kiran Kuchi	Paco López Dekker	Gunnar Mildh	Masataka Ohtsuka	Oliver Praetor
Andreas Jonsson	Eisuke Kudo	Gustavo Lopez-	Lawrence Milstein	Tomoaki Ohtsuki	A.B. Premkumar
Katrin Jonsson	Eisuke Kudoh	Risueño	Hlaing Minn	Konstantinos	Giuseppe Primolevo
Tomas Jönsson	Victor Kueh	Yves Lostanlen	Daniele Miorandi	Oikonomou	Mikael Prytz
Eduard Jorswieck	Volker Kuehn	Matthias Lott	Allen Miu	Ikuo Oka	Ioannis Psaromiligkos
Anthony Joseph	Thomas Kuerner	Hanqing Lou	Makoto Miyake	Hiraku Okada	Markku Pukkila
Leandro Juan-Llacer	Christiane Kuhnert	David Love	Hiroaki Miyashita	Takatashi Okagawa	Alfredo Pulvirenti
Oskar Juhlén	Sunil Kulkarni	Guangyue Lu	Yoshikuni Miyata	Eiji Okamoto	Jiangyuan Qian
Jangeun Jun	Birgit Kull	I-Tai Lu	Noriaki Miyazaki	Birgitta Olin	Yang Qin
Sung Yoon Jung	Vithaladevuni Pavan	Miaomiao Lu	Kei Mizutani	Carl Magnus Olsson	Robert Qiu
Markku Juntti	Kumar	Reiner Ludwig	Ronghong Mo	Jonas Olsson	Daive Quaglia
Yrjö Kaipainen	Jürgen Kunisch	Michele Luglio	Shaomin Mo	Peter Omiyi	Atta Qudus
Thomas Kaiser	Kalyan Kuppuswamy	Maria Luisa Merani	Wei Mo	Ian Oppermann	Olav Queseth
Kimmo Kalliola	Akio Kuramoto	Andreas Lund	Amin Mobasher	John Orriss	Christher Qvarfordt
Dimitris Kalofonos	Thomas Kürner	Magnus Lundevall	Marc Moeneclae	Pal Orten	Alberto Rabbachin
Georgios Kambourakis	Jonas Kuschel	Lars Lundheim	Abbas Mohammed	Evgeny Osipov	Andras Racz
Yukihiro Kamiya	Gideon Kutz	Erik Geijer Lundin	Mihael Mohoric	Afif Osseiran	Bozidar Radunovic
Markus Kampmann	Markku Kuusela	Henrik Lundqvist	Antonella Molinaro	Mattias Östergren	Susanto Rahardja
Athanasios Kanatas	Niklas Kviselius	Johan Lundsjö	Andreas Molisch	Roald Otnes	Riccardo Raheli
Jaewon Kang	Byung-Jae Kwak	Jie Luo	Niels Möller	Akira Otsuka	Nandana Rajatheva
Ming Kang	Hwanjoon Kwon	Xiliang Luo	Karl Molnar	Philippe Owezarski	Arjunan Rajeswaran
Sugbong Kang	Soonyil Kwon	Erich Lutz	Giacomo Morabito	Berna Özbek	Thierry Rakotoarivelo
Balakrishnan Kannan	Taeso Kwon	Lin Ma	Yasser Morgan	Huseyin Özcelik	R. Ramesh
Kimmo Kansanen	Kyandoghere	Qian Ma	Hisashi Morishita	Matthias Paetzold	Fernando Ramirez
Ateet Kapur	Kyamakya	Xiaoli Ma	David Moro	Elena Pagani	Valery Ramon
Panagiotis Karamalis	Persefoni Kyritsi	Yao Ma	Kevin Morris	Patrice Pajusco	Vittorio Rampa
Ebrahim Karami	Paula Laface	Amine Maaref	Matthew Morris	Arindam Pal	Raghu Rao
Stelios Karapantazis	Julien Laganier	Ritesh Madan	David Mottier	Ravi Palanki	Ramesh Rao
Holger Karl	Jenn-Kaie Lain	Koji Maeda	Mahdi Mozaffaripour	Sergio Palazzo	Lars Rasmussen

Sanchai Rattananon	Sven Semmelrodt	Akinori Taira	Christian Vogt	Youzhi Xu
Ronald Raulefs	Ersin Sengul	Masato Tajima	Thiemo Voigt	Khaled Yacine
Terhi Rautiainen	Dongwook Seo	Jun-ichi Takada	Demosthenes	Hiroyoshi Yamada
Wolfgang Rave	Semih Serbetli	Satoshi Takahashi	Vouyoukas	Satoshi Yamaguchi
Gianluca Reali	Erchin Serpedin	Kazuaki Takeda	Mehmet Vuran	Manabu Yamamoto
Mark Reed	Danilo Severina	Kenichi Takizawa	Udo Wachsmann	Hongbo Yan
Luca Reggiani	Shahram	Sheu Sheu Tan	Kouji Wada	Xin Yan
Hubert Rehborn	Shahbazpanahi	Mario Tanda	Tadashi Wadayama	Lie-Liang Yang
Juan Reig	Asri Shaheem	Tomoya Tandai	Jean-Frédéric Wagen	Shun-Ren Yang
Martin Reisslein	Zach Shelby	Jin Tang	Stefan Wager	Evsen Yanmaz
Deniz Rende	Zukang Shen	Yalcin Tanik	Christian Waldschmidt	Kazuto Yano
Deniz Rende	Scott Sherwood	Makoto Taromaru	Jorma Wall	Yasuhiro Yano
José Rey	Jun Shi	Chintha Tellambura	John Wallace	Yan Yao
Daryl Reynolds	Tomoharu Shibuya	Stephan ten Brink	Jon Wallace	Yu-Dong Yao
Andreas Richter	Hyundong Shin	Raffaello Tesi	Lei Wan	Kai Yen
Núria Riera Díaz	Oh-Soon Shin	Andreas Teuber	Cheng-Xiang Wang	Aylin Yener
Markus Ringström	Hiroki Shoki	Sharlene Thiagarajah	Elva Wang	Chi-Hsiao Yih
Matti Rintamäki	Mohamed Siala	Reiner Thomae	Hai Wang	Ali Oezguer Yilmaz
Bjarne Rislow	Alain Sibille	Steven Thompson	Haiming Wang	Xuefeng Yin
Tapani Ristaniemi	Biplab Sikdar	M. Tian	Hanho Wang	Jari Ylioinas
Hartmut Ritter	Adão Silva	Qingjiang Tian	Kang Wang	Juha Ylitalo
Roshano Roberts	Oswaldo Simeone	See Ho Ting	Renqiu Wang	Jukka Ylitalo
Juergen Roessler	Frederik Simoens	Ilenia Tinnirello	Rensheng Wang	Abbas Yongacoglu
Hendrik Rogier	Arne Simonsson	Martin Toeltsch	Wei Wang	Young Yoon
Bijan Rohani	Wipawee	Kin-ichiroh Tokiwa	Xiaodong Wang	Hitoshi Yoshino
Hermann Rohling	Siriwongpairat	Antti Tolli	Y.-P. Eric Wang	Oyvind Ytrehus
Christian Rohner	Kriangsak	Shigeru Tomisato	Yi Wang	Gangyoul Yu
Bjorn Rommen	Sivasondhivat	Andrea Tonello	Zheng Wang	Kai Yu
Luca Ronga	Ming Fei Siyau	Ralf Tönjes	Zhengdao Wang	Jinhong Yuan
Eirik Rosnes	Frank Sjöberg	David Törnqvist	Zhisong Wang	Takeshi Yuasa
Michele Rossi	Henrik Sjoland	Johan Torsner	Ian Wassell	Chua Hai Yeow
Emilia Rosti	Nikolaos Skentos	Joe Touch	Xavier Wautelet	Yugene
Sebastien Roy	Per Skillermark	Stavros Toumpis	Jos Weber	Eduardo Zacarias
Subhadeep Roy	Mikael Skoglund	Vladimir Trajkovic	Ralf Weber	Ali Zadeh
Marco Ruffini	Trond Skogstad	Van Phuong Tran	Tobias Weber	Hossein Zamiri-
Giuseppe Ruggeri	S. Ben Slimane	Uwe Trautwein	Martin Weckerle	Jafarian
Silvia Ruiz	Besma Smida	Shawn Tsai	JungWook Wee	Jens Zander
Robert Rumeau	Peter Smith	Shawn Tsai	Joachim Wehinger	Alberto Zanella
Tommi Saarinen	Yasushi Sogabe	Charalampos	Norbert Wehn	Zhuquan Zang
Harri Saamisaaari	Arun Somani	Tsimenidis	Klaus Wehrle	Kambiz Zangi
Joachim Sachs	Jong Wuk Son	Jan Tubbx	Anne Wei	Gergely Zaruba
Mohan Sadashivaiah	Aijun Song	Fredrik Tufvesson	Hua Wei	Santiago Zazo
Mats Sagfors	Lingyang Song	Djordje Tujkovic	Werner	Thomas Zemen
Rui Sakai	Young Joon Song	Teresa Tung	Weichselberger	Hans-Juergen
Luca Salgarelli	Kwang Soon	Aimo Tuoriniemi	Robert Weigel	Zepernick
Oriol Sallent	Anthony Soong	Ufuk Tureli	Hans Weinrichter	Frank Zeppenfeldt
Jari Salo	Matthew Sorell	Shigeru Uchida	Martin Weisenhorn	Per Zetterberg
Ilkka Salonen	Younes Soulimi	Bernard Uguen	Stephan Weiss	Bijun Zhang
Stefano Salsano	Michael Souryal	Elisabeth Uhlemann	Matt Welsh	Fan Zhang
Elio Salvadori	Ethem Sozer	Peter Unger	Yean-Fu Wen	Honggang Zhang
David Samuelsson	Umberto Spagnolini	Shintaro Uno	Mattias Wennstrom	Jian Zhang
Magnus Sandell	Erik Sparrman	Martin Unwin	Annika Wennström	Jin Zhang
Luca Sanguinetti	Candida Spillard	Alessandro Urpi	Philipp Wertz	Jinfan Zhang
Hiroyasu Sano	Piero Spinnato	Wolfgang Utschick	Matts-Ola Wessman	Jinyun Zhang
Claudio Sansone	Maurizio Spirito	Murat Uysal	Roger Whitaker	Qi Zhang
Ignacio Santamaria	Andreas Springer	Francesco Vacirca	Roger Whitaker	Xi Zhang
Paolo Santi	S. H. Srinivasan	Anders Vahlin	Charlotte Wiberg	Yongwei Zhang
Fortunato Santucci	Dirk Staehle	Perti Vainikainen	Mikael Wiberg	Yuan Zhang
Samir Saoudi	James Steele	Jose Valenzuela	Niclas Wiberg	Zhang Zhang
Shigenobu Sasaki	Andrej Stefanov	Mikko Valkama	Anggoro Widiawan	Qiang Zhao
Katsuyoshi Sato	Matthias Stege	Kimmo Valkealahti	Henning Wiemann	Xiongwen Zhao
Alpaslan Savas	Martin Steinbauer	Jaap van de Beek	Henning Wiemann	Chen Zheng
Alpaslan Savas	Illya Stepanov	Emmanuel Van Lil	Werner Wiesbeck	Dong Zheng
Masahiro Sawada	Alex Stephenne	Frederik	Ami Wiesel	Fu-Chun Zheng
Sandro Scalise	Mikael Sternad	Vanhaverbeke	Jeffrey Wieselthier	Wei Zhong
Jacob Scheim	Lucian-vasile Stoica	Danielle	Andreas Wilde	Jun Zhou
Andreas Schieder	Ivan Stojmenovic	Vanhoenacker	Tricia Willink	Shengli Zhou
Morten Schläger	Andre Stranne	Johanna Vartiainen	Florian Winkler	Yuefeng Zhou
Stefan Schmid	Suresh Subramaniam	Francesca Vatta	Lars Wischhof	Zhe Guang Zhou
Ralf Schmitz	Takatoshi Sugiyama	Alkinoos Vayanos	Klaus Witrisal	Jinkang Zhu
Christian Schneider	Sathiasaelan	Maria-Angeles	Armin Wittneben	Xu Zhu
Clemens Schnurr	Sundaralingam	Vazquez Castro	Hagen Woesner	Yuan Zhu
Hans Schotten	Carl-Erik Sundberg	Mikko Vehkaperä	Michael Wolf	Dirk Zimmermann
Frank Schreckenbach	Kai-Erik Sunell	Hector Velayos	Kai Kit Wong	Wolfgang Zirwas
Martin Schubert	Nak Woon Sung	Fernando Velez	Krit Wongrujira	Michele Zorzi
Laurent Schumacher	Wonjin Sung	Jo Verhaevert	Jie Wu	Zoltán Zsóka
Curt Schurgers	Pasi Suvikunna	Nenad Veselinovic	Tao Wu	
Ulrich Schuster	Takahiro Suzuki	Fausto Vieira	Yik-Chung Wu	
Simon Schütz	Fredrik Svahn	Ingo Viering	Yunnan Wu	
Ludwig Schwoerer	Thomas Svantesson	Gianluca Villa	Pengfei Xia	
Raffaello Secchi	Patrick Svedman	Juha Villanen	Pei Xiao	
Gonzalo Seco	Tommy Svensson	Alessandro Villani	Yan Xin	
Alexander Seeger	Lee Swindlehurst	Massimo Villari	Ma Xinxin	
Bernard Segal	Jan Sykora	Kathie Virga	Jinghao Xu	
Selim Seker	Leszek Szczecinski	Andrea Vitaletti	Kaixin Xu	
Tomohiro Seki	Ali Taha	Fabian Vogelbruch	Wen Xu	

# VTC2005-Spring Technical Sessions

## Monday, 30 May 2005

Monday, May 30, 10.20 – 12.00 B12

### 1A: System Architectures for B3G: Architecture and General Concepts

- 1. A Framework for Future Radio Access**  
Erik Dahlman, Pål Frenger, Jiann-Ching Guey, Göran Klang, Reiner Ludwig, Ericsson Research, Ericsson AB; Michael Meyer, Ericsson Research, Ericsson GmbH
- 2. Deployment Strategies of Access Points for Outdoor Wireless Local Area Networks**  
Jane-Hwa Huang, Li-Chun Wang, Chung-Ju Chang, National Chiao Tung University
- 3. Context Middleware for Adaptive Services in Heterogeneous Wireless Networks**  
Carl-Gustaf Jansson, Martin Jonsson, KTH; Theo Kanter, Ericsson; Fredrik Kilander, Gerald Maguire, Li Wei, KTH
- 4. A Concept for Public Access to Privately Operated Cooperating Local Access Points**  
Miguel Berg, Jan Markendahl, Royal Institute of Technology, Stockholm
- 5. On Evaluating Beyond 3G Radio Access Networks: Architectures, Approaches and Tools**  
Jordi Perez-Romero, Oriol Sallent, Ramon Agusti, Universitat Politècnica de Catalunya (UPC)
- 6. Ambient Networks: a Framework for Networking Beyond 3G**  
Norbert Niebert, Ericsson GmbH; Mikael Prytz, Ericsson Research; Andreas Schieder, Ericsson Deutschland GmbH; Nick Papadoglou, Vodafone Group Service; Frank Pittmann, Siemens; Lars Eggert, NEC Europe Ltd. Network Laboratories

Monday, May 30, 10.20 – 12.00 C3

### 1B: Channel Estimation and Equalization 1

- 1. Estimation of the Channel Impulse Response Length and the Noise Variance for OFDM Systems**  
Van Duc Nguyen, Agder University College; Hans-Peter Kuchenbecker, University of Hannover, Institut fuer Allgemeine Nachrichtentechnik; Matthias Paetzold, Agder University College
- 2. Joint ML Channel Estimation and Data Detection for STBC via Novel Sphere Decoding Algorithms**  
Weiyu Xu, Tsinghua University
- 3. A Faster ML Sphere Decoder with Competing Branches**  
Weiyu Xu, Tsinghua University
- 4. Impact of Imperfect Channel Estimation on OFDM/TDM Performance**  
Shinsuke Takaoka, Haris Gacanin, Fumiyuki Adachi, University of Tohoku
- 5. Pilot-assisted channel estimation based on MMSE criterion for DS-CDMA with frequency-domain equalization**  
Kazuaki Takeda, Fumiyuki Adachi, University of Tohoku
- 6. Multi-antenna Pre-Equalization for Single Carrier/TDD System**  
Fumiyuki Adachi, Kazuaki Takeda, Hiromichi Tomeba, University of Tohoku

Monday, May 30, 10.20 – 12.00 C4

### 1C: Multi-user Detection 1

- 1. An Improved Successive Cancellation Multiuser Detector for Narrowband Signals**  
Siddharth Naik, Kungl Tekniska Högskolan, Sweden; Arash Toyserkani, Chalmers Technical University, Sweden; S. Ben Slimane, Royal Institute of Technology, Stockholm

### 2. Optimal Transmitter and Jamming Strategies in Gaussian MIMO Channels

Eduard Jorswieck, Fraunhofer Institut für Telecommunications, Heinrich-Hertz-Institut; Holger Boche, Heinrich-Hertz-Institut für Nachrichtentechnik Berlin GmbH; Weckerle Martin, Siemens

### 3. Genetic Algorithm based Frequency Domain Multiuser Detection for MC-CDMA Systems

Zexian Li, Markku Juntti, Matti Latva-aho, University of Oulu

### 4. Polynomial Expansion Based Fast Iterative Multiuser Detection Algorithm For Synchronous DS-CDMA Systems

Jinfan Zhang, Yongle Wu, Jing Gu, Shidong Zhou, Wang Jing, Tsinghua University

### 5. A Unifying Approach to Multiuser Receiver Design under QoS Constraints

Holger Boche, Heinrich-Hertz-Institut für Nachrichtentechnik Berlin GmbH; Martin Schubert, Fraunhofer German-Sino Lab for Mobile Communications MCI; Slawomir Stanczak, Fraunhofer German-Sino Lab for Mobile Comm.

### 6. Kalman-based blind multiuser detection with multiple receive antennas for the uplink of asynchronous DS-CDMA systems

Ferry Wathan, Reza Hoshyar, Rahim Tafazolli, University of Surrey

Monday, May 30, 10.20 – 12.00 C5

### 1D: MIMO Systems 1

- 1. A Robust Adaptive MIMO Eigenmode Transmission System with ZF Beamspace Interference Canceller**  
See Ho Ting, Kei Sakaguchi, Kiyomichi Araki, Tokyo Institute of Technology
- 2. Codeword Scrambling for Multi-Stream Transmission in MIMO Channel**  
Byoung Hoon Kim, Qualcomm
- 3. Performance of MIMO Systems with Combined Polarization Multiplexing and Transmit Diversity**  
Yu Deng, Alister Burr, George White, University of York
- 4. Performance of MIMO-FQPSK Receiver with MLSE**  
Sangheon Kim, Yonsei University; Sunghun Jung, Samsung Thales Company, Ltd.; Sangwoo Lee, Chungyong Lee, Yonsei University
- 5. Turbo-MIMO Transceiver for Frequency-Selective Wireless Channels**  
Tharmalingam Ratnarajah, Queen's University of Belfast
- 6. A simplified iterative processing of soft MIMO detector and turbo decoder in a spatially multiplexed system**  
Kenji Sumii, Toshihiko Nishimura, Takeo Ohgane, Yasutaka Ogawa, Hokkaido University

Monday, May 30, 10.20 – 12.00 C6

### 1E: Ad Hoc Network Routing

- 1. A Scalable Routing Protocol for Ad Hoc Networks.**  
Huaizhi Li, Mukesh Singhal, University of Kentucky
- 2. Unidirectional ad hoc routing with efficient route reconstruction using relay control of route requests**  
Hiroaki Morino, Shibaura Institute of Technology; Takumi Miyoshi, Sibaura Institute of Technology; Masakatsu Ogawa, Sophia University

3. **Cooperative Routing Strategies in Ad hoc Networks**  
Fang Xie, Tian Hui Hui, Beijing University of Posts and Telecommunications
4. **A Look-ahead Unicast Routing Algorithm in MANETs**  
Yang Qin, Nanyang Technological University
5. **A Multicast Routing Algorithm Using Movement Prediction for Mobile Ad Hoc Networks**  
Huei-Wen Ferng, Hsin-Yu Chen, National Taiwan University of Science and Technology; Jeng-Ji Huang, Lunghwa University of Science and Technology; Wen-Yan Kao, National Taiwan University of Science and Technology
6. **A Novel Routing Paradigm for Mobile Ad hoc Networks-Multihop Hello Guided Routing (MHGR)**  
Kenichi Mase, Shingo Kameyama, Sota Yoshida, Masato Goto, Niigata University

*Monday, May 30, 10.20 – 12.00 C7*

### **1F: Multi-carrier CDMA**

1. **Error Probabilities for Radio Transmissions of MC-CDMA based W-LANs**  
Georgios Orfanos, RWTH Aachen University; Joerg Habetha, Philip Research; Willi Butsch, Aachen University
2. **A Non-Linear Precoding Technique for Downlink MC-CDMA**  
Ivan Cosovic, Stephan Sand, Ronald Raulefs, German Aerospace Center (DLR)
3. **MMSE Pre-Filtering Techniques for MC-CDMA Downlink Transmissions**  
Luca Sanguinetti, Michele Morelli, University of Pisa; Ivan Cosovic, German Aerospace Center (DLR)
4. **On the Peak-to-Average Power Ratio of Pre-Equalized Multi-Carrier Spread-Spectrum Transmissions**  
Ivan Cosovic, German Aerospace Center (DLR); Luca Sanguinetti, University of Pisa
5. **Multi-Carrier DS-CDMA Systems with Recursive Quaternary Quasi-Orthogonal Sequences**  
Shoulie Xie, Zhenghui Gu, Susanto Rahardja, Institute for Infocomm Research
6. **Performance Comparison of OFDM-FH and MC-CDM in Single- and Multi-cell Environments**  
Shigehiko Tsumura, Rihito Mino, Osaka University; Yoshitaka Hara, Mitsubishi Electric; Shinsuke Hara, Osaka University

*Monday, May 30, 10.20 – 12.00 C8*

### **1G: UWB Wireless Access**

1. **A Medium Access Control Protocol For Ultra-Wideband Wireless Ad Hoc Networks**  
Peng-Yong Kong, Mangalam Ramakrishnan Shajan, Institute for Infocomm Research
2. **Time-Hopping Sequences Construction with Few-Hit Zone for Quasi-Synchronous THSS-UWB systems**  
Zhenyu Zhang, Fanxin Zeng, Chongqing Communication Institute; Lijia Ge, Chongqing University
3. **Theoretical Bounds on Time-Hopping Sequences for Ultra Wideband**  
Zhenyu Zhang, Fanxin Zeng, Chongqing Communication Institute; Lijia Ge, Chongqing University
4. **Modeling of Multiple Access Interference and SER Derivation for M-ary TH- PAM /PPM UWB Systems**  
Somasundaram Niranjanayam, University of Alberta; Nallanathan Arumugam, National University of Singapore; Balakrishnan Kannan, Institute for Infocomm Research

5. **A Reduced Complexity RAKE Receiver Design for UWB-IR Systems with Bi-Orthogonal Signalling**  
Eduardo Cano, University of Limerick
6. **Non-Coherent Code Acquisition for UWB Systems in Dense Multipath Fading Channels**  
Marco Villanti, University of Bologna; Matteo Sabattini, University of California, San Diego; Lawrence Milstein, UCSD; Gian Mario Maggio, STMicroelectronics

*Monday, May 30, 10.20 – 12.00 C9*

### **1H: Speech and Related Applications**

1. **AMR-Wideband: Enjoying Superior Voice Quality at Full Coverage and Competitive Capacity in GERAN Networks**  
Robert Muellner, Carsten Ball, Kolio Ivanov, Detlef Hartmann, Hubert Winkler, Siemens AG
2. **Adaptive Thresholds for AMR Codec Mode Selection**  
Tomas Lundberg, Peter de Bruin, Stefan Bruhn, Stefan Håkansson, Stephen Craig, Ericsson AB
3. **Error Tolerant MAC Extension for Speech Communications over 802.11 WLANs**  
Antonio Servetti, Politecnico di Torino; Juan Carlos De Martin, IEIIT-CNR
4. **VoIP Performance in HSDPAA Simulation Study**  
Bang Wang, National University of Singapore; Klaus Pedersen, Troels Kolding, Preben Mogensen, Nokia Networks
5. **Supporting Multimedia Traffic in 802.11e WLANs**  
Claudio Casetti, Carla-Fabiana Chiasserini, Luca Merello, Gabriella Olmo, Politecnico di Torino
6. **SIP Paging of Wireless LAN Hosts for VoIP**  
Behcet Sarikaya, University of Northern British Columbia; Timucin Ozugur, Alcatel

*Monday, May 30, 10.20 – 12.00 Upper Level*

### **1P: Mobile Applications Posters**

1. **An Optimized Adaptive Broadcast Scheme for Inter-vehicle Communication**  
Hamada Alshaer, Lip6; Eric Horlait, Universite Paris 6
2. **A Fault-Tolerant Approach for Protecting Mobile Agents against Blocking Attack**  
Min-Hua Shao, National Chiao Tung University; Jianying Zhou, Institute for Infocomm Research
3. **Lightweight Target Tracking Protocol Using Ad-hoc Sensor Network**  
Hua Yang, Biplab Sikdar, Rensselaer Polytechnic Institute
4. **IGMP Proxy for Multicast Services in Wireless Mobile Networks**  
Sun Mi Jun, Chunglae Cho, Nam-Hoon Park, ETRI
5. **Supporting Context-Aware Mobile Services Adaptation with Scalable Context Discovery Platform**  
Daqing Zhang, ChungYau Chin, Institute for Infocomm Research; Mohan Gurusamy, National University of Singapore
6. **MAC-Level Partial Checksum for H.264 Video Transmission over 802.11 Mobile Ad Hoc Wireless Networks**  
Enrico Masala, Mauro Bottero, Politecnico di Torino; Juan Carlos De Martin, IEIIT-CNR
7. **Efficient Block Size Based Polling Scheme for IEEE 802.11e Wireless LANs**  
IlGu Lee, Jung Bo Son, Sung-Rok Yoon, Sin-Chong Park, Information and Communications University
8. **Harnessing Location-Context for Content-based Services in Vehicular Systems**  
Vasudha R., Joo-Hwee Lim, Institute for Infocomm Research; Jean-Pierre Chevallet, IPAL; Daqing Zhang, Institute for Infocomm Research

**9. Internet Traffic Analysis and Optimization over a Live UMTS Network**

Carles Gomez, Marisa Catalan, David Viamonte, Technical University of Catalonia; Josep Paradells, Universidad Politecnica de Catalunya (UPC); Anna Calveras, Technical University of Catalonia

**10 Measured Performance of Real Time Traffic over IEEE 802.11b/g Infrastructured Networks**

Marco Diolaiti, Alessandro Bazzi, Gianni Pasolini, IEIIT-BO/CNR, University of Bologna

**11 Performance of Speech Services in WCDMA using Fixed-Beams and Transmit Diversity Systems**

Andrew Logothetis, Afif Osseiran, Ericsson Research

**12 Security Requirements for the Digital Marketplace**

Alisdair McDiarmid, James Irvine, University of Strathclyde

*Monday, May 30, 13.40 – 15.20 B1*

**2A: System Architectures for B3G: Network & Deployment Issues**

**1. Making Migration Easy: a key requirement for systems beyond 3G**

Philip Eardley, Louise Burness, BT Group; Nadeem Akhtar, University of Surrey; María Ángeles Callejo, Jorge Andres-Colas, Telefónica I+D

**2. Affordable Infrastructure for Deploying WiMAX Systems**

Vinoth Gunasekaran, Fotios C. Harmantzis, Stevens Institute of Technology

**3. Network Sharing - More than Making Wireless Communication Affordable**

Claes Beckman, University of Gavle; Gregory Smith, InterBell AB

**4. On Cost Efficiency in 3G and WLAN Systems for Broadband Services**

Klas Johansson, Royal Institute of Technology; Anders Furuskar, Ericsson AB

**5. Improving Fast Handovers for Mobile IPv6**

Rafael Vidal, Josep Paradells, Universidad Politecnica de Catalunya (UPC)

**6. Network Selection for One-to-Many Traffic In Mobile and Broadcasting Cooperating Networks**

Luan Huang, University of Surrey; Karann Chew, British Telecom; Rahim Tafazolli, University of Surrey

*Monday, May 30, 13.40 – 15.20 C3*

**2B: Channel Estimation and Equalization 2**

**1. UMTS FDD Frequency Domain Equalization Based on Slot Segmentation**

Yushan Li, Steve McLaughlin, David Cruickshank, University of Edinburgh

**2. Reduced Search Space Scheme for Detection of Spatial Division Multiplexing**

Heejung Yu, ETRI; Taehyun Jeon, Electronics and Telecommunications Research Institute; Sok-kyu Lee, ETRI

**3. Joint Channel Estimation and Phase Noise Suppression for OFDM Systems**

Jong-Ho Lee, Jun-Seok Yang, Seoul National University; YongWan Park, Yeungnam University; Seong-Cheol Kim, Seoul National University

**4. Iterative Channel Estimation for MC-CDMA**

Stephan Sand, German Aerospace Center; Ronald Raulefs, DLR; Gunther Auer, DoCoMo Euro-Labs

**5. Iterative B-spline Channel Estimation for Space-Time Block Coded Systems in Fast Flat Fading Channels**

Huiheng Mai, Yuri Zakharov, Alister Burr, University of York

**6. Performance Evaluation of Frequency Domain Equalization and Channel Estimation for Direct Sequence - Ultra Wideband (DS-UWB) System**

Hiroyuki Sato, Tomoaki Ohtsuki, Tokyo University of Science

*Monday, May 30, 13.40 – 15.20 C4*

**2C: Ultra Wide Band 1**

**1. Low complexity synchronization for noncoherent UWB receivers**

Cecilia Carbonelli, Umberto Mengali, University of Pisa

**2. Distributed Diversity in Ultrawide Bandwidth Wireless Sensor Networks**

Tony Q.S. Quek, MIT; Moe Win, Massachusetts Institute of Technology; Marco Chiani, University of Bologna

**3. Generalized Selection Combining with Log-Likelihood Ratio Threshold Test per Path for RAKE Reception in Ultra-Wideband Communications**

Xiaoli Chu, Ross D. Murch, Hongkong University of Science and Technology

**4. Performance of UWB-IR with Polarity Randomization and Interleaved Coding-Modulation on Multipath Fading Channels**

Michal Pietrzyk, Jos Weber, Delft University of Technology

**5. On the Use of Simulation-DFT Based Analysis for Spectral Estimation of TH-IR UWB Signals**

Robert Edwards, Loughborough University

**6. On Transmitted-Reference UWB Systems using Discrete-Time Weighted Autocorrelation**

Jac Romme, IMST; Klaus Witrisal, Graz University of Technology

*Monday, May 30, 13.40 – 15.20 C5*

**2D: MIMO Systems 2**

**1. A Novel Nonlinear Precoding Algorithm for the Downlink of Multiple Antenna Multi-User Systems**

Jia Liu, Witold Krzymien, University of Alberta / TRILabs

**2. Integrated Transceiver Arrays for Multiple Antenna Systems**

Lunal Khuon, Everest Huang, Charles Sodini, Gregory Wornell, Massachusetts Institute of Technology

**3. Novel Transmit Diversity Techniques for Broadcast Services in Cellular Networks**

Hyun Seok Oh, Sungsoo Kim, Sang Hyo Kim, Samsung Electronics Co., Ltd; Min Goo Kim, Samsung Electronics Co. Ltd.

**4. Asterism decoding for Turbo coded MIMO systems**

Phillip Conder, Tadeusz A. Wysocki, School of Electrical, Computer and Telecommunications Engineering, University of Wollongong, Northfi

**5. Optimization of Coded MIMO-Transmission with Antenna Selection**

Biljana Badic, Vienna University of Technology

**6. Approximate Closed-Form Expression for the Ergodic Capacity of MISO and SIMO Systems**

Jesus Perez, Jesus Ibañez, Luis Vielva, Ignacio Santamaria, University of Cantabria

*Monday, May 30, 13.40 – 15.20 C6*

**2E: Ad Hoc Networks 1**

**1. Group Communication using the OLSR Protocol**

Andreas Hafslund, UniK - University Graduate Center

2. **Enhanced ICMP Traceback with Cumulative Path**  
Vrizlynn Thing, Imperial College London; Henry C.J. Lee, Singapore Technologies Electronics; Morris Sloman, Imperial College London; Jianying Zhou, Institute for Infocomm Research
3. **GeoLANMAR: Geo Assisted Landmark Routing for Scalable, Group Motion Wireless Ad Hoc Networks**  
Florian De Rango, University of Calabria; Mario Gerla, Kelvin Biao Zhou, University of California at Los Angeles
4. **Roust Mobile Location Estimation Based on Signal Attenuations for Cellular Communication Systems**  
Ding-Bing Lin, Rong-Terng Juang, Hsin-Piao Lin, National Taipei University of Technology
5. **Group Location Update Scheme and Performance Analysis for Location Management in Mobile Network**  
Furong Wang, Lai Tu, Zailu Huang, Fan Zhang, Huazhong University of Science and Technology
6. **MIMO Communications in Ad Hoc Networks**  
Biao Chen, Syracuse University; Michael Gans, Air Force Research Lab

*Monday, May 30, 13.40 – 15.20 C7*

## **2F: Mobile Applications 1**

1. **Optimal Buffering for QoS-based Short Message Transfer in GPRS/UMTS Networks**  
Jun Zheng, Emma Regentova, University of Nevada, Las Vegas
2. **A Parallelized File-Transfer-Protocol for On-Board IP Networks**  
Shaleeza Sohail, Salil Kanhere, Sanjay Jha, Adeel Baig, Muhammad Malik, University of New South Wales
3. **Energy-Efficient Caching Strategy Using Probability-based Data Request for Mobile Environments**  
Soo-Yong Jeon, Sun-Ho Lee, Dong-Ho Cho, Korea Advanced Institute of Science and Technology
4. **Dependable Group-oriented Mobile Transactions**  
Upkar Varshney, Georgia State University
5. **Performance evaluation of the downlink CDMA cellular system supporting integrated voice/data traffic**  
Jaime Abarca, CINVESTAV
6. **An Adaptive History-based and Topology-independent Resource Reservation Scheme for Future Wireless Mobile Multimedia Networks**  
Hai-Bo Guo, Beijing University of Posts and Telecommunications; Geng-Sheng Kuo, National Chengchi University

*Monday, May 30, 13.40 – 15.20 C8*

## **2G: OFDM 1**

1. **Novel OFDM Transmission Scheme to Overcome ISI Caused by Multipath Delay Longer than Cyclic Prefix**  
Chiwoo Lim, Youngbin Chang, Jaewon Cho, Panyuh Joo, Hyeonwoo Lee, Samsung Electronics. Co., Ltd.
2. **Blind Estimation of Frequency Offset and Time Delay in Uplink OFDMA**  
Meng Hua, University of Science and Technology of China
3. **A Spectral Efficient Method for Subcarrier and Bit Allocation in OFDMA**  
Miguel Acena, Chalmers University of Technology; Stephan Pfletschinger, Centre Tecnològic de Telecomunicacions de Catalunya
4. **Synchronization Algorithms for Multiuser Filtered Multitone (FMT) Systems**  
Andrea Tonello, Francesco Pecile, University of Udine

5. **Peak Power Cancellation of an OFCDM Signal Applied to an Adaptive Predistorted Power Amplifier**  
Naoki Aizawa, Osamu Muta, Yoshihiko Akaiwa, Kyushu University

6. **Transmitter Precoding for ICI Reduction in OFDM**  
Yu Fu, Witold Krzymien, Chinthia Tellambura, University of Alberta / TRILabs

*Monday, May 30, 13.40 – 15.20 C9*

## **2H: Link Level Issues 1**

1. **Reliable Multicast Service Using CDMA Codes in IEEE 802.16 OFDMA System**  
Howon Lee, Dong-Ho Cho, Korea Advanced Institute of Science and Technology
2. **Delay-Differentiated Scheduling in a Wireless Network**  
Tiina Heikkinen, Lancaster University; Ari Hottinen, Nokia Research Center
3. **Performance Analysis of a Type II Hybrid ARQ Protocol Based on RCPC Codes for the IEEE802.11a Random Access MAC Protocol**  
Boris Bellalta, Pompeu Fabra University; Alexandre Graell i Amat, Politecnico di Torino
4. **An Efficient Rate Switching Scheme for IEEE 802.11 Wireless LANs**  
Young-Jae Kim, Young-Joo Suh, Pohang University of Science and Technology (POSTECH)
5. **Fair Finite-State Uplink Transmission Rate Allocation for Cellular Systems**  
Vesa Hasu, Heikki Koivo, Helsinki University of Technology
6. **On the Spectral Efficiency of Space-Time User Cooperative Diversity in Practical Wireless Systems**  
Allan Jardine, John Thompson, Steve McLaughlin, University of Edinburgh

*Monday, May 30, 13.40 – 15.20 B2*

## **2I: Coding and Equalization**

1. **Block Product Code Design with the Aid of Union Bounds**  
Yufei Blankenship, Brian Classon, Vip Desai, Motorola Labs
2. **Decoding Algorithm of Block and Product Codes with Channel State Information**  
Changlong Xu, Institute of Infocomm Research
3. **Asymptotic Performance Analysis of LDPC codes with Channel Estimation Error**  
Hamid Saeedi, Amir Banihashemi, Qi Hong, Carleton University
4. **On LDPC Decoding for Frequency Hopping OFDMA Cellular Systems in the Downlink**  
Yun Hee Kim, Kyung Hee University; Kwang Soon Kim, Yonsei University; Sang Hyun Lee, Electronics and Telecommunications Research Institute
5. **Radial Basis Function Network Aided Wide-band Beamforming for Dispersive Fading Environments**  
Sheng Chen, Lajos Hanzo, University of Southampton
6. **Asymptotic Performance of BI-GDFE for Large Isometric and Random Precoded Systems**  
Ying-Chang Liang, Institute for Infocomm Research

*Monday, May 30, 13.40 – 15.20 Upper Level*

## **2P: 3G**

1. **Power Control and Utility Optimization in Wireless Communication Systems**  
Dimitrie Popescu, Anthony Chronopoulos, The University of Texas at San Antonio

2. **Resource Allocation in HSDPA Using Best-Users Selection Under Code Constraints**  
Ghassane Aniba, INRS-EMT, University of Quebec; Sonia Aissa, University of Quebec, INRS-EMT
3. **Efficient and Fair Scheduling for Best-Effort Downlink Packet Data**  
Dong In Kim, Simon Fraser University
4. **Cost Analysis of Smart Antenna Systems Deployment**  
Andres Alayon Glazunov, Rickard Ljung, Peter Karlsson, TeliaSonera Sweden AB
5. **HSDPA link adaptation based on novel quality model**  
Hai Wang, Ericsson (China) Co. Ltd.; Lei Wan, ETC
6. **Utilizing Code Orthogonality Information in Interference Suppression for UTRA downlink**  
Mythri Hunukumbure, Mark Beach, University of Bristol
7. **On Closed Loop Transmit Diversity for HSDPA - using an Orthogonality Matrix for System Level Evaluation**  
Markus Ringström, David Astély, Bo Goransson, Ericsson Research
8. **System Performance of Close Loop Mode I Transmit Diversity in WCDMA HS-DSCH**  
Andrew Logothetis, Afif Osseiran, Ericsson Research
9. **Othercell interference in the downlink of multi-service UMTS**  
Salah Eddine Elayoubi, France Telecom; Bassam Elsaghir, Tijani Chahed, Institut National des Télécommunications
10. **Steered optimization strategy for automatic cell planning of UMTS networks**  
Sana Ben Jamaa, Zwi Altman, Jean-Marc Picard, Arturo Ortega, France Telecom R&D
11. **(Re)Active Load Control Based on Radio Link Quality for the UMTS/WCDMA Forward Link**  
Emanuel Rodrigues, Francisco Cavalcanti, Federal University of Ceará; Carlos Morais de Lima, Vicente de Sousa Junior, Federal University of Ceara
12. **On the Enhancement of Monte Carlo 3G Network Modelling Tools for QoS prediction**  
Benôit Fourestié, Sylvain Renou, France Telecom R&D

*Monday, May 30, 15.50 – 17.30 C3*

### **3B: Channel Estimation and Equalization 3**

1. **On Low Complexity ML Detection Algorithm in MIMO System**  
Hongwei Zhang, Shanghai Jiao Tong University; Haibin Zhang, Shanghai Jiaotong University; Hanwen Luo, Shanghai JiaoTong University; Wentao Song, Shanghai Jiaotong University
2. **MMSE Channel Estimation Using Two-Dimensional Filtering in Rapid Time-Variant Environments**  
Gabriele Dona, University of Padova; Witold Krzymien, University of Alberta / TRILabs
3. **Sparse Channel Estimation for OFDM Transmission Based on Representative Subspace Fitting**  
Chun-Jung Wu, National Chiao Tung University; David Lin, National Chiao Tung University
4. **Joint Channel and Carrier Offset Estimation in an Asynchronous CDMA System**  
Hongyi Fu, Institute for Infocomm Research; Samir Attallah, National University of Singapore
5. **Outage-based LDPC Code Design for SC/MMSE Turbo-Equalization**  
Rainer Wohlgenannt, Austriamicrosystems AG; Kimmo Kansanen, Djordje Tujkovic, Tadashi Matsumoto, University of Oulu, Centre For Wireless Communications
6. **DFT-based PSA Channel Estimation using Linear Prediction for OFDM Systems with Virtual Carriers**  
Jeong-Wook Seo, JungWook Wee, Yong-Suk Park, Won Gi Jeon, Korea Electronics Technology Institute (KETI)

*Monday, May 30, 15.50 – 17.30 C4*

### **3C: Ultra Wide Band 2**

1. **Frequency Domain Multiuser Detection for Impulse Radio Systems**  
Andrea Tonello, Roberto Rinaldo, University of Udine
2. **Optimization of Energy Detector Receivers for UWB Systems**  
Mustafa Sahin, Ismail Guvenc, Huseyin Arslan, University of South Florida
3. **Power Spectral Density Characteristics of MCKS Based Impulse Radios in UWB Communications**  
Serhat Erkucuk, Dong In Kim, Simon Fraser University

4. **Analysis of Average Signal-to-Interference-Noise Ratio for Indoor UWB Rake Receiving System**  
Tao Jia, Dong In Kim, Simon Fraser University
5. **Novel Modulation Schemes for UWB-PPM Systems**  
Hasan Khani, Paeiz Azmi, Tarbiat Modarres University
6. **OFDM Versus Time-Hopping in Multiuser Ultra Wideband Communication Systems**  
Dimitrie Popescu, Prasad Yaddanapudi, Rama Kondadasu, University of Texas at San Antonio

*Monday, May 30, 15.50 – 17.30 C5*

### **3D: MIMO Systems 3**

1. **Filtered Gradient Algorithm for Closed Loop MIMO Systems**  
Eduardo Zacarias, Risto Wichman, Stefan Werner, Helsinki University of Technology
2. **Orthogonal Multiple Beams for Wireless Multi-user MIMO Systems**  
Dong-Chan Oh, Yong-Hwan Lee, Seoul National University
3. **Exploiting Dimensions of the MIMO Wireless Channel: Multidimensional Link Adaptation**  
Walter Freitas, Francisco Cavalcanti, André Almeida, Wireless Telecom Research Group - Federal University of Ceará; Renato Lopes, State University of Campinas
4. **Performance and complexity analysis of suboptimal MIMO detectors**  
Berna Ozbek, Izmir Institute of Technology; Didier Le Ruyet, CNAM
5. **Antenna-by-Antenna and Joint-over-Antenna MIMO Signal Detection Techniques for Turbo-Coded SC/MMSE Frequency Domain Equalization**  
Juha Karjalainen, Kimmo Kansanen, Nenad Veselinovic, Tadashi Matsumoto, University of Oulu
6. **A Signaling Scheme and Estimation Algorithm for Characterizing Frequency Selective MIMO Channels**  
David Browne, Weijun Zhu, Michael Fitz, University of California Los Angeles

Monday, May 30, 15.50 – 17.30 C6

### 3E: Ad Hoc Networks 2

- 1. Mobile IPv6 Ad hoc Gateway with Handover Optimization**  
Stefan Aust, Carmelita Görg, University of Bremen; Cornel Pampu, Siemens AG
- 2. Performance Analysis of Ad-Hoc Networks Partitioning on TCP**  
Qianwen Lin, National University; Kwang-Mien Chan, Kean-Soon Tan, Boon Sain Yeo, Institute for Infocomm Research
- 3. Energy Efficient AODV Routing in CDMA Ad Hoc Networks Using Beamforming**  
Nie Nie, Cristina Comaniciu, Stevens Institute of Technology
- 4. Adaptive spreading/coding gains for energy efficient routing in wireless ad hoc networks.**  
Hasan Mahmood, Cristina Comaniciu, Stevens Institute of Technology
- 5. Power-Efficiencies of Multi-hop Paths for Routing in Wireless Networks**  
Biplab Sikdar, Rensselaer Polytechnic Institute
- 6. Impact of Power Saving MAC Scheme on Ad Hoc Network Routing Protocol**  
Yuefeng Zhou, Edwin Tan, David Laurenson, Steve McLaughlin, The University of Edinburgh

Monday, May 30, 15.50 – 17.30 C7

### 3F: Context-aware Services and Architectures

- 1. New Authentication Method for Mobile Centric Communications**  
Hongyuan Chen, Nokia Research Center Tokyo
- 2. Enhancing Applicability of Context-Aware Systems Using Agent-Based Hybrid Inference Approach**  
Mohamed Khedr, Arab Academy for Science and Technology
- 3. Inter-working and Integration of Messaging Services in a Heterogeneous Wireless Environment**  
Shiao-Li Tsao, Jin Chang Chou, CSIE of National Chiao Tung University; Yu-Ching Hsu, Industrial Technology Research Institute
- 4. Search engine for phonebook-based smart phone networks**  
Lorant Farkas, Nokia Hungary Kft; Balazs Bakos, Jukka Nurminen, Nokia Research Center, Helsinki
- 5. An Adaptive In-Vehicle Multimedia Recommender for Group Users**  
Zhiwen Yu, Xingshe Zhou, Northwestern Polytechnical University; Daqing Zhang, Institute for Infocomm Research
- 6. Decentralized Ubiquitous Networking Server for Context-Aware Seamless Services**  
Masugi Inoue, National Institute of Information and Communications Technology

Monday, May 30, 15.50 – 17.30 C8

### 3G: OFDM 2

- 1. Random FH-OFDMA system based on statistical multiplexing**  
Bang Chul Jung, Dan Keun Sung, Korea Advanced Institute of Science and Technology
- 2. A Utility-Approached Dynamic Radio Resource Allocation Algorithm for Downlink OFDMA Cellular Systems**  
Chung-Ju Chang, Luke T. H. Lee, Yih-Shen Chen, National Chiao Tung University
- 3. On Performance of SCH-OFDMA-CDM in Frequency Selective Indoor Environment**  
Suvra Das, Frank H.P. Fitzek, Ramjee Prasad, Muhammad Imadur Rahman, Aalborg University

### 4. An Investigation of Dynamic Sub-carrier Allocation in OFDMA Systems

Ying Peng, Angela Doufexi, Simon Armour, Joe McGeehan, University of Bristol

### 5. Decreasing Transmit Power by Adaptive Loading for Ultra High-Data-Rate OFDM System

Ming Lei, National Institute of Information and Communications Technology (NICT), Japan

### 6. Adaptive OFDMA Subcarrier Assignment for QoS Guaranteed Services

Xu Guoxin, Ji Yang, Jianhua Zhang, Beijing University of Posts and Telecommunications; Zhang Ping, Wireless Technologies Innovation Labs, Beijing University of Posts and Telecommunications

Monday, May 30, 15.50 – 17.30 C9

### 3H: Link Level Issues 2

- 1. Using Dedicated In-Building Systems to Improve HSDPA Indoor Coverage and Capacity**  
Kimmo Hiltunen, Ericsson Research, Oy L M Ericsson Ab; Birgitta Olin, Magnus Lundevall, Ericsson Reserach
- 2. Optimizing HSDPA Performance in the UMTS Network Planning Process**  
Jens Voigt, Juergen Deissner, Johannes Huebner, Dietrich Hunold, Stefan Moebius, Radioplan GmbH
- 3. Optimised Iub flow control for UMTS HSDPA**  
Peter Legg, IPWireless
- 4. On the use of packet-level FEC and data carousels for the delivery of broadcast/multicast services to mobile terminals**  
Malumbo Chipeta, University of Surrey; Merkourios Karaliopoulos, Teletel S.A.; Barry Evans, Rahim Tafazoli, University of Surrey
- 5. A Cooperative Multihop Radio Resource Allocation in Next Generation Networks**  
Isameldin Suliman, Ian Oppermann, Timo Braysy, Centre for Wireless Communications, University of Oulu; Igor Konnov, Kazan University; Erkki Laitinen, University of Oulu
- 6. Uplink Performance Analysis in Group Cell Systems**  
Wang Ying, Wireless Technologies Innovation Labs, Beijing

Monday, May 30, 15.50 – 17.30 B2

### 3I: Multi-user Detection 2

- 1. The Performance of Indoor DS-CDMA Systems with Multistage Parallel Interference Cancellation**  
Adrian Pais, Kevin Sowerby, Michael Neve, The University of Auckland
- 2. A Chip Correlation MMSE Receiver with Multipath Interference Correlative Timings for DS-CDMA systems**  
Tsuyoshi Hasegawa, Masahiko Shimizu, Fujitsu Laboratories Ltd.
- 3. Multiuser Detection of Short-Code CDMA with Antenna Diversity**  
Vishakan Ponnampalam, Peter Darwood, IP Wireless
- 4. Generalised Multiuser Detection in TD-CDMA**  
Alan Jones, Shin Hornng Wong, IP Wireless
- 5. A Simplified Transceiver Structure for Cyclic Extended CDMA System with Frequency Domain Equalization**  
Xiaoming Peng, Institute for InfoComm Research
- 6. Interference Cancellation and 4-branch Antenna Diversity for WCDMA Uplink Packet Access**  
Claudio Rosa, Nokia Denmark/Aalborg

Monday, May 30, 15.50 – 17.30 Upper Level

### 3Pa: Antennas & Propagation Posters

- 1. Mobile Antenna System for Ku-Band Satellite Internet Service**  
Seong Ho Son, Electronics and Telecommunications Research Institute
- 2. Evaluation of the Bluetooth Link and Antennas Performance for Indoor Office Environments by Measurement Trials and FEMLAB Simulations**  
Abbas Mohammed, Blekinge Institute of Technology
- 3. Continuous State HMM Modeling of Flat Fading Channels**  
William Turin, AT&T Shannon Laboratory; Rittwik Jana, AT&T Labs Research
- 4. Field measurement based performance analysis of Digital Audio Broadcasting (DAB) reception in mobile channels**  
Manuel Velez, David de La Vega, Pablo Angueira, University of the Basque Country; David Guerra, University of the Basque Country; Gorka Prieto, Amaia Arrinda, University of the Basque Country
- 5. Analysis and Measurements for Indoor Polarization MIMO in 5.25 GHz Band**  
Jyri Hamalainen, Helsinki University of Technology; Jukka-Pekka Nuutinen, Elektrobit Ltd; Risto Wichman, Helsinki University of Technology; Juha Ylitalo, Center for Wireless Communications, University of Oulu; Tommi Jamsa, Elektrobit Ltd
- 6. Diversity Antenna Characteristics Evaluation in Narrow Band Rician Fading Channel Using Random Phase Generation Process**  
Ali Khaleghi, SEM/DRE; Alain Azoulay, Jean-Charles Bolomey, SUPELEC

Monday, May 30, 15.50 – 17.30 Upper Level

### 3Pb: Satellite Networks Posters

- 1. ALOHA versus Single Code Spread ALOHA with Adapting Coding for Satellite Systems**  
Dawit Belay Zeleke, Universidad Carlos III de Madrid; Maria-Angeles Vazquez Castro, Universidad Autónoma de Barcelona
- 2. Modulation Identification and Carrier Recovery System for Adaptive Modulation in Satellite Communications**  
Kenta Umebayashi, Centre for Wireless Communications University of Oulu; Robert Morelos-Zaragoza, San Jose State University; Ryuji Kohno, Yokohama National University
- 3. A multilayered architecture supporting QoS for multimedia traffic connections**  
Salvatore Marano, Pasquale Pace, Gianluca Aloï, University of Calabria
- 4. Determination of the Coordination Area for Mobile Earth Stations operating with Geostationary Space Stations in the Frequency Bands shared with the Terrestrial Services**  
Maria Koletta, Vasilis Milas, Philip Constantinou, National Technical University of Athens
- 5. Analysis of satellite WCDMA applying space-time codes with imperfect channel estimation**  
Byoung Gi Kim, Electronic and Telecommunications Research Institute; Do-Seob Ahn, Electronics and Telecommunications Research Institute; Sooyoung Kim, Chonbuk National University
- 6. Suboptimum Centralized Power Control for Aerial Platform Cellular Radio Systems**  
Anggoro Widiawan, University of Surrey

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## Tuesday, 31 May 2005

Tuesday, May 31, 8.30 – 10.10 C10

### 4A: System Architectures for B3G: System Performance & Coding

- 1. Building a Secure and Extensible Protocol for wired and wireless environments**  
Ibrahim Hajjeh, Ecole Nationale Supérieure des Télécommunications
- 2. Capacity Analysis of UWB Systems with Transmitter Power Constraints**  
Franco Mazzenga, Romeo Giuliano, Università di Roma Tor Vergata, RadioLabs
- 3. A Maximum-Likelihood Based Feedback Carrier Synchronizer for Turbo-Coded Systems**  
Nele Noels, Heidi Steendam, Marc Moeneclaey, Ghent University
- 4. Bottom-Up Approach to Cross-layer Design for Video Transmission over Wireless Channels**  
Lai-U Choi, Michel Ivrlac, Eckehard Steinbach, Josef A. Nossek, Munich University of Technology
- 5. Precoding of Orthogonal Space-Time Block Codes over Correlated Ricean MIMO Channels**  
Are Hjørungnes, University of Oslo; David Gesbert, Eurecom Institute
- 6. An New Approach to Iterative Receiver Design Using Multi-path Codes with Applications to Layered Space-Time Coded**  
Joseph Chueh, University of Sydney

Tuesday, May 31, 8.30 – 10.10 C3

### 4B: Channel Estimation and Equalization 4

- 1. Blind Iterative LDPC Decoding and Channel Estimation for OFDM Systems**  
Mi-Kyung Oh, Yeong-Hyeon Kwon, Jung-Hyun Park, Dong-Jo Park, Korea Advanced Institute of Science and Technology (KAIST)
- 2. Iterative Channel Equalization, Channel Decoding and Source Decoding**  
Jin Wang, Lie-Liang Yang, Lajos Hanzo, University of Southampton
- 3. Approximate Best Linear Unbiased Channel Estimation for Frequency Selective Channels with Long Delay Spreads: Robustness to Timing and Carrier**  
Serdar Özen, Izmir Institute of Technology; Sreenivasa Nerayanuru, Christopher Pladdy, Mark Fimoff, Zenith Electronics Corporation
- 4. Generic Reduced-Complexity MMSE Channel Estimation for OFDM and MC-CDMA**  
Jos Akhtman, Lajos Hanzo, University of Southampton
- 5. Iterative MLD equalizer preceded by MIMO-FDE for wideband spatial multiplexing systems**  
Yasunori Nouda, Toshiaki Koike, Susumu Yoshida, Kyoto University
- 6. Single Sideband QPSK with Turbo Equalization for Mobile Communications**  
Boonsarn Pitakdumrongkija, Hiroshi Suzuki, Satoshi Suyama, Kazuhiko Fukawa, Tokyo Institute of Technology

*Tuesday, May 31, 8.30 – 10.10 C4*

#### **4C: Vehicular Communications**

- 1. A Dynamic Real-time Fleet Management System for Incident Handling in City Logistics**  
Vasileios Zeimpekis, George Giaglis, Athens University of Economics and Business
- 2. VGrid: Vehicular Ad Hoc Networking and Computing Grid for Intelligent Traffic Control**  
Dipak Ghosal, Chen-Nee Chuah, Michael Zhang, Joey Anda, Jason LeBrun, University of California, Davis
- 3. A Rule based Data Monitoring Middleware for Mobile Vehicular Applications**  
Guido Gehlen, Aachen University of Technology
- 4. An intelligent Sensor for ETC Ad Hoc Networks**  
Tomoyuki Nagase, Takashi Araki, Shigeyuki Kitamura, Hirosaki University; Makoto Araki, Tokyo University of Science; Hisao Ono, Yupiteru Industries Co. Ltd.
- 5. A Radio over Fiber Network Architecture for Road Vehicle Communication Systems**  
Hong Bong Kim, Marc Emmelmann, Berthold Rathke, Adam Wolisz, Technical University of Berlin
- 6. IEEE 802.11 Performances for Inter-vehicle Communication Networks**  
Khaled Yacine, Heudiasyc; Ducourthial Bertrand, Université de Technologie de Compiègne; Shawky Mohamed, Heudiasyc

*Tuesday, May 31, 8.30 – 10.10 C5*

#### **4D: OFDM 3**

- 1. A Blind Uplink OFDM Synchronization Algorithm Based on Cyclostationarity**  
Meng Hua, University of Science and Technology of China
- 2. Series Form Expression of DQPSK/OFDM Signals employing Selection Combining Diversity Reception over Nonlinear Fading Channels**  
Fumiaki Maehara, Waseda University
- 3. Statistical Pre-Filtering for MIMO-OFDM Systems**  
Wing Seng Leon, Institute for Infocomm Research; Ying-Chang Liang, Insitute for Infocomm Research
- 4. Joint Tomlinson-Harashima Precoding with Orthogonal Space Time Block Codes for Multiuser MIMO OFDM Systems**  
Dafei Wang, Technical University Berlin; Eduard Jorswieck, Fraunhofer Institut for Telecommunications, Heinrich-Hertz-Institut; Aydin Sezgin, Fraunhofer Institute for Telecommunications, HHI; Elena Costa, Siemens AG
- 5. Secure Communications Using OFDM and Chaotic Modulation**  
David Luengo, Universidad Carlos III de Madrid; Ignacio Santamaria, University of Cantabria
- 6. Maximizing the Spectral Efficiency of OFDMA System over Fast Fading Channels**  
Seho Kim, Hyung-Myung Kim, KAIST

*Tuesday, May 31, 8.30 – 10.10 C6*

#### **4E: Ad Hoc Network QoS**

- 1. Throughput-Fairness Trade-Off in Probabilistic Medium Access Control for Wireless Ad Hoc Networks**  
Marcin Wicznanowski, Technical University of Berlin; Sławomir Stanczak, Fraunhofer German-Sino Lab for Mobile Comm.; Youye Chen, Fraunhofer German-Sino Lab for Mobile Communications (MCI)
- 2. A Max-min Strategy for QoS Improvement in MIMO Ad-hoc Networks**  
Seung Jun Baek, Gibeom Kim, Scott Nettles, University of Texas at Austin

#### **3. Providing Quality of Service for Critical Nodes in Ad-Hoc networks**

Christian Bravo, UTFSM, Universidad Técnica Federico Santa María; Sonia Aissa, University of Quebec, INRS-EMT; Andre Girard, INRS-Telecommunications

#### **4. QoS Provisioning using BER-Based Routing for Ad Hoc Wireless Networks**

Nawaporn Wisitpongphan, Carnegie Mellon University; Gianluigi Ferrari, University of Parma; Sooksan Panichpapiboon, Carnegie Mellon University; Jayendra Parikh, General Motors Corporation; Ozan Tonguz, Carnegie Mellon University

#### **5. End-to-End QoS Routing in Physically Hierarchical Wireless Ad-Hoc Networks**

Kang Yong Lee, Electronics and Telecommunications Research Institute; Jin Bum Hwang, University of Science and Technology; Jeong-dong Ryoo, ETRI

#### **6. Evaluation of the BRuIT protocol**

Claude Chaudet, ENST; Isabelle Guerin Lassous, Inria

*Tuesday, May 31, 8.30 – 10.10 C7*

#### **4F: Location and Tracking**

##### **1. Performance Evaluation of the Hierarchical Mobile IPv6 Approach in a WLAN Hotspot Scenario**

Norbert Jordan, Alexander Poropatich, Vienna University of Technology

##### **2. A New Position Location System Using ATSC TxID Signals**

Xianbin Wang, Yiyang Wu, Communications Research Centre Canada; Jean-Yves Chouinard, Laval University

##### **3. Fast Hierarchical Searching Algorithm for Real Time Location Tracking with Maximum Likelihood Estimation**

Kumiko Matsumoto, Takeshi Hattori, Sophia University

##### **4. A Novel Target Movement Model and Efficient Tracking in Sensor Networks**

Wai-Leong Yeow, Chen Khong Tham, Lawrence Wong, National University of Singapore

##### **5. A Location Algorithm Based on Radio Propagation Modeling for Indoor Wireless Local Area Networks**

Chin-Liang Wang, Yih-Shyh Chiou, National Tsing Hua University; Sheng-Cheng Yeh, Ming Chuan University

##### **6. An Area Localization Scheme for Large Wireless Sensor Networks**

Qi Yao, Seng Kee Tan, Yu Ge, Boon Sain Yeo, Qinghe Yin, Institute for Infocomm Research, Singapore

*Tuesday, May 31, 8.30 – 10.10 C8*

#### **4G: 3G Evolution**

##### **1. WCDMA Enhanced Uplink Principles and Basic Operation**

Stefan Parkvall, Ericsson Research; Janne Peisa, Oy LM Ericsson Ab; Eva Englund, Johan Torsner, Ericsson Research; Mats Sagfors, Oy LM Ericsson Ab; Peter Malm, Ericsson Mobile Platforms AB

##### **2. Reverse Traffic Channel Mac Design of cdma2000 1xEV-DO Revision A System**

Christopher Lott, Nagabhushana Sindhushayana, Donna Ghosh, Rashid Attar, Jean Au, Mingxi Fan, Qualcomm, Inc.

##### **3. CDMA2000 1xEV-DV Reverse Link Performance in the Presence of Voice Users**

Tao Wu, Patrick Hosein, Young Yoon, Rath Vannithamby, Shiau-He Tsai, Anthony Soong, Ericsson Wireless Communications Inc.

##### **4. System Performance of WCDMA Enhanced Uplink**

Ke Wang Helmersson, Eva Englund, Maria Samuelsson, Maria Edvardsson, Christer Edholm, Stefan Parkvall, Ericsson Research

**5. End-to-End Performance of WCDMA Enhanced Uplink**  
Janne Peisa, Mats Sagfors, Oy LM Ericsson Ab; Eva Englund, Maria Samuelsson, Ke Wang Helmersson, Y.-P. Eric Wang, Ericsson Research

**6. WCDMA Enhanced uplink - Test bed and Measurements**  
Magnus Sundelin, Christophe Milard, Markus Ringström, John Skördeman, Ericsson Research; Erik Sparrman, Tomas Sundin, Ericsson AB

*Tuesday, May 31, 8.30 – 10.10 C9*

**4H: Channel Sounding, Evaluation, and Simulation**

**1. 2-D DOA Estimation with Propagator Method for Correlated Sources under Unknown Symmetric Toeplitz Noise**  
Nizar Tayem, Hyuck Kwon, Wichita State University

**2. L-SHAPE 2-Dimensional Arrival Angle Estimation With Propagator Method**  
Nizar Tayem, Hyuck Kwon, Wichita State University

**3. Joint Maximum Likelihood Estimation of Specular Paths and Distributed Diffuse Scattering**  
Andreas Richter, Helsinki University of Technology; Reiner Thomae, University of Ilmenau

**4. A Novel MUSIC Algorithm for Direction-of-Arrival Estimation without the Estimate of Covariance Matrix and Its Eigendecomposition**  
Lei Huang, Shunjun Wu, Linrang Zhang, Xidian University

**5. High Resolution Estimation of Directions of Arrival**  
Gunes Karabulut, Tolga Kurt, Abbas Yongacoglu, University of Ottawa

**6. Nominal Direction and Direction Spread Estimation for Slightly Distributed Scatterers using the SAGE Algorithm**  
Xuefeng Yin, Bernard Fleury, Aalborg University

*Tuesday, May 31, 8.30 – 10.10 Upper Level*

**4P: MIMO and Space Time**

**1. Asymptotic Optimality of Beamforming in Multi-user MIMO-MAC with No or Partial CSI at the Transmitters**  
Alkan Soysal, Sennur Ulukus, University of Maryland

**2. QRD Based Tree Search Data Detection for MIMO Communication Systems**  
Woon Hau Chin, Institute for Infocomm Research

**3. Adaptive Cross-layer Resource Allocation for Downlink Multi-user MIMO Wireless System**  
Elva Wang, Ross D. Murch, Hong Kong University of Technology

**4. Performance of MIMO MRC in correlated Rayleigh fading environments**  
Alberto Zanella, Marco Chiani, CSITE-CNR, DEIS, University of Bologna; Moe Win, Massachusetts Institute of Technology

**5. Trading-off Transmission Rate with Transmit Diversity in Differential Detection**  
Jaehak Chung, Seunghoon Nam, Young-Ho Jung, Samsung Advanced Institute of Technology; Vahid Tarokh, Harvard University

**6. Metric-segmented low-complexity ML detection for spectrum-efficient multiple-antenna systems**  
Toshiaki Koike, Daisuke Nishikawa, Susumu Yoshida, Graduate School of Informatics, Kyoto University

**7. Space-Time Turbo Code Using Quantized Feedback with Two Transmit Antennas**  
Chi Hoon Yoo, Jae Hong Lee, Seoul National University

**8. On the Construction of Capacity Achieving Full Diversity Space-Time Block Codes**  
Christian Pietsch, Juergen Lindner, University of Ulm

**9. Iterative Semi-blind Equalization of Space Time Block Coded Systems**  
Woon Hau Chin, Institute for Infocomm Research; Zhiguo Ding, Darren Ward, Imperial College London

**10 Interference Reduction in Time Duplex Systems by Space-Time Beamformers**  
Guillaume Andrieux, IREENA; Jean Francois Diouris, University of Nantes; Yide Wang, IREENA

**11A Hybrid Antennae Selection and STBC Scheme for Multipath Fading Channels**  
Sangarapillai Lambotharan, Yuhui Luo, King's College London

**12A Variable Rate LDPC Coded V-BLAST System using the MMSE QR-Decomposition**  
Namshik Kim, Hyounkuk Kim, Hyuncheol Park, Information and Communication University

*Tuesday, May 31, 10.40 – 12.20 C10*

**5A: System Architectures for B3G: CDMA Systems**

**1. Block-Iterative GDFE (BI-GDFE) for CP-CDMA and MC-CDMA**  
Ying-Chang Liang, Insitute for Infocomm Research

**2. Aggressive Modulation/Coding Scheme Selection for Maximizing System Throughput in a Multi-carrier System**  
Anup Talukdar, Philippe Sartori, Mark Cudak, Brian Classon, Yufei Blankenship, Motorola Labs

**3. Performance Evaluation of Carrier Interferometry Implementations of MC-CDMA over a Wideband Channel Suffering Phase Noise**  
Neil Taylor, Malcolm Cooper, Simon Armour, Joe McGeehan, University of Bristol

**4. Intercell Interference Investigation of MC-CDMA**  
Franziskus Bauer, Erwin Hemming, Wolfgang Wilhelm, Mohsen Darianian, Nokia Research Center

**5. Advantages of Superimposed Packets Allocation for OFDM-CDM**

Alexander Arkhipov, German Aerospace Center; Ronald Raulefs, Michael Schnell, German Aerospace Center (DLR)

**6. Performance of the LAS-CDMA Uplink**  
Hua Wei, Lajos Hanzo, University of Southampton

*Tuesday, May 31, 10.40 – 12.20 C3*

**5B: Channel Estimation and Equalization 5**

**1. Wideband Channel Estimation and Prediction in Single-Carrier Wireless Systems**  
Wei Liu, Lie-Liang Yang, Lajos Hanzo, University of Southampton

**2. A Pilot-Assisted Equalisation Scheme for the UMTS-TDD Downlink with Partial Loading**  
Mahmoud Hadeif, Stephan Weiss, University of Southampton

**3. Adaptive Channel SVD Estimation for MIMO-OFDM Systems**  
Hossein Zamiri-Jafarian, Glenn Gulak, University of Toronto

4. **A Velocity-Adaptive Channel Estimation Scheme Using the Simple Zero-Forcing Technique in the Frequency Domain**  
Takki Yu, Yonsei University
5. **Blind Identification and Equalization of LDPC-encoded MIMO Systems**  
Ansgar Scherb, University of Bremen
6. **Novel SMC techniques for blind equalization of flat-fading MIMO channels**  
Manuel Vazquez, Universidade da Coruña; Joaquin Miguez, Universidade Carlos III de Madrid; Monica Bugallo, Stony Brook University

*Tuesday, May 31, 10.40 – 11.30 C4*

#### **5Ca: Vehicular Electronics**

1. **Novel Drive for Use in Electrical Vehicles**  
Nejila Parspour, University of Bremen
2. **Optimization of a 42V/14V dc-dc Converter For Vehicular Electrical Network**  
Cherif LAROUCI, CS laboratory of ESTACA engineer school
3. **Observation of Real Driving Behavior in Car-Following: Preliminary Results**  
Taehyung Kim, David Lovell, University of Maryland

*Tuesday, May 31, 11.30 – 12.20 C4*

#### **5Cb: Satellite Technologies**

1. **MPEG-4 Video Transmission Using Unequal Error Protection For Mobile Satellite Communications**  
Huan-Bang Li, Shinichi Taira, National Institute of Information and Communications Technology
2. **Data-Aided Frequency Synchronization Under Interference Limited Conditions**  
Joel Grotz, Bjorn Ottersten, Royal Institute of Technology; Jens Krause, SES ASTRA
3. **A Comparison of the Statistical Properties of the Land Mobile Satellite Channel at Ku, Ka and EHF Bands**  
Sandro Scalise, Harald Ernst, German Aerospace Center (DLR)

*Tuesday, May 31, 10.40 – 12.20 C5*

#### **5D: OFDM 4**

1. **MIMO Preamble Design with a Subset of Subcarriers in OFDM-based WLAN**  
Ting-Jung Liang, Dresden University of Technology; Gerhard Fettweis, Technische Universitaet Dresden
2. **The Impact of OFDM Interference on TH-PPM/BPAM Transmission Systems**  
Andrea Giorgetti, Davide Dardari, University of Bologna
3. **System Design and Implementation of Multiple-Symbol Encapsulated OFDM**  
Xianbin Wang, Yiyang Wu, Communications Research Centre Canada; Jean-Yves Chouinard, Laval University
4. **A Simple Scheme to Rectify Erroneous Symbol Timing in OFDM Systems**  
Chih-Peng Li, Ming-Li Wang, National Sun Yat-Sen University
5. **Exploiting Channel Statistics to Improve the Average Sum Rate of an OFDMA Uplink**  
Eunchul Yoon, Stanford University
6. **Design of Unequal Error Protection for MIMO-OFDM systems**  
Noh Yujin, Heunchul Lee, Inkyu Lee, Korea University

*Tuesday, May 31, 10.40 – 12.20 C6*

#### **5E: Sensor Networks**

1. **Improving Routing in Sensor Networks with Heterogeneous Sensor Nodes**  
Xiaojiang Du, Fengjing Lin, North Dakota State University

2. **Swarm Intelligence Based Surveillance Protocol in Ad-hoc Sensor Network**  
Hua Yang, Biplab Sikdar, Fengji Ye, Rensselaer Polytechnic Institute
3. **Directed Diffusion Light: Low Overhead Data Dissemination in Wireless Sensor Networks**  
Alessia Marcucci, Michele Nati, Chiara Petrioli, Andrea Vitaletti, University of Rome "La Sapienza"
4. **Low-Energy Localized Clustering: An Adaptive Cluster Radius Configuration Scheme for Topology Control in Wireless Sensor Networks**  
Joongheon Kim, Eunkyo Kim, Sunhyoung Kim, Dongshin Kim, Wonjun Lee, Korea University, Korea

5. **Multihop Localization with Density and Path Length Awareness in NonUniform Wireless Sensor Networks**  
Sau Yee Wong, Institute of Infocomm Research; Joo Ghee Lim, S.V. Rao, Winston Seah, Institute for Infocomm Research
6. **Novel Decision-Fusion Algorithms for Target Tracking Using Ad Hoc Networks**  
Nicolas Fariña, Universidade da Coruña; Joaquin Miguez, Universidade Carlos III de Madrid; Monica Bugallo, Stony Brook University

*Tuesday, May 31, 10.40 – 12.20 C7*

#### **5F: Mobile Applications 2**

1. **Performance analysis of distributed speech recognition over 802.11 wireless networks on the TIMT database**  
Juan Carlos De Martin, Piero Demichelis, IEIT-CNR; Alessandro Rinotti, Politecnico di Torino
2. **A Framework for SIP-Based Wireless Medical Applications**  
Abderrahmane Lakas, Khaled Shuaib, UAEU
3. **A Software Video Stabilization System for Automotive Oriented Applications**  
Paolo Grisleri, Alberto Broggi, University of Parma; Thorsten Graf, Marc Michael Meinecke, Volkswagen AG
4. **Mobile Information Systems Providing Estimated Time of Arrival for Public Transport Users**  
Muhammad Rashid, Paul Coulton, Andrew Fisher, Robert Thompson, University of Lancaster
5. **End-to-end Application Performance Impact on Scheduler in CDMA-1X Wireless System**  
Bong Ho Kim, Insup Lee, University of Pennsylvania; Chi-Hung Kelvin Chu, Lucent Technologies
6. **Drop Call Probability in Established Cellular Networks: from data Analysis to Modelling**  
Gennaro Boggia, Pietro Camarda, Alessandro D'Alconzo, Andrea De Biasi, Politecnico di Bari; Massimo Siviero, Vodafone

*Tuesday, May 31, 10.40 – 12.20 C8*

#### **5G: Wireless Access**

1. **Adaptive Reverse Link Rate Control Scheme for cdma2000 1xEV-DO Systems**  
Hyejeong Lee, Woon-Young Yeo, Dong-Ho Cho, Korea Advanced Institute of Science and Technology
2. **Performance evaluation of RLP over correlated fading**  
Hanane Fathi, Aalborg University; Shyam Chakraborty, Helsinki University of Technology; Ramjee Prasad, Aalborg University
3. **Speculative Resource Allocation for Packet-Switched Wireless Networks**  
Magnus Lindstrom, Royal Institute of Technology; Leonardo Badia, University of Ferrara; Jens Zander, Royal Inst Tech, Stockholm; Michele Zorzi, Università degli Studi di Padova

**4. Urgency and Efficiency based Wireless Downlink Packet Scheduling Algorithm in OFDMA System**  
Seungwan Ryu, Chungang University; Ryu Byung Han, Hyun-Hwa Seo, MooYong Shin, ETRI

**5. Investigation of Frequency-Domain Link Adaptation for a 5-MHz OFDMA/HSDPA System**  
Akhilesh Pokhariyal, Aalborg University; Troels Kolding, Frank Frederiksen, Nokia Networks; Troels Sørensen, Aalborg University; Preben Mogensen, Nokia Networks

**6. Simultaneous Use in Mobile Communications**  
Lúcio Ferreira, António Serrador, Luis Correia, Technical University of Lisbon

*Tuesday, May 31, 10.40 – 12.20 C9*

### **5H: Channel Models**

**1. A Multi-Wall Path Loss Model for Indoor UWB Propagation**  
Annalisa Durantini, Dajana Cassioli, RadioLabs - University of Rome Tor Vergata

**2. Assessment of a new indoor propagation prediction model based on a multi-resolution algorithm**  
Katia Runser, INRIA, ARES; Jean-Marie Gorce, INSA Lyon

**3. A Generic Narrowband Model for Radiowave Propagation through Vegetation**  
Jürgen Richter, University of Glamorgan; Rafael Caldeirinha, Polytechnic Institute of Leiria; Miqdad Al-Nuaimi, University of Glamorgan; Andy Seville, Rutherford Appleton Laboratories; Neil Rogers, QinetiQ; Nick Savage, University of Portsmouth

**4. A Simple Efficient Method for Simulating Nakagami-m Fading**  
Lingzhi Cao, Norman Beaulieu, University of Alberta

**5. A Framework for Analysis of Antenna Effects in UWB Communications**  
Alain Sibille, ENSTA

**6. Empirical Comparison of MIMO Antenna Configurations**  
Pasi Suvikunnas, Jari Salo, Jarmo Kivinen, Pertti Vainikainen, Helsinki University of Technology

*Tuesday, May 31, 10.40 – 12.20 Upper Level*

### **5P: Mobile Networks Posters**

**1. CF-MAC and H-MAC Protocols for Energy Saving**  
Gennaro Boggia, Pietro Camarda, Orazio Fiume, Luigi Grieco, DEE-Politecnico di Bari

**2. Performance Analysis of Temporally Ordered Routing Algorithm based on IEEE 802.11a**  
Erik Weiss, Guido Hiertz, RWTH Aachen University; Bangnan Xu, T-Systems, Technologiezentrum

**3. The EUREKA GANDALF project: Monitoring and self-tuning techniques for heterogeneous radio access networks**  
Peter Stuckmann, Zwi Altman, Hervé Dubreil, Arturo Ortega, France Telecom R&D; Raquel Barco, Matías Toril-Genovés, University of Málaga

**4. Flow-based Fast Handover Performance Analysis in Mobile IPv6 for Linux Environment**  
Jani Puttonen, Henri Suutarinen, Timo Ylönen, Ari Viinikainen, Miska Sulander, Timo Hämäläinen, University of Jyväskylä

**5. Fast Route Recovery Methods for Cellular IP Access Network**  
Jaeki Lee, Yongi Kim, Hwang Soo Lee, Korea Advanced Institute of Science and Technology

**6. Performance Evaluation of Directional MAC Protocol for Inter-Vehicle Communication**  
Mohan Sadashivaiah, Daimler Chrysler Research & Technology India

**7. Stealth Optimized Fisheye State Routing in Mobile Ad-Hoc Networks Using Directional Antennas**  
Antonio Grilo, INESC/IST

**8. GREEN: A Grid-based Energy Efficient Probabilistic Routing in Wireless Sensor Networks**  
Yu Ge, Institute for Infocomm Research, Singapore

**9. Energy and Delay analysis of Wireless Networks with ARQ**  
Shih Yu Chang, Achilleas Anastasopoulos, Wayne Stark, University of Michigan

**10 An analysis of connectivity in a MANET of autonomous cooperative mobile agents under the Rayleigh fading channel**  
Choong Hock Mar, National University of Singapore; Winston Seah, Institute for Infocomm Research

**11 Fuzzy Logic Routing with Load Balancing using a Realistic Mobility Model**  
Dirk Pesch, Susan Rea, Cork Institute of Technology

**12 FDD and TDD coexistence scheme for imbalanced traffic compensation**  
Kuninori Osaki, Kurume National College of Technology; Daisuke Minamihira, Hiroshi Furukawa, Yoshihiko Akaiwa, Kyushu University

*Tuesday, May 31, 14.00 – 15.40 C10*

### **6A: Vehicular Networks**

**1. Knowledge-Based Opportunistic Forwarding in Vehicular Wireless Ad Hoc Networks**  
Jason LeBrun, Chen-Nee Chuah, Dipak Ghosal, Michael Zhang, University of California, Davis

**2. Mobility Management for Vehicular Ad Hoc Networks**  
Marc Bechler, Lars Wolf, TU Braunschweig, IBR

**3. Power-Rate Adaptation in High-Mobility Distributed Ad-Hoc Wireless Networks**  
Marco Ruffini, Philips Research Aachen

**4. Peer-to-peer Information Discovery and Sharing among Mobile Users and Devices**  
Tao Zhang, Erik Van den Berg, Sunil Madhani, Telcordia Technologies

**5. Impact of User Mobility on the Broadcast Service Efficiency of the ADHOC MAC Protocol**  
Flaminio Borgonovo, Luca Campelli, Matteo Cesana, Luigi Fratta, Politecnico di Milano

**6. Position-Based Routing for Metropolitan Bus Networks**  
Tonghong Li, Sukanta Hazra, Winston Seah, Institute for Infocomm Research

*Tuesday, May 31, 14.00 – 15.40 C3*

### **6B: Decoding 1**

**1. The Box-Minus Operator and its Application to Low-Complexity Belief Propagation Decoding**  
Thorsten Clevorn, Peter Vary, RWTH Aachen University

**2. Slab-Sphere Decoding: Efficient Maximum-Likelihood Detection for MISO and Asymmetric MIMO Antenna Systems**  
Kai-Kit Wong, University of Hong Kong; Arogyaswami Paulraj, Stanford University; Ross D. Murch, Hong Kong University of Technology

**3. List Slab-Sphere Decoding: Efficient Near-Optimal Decoding for Asymmetric MIMO Antenna Systems**

Kai-Kit Wong, University of Hong Kong; Arogyaswami Paulraj, Stanford University; Ross D. Murch, Hong Kong University of Technology

**4. Reduced Memory Turbo MAP Decoding Algorithm for Non-binary Orthogonal Signaling**

Kim Dae-Son, Yonsei University

**5. A New LDPC Decoding Algorithm Aided by Segmented CRCs for Erasure Channels**

Yeong-Hyeon Kwon, Mi-Kyung Oh, Dong-Jo Park, Korea Advanced Institute of Science and Technology (KAIST)

**6. Reliability Ratio Based Weighted Bit-Flipping Decoding for LDPC codes**

Feng Guo, Lajos Hanzo, University of Southampton

*Tuesday, May 31, 14.00 – 15.40 C4*

**6C: Satellite Physical Layer Issues**

**1. One-step Code-Phase Tracking Method for Long-Code Navigation Systems**

Eugenio Delfino, Marius Sirbu, Visa Koivunen, Helsinki University of Technology

**2. CN0 Estimation and Near-Far Mitigation for GNSS Indoor Receivers**

Gustavo Lopez-Risueño, Gonzalo Seco, European Space Agency

**3. Carrier to Noise Power Estimation Algorithms for Enhanced Sensitivity Galileo/GPS Receivers**

Andreas Schmid, Andre Neubauer, Infineon Technologies AG

**4. High Altitude Platforms Instability Effect on Co-channel Interference Levels when Sharing the V band with Satellite and Terrestrial Services.**

Vasilis Milas, Maria Koletta, Demosthenes Vouyioukas, Dimitris Dres, Philip Constantinou, National Technical University of Athens

**5. Interference Investigation and Guard Band Requirements between Satellite DMB Systems**

In-Suk Cha, Sung Ho Park, KyungHi Chang, Inha University

**6. The Effect of Correlated Shadowing on Power Control Error in Satellite CDMA Systems**

Ozgur Ekici, Abbas Yongacoglu, University of Ottawa

*Tuesday, May 31, 14.00 – 15.40 C5*

**6D: OFDM 5**

**1. Estimation and Compensation of I/Q Imbalance in OFDM Systems**

Kuang-Yu Sung, Chi-chao Chao, National Tsing Hua University

**2. Two Space-Frequency Coded OFDM Schemes for Large Diversity**

Ruey-Yi Wei, Yu-Lung Wu, National Central University; Yeong-Luh Ueng, Terax Communication Technologies Inc.

**3. Suppression of Non-reciprocal Interference in Adaptive MIMO-OFDM Cellular Systems**

Antti Tolli, Marian Codreanu, Markku Juntti, University of Oulu

**4. Frequency Synchronisation in OFDM -- a Bayesian Analysis**

Erik Björnemo, Uppsala University

**5. Signal Detection for Space-Frequency OFDM Systems With Quasi-Orthogonal Space-Time Block Codes**

Linyang Song, Alister Burr, University of York

**6. OFDM systems with trellis coded sequential modulation**

Masaaki Harada, Kyoto institute of technology

*Tuesday, May 31, 14.00 – 15.40 C6*

**6E: Signal Processing**

**1. On the Capacity of Multicarrier Transmission over Nonlinear Channels**

Peter Zillmann, Gerhard Fettweis, Dresden University of Technology

**2. Minimax Mean-Square-Error Transmit Wiener Filter**

Raphael Hunger, Michael Joham, Wolfgang Utschick, Technische Universität München

**3. A Novel Adaptive Algorithm for Generalized Synchronization**

Monica Bugallo, Stony Brook University; Joaquin Miguez, Universidad Carlos III de Madrid

**4. A Computationally Efficient Method for Robust Minimum Variance Beamforming**

Jisung Oh, SeungJean Kim, Stanford University

**5. Error Analysis of DOA Estimation for Short Code CDMA Systems with A Beamforming Approach**

Chiao-yao Chuang, University of Southern California; Xiaoli Yu, C.C. Jay Kuo, University of Southern California

**6. Blind symbol rate detection for low-complexity multi-rate receivers**

Henk Wymeersch, Marc Moeneclaey, Ghent University

*Tuesday, May 31, 14.00 – 15.40 C7*

**6F: System Performance 1**

**1. System Aspects of WCDMA Uplink Parallel Interference Cancellation**

Fredrik Gunnarsson, Bo Hagerman, Ericsson Research

**2. Comparison of Models for WCDMA Downlink Capacity Assessment based on a MORANS Reference Scenario**

Andreas Eisenblätter, Atesio GmbH, Berlin; Hans-Florian Geerdes, Konrad-Zuse-Zentrum für Informationstechnik Berlin (ZIB); Antonella Munna, Roberto Verdone, University of Bologna

**3. An Analytic Method for Coverage Prediction in the UMTS Radio Network Planning Process**

Dirk Staehle, University of Wuerzburg

**4. Physical-Layer Performance Modeling for Dynamic Wireless Network System Simulators**

Jung-Fu Cheng, Ericsson Inc; Y.-P. Eric Wang, Ericsson Research

**5. Performance Analysis of a Time Division Duplex Broadband Fixed Wireless Access System in the 5 GHz U-NII Bands**

David Chen, Ivan Vukovic, Paul Odlyzko, Igor Filipovich, Motorola, Inc.

**6. Advanced Site Configuration Techniques for Automatic UMTS Radio Network Design**

Ulrich Tuerke, Michael Koonert, Siemens AG

*Tuesday, May 31, 14.00 – 15.40 C8*

**6G: MIMO Wireless Access**

**1. A New Approach for Iterative Decoding on coded MIMO Channels**

Yi Hong, University of South Australia; Jinho Choi, University of New South Wales

**2. Iterative-MAP Adaptive Detection via the EM Algorithm for LDPC-coded MIMO-OFDM Mobile Communications in Fast Fading Channels**

Tsuyoshi Kashima, Tokyo Institute of Technology; Kazuhiko Fukawa, Tokyo Institute of Technol.; Hiroshi Suzuki, Tokyo Institute of Technology

3. **Advanced Spectral Processing based MIMO Receiver Algorithms not requiring a Cyclic Prefix**  
Enrico de Marinis, Otello Gasparini, DUNE s.r.l.; Michael Hart, Fujitsu Laboratories of Europe Ltd
4. **Modeling and Analysis of a 40 GHz MIMO System for Fixed Wireless Access**  
Frode Bøhagen, Nera Research; Pål Orten, NERA; Geir E. Øien, NTNU, Dept. of Electronics and Telecommunications
5. **System-level performance gains of selective per-antenna-rate-control (S-PARC)**  
Stephen Grant, Karl Molnar, Leonid Krasny, Ericsson Inc.
6. **Measurement based Performance Evaluation of MIMO-OFDM with Turbo-Equalization**  
Christian Schneider, Marcus Grossmann, Reiner Thomae, University of Ilmenau

*Tuesday, May 31, 14.00 – 15.40 C9*

### **6H: Statistical Channel Models 1**

1. **A Modified S-V Clustering Channel Model for the UWB Indoor Residential Environment**  
Chia-Chin Chong, Youngeil Kim, Seong-Soo Lee, Samsung Advanced Institute of Technology
2. **A Statistical Mobile-to-Mobile Rician Fading Channel Model**  
Li-Chun Wang, Yun-Huai Cheng, National Chiao Tung University
3. **Statistical Analysis of Measured Radio Channels for Future Generation Mobile Communication Systems**  
Mathias Riback, Henrik Asplund, Jonas Medbo, Jan-Erik Berg, Ericsson Research, Ericsson AB
4. **Comparison of Empirical Path Loss Models in Fixed Wireless Access Systems**  
Viraj Abhayawardhana, BT Plc.; Ian Wassell, University of Cambridge; David Crosby, Malcolm Sellars, Cambridge Broadband Ltd.; Martin Brown, Cotares Ltd.
5. **Statistical Modelling of a Radio Propagation Channel in an Underground Mine at 2.4 And 5.8 GHz**  
Mathieu Boutin, INRS\_EMT, Université du Québec; Sofière Affes, Institut national de la recherche scientifique, énergie, matériaux et télécommunications; Charles Despins, PROMPT-Québec; Tayeb A. Denidni, Université du Quebec
6. **Small-Scale Fading Prediction using an Artificial Neural Network**  
Erik Ostlin, Western Australian Telecommunications Research Institute; Hans-Juergen Zepernick, Blekinge Institute of Technology; Hajime Suzuki, CSIRO

*Tuesday, May 31, 14.00 – 15.40 Upper Level*

### **6P: Beyond 3G Posters**

1. **Space-Time Weighted Nonbinary Repeat-Accumulate Codes in Frequency-Selective MIMO Channels**  
Kai Yen, Institute for Infocomm Research; Nenad Veselinovic, University of Oulu; Tadashi Matsumoto, CWC - Oulu
2. **Recovering the Clipped OFDM signal based on conic function**  
Linjun Wu, Xi'an jiaotong University
3. **Group Ordered Iterative Soft Interference Cancellation for GSTBC SFH /MC DS-CDMA System**  
Cai Lingyun, Shanghai Jiaotong University
4. **An Infrastructure Cost Evaluation of Single- and Multi-Access Networks with Heterogeneous User Behavior**  
Anders Furuskar, Magnus Almgren, Ericsson AB; Klas Johansson, Royal Institute of Technology
5. **A New Technique for Improving Channel Estimation in Clipped OFDM system**  
Xiao Yue, Shaoqian Li, Lei Xia, Tang Youxi, National Communications Lab, University of Electronic Science & Technology of China
6. **Impact of Partial Equalization on the Downlink Performance of Multi-Carrier CDMA Systems**  
Flavio Zabini, Andrea Conti, Barbara Mavi Masini, Oreste Andrisano, University of Bologna
7. **Cost Analysis Issues in a Wireless Multihop Architecture with Fixed Relays**  
Bogdan Timus, KTH
8. **Cost-Based Resource Management in Hybrid Cellular-Broadcasting Systems**  
Aurelian Bria, Royal Institute of Technology Stockholm
9. **Adaptive MIMO Transmission Scheme: Exploiting the Spatial Selectivity of Wireless Channels**  
Antonio Forenza, University of Texas; Ashish Pandharipande, Samsung; Hojin Kim, SAIT; Robert Heath, University of Texas at Austin
10. **Capacity Analyses for a Generalized Distributed Antenna Architecture for Beyond 3G Systems**  
Xiaofeng Tao, WTI-BUPT
11. **Advanced Planning Strategies for Wireless Networks in a B3G Reconfigurable Radio Context**  
Kostas Tsagkaris, University of Pireaus
12. **One-way Relay for Wireless Multihop Networks associated with the Intermittent Periodic Transmit and the Spiral Mesh Routing**  
Yukinori Higa, Hiroshi Furukawa, Kyushu University

*Tuesday, May 31, 16.10 – 17.50 C3*

### **7B: Decoding 2**

1. **Low Complexity Decoding of BICM STBC**  
Enis Akay, Ender Ayanoglu, University of California, Irvine
2. **Analysis of a Sub-Block Recovery Scheme for Decoding a Concatenated Error Control Code**  
Chunlong Bai, Witold Krzymien, Ivan Fair, University of Alberta / TRILabs; Bartosz Mielczarek, TRILabs/University of Alberta
3. **Soft decision metrics for turbo-coded FH M-FSK ad hoc packet radio networks**  
Bojan Peric, George Washington University; Michael Souryal, National Institute of Standards and Technology; Erik Larsson, Royal Institute of Technology; Branimir Vojcic, George Washington University

4. **Fast Finger Selection for GRAKE**  
Ali Khayrallah, Ericsson Inc.; Douglas Cairns, Ericsson Research
5. **Multi-dimensional Mapping for Bit-Interleaved Coded Systems**  
Frederik Simoens, Henk Wymeersch, Marc Moeneclaey, Ghent University
6. **On the Joint Detection SAIC Algorithm in Asynchronous GSM Network**  
Zhigang Tian, Guo Wenbin, Yang Da-Cheng, Beijing University of Posts and Telecommunications

Tuesday, May 31, 16.10 – 17.50 C4

## 7C: Satellite System Aspects and Protocols

- 1. Hybrid Location Estimation and Tracking System for Mobile Devices**  
Chao-Lin Chen, Kai-Ten Feng, National Chiao Tung University
- 2. Buffer Control Strategies for Proxy Based Architectures for the Transmission of TCP Flows over Geostationary Links**  
Michele Rossi, Andrea Odorizzi, Nicola Baldo, University of Ferrara
- 3. Performance Evaluation of Scalable TCP and HighSpeed TCP over Geostationary Satellite Links**  
Giovanni Giambene, University of Siena; Daniele Miorandi, CREATE-NET
- 4. Performance Evaluation of Conference Creation Signalling over Satellite UMTS**  
Victor Kueh, University of Surrey
- 5. SatNEX: A Network of Excellence Providing Training in Satellite Communications**  
Ray Sheriff, Yim-Fun Hu, Pauline Chan, University of Bradford; Michel BOUSQUET, Supaero; Giovanni Emanuele Corazza, University of Bologna; Anton Donner, German Aerospace Center (DLR)
- 6. High Altitude Platform (HAP) W-CDMA System Over Cities**  
Bazil Ahmed, Technical University of Madrid; Miguel Ramón., Leandro Haro y Ariet

Tuesday, May 31, 16.10 – 17.50 C5

## 7D: Scheduling

- 1. Downlink Multiuser Scheduling Algorithms with HSDPA Closed-Loop Feedback Information**  
Alexis Dowhuszko, Graciela Corral-Briones, National University of Cordoba; Risto Wichman, Helsinki University of Technology; Jyri Hamalainen, Helsinki University of Technology
- 2. Energy Allocation for Multicarrier Systems with Mixed QoS Classes**  
Michael A. Enright, C.C. Jay Kuo, University of Southern California
- 3. A New Multiuser Diversity Scheme Exploiting Detection Order for AM-SIC System**  
Jaesang Ham, Kyeongyeon Kim, Seijoon Shim, Chungyong Lee, Yonsei University; Jaehak Chung, Samsung Advanced Institute of Technology
- 4. An Eigen-based MIMO Multiuser Scheduler robust to spatial channel correlation**  
Hakju Lee, Myeongcheol Shin, Chungyong Lee, Yonsei University
- 5. Opportunistic User Scheduling and Antenna Selection in the Downlink of Multiuser MISO Systems**  
Inaki Berenguer, Columbia Univ; Ian Wassell, University of Cambridge; Xiaodong Wang, Columbia University
- 6. Analysis of Digital Modulation with Unequal Power Allocation**  
Thomas Brüggem, Peter Vary, RWTH Aachen University

Tuesday, May 31, 16.10 – 17.50 C6

## 7E: WCDMA Networks

- 1. Comparison of UWB and WCDMA Positioning Accuracies**  
Montillet Jean-Philippe, university of Oulu; Giuseppe Abreu, Yokohama National University; Ian Oppermann, University of Oulu; Harri Saarnisaari, Centre for Wireless Communications
- 2. Downlink Fluid Model of CDMA Networks**  
KELIF Jean-Marc, France Telecom R&D; Eitan Altman, INRIA

## 3. Genetic approach to QoS optimization for WCDMA mobile networks

David Soldani, Kimmo Valkealahti, Nokia Research Center

## 4. On The Impact of Traffic Characteristics on Radio Resource Fluctuation in Multi-Service Cellular CDMA Networks

Keivan Navaie, Carleton University; Ahmad R. Sharafat, Tarbiat Modarres University; Yiqiang Q. Zhao, Carleton University

## 5. Genetically Enhanced Performance of a UTRA-like Time-Division Duplex CDMA Network

Lajos Hanzo, University of Southampton

## 6. Seamless Multimedia QoS Across UMTS and WLAN Networks

Apostolis Salkintzis, Motorola; Dimitris Skyrianoglou, Nikos Passas, University of Athens

Tuesday, May 31, 16.10 – 17.50 C7

## 7F: System Performance 2

### 1. Performance Comparison of 802.16d OFDMA, TD-CDMA, cdma2000 1xEV-DO and 802.11a WLAN on Voice over IP Service

Jee-young Song, KAIST

### 2. On the Restriction of the Coverage Area of the Interference TDMA Co-channel Slots in an Overlaid CDMA and TDMA System

Josefina Castañeda-Camacho, CINVESTAV-IPN

### 3. Reverse link coverage and capacity of a CDMA Microcellular System for Voice and High Data-Rate Users

José Ernesto Rojas-Lima, CINVESTAV, IPN

### 4. Feasibility Study of Coexistence between Spread Spectrum and Analog Broadcasting Systems

Demosthenes Vouyioukas, Dimitris Dres, Philip Constantinou, National Technical University of Athens

### 5. Feasibility Study for Direct Sequence Spread Spectrum and TV Services Overlay

Dimitris Dres, Demosthenes Vouyioukas, Philip Constantinou, National Technical University of Athens

### 6. Comparison of Matched Filter Acquisition Using Beamforming and CME Algorithm in Impulsive Interference

Henri Puska, University of Oulu; Harri Saarnisaari, Centre for Wireless Communications; Jari Iinatti, University of Oulu

Tuesday, May 31, 16.10 – 17.50 C8

## 7G: WLAN 1

### 1. Management of Services Differentiation and Guarantee in IEEE 802.11e Wireless LANs

Jianhua He, Dritan Kaleshi, Alistair Munro, Michael Barton, University of Bristol

### 2. Fast Handover Scheme Based on Real-Time Downlink Services in IEEE 802.16e BWA System

Sik Choi, Gyung-Ho Hwang, Taesoo Kwon, Korea Advanced Institute of Science and Technology; Ae-Ri Lim, Samsung Electronics Co. Ltd.; Dong-Ho Cho, Korea Advanced Institute of Science and Technology

### 3. Fair Relaying and Cooperation in Multi-rate 802.11 Networks

Claudio Casetti, Carla-Fabiana Chiasserini, Luca Prevedera, Politecnico di Torino

### 4. Energy-efficient Beacon Management Method Considering Congestion in Wireless LANs

JungYun Lee, Korea Advanced Institute of Science and Technology; Sang-Wook Kwon, Dong-Ho Cho, Korea Advanced Institute of Science and Technology

5. **Power Saving Efficiency of a novel Packet Aggregation Scheme for high-throughput WLAN stations at different data rates**  
Begonya Otal, Philips Research Laboratories; Joerg Habetha, Philip Research
6. **Performance Improvement of 802.11 Wireless Access Network with TCP ACK Agent and Auto-Zoom Backoff Algorithm**  
Qixiang Pang, The University of British Columbia; Liew Soung Chang, Chinese University of Hong Kong; Victor Leung, The University of British Columbia

*Tuesday, May 31, 16.10 – 17.50 C9*

### **7H: Statistical Channel Models 2**

1. **Distribution of the Amplitude of a Sum of Singly and Doubly Scattered Fading Radio Signal**  
Jari Salo, Jussi Salmi, Pertti Vainikainen, Helsinki University of Technology
2. **Indoor/Outdoor Location of Cellular Handsets Based on Received Signal Strength**  
Jian Zhu, Gregory Durgin, Georgia Institute of Technology
3. **Propagation Characteristics of IEEE 802.15.4 Radio Signal and Their Application for Location Estimation**  
Shinsuke Hara, Dapeng Zhao, Kentaro Yanagihara, Jumpei Taketsugu, Ken'ichi Kitayama, Osaka University
4. **Modelling of propagation environments inside a Scattered Field Chamber**  
Magnus Otterskog, Örebro University
5. **Time Variability of the Foliated Fixed Wireless Access Channel at 3.5 GHz**  
David Crosby, Cambridge Broadband; Viraj Abhayawardhana, BT Plc.; Ian Wassell, University of Cambridge; Malcolm Sellars, Cambridge Broadband Ltd.
6. **Calibration of an Indoor Radio Propagation Prediction Model at 2.4 GHz by Measurements of the IEEE 802.11b Preamble**  
Jaouhar Jemai, Radoslaw Piesiewicz, Thomas Kürner, Technische Universität Braunschweig

*Tuesday, May 31, 16.10 – 17.50 Upper Level*

### **7P: Coding**

1. **On the Performance of Space-time Turbo Codes**  
Mathini Sellathurai, Cardiff University

2. **Adaptive Multilevel Coding in OFDM Systems**  
Peter Trifonov, St.Petersburg State Polytechnic University; Elena Costa, Egon Schulz, Siemens AG
3. **Construction of LDPC Codes Based on Narrow-Sense and Primitive BCH Codes**  
Yi Yu, ENST-Bretagne
4. **Throughput comparison of MC-CDMA and DS-CDMA with frequency-domain equalization and adaptive modulation and coding**  
Deepshikha Garg, Tohoku University; Fumiyuki Adachi, University of Tohoku
5. **Performance analysis of h.264/avc video transmission with unequal-error-protected turbo codes**  
Pronsak Raibroycharoen, University of Essex
6. **SC-MMSE MIMO turbo receiver with multidimensional parity check**  
Adrian Boukalov, Helsinki University of Technology
7. **Low-Density Parity-Check (LDPC) Coded Ultra High-Data-Rate OFDM System in Frequency-Selective Fading**  
Ming Lei, National Institute of Information and Communications Technology (NICT), Japan
8. **Semi-Blind Combined Detection and Turbo Decoding for Unknown Block Fading Channels**  
Richard Demo Souza, CEFET-PR; Javier Garcia-Frias, University of Delaware
9. **Turbo-Detected Unequal Protection MPEG-4 Audio Transceiver Using Convolutional Codes, Trellis Coded Modulation and Space-Time Trellis Coding**  
Soon Ng, Lajos Hanzo, University of Southampton
10. **A Novel Stopping Criterion for Turbo Decoding**  
Emmanouil Kalantzis, Panagiotis Dallas, INTRACOS S.A.; Bayan Sharif, University of Newcastle Upon Tyne
11. **On TPC Decoding during Soft Handover in WCDMA**  
Bengt Lindoff, Bo Bernhardsson, Ericsson Mobile Platforms AB
12. **Assessment of Low-Rate Turbo Encoding to Extend Coverage in WCDMA/HSDPA Systems**  
Ignasi Perez, Aalborg University; Troels Kolding, Frank Frederiksen, Nokia Networks; Troels Sørensen, Bin Hu, Bernard Fleury, Aalborg University

## **Wednesday, 1 June 2005**

*Wednesday, June 1, 8.30 – 10.10 C10*

### **8A: System Architectures for B3G: OFDMA Systems**

1. **Low-Overhead Resource Allocation with Load Balancing in Multi-cell OFDMA Systems**  
Hojoong Kwon, Won-Ick Lee, Byeong Gi Lee, Seoul National University
2. **A Novel SNR Estimation Algorithm for OFDM**  
Huilin Xu, University of Science and Technology of China
3. **Modeling of OFDM-based Systems with Frequency Offsets and Frequency Selective Fading Channels**  
Wei Zhang, Juergen Lindner, University of Ulm
4. **On the Capacity Comparison of Multi-User Access Techniques for Fourth Generation Cellular TDD OFDM-based Systems**  
Paola Bisaglia, Federico Boccardi, University of Padova; Valeria D'Amico, TILAB; Marco Moretti, Università di Pisa; Bartolo Scanavino, Politecnico di Torino; Daniele Veronesi, University of Padova

5. **Capacity Analysis Considering Channel Resource Overhead for Wireless Mobile Internet System (WiBro)**

Rami Lee, Joungchel Kim, JaeHwang Yu, Joosik Lee, SK Telecom.com

6. **On Subcarrier Allocation for Soft Hand-Over in OFDMA-based Cellular Systems**

Jungwoo Lee, Chanhong Kim, Seoul National University; Jaehyeong Kim, Posdata

*Wednesday, June 1, 8.30 – 10.10 C3*

### **8B: Performance Analysis and Evaluation of Communication Systems**

1. **A Simple form for the Two-Dimensional Q-function Suitable for Performance Evaluation of Communication Systems**  
Shahram Yousefi, Billy Holmes, Queen's University
2. **Large Sensor System Performance of Decentralized Detection in Noisy, Bandlimited Channels**  
Sudharman Jayaweera, Wichita State University

**3. Experimental Performance Evaluation of Multiuser Zero Forcing Relaying in Indoor Scenarios**  
Stefan Berger, Armin Wittneben, Swiss Federal Institute of Technology (ETH) Zurich

**4. Performance Analysis of DSTTD Based on Diversity-Multiplexing Trade-off**  
Kyunghul Kwak, Yonsei University; Jihyung Kim, University of Yonsei; Byungjoon Park, Daesik Hong, Yonsei University

**5. FPGA implementation of near-1Gbps real-time 4x4 MIMO-MLD**  
Toshiaki Koike, Yukinaga Seki, Kyoto University; Hidekazu Murata, Tokyo Institute of Technology; Susumu Yoshida, Kyoto University; Kiyomichi Araki, Tokyo Institute of Technology

**6. From Theory to Practice: MIMO Real-Time Experiments of Adaptive Bit-loading with linear and non-linear Transmission and Detection Schemes.**  
Thomas Haustein, Heinrich Hertz Institut Berlin; Andreas Forck, Holger Gäbler, Stefan Schiffermueller, FhG-HHI

*Wednesday, June 1, 8.30 – 10.10 C4*

### **8C: Coding and Modulation 1**

**1. Performance Analysis of Trellis Coded Beamforming Schemes for MIMO fading channels**  
Li Chu, Jinhong Yuan, University of New South Wales, Australia

**2. Performance Analysis of M-ary PSK Adaptive Modulation System over Rayleigh-Lognormal Fading Channel**  
Hsin-Piao Lin, Ming-Chien Tseng, Ding-Bing Lin, National Taipei University of Technology

**3. Multi-dimensional MPSK for Iterative Demapping over AWGN and Rayleigh Fading Channels**  
Xin Qi, Ming Zhao, Shidong Zhou, Wang Jing, Tsinghua University

**4. A New Labeling Search Method for Bit-interleaved Coded Modulation with Iterative Decoding**  
Qi Cheng, Xibin Xu, Shidong Zhou, Limin Xiao, Tsinghua University

**5. High Girth LDPC Codes Construction Based on Combinatorial design**  
Fan Zhang, Ying Xu, Xuehong Mao, Wuyang Zhou, University of Science and Technology of China

**6. A Novel TCM-based Hybrid ARQ For Efficient Bandwidth Utilization**  
Qian Huang, Sammy Chan, Li Ping, King-Tim Ko, City University of Hong Kong; Moshe Zukerman, University of Melbourne

*Wednesday, June 1, 8.30 – 10.10 C5*

### **8D: Interference Cancellation 1**

**1. Evaluation of Single Antenna Interference Cancellation in Asynchronous GSM Network**  
Zhigang Tian, Guo Wenbin, Yang Da-Cheng, Beijing University of Posts and Telecommunications

**2. Convergence Analysis of Weight-Controlled Nonlinear Soft Interference Cancellation Methods for DS-CDMA systems**  
As Madhukumar, Nanyang Technological University; Kai Yang, National University of Singapore; A.B. Premkumar, Nanyang Technological University

**3. Iterative Turbo Multipath Interference Cancellation for WCDMA Systems with Non-Uniform Modulations**  
Nuno Souto, Joao Silva, Francisco Cercas, Rui Dinis, Instituto Superior Técnico (IST) - Technical University of Lisbon

**4. Linear Interference Canceller Utilizing Systolic Array for DS-CDMA Mobile Communications**  
Thet Khine, Kazuhiko Fukawa, Hiroshi Suzuki, Tokyo Institute of Technology

**5. A Single Antenna Interference Cancellation Algorithm for GSM**  
Raimund Meyer, Com-Research GmbH; Wolfgang Gerstacker, University of Erlangen-Nuernberg; Robert Schober, University of British Columbia; Johannes Huber, University of Erlangen-Nuremberg

**6. A Simple Transmitter Precoding Technique for MAI/ISI Rejection in the Forward Link of a Wireless**  
Jose Martin Luna-Rivera, Autonomous University of San Luis Potosi

*Wednesday, June 1, 8.30 – 10.10 C6*

### **8E: Call Control**

**1. A Call Admission Control Scheme with Guaranteed QoS for Wireless IP-based Networks**  
Nutsupang Pitakapan, Watit Benjapolakul, Chulalongkorn University

**2. Uplink Interference based Call Admission Control for W-CDMA Mobile Communication Systems**  
Daniel Catrein, Anke Feiten, Rudolf Mathar, RWTH Aachen University

**3. Tier-Based Analytical Model for Adaptive Call Admission Control Scheme in a UMTS-WCDMA System**  
Kamala Subramaniam, North Carolina State University

**4. Introducing 3G like Conversational Services in GERAN Packet Data Networks**  
Carsten Ball, Siemens AG; Carlo Masseroni, Riccardo Trivisonno, Siemens Mobile Communications S.p.A

**5. Connectivity Investigation of Mobile Relays for Next Generation Wireless Systems**  
Byron Bakaimis, Thierry Lestable, Samsung Electronics Research Institute, UK

**6. Towards Reliable Peer-to-Peer Data Sharing**  
Mee Young Sung, Jong Hyuk Lee, Yun Je Heo, University of Incheon

*Wednesday, June 1, 8.30 – 10.10 C7*

### **8F: Scheduling/Multi-user Systems 1**

**1. Efficient Scheduling Algorithm for Multicast OFDM Systems**  
Changho Suh, Samsung Electronics.

**2. Low-Complexity Multiuser Bit-Loading Algorithm for the Downlink of Wireless Local Area Networks**  
Khalid El Baamrani, University of Cadi Ayyad; Víctor P. Gil Jiménez, Ana Garcia Armada, University Carlos III of Madrid; Abdellah Ait Ouahman, University Cadi Ayyad; Said Allaki, National Institute of Posts and Telecommunications

**3. On Throughput Maximization in Downlink of a DS-CDMA System**  
Deze Zhao, Helsinki University of Technology; Mohammed Elmusrati, University of Vaasa; Riku Jantti, University of Vaasa

**4. An Efficiency Multiuser Diversity Scheme with Partial Feedback on Common Uplink**  
Ming Gong, Ling Qiu, Jinkang Zhu, PCN&SS Lab, University of Science and Technology of China

**5. Dependence of the Mean SNR on the Interaction between Multiuser Diversity, Multipath Diversity, and Feedback Delay**  
Fredrik Florén, Lund University; Moe Win, Massachusetts Institute of Technology; Ove Edfors, Lund University; Bengt-Arne Molin, Axis Communications AB

- 6. Fairness and Throughput Analysis for Generalized Proportional Fair Frequency Scheduling in OFDMA**  
Christian Wengerter, Jan Ohlhorst, Alexander Golitschek, Panasonic R&D Center Germany

*Wednesday, June 1, 8.30 – 10.10 C8*

**8G: WLAN 2**

- 1. A Cross-Layer Saturation Goodput Analysis for IEEE 802.11a Networks**  
Roger Hoefel, University La Salle
- 2. Joint Fragment Size, Transmission Rate, and Request-to-Send/Clear-to-Send Threshold Optimization for IEEE 802.11b Distributed Coordination Function**  
Alexandre Garmonov, Kodofon; Seok Ho Cheon, Do Hyon Yim, Ki Tae Han, Yun Sang Park, Samsung Electronics Co., Ltd.; Andrew Savinkov, Kodofon
- 3. Performance Analysis of IEEE802.16 Based Cellular MAN with OFDM-256 in Mobile Scenarios**  
Carsten Ball, Eduard Humburg, Kolio Ivanov, Franz Tremel, Siemens AG
- 4. P-DCF: Enhanced Backoff Scheme for the IEEE 802.11 DCF**  
Nakjung Choi, Yongho Seok, Yanghee Choi, Seoul National University, Korea
- 5. Scheduling and Admission Control for 802.11e Hybrid Coordinator**  
Boris Makarevitch, Helsinki University of Technology
- 6. MAC Sleep Mode Control Considering Downlink Traffic Pattern and Mobility**  
Neung-Hyung Lee, Saewoong Bahk, Seoul National University

*Wednesday, June 1, 8.30 – 10.10 C9*

**8H: MIMO Channel Models 1**

- 1. Capacity of Diagonally Correlated MIMO Channels**  
Huseyin Oezcelik, Vienna University of Technology; Claude Oestges, Université catholique de Louvain
- 2. Macrocellular Directional Channel Modeling at 1.9 GHz: Cluster Parametrization and Validation**  
Claude Oestges, Université catholique de Louvain
- 3. MIMO Channel Capacity Modeling using Markov Models**  
Mathini Sellathurai, Cardiff University; Sellathurai Vaihunthan, University of McMaster
- 4. Space-Time Correlation for Narrow- and Wideband MIMO Fading Signals in Macro- and Microcells**  
Po-Ying Chen, Hsueh-Jyh Li, National Taiwan University
- 5. Correlation Matrix Distance, a Meaningful Measure for Evaluation of Non-Stationary MIMO Channels**  
Markus Herdin, DoCoMo Communications Laboratories Europe GmbH; Nicolai Czink, Vienna University of Technology; Hüseyin Oezcelik, TU Vienna; Ernst Bonek, Vienna University of Technology

*Wednesday, June 1, 10.40 – 12.20 C10*

**9A: System Architectures for B3G: Multi-hop Systems**

- 1. Performance Evaluation of Route Coding Scheme in Wireless Multi-hop Networks**  
Hiraku Okada, Nagoya University; Tadahiho Wada, Kouji Ohuchi, Shizuoka University; Masato Saito, Nara Institute of Science and Technology; Takaya Yamazato, Masaaki Katayama, Nagoya University

- 6. Effect of Oscillator Phase Noise and Array Calibration Errors on MIMO Measurements**  
Peter Almers, Shurjeel Wyne, Fredrik Tufvesson, Lund University; Andreas Molisch, Mitsubishi Electric Research Laboratory

*Wednesday, June 1, 8.30 – 10.10 Upper Level*

**8P: CDMA**

- 1. Noncoherent Digital Delay-Lock Loops for Direct-Sequence Spread-Spectrum Signals over Weibull Fading Channels**  
Tsan-Ming Wu, Chung Yuan Christian University
- 2. Performance Benefits of Fractional Sampling in the Initial Code Synchronization for the Wireless Access of 3G Mobile Communications**  
F. Benedetto, Marco Carli, Gaetano Giunta, Alessandro Neri, University of Roma Tre
- 3. SINR for DS-CDMA with Random Spreading**  
Ping-Hung Chiang, National Taiwan University; Ding-Bing Lin, Hsin-Piao Lin, National Taipei University of Technology; Hsueh-Jyh Li, National Taiwan University
- 4. Performance Evaluation of Interleaved MC-CDMA Systems with Correlated Nakagami-m Fading**  
Zexian Li, Matti Latva-aho, University of Oulu
- 5. UCHT Complex Sequences for Downlink Multi-carrier DS-CDMA Systems**  
Zhenghui Gu, Shoulie Xie, Susanto Rahardja, Institute for Infocomm Research
- 6. Generalized Decorrelating RAKE Receiver**  
Tuncer Baykas, University of Ottawa; Mohamed Siala, Sup'Com; Abbas Yongacoglu, University of Ottawa
- 7. Optimal Number of Rake Combiners for Multiple Codes Assignment with Fast Handoff in UMTS Mobile Networks**  
Ben-Jye Chang, Chaoyang University of Technology
- 8. STBC Site Diversity for Multicarrier CDMA in Linear Cell System**  
Takeo Fujii, Yukihiko Kamiya, Tokyo University of Agriculture and Technology; Yasuo Suzuki
- 9. Distributions of orthogonality factor and multipath gain of the UMTS downlink obtained by measurement based simulations**  
Heinz Droste, T-Systems; Jürgen Beyer, T-Mobile
- 10 W-CDMA Uplink Soft Handover Gain Measurements**  
Mario Da Silva, mmO2
- 11 Location Dependent CDMA Orthogonality in System Level Simulations**  
Stefan Burger, Hermann Buddendick, AWE Communications; Philipp Wertz, University of Stuttgart; Gerd Woelfle, AWE Communications
- 12 Total Weighted Square Correlation of Multipath Multibase Synchronous DS-CDMA Systems**  
Paul Cota, University of Texas at San Antonio

- 2. A Novel Multihop ARQ Concept**  
Henning Wiemann, Michael Meyer, Reiner Ludwig, Ericsson Research, Ericsson GmbH
- 3. Interference-Aware IEEE 802.16 WiMax Mesh Networks**  
Hung-yu Wei, NEC Laboratories America; Samrat Ganguly, NEC Labs; Rauf Izmailov, NEC Laboratories America; Zygmunt Haas, Cornell University
- 4. Effect of Intercell Interference on the SNIR of a Multihop Cellular Network**  
Mark DeFaria, Elvino Sousa, University of Toronto

**5. Dynamic Frequency Hopping in Cellular Fixed Relay Networks**

Omer Mubarek, Halim Yanikomeroglu, Carleton University; Shalini Periyalwar, Nortel Networks

**6. Quasi-dedicated access scheme for uplink realtime services in future wireless communication systems**

Taesoo Kwon, Dong-Ho Cho, Korea Advanced Institute of Science and Technology

*Wednesday, June 1, 10.40 – 12.20 C3*

**9B: Modeling and Optimization for Transmitters and Receivers**

**1. Transmission Power Optimization of Convolutional coded VBLAST system**

Wu Yin, Charalampos Tsimenidis, Bayan Sharif, University of Newcastle Upon Tyne

**2. High-Efficiency Doherty Linear Amplifier with Backoff Control for Mobile Communications**

Fumitaka Iizuka, Tsuyoshi Ogino, Taiyo Yuden Co., Ltd.; Hiroshi Suzuki, Kazuhiko Fukawa, Tokyo Institute of Technology

**3. Increasing the power efficiency of an IEEE802.11g Power Amplifier**

Chun-Jen Chen, Kevin Morris, Mark Beach, University of Bristol

**4. Nonlinear amplification of clipped-filtered multicarrier signal**

Helka-Liina Määttä, Natalia Ermolova, Sven-Gustaf Häggman, Helsinki University of Technology

**5. Modeling power amplifiers with antenna mismatch**

Troels Nielsen, Aalborg University; Saska Lindfors, Helsinki University of Technology; Shadi Tawfik, Torben Larsen, Aalborg University

**6. Real-Time Simulation of Impairments in the Analog Parts of the Transmitter-Receiver**

Markku Kiviranta, Aarne Mammela, Sandrine Boumard, Ilkka Moilanen, VTT Electronics; Timo Sarkkinen, Tommi Jamsa, Elektrobit Ltd

*Wednesday, June 1, 10.40 – 12.20 C4*

**9C: Coding and Modulation 2**

**1. On the Performance of Finite-Depth Interleaved Convolutional Code in Time-Varying Rayleigh Fading Channel with Noisy Channel Estimates**

Jittra Jootar, James Zeidler, John G. Proakis, Univ. of California, San Diego

**2. Low Complexity Stopping Criteria for LDPC Code Decoders**

Frank Kienle, Norbert Wehn, University of Kaiserslautern

**3. Throughput of Turbo Coded Hybrid ARQ Using Single-carrier MIMO Multiplexing**

Akinori Nakajima, Deepshikha Garg, Tohoku University; Fumiyuki Adachi, University of Tohoku

**4. Parallel Iterative Decoding for Orthogonal Convolutional Codes**

Yucheng He, David Haccoun, Christian Cardinal, Ecole Polytechnique de Montréal

**5. Flexible Feedback Vector Quantization in Multiple Antenna Systems**

Bartosz Mielczarek, TRILabs/University of Alberta; Witold Krzymien, University of Alberta / TRILabs

**6. Joint Source-Channel Coding over ISI channels using Turbo Equalization and Side Information at the Decoder**

Javier del Ser, Arrate Muñoz, Centro de Estudios e Investigaciones Técnicas de Gipuzkoa; Pedro Crespo, Universidad de Navarra

*Wednesday, June 1, 10.40 – 12.20 C5*

**9D: Interference Cancellation 2**

**1. Interference Suppression in MIMO Communication for WCDMA Downlink**

Jari Ylinoias, Kari Hooli, Kai Kiiskilä, Markku Juntti, University of Oulu

**2. Interference Resistant Receivers for WCDMA MIMO Downlink**

Kai Kiiskilä, Kari Hooli, Jari Ylinoias, Markku Juntti, University of Oulu

**3. Successive Interference Cancellation for STBC-OFDM Systems in a Fast Fading Channel**

JungWook Wee, Jeong-Wook Seo, Dong-Sun Kim, Yoon-Sung Lee, Won Gi Jeon, Korea Electronics Technology Institute (KETI)

**4. MMSE Transmit Optimization with Interference Pre-Compensation**

Martin Schubert, Shuying Shi, Fraunhofer German-Sino Lab for Mobile Communications MCI

**5. Low Complex Interference Cancellation via Modified Suboptimum Search Algorithm and Reduced Rank Linear Detection for Mobile Uplink**

Mahdi Mozaffaripour, Rahim Tafazolli, University of Surrey

**6. Antenna Selection for BER Performance Improvement in Multi-Antenna Systems with MMSE-SIC Detection**

Nikola Vucic, Martin Schubert, Fraunhofer German-Sino Lab for Mobile Communications MCI

*Wednesday, June 1, 10.40 – 12.20 C6*

**9E: Handover**

**1. Handover Management for Real-time Communications in Wireless Local Area Networks**

Shigeru Kashihara, Yuji Oie, Kyushu Institute of Technology

**2. Hybrid Handover in Multihop Radio Access Networks**

Mona Ghassemian, Vasilios Friderikos, Hamid Aghvami, King's College London

**3. An Analysis of Novel Packet Duplicated Handoff Using Both Buffer Size and**

Bongkarn Homnan, Dhurakijpundit University

**4. Challenge of Seamless Handover for Merging Wired and Wireless Infrastructures**

SooHong Park, Samsung Electronics

**5. Access Selection in WCDMA and WLAN Multi-Access Networks**

Anders Furuskar, Ericsson AB; Jonas Pettersson, Arne Simonsson, Ericsson Research; Oya Yilmaz, Royal Institute of Technology (KTH)

**6. TAKEOVER: A New Vertical Handover Concept for Next-Generation Heterogeneous Networks**

Hyun-Ho Choi, Dong-Ho Cho, Korea Advanced Institute of Science and Technology

*Wednesday, June 1, 10.40 – 12.20 C7*

**9F: Scheduling/Multi-user Systems 2**

**1. Downlink scheduling with adaptive antennas in multicell SDMA packet access networks**

Carlo F. Binder, Riccardo Veronesi, Velio Tralli, University of Ferrara - Italy

**2. A practical Wireless Scheduler using traffic-profile based compensation for Broadband Fixed Wireless Applications**

Steven Walsh, Emiliano Garcia, Sakir Sezer, Queen's University Belfast

**3. Exploiting Multiuser Diversity through Uplink Scheduling**

Matilde P. Sanchez-Fernandez, Maria Luz Pablo Gonzalez, University Carlos III of Madrid; Angel Lozano, Bell Labs (Lucent Technologies)

**4. Distributed Scheduling in a Time-Varying Channel**

Tiina Heikkinen, Lancaster University; Ari Hottinen, Nokia Research Center

**5. Packet Scheduler for Mobile Communications Systems with Time-Varying Capacity Region**

K. W. Choi, Seoul National University; Dong Geun Jeong, Hankuk University of FS; Wha Sook Jeon, Seoul National University

**6. A Power Efficient Embedded Modulation Scheme for Addressing Multiple Users in the Downlink**

Gerard Janssen, Delft University of Technology

*Wednesday, June 1, 10.40 – 12.20 C8*

**9G: WLAN 3**

**1. A Dynamic and Adaptive Bandwidth Management Scheme for QoS Support in Wireless Multimedia Networks**

Hai-Bo Guo, Beijing University of Posts and Telecommunications; Geng-Sheng Kuo, National Chengchi University

**2. Dynamic Interference and Timeout-based CAC Scheme for Multimedia Cellular Networks**

Tarek Bejaoui, Véronique Vèque, University of Paris; Sami Tabbane, Sup Telecom

**3. Periodicity in TCP Session Arrivals in Broadband Fixed Wireless Access Network**

Amit Sinha, Kenneth Mitchell, Deep Medhi, University of Missouri - Kansas City

**4. Performance Enhancement of IEEE 802.11e EDCA by Contention Adaption**

Yi-Wen Lan, Jui-Hung Yeh, Jyh-Cheng Chen, Department of Computer Science, National Tsing Hua University; Zi-Tsan Chou, Institute of Information Industry

**5. An Adaptive “Sleep” Algorithm for Efficient Power Management in WLANs**

Mahasweta Sarkar, Rene L. Cruz, University of California, San Diego

**6. Load Balancing for QoS Optimisation in Wireless LANs Utilising Advanced Cell Breathing Techniques**

Olivia Brickley, Rajiv Mathur, Ken Murray, Dirk Pesch, Cork Institute of Technology

*Wednesday, June 1, 10.40 – 12.20 C9*

**9H: MIMO Channel Models 2**

**1. Statistical Evaluation of Outdoor-to-Indoor Office MIMO Measurements at 5.2 GHz**

Shurjeel Wyne, Lund University; Andreas Molisch, Mitsubishi Electric Research Laboratory; Peter Almers, Johan Karedal, Fredrik Tufvesson, Gunnar Ericsson, Lund University

**2. Classification of MIMO Channels by Diversity and Correlation**

Michel Ivrlac, Josef A. Nossek, Munich University of Technology

**3. What Makes a Good MIMO Channel Model?**

Huseyin Özcelik, Nicolai Czink, Ernst Bonek, Vienna University of Technology

**4. Spatial and polarization characterization of MIMO channels in rural environment**

Dmitry Chizhik, Bell Laboratories; Jonathan Ling, Dragan Samardzija, Reinaldo Valenzuela, Bell Laboratories, Lucent Technologies

**5. Capacity Analysis for Compact MIMO Systems**

Buon Kiong Lau, Serene S. M. Ow, Gerhard Kristensson, Lund University; Andreas Molisch, Mitsubishi Electric Research Laboratory

**6. MIMO Channel Measurements for Personal Area Networks**

Anders Johansson, Johan Karedal, Fredrik Tufvesson, Lund University; Andreas Molisch, Mitsubishi Electric Research Laboratory

*Wednesday, June 1, 10.40 – 12.20 Upper Level*

**9P: Transmission Technologies 1**

**1. MIMO Decorrelating Discrete Time RAKE Receiver**

Tuncer Baykas, University of Ottawa; Mohamed Siala, Sup'Com; Abbas Yongacoglu, University of Ottawa

**2. VISA MIMO OFDM Transmit Scheme for Wireless Communications**

Wladimir Bocquet, Fujitsu Laboratories Ltd.; Yunjian Jia, Shinsuke Hara, Osaka University; Michiharu Nakamura, Fujitsu Laboratories Ltd

**3. A New Modulation Scheme for DRM**

Shuzheng Xu, University

**4. Frequency Domain-DFE coupled with Common Phase Error Tracking Loop in OFDM Systems**

Ji Heon Kim, Agency for Defense Development; Whan Woo Kim, Chungnam National University

**5. Subspace method for blind CFO estimation for OFDM systems with constant modulus constellations**

Timo Roman, Visa Koivunen, Helsinki University of Technology

**6. Timing Synchronization Using Phase Difference between Subcarriers for OFDMA Uplink Systems over Frequency Selective Fading Channels**

Sungeun Lee, Hwasun Yoo, Myonghee Park, Byungjoon Park, Daesik Hong, Yonsei University

**7. A Joint Blind Timing and Frequency Offset Estimator for OFDM Systems over Doubly Selective Fading Channels**

Yong Huat Chew, Institute for Infocomm Research; Ronghong Mo, National University of Singapore

**8. A Design for OFDMA Receiver**

Jianhua Zhang, Xueqi He, Jie Bai, Ping Zhang, Beijing University of Posts and Telecommunications

**9. Rapid cell search in OFDM-based cellular systems**

Jin-Woo Lee, Yong-Hwan Lee, Seoul National University

**10 Noise Plus Interference Power Estimation in Adaptive OFDM Systems**

Tevfik Yucek, Huseyin Arslan, University of South Florida

**11A Lower Bound for Optimum Frame Synchronization on AWGN Channel**

Marco Chiani, Maria Giuseppina Martini, DEIS University of Bologna

**12 Double-threshold Based Narrowband Signal Extraction**

Johanna Vartiainen, Janne Lehtomaki, University of Oulu; Harri Saarnisaari, Centre for Wireless Communications

Wednesday, June 1, 14.00 – 15.40 C10

### 10A: System Architectures for B3G: MIMO Systems & Channel Characteristics

- 1. Optimal Processing of an Impulse Radio Signal Subjected to Narrow Band Interference**  
Reza Pasand, University of Calgary; Saeed Khalesehoseini, University of Calgary; John Nielsen, University of Calgary
- 2. A Robust Method for Estimating Multipath Channel Parameters in the Uplink of a DS-CDMA System**  
Vassilis Kekatos, University of Patras; Athanasios Rontogiannis, National Observatory of Athens; Kostas Berberidis, University of Patras
- 3. An Interim Channel Model for Beyond-3G Systems**  
Daniel Baum, ETH Zurich; Jari Salo, Helsinki University of Technology; Giovanni Del Galdo, Marko Milojevic, Ilmenau University of Technology; Pekka Kyösti, Elektrobit Ltd.; Jan Hansen, ETH Zurich
- 4. A MIMO RAKE Receiver with Enhanced Interference Cancellation**  
Volker Jungnickel, Haifeng Chen, Fraunhofer Institute for Telecommunications, Heinrich-Hertz Institute; Volker Pohl, Technical University Berlin
- 5. Performance of Multiple-Input Multiple-Output Wireless Communications Systems Using Distributed Antennas**  
Lie-Liang Yang, University of Southampton
- 6. On the estimation of the Degrees of Freedom of Indoor UWB channel**  
Rachid Saadane, Faculte des sciences, RABAT; Aawatif Menouni, Eurécom; Raymond Knopp, Institut Eurecom; Driss Aboutajdine, GSCM

Wednesday, June 1, 14.00 – 15.40 C3

### 10B: Space Time Coding/Equalization 1

- 1. Performance Analysis of Space-Time Trellis Coded OFDM over quasi-static Frequency Selective Fading channels**  
Yi Hong, University of South Australia
- 2. Combined space time trellis codes and beamforming on fast fading channels**  
Yonghui Li, University of Sydney
- 3. Concatenation of Space-Time Block Codes and Turbo Product Codes over Rayleigh Flat Fading Channels**  
Guangxi Zhu, Yejun He, Huazhong University of Science and Technology; Gan Liu, Huazhong University of Science and Technology and Hubei University; Bijun Zhang, Feng Wang, Huazhong University of Science and Technology
- 4. Application of Space-Time Codes to OFDM UWB Systems with Under-Sampled Receivers**  
Wan-Ting Chan, Wei-De Wu, National Tsing Hua University; Chung-Hsuan Wang, National Chiao Tung University; Mao-Ching Chiu, National Chung Cheng University; Chi-chao Chao, National Tsing Hua University
- 5. A Novel Low Complexity Space-Time Receiver for MIMO Systems Based on Beamforming and Partial SIC**  
Mauro Borgo, Matteo Butussi, Gianbattista Carnevale, Maurizio Zorzi, University of Padova
- 6. Space-Time Multilevel Codes**  
Philippa Martin, David M. Rankin, Desmond Taylor, University of Canterbury

Wednesday, June 1, 14.00 – 15.40 C4

### 10C: Coding and Modulation 3

- 1. Generalized PSK for Improved Iterative Decoding and Demodulation of Coded DPSK Systems**  
Frieder Sanzi, Marc Necker, University of Stuttgart

- 2. Lowering Error Floors of Irregular LDPC Code on Fast Fading Environment with and without Perfect CSI**

Satoshi Gounai, Tomoaki Ohtsuki, Tokyo University of Science

- 3. Multirate Diagonal- Space-Time-Interleaved Coded Modulation for Non-Ergodic Block fading channels**

Mathini Sellathurai, Cardiff University

- 4. Delta Modulation for Channel Feedback in Transmit Diversity Systems**

Havish Koorapaty, Ericsson Research; Leonid Krasny, R. Ramesh, Ericsson Inc.

- 5. Adaptive Coding for OFDM Based Systems using Generalized Concatenated Codes**

Lukas Kunz, Christos Vouzas, Lazaros Sidiropoulos, Chafic Nassif, Royal Institute of Technology (KTH)

- 6. Code Optimization with Serially Concatenated Trellis Coded Modulation on a Fading Channel**

Asgeir Nysaeter, UniK -University Graduate Center

Wednesday, June 1, 14.00 – 15.40 C5

### 10D: CDMA Systems 1

- 1. On the Impact of Imperfect Multipath Detection on the Performance of CDMA Systems with Space-Time Spreading**

Mohamed Abou-Khousa, University of Missouri-Rolla; Ali Ghayeb, Concordia University; Mohamed El-Tarhuni, American University of Sharjah

- 2. Digital Image Signal Rejection in WCDMA Receivers Based on Adaptive Interference Cancellation**

Mikko Valkama, Lauri Anttila, Markku Renfors, Tampere University of Technology

- 3. An Iterative Frequency-Domain Decision-Feedback Receiver for MC-CDMA Schemes**

Rui Dinis, IST - Technical University of Lisbon; Paulo Silva, CAPS-IST; António Gusmao, Instituto Superior Técnico

- 4. A 2D Space-frequency Receiver with Reduced-Rank Multistage Wiener Filters for MC-CDMA Systems**

Yung-Fang Chen, National Central University, Taiwan

- 5. Combined Spatial Multiplexing and Diversity Techniques for Coded MC-CDMA Systems with Suboptimal MMSE-Based Receivers**

Mikko Vehkaperä, Djordje Tujkovic, Zexian Li, Markku Juntti, University of Oulu, Centre For Wireless Communications

- 6. Reduced Complexity Joint Detection Generalized RAKE Receiver for WCDMA MIMO Systems**

Karl Molnar, Stephen Grant, Ericsson Inc.

Wednesday, June 1, 14.00 – 15.40 C6

### 10E: TCP & All-IP

- 1. Dynamic Hierarchical Mobile MPLS Protocol for Next Generation All-IP Wireless Networks**

Helen Zhou, Chi-Hsiang Yeh, Queen's University; Hussein Mouftah, University of Ottawa

- 2. Measurements of TCP Performance over UMTS Networks in Near-Ideal Conditions**

Martin Kohlwes, Janne Riihijärvi, Petri Mähönen, RWTH-Aachen

- 3. Transport Channel Switching for Interactive TCP/IP Traffic in WCDMA**

Marten Ericsson, Ericsson Research; Stefan Wänstedt, Ericsson Reserach; Jonas Pettersson, Claes Tidestav, Ericsson Research

**4. Performance Enhancement Techniques for TCP Over Wireless Links**

Evsen Yanmaz, Sun-chien Wei, Ozan Tonguz, Carnegie Mellon University

**5. A Cross-layer mechanism for TCP connection over wireless uplink in Cellular Networks**

Yifan Yu, Changchuan Yin, Beijing University of Posts and Telecommunications

**6. Cross Layer Design for Mobile IP Based Vertical Handoff**

Fang Zhu, Janise McNair, University of Florida

*Wednesday, June 1, 14.00 – 15.40 C7*

**10F: RRM 1**

**1. 3G Network QoS Estimation in a Multi Service Context**

Mathieu Demars, Benoît Fourestié, Julien Mourlon, Sylvain Renou, France Telecom R&D

**2. A Novel Dynamic Cell Configuration Scheme in Next-Generation Situation-Aware CDMA Networks**

Ching-Yu Liao, Fei Yu, Victor Leung, The University of British Columbia; Chung-Ju Chang, National Chiao Tung University

**3. A Radio Resource Management Scheme Driven by Users' Preferences under the CSMA/CA Capacity Constraint**

Leonardo Badia, University of Ferrara; Michele Zorzi, Università degli Studi di Padova

**4. Fixed Thresholds for Power Allocation and Management in WCDMA Mixed Services Scenarios**

Carlos Morais de Lima, Rodrigo Cavalcanti, Emanuel Rodrigues, Vicente de Sousa Junior, Federal University of Ceara

**5. Improved Channel Allocation and RLC block scheduling for Downlink traffic in GPRS**

Haibo Wang, Devendra Prasad, Xin Zhou, Jimena Llorente, Francois Delawarde, Gwenael Coget, Aalborg University

**6. Design and Evaluation of Suboptimal Call Admission Control Policy for Dynamic OVSA Code Assignment in CDMA Networks**

Jun-Seong Park, Lei Huang, C.C. Jay Kuo, University of Southern California

*Wednesday, June 1, 14.00 – 15.40 C8*

**10G: Ad Hoc Networks 1**

**1. Angular MAC Protocol with Location Based Scheduling for Wireless Ad Hoc Networks**

Erdem Ulukan, Ozgur Gurbuz, Sabanci University

**2. Spectral efficiency analysis in noncooperative interference environments**

Fredrik Berggren, KTH, Royal Institute of Technology

**3. A Simple Distributed Method for Relay Selection in Cooperative Diversity Wireless Networks, based on Reciprocity and Channel Measurements**

Aggelos Bletsas, Andrew Lippman, David Reed, MIT Media Lab

**4. Link-Failure Probabilities for Practical Cooperative Relay Networks**

Jianhong Lou, Rick Blum, Lehigh University; Larry Greenstein, Rutgers University; Len Cimini, University of Delaware; Alexander Haimovich, New Jersey Institute of Technology

**5. Downlink Node Cooperation with Node Selection Diversity**

Jeongkeun Lee, Sungjin Kim, Taekyoung Kwon, Yanghee Choi, Seoul National University; Jaewook Shin, Aesoon Park, ETRI

**6. Distributed-Queue Access for Wireless Ad Hoc Networks**

Valeria Baiamonte, Claudio Casetti, Carla-Fabiana Chiasserini, Politecnico di Torino

*Wednesday, June 1, 14.00 – 15.40 C9*

**10H: Smart Antennas and MIMO Systems 1**

**1. Performance of Different Interpolation Strategies for an OFDM/MMSE Smart Antenna System in an Indoor WLAN**

Karim Nasr, Fumie Costen, Stephen Barton, University of Manchester

**2. Reverse Link Capacity of CDMA Systems with Imperfect Beamforming Using Different Types of Antenna Arrays**

Jin Yu, Yu-Dong Yao, Stevens Institute of Technology

**3. Compact Feedback for MIMO-OFDM Systems over Frequency Selective Channels**

Qinghua Li, Xintian Lin, Intel Labs

**4. Lattice Array Receiver and Sender for Spatially OrthoNormal MIMO Communication**

Peter Larsson, Ericsson

**5. Spatio-Diversity Estimate of a System-Dependent Wideband Directional Channel**

Yifan Chen, V. K. Dubey, Nanyang Technological University

**6. Random Beamforming in MIMO Systems Exploiting Multiuser Diversity and Spatial Diversity**

Eun Yong Kim, Joohwan Chun, KAIST

*Wednesday, June 1, 14.00 – 15.40 Upper Level*

**10P: Transmission Technologies 2**

**1. Diversity Analysis of Single and Multiple Beamforming**

Ersin Sengul, Enis Akay, Ender Ayanoglu, University of California, Irvine

**2. Optimization of Diversity Order of Multiuser Multicarrier Wireless Systems in Nakagami Fading Channel**

Chin Choy Chai, Yong Huat Chew, Institute for Infocomm Research

**3. Exploiting Multiuser Diversity Using Multiple Feedback Thresholds**

Vegard Hassel, Norwegian University of Science and Technology; Mohamed-Slim Alouini, University of Minnesota; David Gesbert, Eurecom Institute; Geir E. Øien, NTNU

**4. Analysis of MAC protocols for underwater acoustic networks**

Hayat Doukkali, Enst de Bretagne; Loutfi Nuaymi, ENST-Bretagne

**5. Design of Energy-Efficient Wireless Sensor Networks with Censoring, On-Off, and Censoring and On-Off Sensors Based on Mutual Information**

Kohei Yamasaki, Tomoaki Ohtsuki, Tokyo University of Science

**6. An Energy-efficiency and Collision-free MAC Protocol for Wireless Sensor Networks**

Ana Liu, Hongyi Yu, Lin Li, Information Engineering University, Zhengzhou

**7. Group optimal space-time MUD with beamforming**

Benoit Pelletier, Benoit Champagne, McGill University

**8. 5GHz RLAN Interference on Active Meteorological Radars**

Andre Brandao, John Sydor, Wayne Brett, Communications Research Centre; John Scott, Paul Joe, Derek Hung, Meteorological Service of Canada

**9. Measured Throughput and SNR of IEEE 802.11g in a Small Enterprise Environment**

Mohammad Boulmalf, Hesham Elsayed, Abdelaziz Soufyan, UAE University

**10 Throughput Evaluation and Enhancement in 802.11 WLANs with Access Point**

Osama Abu-Sharkh, Ahmed Tewfik, University of Minnesota

**11 Jitter Analysis of the IEEE 802.11 DCF Access mode**

Dimitrios J. Vergados, Dimitrios D. Vergados, Aggeliki Sgora, Univeristy of the Aegean

**12 Combind Effects of RF Impairments in MIMO-OFDM WLAN Systems**

Sanghyun Woo, Dongjun Lee, Samsung Advanced Institute of Technology

*Wednesday, June 1, 16.10 – 17.50 C10*

**11A: Network Management**

**1. Interconnection between Mobile Providers and the SLA-Pricing Policies**

Christos Gizelis, Dimitrios Vergados, University of the Aegean

**2. Modeling and Performance Evaluation of Dynamic Abis for E-GPRS**

Nicolas Dailly, Philippe Martins, Philippe Godlewski, ENST-Telecom Paris

**3. Resource Delegation and Pricing to Foster Cooperation in Multihop Ad Hoc Cellular Networks**

Magnus Lindstrom, Pietro Lungaro, Royal Institute of Technology

**4. The effect of selfish behavior in mobile networks using CSMA/CA**

Olav Queseth, KTH

**5. Dynamic Control and Optimization of Buffer Size in Wireless Networks**

Michael Markou, Christos Panayiotou, University of Cyprus

**6. Determining Optimal Data and Control channels in a Generic Wireless System**

Abhishek Srivastava, Babu Banarasi Das National Inst. of Tech. & Mgmt., Lucknow; Shekhar Srivastava, Kenneth Mitchell, University of Missouri-Kansas City

*Wednesday, June 1, 16.10 – 17.50 C3*

**11B: Space Time Coding/Equalization 2**

**1. Non-Coherent Demodulation for Orthogonal Space-Time Coded CPM**

Tarkesh Pande, Heon Huh, James V. Krogmeier, Purdue University

**2. Full-Rate, Full-Diversity Adaptive Space Time Block Coding for Transmission over Rayleigh Fading Channels**

Soon Ng, Lajos Hanzo, University of Southampton

**3. Frequency-Domain Space-Time Precoders for Sever Time-dispersive channel Employing Single-Carrier Modulations**

Reza Kalbasi, Carleton University; Rui Dinis, IST - Technical University of Lisbon; David Falconer, Amir Banihashemi, Carleton University

**4. Space-Time Equalisation Assisted Multiuser Detection for SDMA Systems**

Sheng Chen, Lajos Hanzo, University of Southampton

**5. A Flexible Space-Time Coding System with Unequal Error Protection**

Heunchul Lee, Byeongsi Lee, Inkyu Lee, Korea University; Carl-Erik Sundberg, SundComm

**6. Mapping Optimization for Space-Time Block Coded OFDM Systems**

Jinsoo Choi, Korea University; Wookbong Lee, LG Electronics; Inkyu Lee, Korea University

*Wednesday, June 1, 16.10 – 17.50 C4*

**11C: Coding and Modulation 4**

**1. Coded Spreading with m-sequences**

Ozgur Ekici, University of Ottawa

**2. On the Threshold of Right Regular LDPC Codes for the Erasure Channel**

Enrico Paolini, Marco Chiani, University of Bologna

**3. Hierarchical Subgroup Power and Modulation Coding Adaptation - A New Frequency-Space Link Adaptation Scheme in MIMO-OFDM Eigenmode Adaptive Transmission System -**

Doan Le, SeeHo Ting, Kei Sakaguchi, Kiyomichi Araki, Tokyo Institute of Technology

**4. Improved Decoding with the Bi-Directional SOVA for Turbo Codes**

Yu-Chuan Chang, Jenn-Kaie Lain, Institute of Electronic Engineering, National Yunlin University of Science & Technology

**5. A Linear Criterion to Optimize Irregular LDPC Codes for OFDM Communications**

Valérian Mannoni, France Telecom R&D; Guillaume Gelle, DéCom / URCA; David Declercq, University of Cergy-Pontoise

**6. Unequal Error Protection in Bit-to-Symbol Mapping for LDPC Coded Modulation**

Yuan Li, Institute for Infocomm Research; Chin Keong Ho, Eindhoven University of Technology; Yan Wu, Sumei Sun, Institute for Infocomm Research

*Wednesday, June 1, 16.10 – 17.50 C5*

**11D: CDMA Systems 2**

**1. Maximizing Throughput using HSDPA with MIMO in UMTS Macro-cell Environment**

Pedro Vieira, Instituto Superior de Engenharia de Lisboa; Maria Paula Queluz, António Rodrigues, IT / Instituto Superior Técnico

**2. Joint Optimization of Radio Parameters in HSDPA**

Benno Zerlin, Munich Univeristy of Technology; Michel Ivrlac, Munich University of Technology; Wolfgang Utschick, Technische Universität München; Josef A. Nossek, Munich University of Technology

**3. Adaptive Multistage Detection for DS-CDMA Systems in Multipath Fading Channels**

Min Li, Walaa Hamouda, Concordia University

**4. MAI minimized Signature Waveforms for MC-DS-CDMA**

Sureshkumar Sivapathasundaram, University of Manitoba

**5. Coded CDMA in Cooperative Channels**

Ebrahim Karami, University of Tehran

*Wednesday, June 1, 16.10 – 17.50 C6*

**11E: Traffic Models**

**1. Performance of Traffic and Mobility Models for Location Area Code Planning**

Thomas Kürner, Andreas Hecker, Technische Universität Braunschweig

**2. Capacity Estimation for Growth Planning of Cellular Networks in the Presence of Temporal and Spatial Traffic Fluctuations**

Georg Hampel, Mike Flanagan, Lawrence Drabeck, Jay Srinivasan, Paul A. Polakos, Gee Rittenhouse, Bell Labs, Lucent Technologies

3. **User Mobility Model based on Street Pattern**  
Georgios Paschos, Kotsopoulos Stavros, Efstathios Vagenas,  
University of Patras
4. **Traffic distribution schemes for multi-homed mobile hotspots**  
Albert Chung, Mahbub Hassan, University of New South  
Wales
5. **Estimating Heavy-tails in Long Range Dependent Wireless Traffic**  
Ian Lee, Abraham Fapojuwo, University of Calgary
6. **Experimental Study on Traffic Model of Wireless Internet Services in CDMA Network**  
Liang Peng, Yang Da-Cheng, Chang Yongyu, Beijing  
University of Posts & Telecommunications

*Wednesday, June 1, 16.10 – 17.50 C7*

#### **11F: RRM 2**

1. **Interference-based Dynamic Pricing and Radio Resource Management for WCDMA Networks**  
Siew-Lee Hew, Langford White, The University of Adelaide
2. **QoS Sensitivity to Selected Packet Scheduling Parameters in UTRAN**  
Kimmo Valkealahti, David Soldani, Nokia Research Center
3. **An Admission Control Algorithm for WCDMA Considering Mobile Speed and Service Characteristics**  
Juan Sanchez-Gonzalez, Oriol Sallent, Jordi Perez-Romero,  
Ramon Agusti, Universitat Politecnica de Catalunya (UPC)
4. **Particle Swarm Optimization of Fuzzy Logic Controller for High Quality RRM Auto-Tuning of UMTS Networks**  
Zwi Altman, Hervé Dubreil, Jean-Marc Picard, France  
Telecom R&D; Maurice Clerc, consultant
5. **Power-Based Congestion Control Framework for Downlink WCDMA Systems**  
Emanuel Rodrigues, Carlos Morais de Lima, Vicente de Sousa  
Junior, Francisco Cavalcanti, Federal University of Ceará
6. **Soft Handover Overhead Control in Pilot Power Management in WCDMA Networks**  
Iana Siomina, Di Yuan, Linköping University

*Wednesday, June 1, 16.10 – 17.50 C8*

#### **11G: Ad Hoc Networks 2**

1. **Fairness-Enhanced Multiple Control Channels MAC for Ad Hoc Networks**  
Hend Koubaa, NTNU, Trondheim, Norway
2. **A Theoretical Analysis of Multiuser Zero Forcing Relaying with Noisy Channel State Information**  
Armin Wittneben, ETH
3. **A Self-Balanced Receiver-Oriented MAC Protocol for Multiple channels Multihop Ad-Hoc Networks**  
Hicham Anouar, Christian Bonnet, Institut Eurecom
4. **Diversity Gain Using a Repeater in a Wireless Personal Area Network**  
G. V. V. Sharma, S. H. Srinivasan, Satyam Computer Services  
Limited
5. **An Adaptive Interleaving Access Scheme (IAS) for IEEE 802.15.4 WPANs**  
Shiann-Tsong Sheu, Yun-Yen Shih, Lu-Wei Chen, Tamkang  
University
6. **OOPC: An Adaptive Power Control Scheme for Packet Radio Networks**  
Mubashir Syed, Yu-Dong Yao, Stevens Institute of  
Technology

*Wednesday, June 1, 16.10 – 17.50 C9*

#### **11H: Smart Antennas and MIMO Systems 2**

1. **Antenna selection for MIMO systems based on an accurate approximation of QAM error probability**  
Fatma Kharrat-Kammoun, Telecom Paris
2. **QoS-based User Scheduling for Multiuser MIMO Systems**  
Marios Kountouris, France Telecom R&D; Ashish  
Pandharipande, Samsung Advanced Institute of Technology;  
Hojin Kim, SAIT; David Gesbert, Eurecom Institute
3. **Random Unitary Beamforming with Partial Feedback for MIMO Downlink Transmission Using Multiuser Diversity**  
Haibo Wang, Alex Gershman, Kiruba Kirubarajan, McMaster  
University
4. **Channel Estimation in MIMO OFDM Systems with Sparse Pilot Tones**  
Sugbong Kang, Jim Lehnert, Purdue University
5. **A Dual Band Back Coupled Meanderline Antenna For WLAN Applications**  
Ali Khaleghi, SEM/DRE; Alain Azoulay, Jean-Charles  
Bolomey, SUPELEC
6. **System Comparison of Smart and Dumb Antennas**  
Mats Bengtsson, Patrick Svedman, Royal Institute of  
Technology; Xi Zhang, Royal Institute of Technology; Per  
Zetterberg, KTH

*Wednesday, June 1, 16.10 – 17.50 Upper Level*

#### **11P: Equalisation & Estimation**

1. **Joint LMMSE Equalizer for HSDPA in Full-Rate Space Time Transmit Diversity Schemes**  
Domenico Giustiniano, Stefano Mangione, Giovanni Garbo,  
Università di Palermo; Giuseppe Avellone, STmicroelectronics
2. **Frequency-domain Pre-equalization Transmit Diversity for DS-CDMA Mobile Radio**  
Hiromichi Tomeba, Kazuaki Takeda, Fumiyuki Adachi,  
University of Tohoku
3. **Performance Enhancement of F-PDCH using Oversampling Diversity Receive MMSE Equalizer**  
Chanho Yoon, ETRI; Joonhyuk Kang, Information and  
Communications University
4. **Control Channel Assisted Chip Equalization for CDMA Downlink Adaptive Modulation and Coding System**  
Arik Gubeskys, Amir Chass, Freescale Semiconductor Israel  
Ltd.
5. **Sparse MAP Equalizers for Turbo Equalizations**  
Jeongsoon Park, Saul Gelfand, Purdue University
6. **An LDPC-Coded OFDM Receiver with pre-FFT Iterative Equalizer for ISI Channels**  
Makoto Yoshida, Tomohiko Taniguchi, Fujitsu Laboratories  
Limited
7. **Angle Estimation via a Computationally Efficient SSF Method**  
Lei Huang, Shunjun Wu, Linrang Zhang, Xidian University
8. **Improved Multiuser Blind CCD-based Vector Channel Estimation in Colored Noise**  
Benoit Pelletier, McGill University; Wei Kang, University of  
Maryland; Benoit Champagne, McGill University
9. **Pilot-assisted Channel Estimation for Frequency-domain Equalization of DS-CDMA signals**  
Koichi Ishihara, Kazuaki Takeda, Tohoku University;  
Fumiyuki Adachi, University of Tohoku
10. **SAGE based Channel Estimation and Delay Tracking Scheme in OFDM Systems**  
Zhang Shengli, University of Science & Technology of China

**11 Indicators for PER prediction in wireless systems: A comparative study**  
Meritxell Lamarca, Francesc Rey, Technical University of Catalonia

**12 Clipping Ratio Estimation for OFDM Receivers**  
Chun-Tao Lin, Wen-Rong Wu, National Chiao Tung University

## Tutorials

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

*Sunday, May 29, 9.30 – 17.30*

### **T12: Adaptive OFDM Versus MC-CDMA for Next-Generation Wireless Systems**

Lajos Hanzo, School of ECS, Univ. of Southampton, UK  
Email:lh@ecs.soton.ac.uk  
<http://www-mobile.ecs.soton.ac.uk>

*This tutorial can also be taken as half day tutorials - either T1, Introduction to OFDM/MC-CDMA or T2: Advanced OFDM/MC-CDMA Research*

*Morning Session*

#### **T1: Introduction to OFDM/MC-CDMA**

This course is based on an amalgam of [1]-[4]. The introductory part of this two-part overview commences with a rudimentary coverage of the subject, assuming only a modest background in signal processing and wireless communications [1, 3]. Following the fundamental OFDM/MC-CDMA principles we continue by demonstrating that OFDM modems can be efficiently implemented by invoking the Fourier transform or the fast Fourier Transform (FFT). A number of basic OFDM design issues are discussed in an accessible style, including the effects of dispersive fading channels and pilot-based channel estimation, crest-factor aspects and the impact of signal-clipping introduced by finite dynamic-range amplifiers. The effects of finite A/D conversion accuracy are also considered and a range of synchronisation techniques are highlighted. The first part of the course concludes by considering the performance benefits of adaptive modulation.

*Afternoon Session*

#### **T2: Advanced OFDM/MC-CDMA Research A future-proof MC-CDMA standard framework[4].**

Multi-standard operation is an important requirement for the future generations of wireless systems. This overview commences with the portrayal of a versatile broadband multiple access scheme, combining frequency-hopping (FH) with multicarrier DS-CDMA (FH/MC DS-CDMA). The proposed FH/MC DS-CDMA scheme is capable of meeting the requirements of future generations of wireless systems, by supporting backwards compatibility with the existing 2nd- and 3rd- generation systems, while also introducing more advanced techniques facilitated by the employment of Software Defined Radios (SDR) and efficient adaptive baseband algorithms [1]-[4].

#### **Adaptive vs Space-time Coded OFDM/MC-CDMA [3]**

The presentation continues by demonstrating that Symbol-by-symbol adaptive Orthogonal Frequency Division Multiplex (OFDM) modems have the potential of counteracting the near instantaneous channel quality variations of wireless channels and hence attain an

increased throughput in comparison to their fixed-mode counterparts. By contrast, various diversity techniques, such as Rake receivers and space-time coding, mitigate the channel quality variations in their effort to obtain a reduced BER. This overview investigates a combined system constituted by a constant-power adaptive modem employing space-time coded diversity techniques in the context of both OFDM and MC-CDMA. The combined system can be configured to produce a constant uncoded BER and exhibits virtually error free performance, when a turbo convolutional code is concatenated with a space-time block code. It was found that the advantage of the adaptive modem erodes, as the overall diversity-order increases [3].

#### **PIC-assisted channel estimation for SDMA-aided multiuser OFDM [3]**

OFDM systems employing multiple transmit antennas have recently drawn wide interest in the context of both space-time coded- and multi-user space-division multiple access (SDMA) arrangements. A prerequisite for using coherent detection at the receiver is the availability of reliable channel transfer factor estimates. Robust parallel interference cancellation (PIC) assisted decision-directed channel estimation (DDCE) has been shown in the literature to be also applicable to scenarios, where the number of users is in excess of the number of OFDM subcarriers – normalized to the number of Channel Impulse Response (CIR) related taps to be estimated - which imposed a limitation in the context of least-squares assisted DDCE techniques invoked in conjunction with multiple transmit antennas. We will demonstrate that the Recursive Least-Squares (RLS) algorithm is applicable to optimizing the predictors' coefficients on a CIR-related tap-by-tap basis. Compared to 'robust', non-adaptive approaches the proposed solution has the advantage of a potentially lower estimation MSE and a higher resilience to erroneous subcarrier symbol decisions [3]

#### **Multiuser detection for MC-CDMA [4]**

In this part of the presentation a Genetic Algorithm (GA) assisted Multiuser Detector (MUD) designed for MC-CDMA is investigated in the context of frequency selective Rayleigh fading channels. The achievable BER performance of the GA assisted MUD as well as its near-far resistance are investigated for a range of parameter values. It is shown that the proposed GA assisted MUD is capable of significantly reducing the complexity in comparison to that of Verdu's optimum MUD. For example, when supporting  $K = 20$  users, the number of likelihood function evaluations is reduced by a factor of 1300 [4]

This overview of next-generation wireless enabling techniques will be concluded with a future-proof new

design paradigm, highlighting a range of open problems for the radical researcher.

## References

- [1] L. Hanzo, S-X. Ng, W.T. Webb, T. Keller: Quadrature Amplitude Modulation: From Basics to Adaptive Trellis-Coded, Turbo-Equalised and Space-Time Coded OFDM, CDMA and MC-CDMA Systems, IEEE Press-John Wiley, 2nd edition, Sept. 2004 1105 pages.
- [2] L. Hanzo, T.H. Liew, B.L. Yeap: Turbo Coding, Turbo Equalisation and Space-Time Coding, John Wiley, August 2002, ISBN 0-470-84726-3, p 766
- [3] L. Hanzo, M. Munster, B.J. Choi and T. Keller: OFDM and MC-CDMA for Broadband Multi-user Communications, WLANs and Broadcasting, John Wiley - IEEE Press, May 2003, 1010 pages
- [4] L. Hanzo, L-L. Yang, E-L. Kuan and K. Yen: Single- and Multi-Carrier CDMA: Multi-User Detection, Space-Time Spreading, Synchronisation, Standards and Networking, IEEE Press - John Wiley, June 2003, 1060 pages

*During his 28-year career Lajos Hanzo, FRAEng, DSc, FIEEE, FIEE has held various academic and research positions in Hungary, Germany and the UK. Since 1986 he has been with the University of Southampton, where he holds the Chair of Telecommunications. Over the years he has co-authored 11 books on mobile radio communications, published in excess of 500 research papers. Lajos has also been awarded a number of distinctions and he is an IEEE Distinguished Lecturer of both the Communications and the Vehicular Technology Society. For further information on research in progress and for associated papers and book chapters please refer to <http://www-mobile.eecs.soton.ac.uk>*

Sunday, May 29, 9.30 – 13.00

### T3: MIMO Systems and Spatial Channels

*Andreas F. Molisch, Lund University and Mitsubishi Electric Research Lab., Boston  
Ernst Bonek, formerly with Technische Universität Wien*

MIMO (Multiple-input-multiple-output) systems have multiple antenna elements at both ends of a wireless link. Recent information-theoretic results have shown the high capacities that can be realized with such systems. Thus, in the few years since their inception, they have attracted an enormous amount of interest, although a lot of effort is still needed for research and standardization before they can become ubiquitous. This tutorial will describe the principles and applications of these systems.

We start out with an overview of the two methods for employing MIMO systems: diversity enhancement, and spatial-multiplexing like schemes. In the former case, the multiple antennas at both link ends are used to provide a high degree of diversity, resulting in a high-quality link. In the latter case, independent data streams are sent from the different transmit antennas, and the multiple receive antennas are used to receive and separate those different data streams. The information-theoretical capacity of MIMO systems will be explained intuitively.

In both applications, the wireless channel, especially the directions-of-arrival and directions-of-departure of the waves going from TX to RX, determines the performance of the MIMO systems. We thus next investigate those directional properties. Special measurement and signal processing techniques are required for this purpose. We then describe how measurement results can be converted into models. The relative merits and shortcomings of

measurement-based stochastic models, relying on parameter estimation techniques; of geometry-based parametric models, approximating a radio environment by geometry, but adding stochastic processes; and of deterministic models (ray-tracing or measured) are highlighted. We will also give results from recent standardization efforts in COST and 3GPP.

Next, we go into the details of capacity computations and signal processing for MIMO systems. We establish a classification of MIMO systems depending on their use of channel state information, as well as their employment of diversity and spatial multiplexing. We demonstrate the tradeoffs between diversity order, beamforming gain, and spatial multiplexing gain in different types of wireless channels. We derive why the capacity can increase linearly with the number of transmit and receive antennas, and what aspects of the channel impact that capacity. Different versions of the BLAST scheme are described, and their advantages and drawbacks are discussed. The use of channel state information at the transmitter, and its impact on the achievable capacity, is also expounded. Finally, we describe the principles of space-time codes, and show how those can be applied for diversity and capacity increase. A discussion of interference-limited MIMO systems, and systems with antenna selection, will round off the presentation.

*Andreas F. Molisch received the Dipl. Ing., Dr. techn. (with highest honors), and habilitation degrees from the Vienna University of Technology (TU Wien) in 1990, 1994, and 1999, respectively. From 1991 to 2001, he was with the Institut für Nachrichtentechnik und Hochfrequenztechnik (INTHFT) of the TU Wien, most recently as associate professor. From 2001 to 2002, he was with AT&T Laboratories - Research; since 2002 he has been with Mitsubishi Electric Research Laboratory, Murray Hill. He is also professor and chairholder for Radio Communications at Lund University, Sweden. His current research interests are MIMO systems, UWB, characterization of mobile radio channels, and wideband systems. He is a fellow of the IEEE, and (co)author of two books, seven book chapters, some 80 journal papers, 25 patents, and numerous conference contributions. He is also editor for IEEE Trans. Wireless Comm., chairman of the COST273 working group on MIMO channels, chairman of the IEEE 802.15.4a channel modeling subgroup, vice-chairman of URSI commission C, and recipient of several awards.*

*Ernst Bonek received the Dipl. Ing. and Dr. techn. degrees (with highest honors) from the Technische Universität (TU) Wien. In 1984, he was appointed Full Professor of Radio Frequency Engineering at the TU Wien. Recent contributions concern the characterization of mobile radio channels and advanced antennas designs, mostly smart antennas. He is a former Chairman of Commission C "Signals and Systems" within URSI (Union of Radio Scientists). Currently he is Chairman of the "Antennas and Propagation" working group in the European research initiative COST 273 "Toward Mobile Multimedia Networks". Recently, he enjoyed the privilege of a two months visit to NTTDoCoMo's Research Lab in Yokosuka, Japan, as a Guest Professor on "Adaptive Antenna Technology".*