The 75th IEEE
Vehicular Technology Conference

Final Programme

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Welcome from the General Chairs

On behalf of the Organizing Committee, we would like to welcome you all to the IEEE VTC2012-Spring held in a beautiful harbor front city of Yokohama!

It has been already 12 years since we had the last VTC conference in Tokyo, Japan. In that year 2000, total number of digital mobile subscribers in the world was 663 million with 2nd generation systems, while currently, it has exceeded 5 billion. During the last decade, we have enjoyed tremendous evolution of mobile communications in terms of subscriber numbers and technologies. Diversified services are now available from voice, video and Internet. Thanks to novel technologies, packet data rate has been increased by 1000 times during the last decade drived by the demand of wireless applications by smart-phones. And still, mobile data traffic will grow at a compound annual growth rate (CAGR) of 200 percent per year in Japan and in other major countries resulting into 1000 times in the next decade. To cope with this high volume traffic, innovative technologies of radio-access, system and network should be furthermore developed.

Last year, we have encountered the unprecedented disaster due to great earthquake in eastern Japan and found the role of mobile communications vitally important in every aspect. We would like to express our deep appreciation for your warm heartfelt supports for the recovery and also for so many participants like you attending this IEEE VTC2012-Spring from all over the world. Let us seize this moment to shape the new global society in which the peoples of the world enjoy a sense of not only efficiency and affluence but also security with the advancement of mobile communications technologies.

Taking this opportunity, we would like to express sincere appreciations to all of the colleagues for the concerted efforts to prepare the conference, and appreciations to the authors who have submitted valuable papers.

Finally, but not least, we hope that you will enjoy not only in-depth discussions and information exchanges during this prestigious conference but also a lot of traditional cultural flavors in Japan to make your stay more memorable.

Takeshi Hattori, Susumu Yoshida & Fumiyuki Adachi
General Chairs, IEEE VTC2012-Spring

Welcome from the TPC Chair

On behalf of the Technical Program Committee (TPC), it is our great pleasure to welcome you to the 75th IEEE Vehicular Technology Conference (VTC) to take place in the first harbor city introduced to the world as the entrance to Japan.

The committee has organized an impressive program that advances the current technical and research trends under this year's conference theme "Shaping the Advanced Wireless Society". This time, we have organized 12 technical tracks covering many exciting aspects of advanced wireless society. Especially, we have newly introduced "GREEN Networks track" because we can no longer talk anything about the future of our ICT society without the word "GREEN".

The technical program consists of 67 oral sessions and 9 poster and exhibition sessions. In total, the conference Track Chairs have selected 335 oral papers and 132 poster papers from a total of 973 submissions from about 40 countries to the12 technical tracks. All the accepted papers will be published in the conference proceedings. In addition to the regular sessions, the program offers 2 panel sessions and 6 tutorials addressing some of the main mobile and wireless communication and localization challenges.

The creation of this impressive program would not be possible without the voluntary support from an outstanding team of colleagues that we would like to strongly thank. Special thanks go to conference Track Chairs that organized a very efficient and smooth review and session organization process, as well as the Panel and Tutorial Chairs that organized very excellent sessions.

We would also like to thank the great job of our dedicated TPC members and reviewers, for their professional and timely review of technical contributions. We are also very grateful to the constant support from Prof. James Irvine in the technical program preparation process. Of course, making a successful technical conference is not possible without the participation from authors, to whom we would like to express our gratitude for having decided to present and share their ideas and contributions to our community.

I would also like to thank the IEEE VTC2012-Spring Organization Committee for its full support. I look forward to meeting you in Yokohama, Japan, this May. You will enjoy the conference and the harbor city of Japan!

Seiichi Sampei, *TPC Chair*
Mamoru Sawahashi, *TPC Co-chair*

Welcome from the VTS President

On behalf of VTS, it is my pleasure to welcome you to the 75th VTC in Yokohama, Japan. This conference brings together researchers from all over the world to discuss and exchange ideas in the field of wireless, mobile, and vehicular technology. Yokohama, with its fashionable and sophisticated streetscapes, serves as the cosmopolitan backdrop for this exciting conference.

For over sixty years this flagship conference of the IEEE Vehicular Technology Society brings together individuals from academia, government, and industry to discuss and exchange ideas in the fields of wireless, mobile, and vehicular technology. Since 1999, VTC has been held twice a year: in North America, and rotating between Europe and the Asia-Pacific region, increasing accessibility to the conference experience throughout the world. We are currently taking steps to expand the coverage of vehicular electronics and land transportation to increase the breadth of VTC beyond its traditionally strong areas.

Besides its conference activities, the VT Society continues to publish and improve its major IEEE journal, Transactions on Vehicular Technology, which is among the best in the field. We invite you to get involved with VTS as a member and help shape the future of our profession. I hope that this conference may inspire some of you to consider hosting a future VTC.

I wish to convey a special thank you to the General Chair and Co-Chairs of VTC 2012-Spring, Professors Takeshi Hattori, Susumu Yoshida, and Fumiyuki Adachi. Special thanks also must be conveyed to Technical Program Chair and Vice-Chair, Professors Seiichi Sampei and Mamoru Sawahashi. They have assembled what will be an exciting and stimulating program.

Finally, I wish to welcome you to Yokohama and VTC 2012-Spring.

Tracy L Fulgham, *President*
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Ashish Pandharipande
George Papadopoulos
Dimitris Papailiopoulos
Nikolaos Papanikos
Evangelos Papapetrou
Vasileios Papoutsis
Daeyoung Park
Haewook Park
Hyuncheol Park
Jaehyun Park
Jeonghun Park
Yunju Park
Stefan Parkvall
Saeedeh Parsaeefard
Gianni Pasolini
Al-Sakib Khan Pathan
Pedro Pedrosa

Edward Chu Yeow Peh
Ho Huat Peh
Yiyang Pei
Benoit Pelletier
Hailan Peng
Jisheng Peng
Tong Peng
Wei Peng
Harri Pennanen
Ranjit Perera
Maria D. Perez-Guirao
Jordi Perez-Romero
Antonio Pescapè
Sven Petersson
Jonathan Petit
Stephan Pfletschinger
Hans Pflug
T.-H. Pham
Antonis Phasouliotis
Dazhi Piao
Robert J. Piechocki
María Alejandra Pimentel-Niño
Gema Piñero
Pekka Pirinen
Ryan Pirkl
Boonsarn Pitakdumrongkija
Renaud-Alexandre Pitaval
Mélanie Plainchault
Ajay Kumar Poddar
Michele Polignano
Carlos Pomalaza-Ráez
Remo Pomposini
Charly Poulliat
Shankar Prakriya
Neeli R. Prasad
Narayan Prasad
R. Venkatesha Prasad
Rajendra Prasad Sirigina
Nuno Pratas
Basuki E. Priyanto
Chutima Prommak
Ioannis Psaromiligkos
Jyun-Wei Pu
Ali E. Pusane
Marwa Qaraqe
Qilin Qi
Yinan Qi
Yuan Qi
Manli Qian
Yi Qian
Wang Qiang
Cui Qimei
Fei Qin
Fei Qin
Guo Qing
Dongyu Qiu
Jian Qiu
Wenxun Qiu
Ahmed Abdul Quadeer
Tony Q.S. Quek
Bernhard Raaf
Sándor Rácz
Giuseppe Raffa
Balaji Raghothaman
Nariman Rahimian
Muhammad Imadur Rahman
Rahim Rahmani
Lahatra Rakotondrainibe
Salvador Luna Ramírez
Sundeep Rangan
Umar Rashid
Lars Rasmussen
Mehdi Rasti
Danda B Rawat
S. Mohammad Razavizadeh
Abolfazl Razi
Adeel Razi

C. J. Reddy
Angeline Reeba. V
Mark C. Reed
Lars Reichardt
Jimmy Ren
Pinyi Ren
Zheng Ren
Mohsen Rezaee
Carlos Ribeiro
Cássio Ribeiro
Fred Richter
Johannes Richter
David S. Ricketts
Taneli Riihonen
Tyrone Roach
Marco Roccetti
Antonio Rodrigues
Ignacio Rodriguez
Sandra Roger
David Roldan
Bo Rong
Laurent Ros
Ramona Rosini
Pierluigi Salvo Rossi
Patrick Rosson
Peter Rost
Liyang Rui
Yang Rui
Harri Saarnisaari
Dario Sabella
Joachim Sachs
Sajad Sadough
Sanam Sadr
Rashid Saeed
Hamid Saeedi
Emad Saeid
F. Safaei
Yuta Sagae
Nikos C. Sagias
Henrik Sahlin
Mohamed Sahmoudi
Kentaro Saito
Kei Sakaguchi
Ren Sakata
Abdellatif Salah
Ismail Salhi
Doudou Samb
Magnus Sandell
Victor Sandonís
Samir Saoudi
Farshad Sarabchi
Shunsuke Saruwatari
Fumihito Sasamori
Katsuyoshi Sato
Tomonori Sato
Vladimir Savic
Mamoru Sawahashi
Björn Scheuermann
Anke Schmeink
Johannes Schmid
Jorge Schmidt
Christian Schneider
Robert Schober
Christian Schulte
Ramon S. Schwartz
Stefan Schwarz
Riccardo Scopigno
Nima Seifi
Hiroyuki Seki
Hiroo Sekiya
Damith Senaratne
Martin Senst
Nikola Serafimovski
Jonathan Serugunda
Abu Sesay
Rohit Iyer Seshadri
Ubolthip Sethakaset
Vishal Sevani
Stefano Severi
Selcuk Sevgen
Aydin Sezgin
Chintan P Shah
Shahram
  Shahbazpanahi
Jafar Shaker

Parvin Shamsad
Lin Shan
Peng Shang
Yue Shang
Xiaoying Shao
Mohammad Shaqfeh
Sarah Sharafkandi
Mohsen Sharifi
Feng She
Bin Shen
Jiyun Shen
Changxin Shi
Tao Shi
Yi Shi
Zhiguo Shi
Shin-Lin Shieh
Kotaro Shiizaki
Tetsu Shijo
Byonghyo Shim
Cheolkyu Shin
Oh-Soon Shin
Norihiko Shinomiya
Shigeki Shiokawa
Masashige Shirakabe
Mehran M. Shirazi
Smitha Shivshankar
Takashi Shono
Lei Shu
Zhihui Shu
Han Shuai
Leng Shuang
Tan Shuang
Kenneth W. Shum
JiangBo Si
Pengbo Si
Michal Simko
Eric Simon
Arne Simonsson
Sinan Sinanovic
Jasvinders Singh
Iana Siomina
Zvonimir Sipus
B. A. Hirantha Sithira
  Abeysekera
Per Skillermark
Ben Slimane
Dirk T.M. Slock
Miha Smolnikar
Smrati
Daniel K C So
Jaewoo So
Hamza Soganci
Saqib Sohail
Illsoo Sohn
Christoph Sommer
Chao Song
Hyok J. Song
Lingyang Song
Sichao Song
Yang Song
Anthony Soong
Beatriz Soret
Francesco Sottile
Essam Sourour
Michael R. Souryal
Edgar B. Souza
Mujdat Soyturk
Andreas Springer
Luca Stabellini
Daniel Stancil
Athanasios Stavridis
Gerhard Steinboeck
Mikael Sternad
Ioannis
  Stiakogiannakis
Stanislaw Strzyz
Borching Su
Gang Su
Qinliang Su
Rosalba Suffritti
Shinji Sugawara
Yutao Sui
Norrozila Sulaiman
Can Sun
Haitong Sun

Hongjian Sun
Huan Sun
Jian Sun
Sumei Sun
Wenzhe Sun
Yi Sun
Ki Won Sung
Himal Suraweera
Himal Suraweera
Vinay Suryaprakash
Satoshi Suyama
Hajime Suzuki
Hiroshi Suzuki
Makoto Suzuki
Takayuki Suzuki
Tommy Svensson
Ville Syrjälä
Sebastian
  Szyszkowicz
Kai T. Chen
Masaki Takanashi
Shinsuke Takaoka
Kazuaki Takeda
Kazuki Takeda
Kenichi Takizawa
Osamu TAKYU
Salvatore Talarico
Ahmet Cagatay Talay
Le Thanh Tan
Yasuhiko Tanabe
Makoto Tanahashi
Hisa-Aki Tanaka
Gongguo Tang
Jie Tang
Liang Tang
Wanbin Tang
Zuoyin Tang
Hidekazu Taoka
Pierre-Martin Tardif
Makoto Taromaru
Paula Tarrío
Jean Guy Tartarin
Abdolreza Tavakoli
Werner G. Teich
Carina Teixeira de
  Oliveira
Chintha Tellambura
Emmanuel Ternon
Valtteri Tervo
Ajay Thampi
Andrew Thangaraj
Fabrice Theoleyre
Peng Tian
Tian Yafei
Esa Tiirola
See Ho Ting
Olav Tirkkonen
Cenk Toker
Antti Tolli
Stefano Tomasin
Hiromichi Tomeba
Shigeru Tomisato
Mohammad Torabi
Mehdi Torbatian
Johan Torsner
Dimitris Toumpakaris
Dimitar Trajanov
Le-Nam Tran
Vic Tripp
Matt Trotter
Hsin-Mu Tsai
Pei-Yun Tsai
Ming-Chien Tseng
Charalampos C.
  Tsimenidis
Sadayuki Tsugawa
Masato Tsuru
Lai Tu
Kazuhiro Uchiyama
Hideyuki Uehara
Yeong-Luh Ueng
Elisabeth Uhlemann
Arijit Ukil
Sennur Ulukus
Umar

Kenta Umebayashi
Masahiro Umehara
Chinazo Unachukwu
Oktay Ureten
Luis Guilherme
  Uzeda Garcia
Christopher Valenta
Javier Valiño
Martijn van
  Eenennaam
Anna Vanyan
Vasos Vassiliou
Anders Västberg
Benny Vejlgaard
Senem Velipasalar
Badri Vellambi
Venkatkumar
  Venkatasubramanian
Francesco Verde
Attila Vidács
Stefan Videv
Fausto Vieira
Ingo Viering
Phil Vigneron
Tiago Vinhoza
Wantanee
  Viriyasitavat
Jens Voigt
Peter von Wrycza
Xuan-Thang VU
Rama Vuyyuru
Tadahiro Wada
Meng Wah
Naoki Wakamiya
Jon Wallace
Feng Wan
Hong Wan
Lei Wan
Ben Wang
Chaowei Wang
Chen Wang
Chenwei Wang
Chung-Wei Wang
Dongming Wang
Feng Wang
Gang Wang
Gongpu Wang
Guo Wang
Haiquan Wang
Hao Wang
Hao Wang
Hongjiang Wang
Jian Wang
Jiangzhou Wang
Jianqing Wang
Jing WANG
Jintao Wang
Junbo Wang
Junmin Wang
Li Wang
Li Wang
Li-Chun Wang
Miao Wang
Qingchuan Wang
Rui Wang
Rui Wang
Rui Wang
Sen-Hung Wang
Shiguo Wang
Shuai Wang
Shubin Wang
Shun-Sheng Wang
Tao Wang
Tianqi Wang
Tong Wang
Wei Wang
Weida Wang
Wenjin Wang
Will Wang
Xiaoqin Wang
Xiaoqiu Wang
Xiaowei Wang
Xiaoyi Wang
Xijun Wang
Xin Wang

Xinheng Wang
Xiumin Wang
Y.-P. Eric Wang
Yang Wang
Yingjie Wang
Yuanye Wang
Yue Wang
Zhao Wang
Zhe Wang
Zhibo Wang
Zhonghai Wang
Chin-Der Wann
Stefan Wänstedt
Omer Waqar
Chirag Warty
Shinichi Watanabe
Matthew Webb
Tobias Weber
Hung-Yu Wei
Yifei Wei
Michele Weigle
Petra Weitkemper
Qingsong Wen
Ryan Westafer
Manfred Westreicher
Younghoon Whang
Risto Wichman
Christian Wietfeld
Anne Wolf
Wouter Klein
  Wolterink
Seung-Hwan Won
Kainam Thomas
  WONG
Isaac Woungang
Celimuge Wu
Chengyu Wu
Dalei Wu
Di Wu
Gang Wu
Guangqiang Wu
Hanguang Wu
Huai-Kuei Wu
Janne-Wha Wu
Jen-Ming Wu
Jiang Wu
Jinsong Wu
Liang Wu
Ping Wu
Quanming Wu
Wen-Rong Wu
Xiping Wu
Zhilu Wu
Dirk Wübben
Wuchen
B Xia
Hui Xiao
Ming Xiao
Yue Xiao
Zhu Xiao
Zhong Xiaofeng
Jianwei Xie
Renchao Xie
Xian-Zhong Xie
Haiyang Xin
Yan Xin
Chengwen Xing
Wang Xinglin
Cong Xiong
Gang Xiong
Zhang Xiuning
Benshuai Xu
Fang Xu
Fangmin Xu
Ge Xu
Ke Xu
Kunjie Xu
Wei Xu
Xiang Xu
Xiaodong Xu
Yi Xu
Youyun Xu
Zhikun Xu
Wu Xuanli
Peng Xue

Yun Xue
Pradeepa Yahampath
Hiroyoshi Yamada
Wataru Yamada
Fumihiro Yamagata
Hirozumi Yamaguchi
Atsushi Yamamoto
Koji Yamamoto
Tetsuya Yamamoto
Koji Yamanaka
Kosuke Yamazaki
Takaya Yamazato
Nader Mokari
  Yamchi
Chaoxing Yan
Chunlin Yan
Wu Yan
Yanjun Yan
Ye Yan
Chia-Hsiang Yang
Cui Yang
Gang Yang
Hong Yang
Hyun Jong Yang
Jin Yang
Kyeongcheol Yang
Lei Yang
Nan Yang
Lie-Liang Yang
Qinghai Yang
Shaoshi Yang
Xuezhi Yang
Yaoqing Yang
Yingxiang Yang
Zhang Yang
Kazuto Yano
Chunhai Yao
Tomoyuki Yashiro
Shinpei Yasukawa
Keiichi Yasumoto
Feng Ye
Feng Ye
Na Yi
Su Yi
Ye Yibin
Ali Ozgur Yilmaz
Ferkan Yilmaz
Harun Yilmaz
Huarui Yin
Zhendong Yin
Liu Yinzhuang
Simon Yiu
Abbas Yongacoglu
Yuki Yoshida
Hitoshi Yoshino
Lei You
YI Youwen
Chao-Tang Yu
Chia-Hao Yu
Chia-Mu Yu
F. Richard Yu
Hua Yu
Lei Yu
Leiyan Yu
Nam Yul Yu
Qiyue YU
Ya-Ju Yu
Yi Yu
Xu Yuan
Yasuaki Yuda
Guosen Yue
Wuyi Yue
Chau Yuen
Xu Yueqiao
Han Yuhui
Gong Yujun
Xiang Yun
Pei Yushan
Gheorghe Zaharia
Slim Zaidi
Alenka Zajic
Randa Zakhour
Alberto Zanella
Apostolos Zarras
Thomas Zasowski

Deze Zeng
Hui Zeng
Jie Zeng
Wen-Jun Zeng
Yong Zeng
Yonghong Zeng
Engin Zeydan
Chao Zhai
Jun Zhan
Biling Zhang
Chao Zhang
Dan Zhang
Haijun Zhang
Haitao Zhang
Honggang Zhang
Honghai Zhang
Hua Zhang
Jia-Yi Zhang
Jian Zhang
Jiankang Zhang
Jiayi Zhang
Jie Zhang
Jingtao Zhang
Jinyun Zhang
Lei Zhang
Li Zhang
Li Zhang
Liang Zhang
Lingwen Zhang
Qixun Zhang
Weidong Zhang
Xiaoliang Zhang
Xiaoxin Zhang
Yan Zhang
Yan Zhang
Yang Zhang
Yi Zhang
Yong Zhang
Youguang Zhang
Yu Zhang
Yue Zhang
Zhengyu Zhang
Zhongshan Zhang
Zhangjun
Annie Zhao
Baokang Zhao
Chao Zhao
Haitao Zhao
Nan Zhao
Qun Zhao
Yisheng Zhao
Bin Zhen
Ghayet el mouna
  Zhioua
Pan Zhiwen
Chongxian Zhong
Ke Zhong
Chenming Zhou
Guangxia Zhou
Jiazhen Zhou
Jingrong Zhou
Qiang Zhou
Sheng Zhou
Xiangyun Zhou
Xiaotian Zhou
Yi Zhou
Zhenyu Zhou
Zhiqiang Zhou
Cheng Zhu
Shouhong Zhu
H. Zhu
Jianchi Zhu
Kai Zhu
Meifang Zhu
Pengcheng Zhu
Ting Zhu
Yuan Zhu
Peter Zillmann
Wolfgang Zirwas
Jun Zou
Jing Zu

Plenaries

Mobile Evolution toward Shaping a Smart Life

Ryuji Yamada *President and CEO, NTT DOCOMO, INC., Japan*

We, at NTT DOCOMO, have been undertaking various initiatives to drive innovation and fulfill smart lives through mobile services. In this presentation, we will introduce the activities we have been promoting to propel the advancements of smartphones, LTE and other network technologies as well as mobile services. As presented in our "Medium-Term Vision 2015: Shaping a Smart Life", drafted in 2011, we have been pursuing new value creation through the convergence of mobile with various industries/services and enhanced safety and security leveraging cloud services. The presentation will also provide details concerning our actions in these areas.

Ryuji Yamada assumed the posts of NTT DOCOMO INC. President and CEO in June 2008 after an accomplished 35-year career with both NTT DOCOMO and its parent company, Nippon Telegraph and Telephone Corporation (NTT).

Since joining NTT DOCOMO as a Senior Executive Vice President, a Member of the Board of Directors and Managing Director of the Corporate Marketing Division in June 2007, Mr. Yamada has contributed greatly to the growth and advancement of the mobile market for corporate customers.

From June 2004, prior to joining NTT DOCOMO, he was a Senior Executive Vice President for NTT, where he oversaw its world-class research center and exercised decisive leadership in developing the company's Next Generation Network (NGN).

From July 1999 to June 2004 he held various top managerial positions at Nippon Telegraph and Telephone West

Corporation (NTT West), a regional fixed- telecommunications carrier in western Japan, where he played a key role in making the company profitable just three years after NTT's reorganization in 1999.

In 1994 Mr. Yamada took the lead in drawing up NTT's "Basic Concept and Current Activities for the Coming Multimedia Age," the strategic plan for the company's transition from voice services to a wide range of advanced IP services for the Internet age, which continues to underpin the NTT group's long-term vision. Over the years he was also a central figure in planning NTT's 1.7-trillion-yen network of nationwide facilities.

Mr. Yamada started his career at NTT Public Corporation in April 1973 as a network engineer after graduating from Osaka University's Graduate School of Engineering with a master's degree in telecommunication engineering..

Mobile Technology's Contribution to Creating an Information Society Friendly to Humans and the Earth

Nobuhiro Endo *President, NEC Corporation, Japan*

The NEC Group has set a vision "To be a leading global company leveraging the power of innovation to realize an information society friendly to humans and the earth." To make this vision a reality, the NEC Group contributes innovative solutions and services to customers worldwide that leverage our competitive strengths in IT and Networks, driven by our "C&C Cloud Strategy." We also provide dedicated support to our customers throughout the world, enabling them to offer better solutions and services to their customers, while helping to achieve efficient business operations and to build a safe and secure infrastructure for a society that harmoniously co-exists with the environment.

In this presentation, President Nobuhiro Endo will introduce our technological competencies and competitive advantages through a number of mobile solutions offered by the NEC Group in order to realize "an information society friendly to humans and the earth." We will introduce highly advanced solutions that range from cloud devices, cloud platforms, and to cloud services with mobile broadband such as LTE as a key enabler.

Dr. Nobuhiro Endo was appointed President of NEC Corporation effective April 1, 2010 after serving as the Senior Vice President.

During his tenure as Senior Vice President, Dr. Endo's responsibilities included corporate strategy and business development, and he held a key position in driving various management reforms of the NEC Group.

Dr. Endo joined NEC in 1981 after finishing his Doctorate degree from Graduate School of Science and Engineering, Tokyo Institute of Technology. He spent the next two decades in the development of wireless communication systems, mainly for satellite communication systems and mobile phone base

stations. In 2003, Dr. Endo led business for the ultra compact microwave communications system, "PASOLINK," which achieved a No.1 global market share, through increasing market share in overseas markets, driven by growth in emerging countries.

Throughout his career, Dr. Endo has focused on driving innovation through advanced technologies for customers worldwide, and building strong relationships with a diverse field of customers both in Japan and worldwide. Dr. Endo is known for his wide-ranging international perspectives through his extensive experiences in the global market and time living abroad.

Panels

Next Generation Mobile Communication Technologies

Chair: Nobuo Nakajima   *The University of Electro-Communications, Japan*
Panelists:

Lajos Hanzo	*University of Southampton, UK*
Erick Dahlman	*Ericsson, Sweden*
Fumiyuki Adachi	*Tohoku University, Japan*
Hiroshi Harada	*NICT, Japan*

Rapid penetration of the smart phone causes huge traffic demand for cellular systems. M-to-M applications will also increase the data communication. Ten years later, the mobile packet transmission traffic might be 1000 time higher than now. Since the available frequency spectrum resources for mobile communications are limited, novel ideas and technologies are expected in order to remarkably increase the frequency spectrum utilization efficiency. Distinguished panelists present their technical proposals and exchange opinions for solving these challenging issues.

Nobuo Nakajima, received the B.S., M.S. and Ph.D degrees in electrical engineering from Tohoku University, Sendai, Japan, in 1970, 1972 and 1982, respectively. In 1972 he joined the Electrical Communication Laboratory, NTT. From 1972 to 1979, he was engaged in the research on millimeter-wave circuits. From 1980 to 1985, he was working under the development of microwave and mobile radio antennas. After 1985, he was engaged in the system design of the digital cellular communication system. In 1992, he moved to NTT DoCoMo and in 1998, he became a senior vice president. During in NTT DoCoMo, he was engaged in the development of future mobile communication systems such as IMT-2000 and 4th generation system. In 2000, he moved to University of Electro-Communications and now he is a professor of the department of human communications and Advanced Wireless Communication Research Center. He is IEEE and IEICE member.

Lajos Hanzo (http://www-mobile.ecs.soton.ac.uk) FREng, FIEEE, FIET, Fellow of EURASIP, DSc received his degree in electronics in 1976 and his doctorate in 1983. In 2009 he was awarded the honorary doctorate ``Doctor Honoris Causa" by the Technical University of Budapest. During his 35-year career in telecommunications he has held various research and academic posts in Hungary, Germany and the UK. Since 1986 he has been with the School of Electronics and Computer Science, University of Southampton, UK, where he holds the chair in telecommunications. He has successfully supervised in excess of 70 PhD students, co-authored 20 John Wiley/IEEE Press books on mobile radio communications totalling in excess of 10 000 pages, published 1250+ research entries at IEEE Xplore, acted both as TPC and General Chair of IEEE conferences, presented keynote lectures and has been awarded a number of distinctions. Currently he is directing an academic research team, working on a range of research projects in the field of wireless multimedia communications sponsored by industry, the Engineering and Physical Sciences Research Council (EPSRC) UK, the European IST Programme and the Mobile Virtual Centre of Excellence (VCE), UK. He is an enthusiastic supporter of industrial and academic liaison and he offers a range of industrial courses. He is also a Governor of the IEEE VTS. Since 2009 he has been a Chaired Professor also at Tsinghua University, Beijing. For further information on research in progress and associated publications please refer to http://www-mobile.ecs.soton.ac.uk

Erik Dahlman received the Master of Science degree and Doctor of Technology degree from the Royal Institute of Technology, Stockholm in 1987 and 1992 respectively. He is currently the Senior Expert in Radio Access Technologies within Ericsson Research. Erik was deeply involved in the development and standardization of 3G radio access technologies (WCDMA and HSPA), first in Japan and later within the global 3GPP standardization body. More recently he has been involved in the standardization/development of the 3GPP Long Term Evolution (LTE) and its continued evolution. He is currently part of the Ericsson Research management team working with long-term strategies in the area of radio-access technologies. Erik Dahlman is the co-author of the book 3G Evolution - HSPA and LTE for Mobile Broadband and its follow-up 4G - LTE and LTE-Advanced for mobile broadband. He has also participated in three other books within the area of radio communication, as well as numerous journal papers and conference contributions. In 1998 he received the IEEE Jack Neubauer Best System Paper award for the paper WCDMA - The Radio Interface for Future Mobile Multimedia. Erik Dahlman holds more than 80 patents in the area of mobile-radio communication and has been named the Inventor of The Year within Ericsson. In October 2009, he received the Major Technical Award, an award handed out by the Swedish Government, for his contributions to the technical and commercial success of the HSPA radio-access technology.

Fumiyuki Adachi received the B.S. and Dr. Eng. degrees in electrical engineering from Tohoku University, Sendai, Japan, in 1973 and 1984, respectively. In April 1973, he joined the Electrical Communications Laboratories of NTT and conducted various types of research related to digital cellular mobile communications. From July 1992 to December 1999, he was with NTT DoCoMo, where he led a research group on wideband/broadband CDMA wireless access for IMT-2000 and beyond. Since January 2000, he has been with Tohoku University, Sendai, Japan, where he is a Professor of Electrical and Communication Engineering at the Graduate School of Engineering. In 2011, he was appointed a Distinguished Professor. His research interest includes broadband wireless access, equalization, antenna diversity, adaptive transmission, and channel coding. From October 1984 to September 1985, he was a United Kingdom SERC Visiting Research Fellow in the Department of Electrical Engineering and Electronics at Liverpool University. He is an IEEE Fellow and a VTS Distinguished Lecturer for 2011 to 2013. He was a co-recipient of the IEEE Vehicular Technology Transactions Best Paper of the Year Award 1980 and again 1990 and also a recipient of Avant Garde award 2000. He is a Fellow of Institute of Electronics, Information and Communication Engineers of Japan (IEICE) and was a recipient of IEICE Achievement

Award 2002 and a co-recipient of the IEICE Transactions Best Paper of the Year Award 1996, 1998 and again 2009. He was a recipient of Thomson Scientific Research Front Award 2004, Ericsson Telecommunications Award 2008, Telecom System Technology Award 2009, and Prime Minister Invention Prize 2010.

Dr. Hiroshi Harada is director of Smart Wireless Laboratory at National Institute of Information and Communications Technology (NICT). He joined the Communications Research Laboratory, Ministry of Posts and Communications, in 1995 (currently NICT). Since 1995, he has researched Software Defined Radio (SDR), Cognitive Radio, Dynamic Spectrum Access Network, smart utility network, and broadband wireless access systems on VHF, UHF, microwave and millimeter-wave bands. He also has joined many standardization committees and forums in United States as well as in Japan and have fulfilled important roles for them. He has served currently on the board of directors of Wireless Innovation Forum and White Space Alliance, and the chair of IEEE Dyspan Standards Committee (former IEEE 1900.x, IEEE SCC41) since 2009 and the vice chair of IEEE P1900.4, IEEE P802.15.4g, and TIA TR-51 since 2008, 2009, and 2011, respectively. He moreover was the chair of the IEICE Technical Committee on Software Radio (TCSR) in 2005-2007. He is also involved in many other activities related to telecommunications. He is a visiting professor of the University of Electro-Communications, Tokyo, Japan, and is the author of Simulation and Software Radio for Mobile Communications (Artech House, 2002). He received the achievement award and fellow of IEICE in 2006 and 2009, respectively and the achievement award of ARIB and Funai Prize for Science in 2009 and 2010, respectively, on the topic of cognitive radio research and development.

Tuesday 8 May 2012, 8:45–10:30 (502)
Future Prospect and Potential of Mobile Phone Business
Chair: Takeshi Hattori   *Sophia University, Japan*
Panelists:

Kazuya Hashimoto	*NEC Corporation*
Shinichi Nomoto	*KDDI R&D Laboratories, Inc., Japan*
Shingo Mizuno	*FUJITSU LIMITED, Japan*
Hiroshi Nakamura	*NTT DOCOMO, INC*

With the advent of increasing demand of mobile communications, mobile systems all over the world are continuously evolved by developing new generation air interfaces and core systems, bringing newer user terminals often referred to as smart phones, and introducing epoch-making new services. Now we are in the mid of new area of mobile communications shifting new paradigm of business models. The panelists present their recent topics in their business and technical field in mobile communication systems and exchange their opinions for future prospect and potential of presented topics and other related items in the fields.

Prof Takeshi Hattori received the B.S., M.S., and Ph.D. degrees from the University of Tokyo, Tokyo, Japan in 1969, 1971, 1974, respectively. He joined the Electrical Communication Laboratory, NTT, Japan in 1974 and worked on research and development of high capacity cellular telephone system, high-speed paging system, and personal handy-phone system for 23 years. From 1992 to 1994, he was a Director of Personal Communications Division focused on Personal Handy Phone System in Wireless Communications Laboratories, NTT. From 1996 to 1997, he was an Executive Research Manager of Strategic Planning and Promotion in NTT Telecommunication Network Laboratory Group and worked for the strategic planning of future intelligent network systems. In April 1997, he joined Department of Electrical and Electronics Engineering, Faculty of Science and Technology, Sophia University. From 2000 to 2002, he was head of Department of Electrical and Electronics Engineering, Sophia University. He was awarded the IEEE Vehicular Technology Society Paper of the Year in 1981. He has co-edited two special issues on Wireless Personal Communications for the IEEE Journal on Selected Areas in Communications (JSAC). He was an editorial board member of IEEE Wireless Communications Magazine and now is advisor of International Journal of Wireless Personal. He is a member of Information and Communications Committee under the auspice of Ministry of Human Affairs and Communications Japan. He is a member of the IEEE Communication Society, IEEE Vehicular Technology Society, and a Fellow of Institute of Electronics and Communications Engineers (IEICE) of Japan, respectively. He authored and co-authored more than 20 books regarding mobile and wireless communications.

Kazuya Hashimoto obtained Master degree in Applied Physics from the University of Tokyo in 1984. Then he joined NEC Corporation and since then he had been engaged in the development of mobile terminals including High Capacity Cellular Phone, GSM, and WCDMA. In 2008 he became responsible for Mobile Radio Access Network and was engaged in the development of LTE base station, WCDMA base station, RNC etc. He is currently Vice President and Senior General Manager in Network Platform Operations Unit.

Shinichi Nomoto received B.E., M.E., and Ph.D degrees, all in electrical engineering, from Waseda University, Tokyo, Japan, in 1980, 1982, and 1993, respectively. He joined Kokusai Denshin Denwa Co., Ltd. (now KDDI Corp.), in 1982. Since 1983, he has been engaged in research and development of radio transmission systems. As a professional assignee at Inmarsat HQ's from 1992 to 1995, he has contributed to the "Inmarsat-P (ICO)" project, which includes development of a global personal communications system using a number of non-geostationary satellites. His current research interests include antennas and propagation, broadband wireless access systems, cognitive radio, cooperative radio and QoE management in communication networks. He is a Vice President, Managing Director, of KDDI R&D Laboratories, Inc., an R&D fellow of KDDI, a fellow of IEICE, a senior member of IEEE, and a Chairman of the Standardization Council in the Telecommunication Technology Committee (TTC). He has also been a visiting professor of Waseda University, Tokyo University of Agriculture and Technology, University of Electro-Communications, Tokyo Institute of Technology, Keio University, and Doshisha University. He received the Shinohara Memorial Young Researchers' Award from IEICE in 1988, the Piero Fanti International Prize from

INTELSAT/Telespazio in 1988, and the Radio Distinguished Award from RCR (now ARIB) in 1991. In 2004, two of his published papers received the Best Paper Awards from IEICE, one of which was the recipient of the 10th Inose Award (the very best paper of the year) too. In 2010, he received the Prize for Science and Technology (Development Category) in the Commendation for Science and Technology by the Minister of Education, Culture, Sports, Science and Technology.

Shingo Mizuno is Director of Mobile and Wireless Access Solution & development division in Fujitsu. Shingo Mizuno started to work for Fujitsu since 1989 at microwave system, and he was involved in 3G system development since 2000 and moved to the product strategy for Long Term Evolution (LTE) development for global market at 2008. His carrier has been focus on developing the management system for mobile network and planning of mobile network products. More recently, he is working for LTE Femtocell product in term of business and product strategy and its evolution to LTE-Advanced. He is now focus on the strategy that femtocell penetrate to the home/enterprise/public area with added-service and M2M communication method.

Hiroshi Nakamura received the B.S. and M.S. degrees in electrical engineering from Waseda University in 1985 and 1987 respectively. He received Dr. degree in Global Information and Telecommunication Studies from Waseda University in 2008. He joined Nippon Telegraph and Telephone Corporation (NTT) in 1987. He was engaged in research of signaling system for digital cellular system (PDC: Personal Digital Cellular system) during 1987-1988 and development of the core network for PDC system during 1989-

1991. Then he was engaged in development of mobile service control point (M-SCP) system during 1992-1994. He engaged in the standardization and development of the third generation mobile system, including network architecture, ATM AAL2 system, IP packet system, and so on during 1995-2000. He was the President of DoCoMo Europe (France) S.A.S. in Paris during 2000-2003 which is a base of NTT DoCoMo for the third generation mobile system standardization and marketing and regulation research regarding on the European telecommunication industry. After returning to Japan, he engaged to the network laboratories of NTT DoCoMo in YRP during 2003-March 2004. He researched beyond 3G mobile network including ubiquitous networks, beyond IP networks and network architecture. He engaged to R&D planning department to establish NTT DoCoMo's R&D plan during 2004-2006. Since October 2006, he engaged to core network development department of NTT DoCoMo and has designed entire core network systems of 3G and LTE/EPC based on all-IP network. He has been a vice president and managing director of core network development department of NTT DOCOMO, INC since July 2010. He was a chairman of IMT-2000 air interface Working Group of TTC (The Telecommunication Technology Committee) during 1997 - 2000. He was also a vice-chairman of 3GPP (Third Generation Partnership Project) TSG-CN (Technical Specification Group - Core Networks) during 2000-2001, vice-chairman of 3GPP TSG-SA (Technical Specification Group - Service & System Aspects) during 2001-2004 well as vice-chairman of ITU-T Special Study Group on 'IMT-2000 and Beyond' during 2000-2004.

Registration

Registration will take place in the Fifth Floor Foyer. Opening times are:
- Sunday 6 May 2012   0730 – 1730 *
- Monday 7 May 2012   0730 – 1730
- Tuesday 8 May 2012   0730 – 1730
- Wednesday 9 May 2012   0830 – 1600

* Also outside the reception for badge and ticket pickup only – bags can be picked up later.

Breaks & Social Events

Coffee breaks will take place in the exhibit and poster area in the room 503 on the 5th floor. Lunches, which are included in the full registration, will be served in room 501+502. You will need to present your ticket on entry. The reception on Sunday evening will be held on the third floor of the Pacifico in room 315. Again a ticket is required for entry, although all registration categories include the reception. The banquet on Tuesday evening will be provided as part of a unique dinner banquet boat cruise around parts of Tokyo Bay. In addition to the excellent Japanese food and beverages, you will enjoy an exquisite view of the Yokohama skyline from the traditional Yakata-bune boats of Yokohama.

Lunches, the reception and banquet are ticket only – you will need the ticket included in your registration packet to gain entry. If you have not yet registered on Sunday, you can pick up your tickets if you bring your registration receipt to the reception.

Tutorials

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

Sunday 6 May 2012, 9:00–12:30 411

T1: Advances in Green Communications and Networks

Zhisheng Niu, Professor, Tsinghua University, China

The explosive development of ICT industry has emerged as one of the major sources of world energy consumption. As a result, having the information and communication networks more energy-efficient (green) is one of the most critical issues for a sustainable future of the whole world.

In this tutorial, we first claim that the networks planning and operation should be more energy-efficiency oriented and, in the meantime, the radio resources distributed over heterogeneous cellular networks should be optimized in a global way, i.e., Globally Resource-optimized and Energy-Efficient Networks (GREEN). Then, we propose two new frameworks called CHORUS (Collaborative and Harmonious Open radio Ubiquitous Systems) and TANGO (Traffic-Aware Network planning and Green Operation) for GREEN, aiming at increasing the energy efficiency from the system point of view while guaranteeing the coverage and optimizing radio resources as well. Some key technologies for the migration to CHORUS and TANGO are then presented and evaluated. Theoretical modeling and simulation studies show that the CHORUS and TANGO schemes can greatly improve the energy-efficiency of the cellular networks, while the quality-of-services (QoS) can be kept at a satisfactory level. In the end, this tutorial will give a comprehensive survey of the recent developments from algorithms to practical applications in green wireless communications, and summarize some open problems on critical energy-efficient design issues.

Zhisheng Niu graduated from Northern Jiaotong University, Beijing, China, in 1985, and got his M.E. and D.E. degrees from Toyohashi University of Technology, Toyohashi, Japan, in 1989 and 1992, respectively. After spending two years at Fujitsu Laboratories Ltd., Kawasaki, Japan, he joined with Tsinghua University, Beijing, China, in 1994, where he is now a professor at the Department of Electronic Engineering. His current research interests include teletraffic theory, mobile Internet, radio resource management of wireless networks, and green communication and networks.

Prof. Niu has been studying on green communications since 2007 and published extensively in this area. He has been serving as the guest co-editor for the IEEE Wireless Communication Magazine Special Issue on Green Radio Communications and Networks and the Communication Networks Special Issue on Green Communication Networks (to be published in 2012). He is now the Chief Scientist of the National Fundamental Research Program of China "Fundamental Research on the Energy and Resource Optimized Hyper-Cellular Mobile Communication System" (2012-2016), which is the first national project in this area in China.

Dr. Niu received the Best Paper Awards from the 13th and 15th Asia-Pacific Conference on Communication (APCC) in 2007 and 2009, respectively, and Outstanding Young Researcher Award from Natural Science Foundation of China in 2009. Currently, he is a fellow and councilor of the IEICE, Director for Conference Publications of IEEE Communication Society, Conference and Technical Seminar Coordinator of IEEE Region 10, council member of Chinese Institute of Electronics (CIE), and vice chair of the Information and Communication Network Committee of the Chinese Institute of Communications (CIC).

Sunday 6 May 2012, 9:00–12:30 412

T2: Heterogeneous Networks - Technical Aspects and Standardization in LTE and Beyond

S. Gaur, J. Acharya, L. Gao, Wireless Systems Research Lab, Hitachi America Ltd.

In this tutorial, we provide researchers and academicians with an overview and insight into the deployment of heterogeneous networks for indoor and outdoor environments within the framework of 3GPP-LTE and LTE-Advanced. We demonstrate the need for heterogeneous networks in order to improve capacity and coverage of cellular systems. We discuss the underlying communication theory of such a network and discuss the interference coordination aspects. We cover the standardization efforts that have gone into incorporating heterogeneous network deployments within 3GPP. We present case studies of real world heterogeneous networks to illustrate

the challenges and engineering performance trade-offs. In this tutorial we thus focus on core theory and network design aspects as well as business case for the operators to illustrate why heterogeneous networks are expected to be an integral part of current and future cellular systems.

Sudhanshu Gaur (SM IEEE) received his Bachelor of Technology degree in Instrumentation Engineering from the Indian Institute of Technology (IIT) in 2000. From 2000 to 2001, he worked on GPRS MAC design with Sasken Communication Technologies, Bangalore. He received his M.S. from Virginia Tech and Ph.D from Georgia Institute of Technology, both in Electrical and Computer Engineering. Since 2005, he has been with Hitachi s wireless research lab in Santa Clara where he leads MU-MIMO research activity targeting LTE-advanced standardization. Earlier he led a project on HD video transmission over WiFi and was also involved with IEEE 802.11aa standardization. His research includes work on MIMO signal processing, interference management, multiple access protocols, and performance analysis of cellular systems. He is a Senior Member of IEEE and Guest Editor for Journal of Communications (JCM).

Joydeep Acharya received his B.Tech. degree in Electronics and Electrical Communications from Indian Institute of Technology, Kharagpur in 2001 and M.S. and PhD. in Electrical Engineering from Rutgers University in 2005 and 2009 respectively. From 2001 - 2002, he worked as a research consultant in GS Sanyal School of Telecommunications, IIT Kharagpur on Physical Layer design of WCDMA. From 2003-2009, he did his doctoral research at the Wireless Information Networks Laboratory (WINLAB), Rutgers University. His doctoral research topics included spectrum regulation for wireless systems, resource allocation and microeconomics principles as applied to wireless communications, MIMO and OFDM systems. Currently he is a researcher at the Wireless Systems Research Lab (WSRL), Hitachi America Ltd. where he is involved in physical layer research and standardization of LTE/LTE-Advanced with emphasis on downlink multi-user MIMO algorithms and multi base station coordination.

Long Gao (S'06-M'10) received his B.S. degree from Beijing Jiaotong University, in 2003, and his M.S. degree from Beijing University of Posts and Telecommunications, Beijing, China, in 2006, both in Electrical Engineering. He graduated from Texas A&M University, College Station, TX, with his Ph.D. degree in Electrical Engineering and joined Hitachi America, Ltd, Santa Clara, CA, in 2009. Since then, he has been involved in 3GPP LTE/LTE-A standardization activities with focus on cooperative communication and heterogeneous networks.

Sunday 6 May 2012, 9:00–12:30 421

T3: Inter-Vehicular Communication: Standards, Protocol Design, and Integrated Security Metrics

Falko Dressler, University of Innsbruck, Austria and Claudio Casetti, Politecnico di Torino, Italy

Much progress can be observed in the domain of Inter-Vehicular Communication, looking back at the last decade. In this growing community, many ongoing activities focus on the design on communication protocols to support safety application, intelligent navigation, multi-player gaming and other. Very large projects have been initiated to validate the theoretic work in field tests and protocols are being standardized. With the increasing interest from industry, security and privacy become key aspects in the stage of protocol design in order to support a smooth and carefully planned roll-out. Researchers from academia and industry recently met at an international Dagstuhl seminar to discuss open research challenges as well as open issues related to market-oriented design. The objectives of this tutorial are

twofold: In the first part, an introduction to recent developments in the field of IVC protocols and the used methods is provides. The tutorial aims to provide insights into relevant methods and protocols in the IVC domain and on how adequate performance studies have to be conducted. In the second part, we will primarily focus on security and privacy issues that impact not only the protocol design but also the chances to successfully roll-out developed solutions.

Falko Dressler is a Full Professor of Computer Science heading the Computer and Communication Systems Group at the Institute of Computer Science, University of Innsbruck. Dr. Dressler received his M.Sc. and Ph.D. degree from the Dept. of Computer Science, University of Erlangen in 1998 and 2003, respectively. Dr. Dressler is an Editor for journals such as Elsevier Ad Hoc Networks, ACM/Springer Wireless Networks (WINET), and Elsevier Nano Communication Networks. He was guest editor of special issues on self-organization, autonomic networking, and bio-inspired computing and communication for IEEE Journal on Selected Areas in Communications (JSAC), Elsevier Ad Hoc Networks, and others. Among other, Dr. Dressler wrote the textbooks Self-Organization in Sensor and Actor Networks, published by Wiley in 2007. Dr. Dressler is an IEEE Distinguished Lecturer, and a Senior Member of the IEEE (COMSOC, CS, VTS) as well as a Senior Member of ACM (SIGMOBILE).

Claudio Casetti got his M.Sc. degree in Electrical Engineering from Politecnico di Torino, Italy. He got his PhD in Telecommunication Engineering from the same institution and he is currently an Assistant Professor at Dipartimento di Elettronica, Politecnico di Torino. He has published more than 130 papers in peer-refereed international journals and conferences on the following topics: Transport and network protocols in wired networks, IEEE 802.11 WLANs, Vehicular networks, Ad hoc and sensor networks. He holds one patent from the U.S. Patent Office and two from the E.U. Patent Office. He serves in the Technical Program Committees of the main international conferences in the networking field (such as IEEE INFOCOM, IEEE GLOBECOM or IEEE ICC). He was co-chair of the Autonomic Networks Symposium at IEEE Globecom 2005. He was the Workshop Co-Chair of IEEE INFOCOM 2009, the Technical Program Co-Chair of IEEE WONS 2009 and the General Co-Chair of IEEE WONS 2010. He is a member of IEEE. He has been a visiting scholar at Umass Amherst, UCLA and UCSD.

Sunday 6 May 2012, 13:30–17:00 411

T4: TV White Space Standardization Activities: From the Regulation, Technology & Application Perspective

Chin-Sean Sum and Hiroshi Harada, NICT, Japan

This tutorial covers the panoramic landscape of the international standardization activities related to wireless communication systems operating in the currently popular TV white space. The latest development of these standardization activities from the perspective of regulations, technical specifications and application scenarios are presented. Section 1 presents the big picture on wireless communications operating in the TV white space, featuring the current trends of market demands, regulatory restrictions, technical challenges and standardization activities. Section 2 discusses the typical usage models with in-depth comparative analysis between the TV white space communication systems and other existing radio technologies. Section 3 gives a concise summary on regulatory-domain-dependent rules which may otherwise be time-consuming for self-study. The selected regulatory domains cover most of the countries that are leading in the field of TV white space communications, including USA, UK,

Europe, Japan and Singapore. Section 4 presents the well-known family members of the IEEE Computer Society LMSC 802 standards that are related to TV white space communications. Among others are the WLAN, WPAN, WMAN, WRAN and coexistence with white space emphasis. Section 5 lists the standardization activities in DYSPAN Standards Committee of the IEEE Communication Society. The 1900.4a and 1900.7 are among the groups working with TV white space communications. Sections 6 and 7 present other related standard bodies such as ECMA and IETF in white space communications. Section 8 highlights the opportunities of contribution in the standardization groups to give a head start to audience interested in participating in the mentioned standards.

Dr. Chin-Sean Sum received his Ph.D. degree from Niigata University in 2007. He was then affiliated with the National Institute of Information and Communications Technology (NICT), Japan as an expert researcher in the Smart Wireless Laboratory (SWL). He has been involved in multiple standardization activities as a project officer and an active technical contributor. In the IEEE 802.15.3c millimeter-wave wireless personal area networks (WPAN) standard, he served as the assistant technical editor and secretary of the task group. He is contributes to other task groups such as IEEE 802.15.4g Smart Utility Networks (SUN) WPAN as an assistant editor and IEEE 802.11af white space wireless local area networks (WLAN). Currently, he is actively involved in a new initiative group working on WPAN operating in TW white space, known as IEEE 802.15.4m, as the technical editor.

Dr. Hiroshi Harada is the director of smart wireless laboratory (SWL) at National Institute of Information and Communications Technology (NICT). He joined the Communications Research Laboratory, Ministry of Posts and Communications, in 1995 (currently NICT). Since 1995, he has conducted research on Software Defined Radio (SDR), Cognitive Radio, Dynamic Spectrum Access Network, Smart Utility Network (SUN) and broadband wireless access systems in the VHF, TV white space, micro-wave and millimeter-wave bands. He has joined many standardization committees and forums in the United States as well as in Japan and has fulfilled important roles for them. He is currently serving in the board of directors of Wireless Innovation Forum (formerly SDR Forum). He is the chair of IEEE DySPAN Standards Committee (formerly, IEEE SCC41 and IEEE 1900) since 2009, the vice chair of IEEE P1900.4, IEEE P802.15.4g, and TIA TR-51 since 2008, 2009, and 2011, respectively. He was the chair of the IEICE Technical Committee on Software Radio (TCSR) 2005-2007 and the chair of Public Broadband Mobile Communication Development Committee, ARIB since 2010.

T5: Towards 4G: Technical Overview of LTE and LTE-Advanced by Hyung G. Myung, Qualcomm has been cancelled

Sunday 6 May 2012, 13:30–17:00 421

T6: Turbo Equalization: Fundamentals, Information Theoretic Considerations, and Extensions

Tad Matsumoto, JAIST, Khuorul Anwar, JAIST, and Norulhusna Ahmad, UTM

This tutorial is started with a brief explanation of the basics of turbo equalization for broadband single carrier signaling, where sliding window technique is first introduced. Then, the sliding window formulation of the turbo equalization is converted into block-wise processing, with the aim of finally deriving a frequency domain equivalent of the algorithm.

For the Information Theoretic Considerations of turbo equalization, this tutorial introduces extrinsic information transfer (EXIT) chart as a useful tool for analyzing the convergence property of the turbo equalization.

This tutorial then extends the turbo equalization to time-concatenated chained turbo equalization (CHATUE), which connects turbo equalizers neighboring in time in the absence of cyclic prefix (CP) or guard interval (GI). The latest version of the frequency domain turbo equalization is utilized not only to mitigate the inter-symbol-interference (ISI) but also to eliminate the inter-block-interference (IBI) due to connecting the neighboring blocks.

Another application introduced in this tutorial is a new signaling technique, non-Orthogonal Frequency Division Multiplexing (n-OFDM), where turbo equalization is used to eliminate the inter-carrier interference (ICI) caused by intentionally overlapping the sub-carriers. This concept is analogous to the time-concatenated equalization technique described above. The main objectives of this technique are to achieve high spectrum efficiency and to improve the BER performance with n-OFDM, compared with the conventional OFDM system.

Tad Matsumoto received his B.S., M.S., and Ph.D. degrees from Keio University, Yokohama, Japan, in 1978, 1980, and 1991, respectively, all in electrical engineering. Prof. Matsumoto serving as a full professor at Japan Advance Institute of Science and Technology (JAIST). He has also serving as a Finland Distinguished Professor for a period from January 2008 to December 2012, funded by the Finnish National Technology Agency (Tekes) and Finnish Academy, under which he preserves the rights to participate in and apply to European and Finnish national projects. He is a Fellow of IEEE and a Member of IEICE. He is serving as an IEEE Vehicular Technology Distinguished Lecturer during the term July 2011-June 2013.

Khoirul Anwar graduated cum laude from the department of Electrical Engineering (Telecommunications), Institut Teknologi Bandung (ITB), Bandung, Indonesia in 2000. He received Master and Doctor Degrees from Graduate School of Information Science, Nara Institute of Science and Technology (NAIST) in 2005 and 2008, respectively. Since then, he has been appointed as an assistant professor in NAIST. He received best student paper award from the IEEE Radio and Wireless Symposium 2006 (RWS'06), California-USA, Best Paper of Indonesian Student Association (ISA 2007), Kyoto, Japan in 2007, and Best Presenter in International Conference Sustain 2011. Since September 2008, he is with the School of Information Science, Japan Advanced Institute of Science and Technology (JAIST) as an assistant professor. His research interests are network information theory, error control coding, iterative decoding and signal processing for wireless communications. He has authored around 45 scientific publications in these areas. Dr. Anwar is a member of IEEE, and IEICE Japan.

Norulhusna Ahmad received her B.Sc and M. Sc. Degrees in electrical engineering from Universiti Teknologi Malaysia (UTM) in 2000 and 2003, respectively. Since 2001, UTM as an academic staff and currently she has pursued her PhD in the same university. In April 2011 until May 2011, she was with Matumoto Laboratory in Japan Advanced Institute of Science and Technology (JAIST) as a visiting researcher. She has conducting a research on non-Orthogonal Frequency Division Multiplexing (n-OFDM) with turbo Soft Cancellation - Minimum Mean Square Error (SC-MMSE). Her research interest include digital signal processing in wireless communication emphasis on error-correcting codes and iterative decoding..

VTC2012-Spring Final Programme

Monday 7 May 2012

1A: Heterogeneous Networks
Chair: Dr. Lan Chen, DOCOMO Beijing Labs, China

1 Voice-Centric LTE Femtocells and Improper Graph Colorings
Luis Guilherme Uzeda Garcia, Aalborg Universitet, Denmark, Klaus I. Pedersen, Nokia Siemens Networks, Denmark, and Preben E. Mogensen, Aalborg Universitet & Nokia Siemens Networks, Denmark

2 Dynamic Frequency Reservation Scheme for Interference Coordination in LTE-Advanced Heterogeneous Networks
Jun Zhang, Hui Tian, Peng Tian, Yao Huang, and Liqi Gao, Beijing University of Posts and Telecommunications, Key Laboratory of Universal Wireless Communication, China

3 Joint Base-Station Association, Channel Assignment, Beamforming and Power Control in Heterogeneous Networks
Quan Kuang, Joachim Speidel, University of Stuttgart, Germany, and Heinz Droste, Deutsche Telekom AG, Germany

4 Non-Unanimous Power Inter-cell Interference Coordination in Heterogeneous Networks
Esraa Makled, Ahmed Ibrahim, Ahmed Darwish, and Hani El Gebali, Intel Corporation, Egypt

5 A Cell-Planning Model for HetNet with CRE and TDM-ICIC in LTE-Advanced
Shoji Kaneko, Takashi Matsunaka, and Yoji Kishi, KDDI R&D Laboratories Inc., Japan

1B: MIMO Transmission
Chair: Prof. Olav Tirkkonen, Aalto University, Finland

1 M-PSK Codebook Based Clustered MIMO-OFDM SDMA with Efficient Codebook Search
Chang Kyung Sung, Hajime Suzuki, and Iain B. Collings, CSIRO, Australia

2 Impact of gain/phase variation on MIMO precoder selection for LTE UL
Chester Park, Ericsson, Inc., United States

3 On the Quantization and Prediction for Precoded MIMO with Delayed Limited Feedback
Dalin Zhu, and Ming Lei, NEC Labs China, China

4 Precoding with Known Transmit Coupling and Spatial Covariance Matrices
Jinhui Chen, Wei Fang, Fanglei Sun, Peng Shang, and Jun Wang, Alcatel-Lucent Shanghai Bell Co. Ltd, China

5 On the Effect of Gaussian Imperfect Channel Estimations on the Performance of Space Modulation Techniques
Raed Mesleh, University of Tabuk, Saudi Arabia, and Salama S. Ikki, INRS, Canada

1C: Relaying 1
Chair: Prof. Jiangzhou Wang, University of Kent, UK

1 Asymptotic Performance Analysis of AF Relaying in Two-Wave with Diffuse Power Fading Channels
Yao Lu, and Xiaoxiang Wang, Beijing University of Posts and Telecommunications, China

2 Distributed Optimization of Transceiver Weights in MIMO Two-way Multihop Networks
Rindranirina Ramamonjison, Gia Khanh Tran, Kei Sakaguchi, and Kiyomichi Araki, Tokyo Institute of Technology, Japan

3 Channel Prediction at the Destination for Relay Training Overhead Reduction in Cooperative Wireless Networks
Wen-Ching Chung, Jwo-Yuh Wu, Rung-Hung Gau, and Chung-Ju Chang, National Chiao Tung University, Taiwan

4 Error Performance of Opportunistic Relaying with Outdated Channel State Information
Nien-En Wu, National Taiwan University, Taiwan, Po-Lin Yeh, Mstar Semiconductor, Taiwan, and Hsueh-Jyh Li, National Taiwan University, Taiwan

5 Interference Alignment for Multi-User Multi-Way Relaying X Networks
Wei Long, Tiejun Lv, Hui Gao, and Yueming Lu, Beijing University of Posts and Telecommunications, China

1D: LTE
Chair: Prof. Hyuck M. Kwon, Wichita State University, USA

1 Performance Study of an Enhanced Downlink Control Channel Design for LTE
Michael Einhaus, Christian Wengerter, Jan Ohlhorst, and Sujuan Feng, Panasonic R&D Center Germany, Germany

2 A Dynamic Hysteresis-adjusting Algorithm in LTE Self-Organization Networks
Wenyu Li, Beijing University of Posts and Telecommunications, China Academy of Telecom. Research, MIIT, China, Xiaoyu Duan, Shucong Jia, Lin Zhang, Yu Liu, and Jiaru Lin, Beijing University of Posts and Telecommunications, China

3 Performance Evaluation of End-to-End Communication Quality of LTE
Liang Zhang, Takao Okamawari, and Teruya Fujii, Softbank Mobile Corp., Japan

4 Realistic Performance of LTE in a macro-cell environment
Jean-Baptiste Landre, Ziad El Rawas, Raphaël Visoz, and Sarah Bouguermouh, Orange, France

5 Experimental analysis of TCP and UDP during LTE Handover
Liang Zhang, Takao Okamawari, and Teruya Fujii, Softbank Mobile Corp., Japan
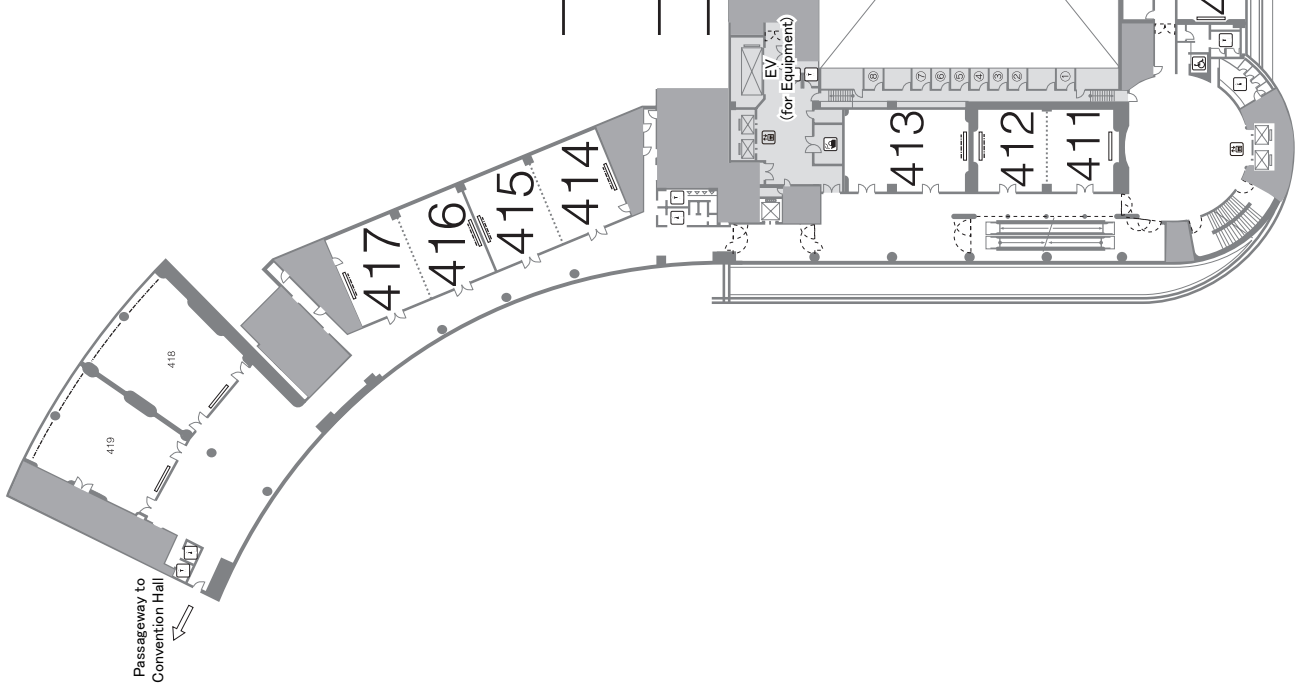
1F: OFDM 1
Chair: Dr. Mohamed Moustafa , Akhbar El Yom Academy, Egypt

1 A Low-Complexity CDD-based Frequency Selective Scheduling with Efficient Feedback for Downlink OFDMA Systems
Yu-Fan Chen, National Chiao Tung University, Taiwan, Wern-Ho Sheen, Chaoyang University of Technology, Taiwan, and Li-Chun Wang, National Chiao Tung University, Taiwan

2 Differential Evolution Algorithm Aided Minimum Symbol Error Rate Multi-user Detection for Multi-user OFDM/SDMA Systems
Jiankang Zhang, Zhengzhou University, China, Sheng Chen, University of Southampton, United Kingdom, Xiaomin Mu, Zhengzhou University, China, and Lajos Hanzo, University of Southampton, United Kingdom

3 Optimal Power Allocation in Spatial Modulation OFDM for Visible Light Communications
Xiao Zhang, Svilen Dimitrov, Sinan Sinanoví´c, and Harald Haas, The University of Edinburgh, United Kingdom

4 Novel Unipolar Orthogonal Frequency Division Multiplexing (U-OFDM) for Optical Wireless
Dobroslav Tsonev, Sinan Sinanovic, and Harald Haas, University of Edinburgh, United Kingdom

SUNDAY 6 May

Time	411	412	413	414	421
7:30-17:30	Registration (5F Foyer)				
9:00-10:30	T1: Advances in Green Communications and Networks	T2: Heterogeneous Networks - Technical Aspects and Standardization	GreeNet Workshop Opening Keynotes	VE2012 Session 1 (starts 9:30)	T3: Inter-Vehicular Comms: Standards, Protocol Design, & Integrated Security Metrics
10:30-11:00	Coffee Break				
11:00-12:30	T1: Advances in Green Communications and Networks	T2: Heterogeneous Networks - Technical Aspects and Standardization	GreeNet Workshop Energy Efficient Wireless Networks	VE2012 Session 2	T3: Inter-Vehicular Comms: Standards, Protocol Design, & Integrated Security Metrics
12:30-14:00	Lunch Break (no lunch provided)				
14:00-15:30	T4: TV White Space Standardization Activities		GreeNet Workshop Afternoon Keynote, followed by Energy Eff. Wireless Techniques	VE2012 Session 3	T6: Turbo Equalization: Fundamentals, Info Theoretic Considerations & Extensions
15:30-16:00	Coffee Break			Coffee Break & Posters	Coffee Break
16:00-17:30	T4: TV White Space Standardization Activities		GreeNet Workshop Energy Efficient Wireless Techniques	VE2012 Session 4	T6: Turbo Equalization: Fundamentals, Info Theoretic Considerations & Extensions
19:30-21:30	VTC Welcome Reception (315)				

4 F
Floor Plan

Passageway to Convention Hall

417　416　415　414
419　418
EV (for Equipment)
413　412　411
425　421　422　423　424

5 F
Floor Plan

5F Foyer
502　501
503 Posters Exhibits
Smoking area
EV (for Equipment)
511　512　513　514
Controlling room
Simultaneous Interpreting booth

Legend
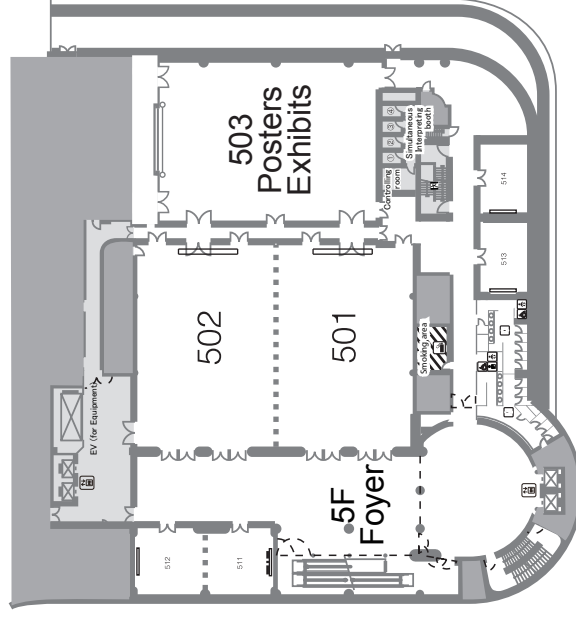
- Toilet (for wheelchair)
- Toilet (for men)
- Toilet (for women)
- Smoking area
- Staff kitchen
- Equipment for baby
- Equipment for ostomate
- First Aid room
- AED
- Food place
- Public phone
- Elevator
- Emergency Exit
- Equipment for baby
- Stage
- Screen

Time		411 (A)	412 (B)	413 (C)	414 (D)	415 (E)	421 (F)	422 (G)	503 (P)
SUNDAY 6 May									
7:30-17:30		Registration (5F Foyer)							
8:30-17:00		Tutorials, GreeNet & VE2012: See separate program above							
19:00-21:00		VTC Welcome Reception (315)							
MONDAY 7 May									
7:30-17:30		Registration (5F Foyer)							
08:30-10:30		Opening Plenary:Welcome & Opening Addresses; Dr. Ryuji Yamada, President and CEO, NTT DOCOMO, INC.; Nobuhiro Endo, President, NEC Corporation (501+502)							
10:30-11:00		Coffee and Exhibits (503)							
11:00-12:30	(1)	Heterogeneous Networks	MIMO Transmission	Relaying 1	LTE		OFDM 1	Spectrum Sensing 1	Positioning, Mobile Apps & Services; Transport-ation; Vehicular Electron-ics & Telematics Posters
12:30-14:00		Lunch (501+502)							
14:00-15:30	(2)	Radio Resource Management	MIMO Channel Techniques	Cooperative Communications with Network Coding	Vehicular Ad-Hoc Network		Transmission Techniques 1	Interference Control	Antennas and Propagation Posters
15:30-16:00		Coffee and Exhibits (503)							
16:00-17:30	(3)	Cooperative Networks	Green Systems	Implementations	M2M Communications		Parameter Estimation 1	Antennas	Cognitive Radio & Spectrum Sensing; Co-op Comms, dist. MIMOs & Relaying Posters 1
TUESDAY 8 May									
8:00-17:30		Registration (5F Foyer)							
08:45-10:30		Panel 1 : Next Generation Mobile Communication Technologies (501)			Panel 2 : Future Prospect and Potential of Mobile Phone Business (502)				
10:30-11:00		Coffee and Exhibits (503)							
11:00-12:30	(4)	Resource Allocation for Relaying 1	Estimation and Detection Techniques	CoMP and Multiuser MIMO	Cellular Networks 1	Modulation and Coding	Vehicular Electronics and Telematics	Extreme Propagation Environments	Ad-Hoc, Mesh and Sensor; Green Networks;/Wireless Access Posters 1
12:30-14:00		Lunch (501+502)							
14:00-15:30	(5)	MIMO Channel Techniques for UMTS	Wireless Networks	Cognitive Networks	Relaying 2	WiMAX/WLAN	Interference Mitigation 1	Positioning	Multiple Antenna Systems and Space-Time-Frequency Processing Posters
15:30-16:00		Coffee and Exhibits (503)							
16:00-17:30	(6)	LTE and LTE-Advanced 1	Scheduling and Resource Control	Cooperative MIMO	Green Technology	Femtocell Networks	Parameter Estimation 2	Wireless Sensor Networks 1	Transmission Techniques Posters
17:45-21:00		Dinner Banquet Boat Cruise - Tokyo Bay							
WEDNESDAY 9 May									
8:00-17:30		Registration (5F Foyer)							
9:00-10:30	(7)	Practical Aspects of Cognitive Radio	Cellular Networks 2	Relays for LTE	MIMO Detection Techniques	Wireless Sensor Networks 2	Transportation	Interference Mitigation 2	Cooperative Comms, distributed MIMOs & Relaying Posters 2
10:30-11:00		Coffee and Exhibits (503)							
11:00-12:30	(8)	Spectrum Sensing 2	Coordinated Transmission	Resource Allocation for Relaying 2	Predistortion and Equalization	Wireless LAN	MIMO Channels	Transmission Techniques 2	Wireless Networks Posters
12:30-14:00		Lunch (501+502)							
14:00-15:30	(9)	Green Radio Links	Resource Allocation	Relaying 3	Performance Evaluation for Wireless Access	Beam/Null-Forming	Resource Allocation for Wireless Ad Hoc Networks	Channel Estimation	Wireless Access Posters 2
15:30-16:00		Coffee and Exhibits (503)							
16:00-17:30	(10)	Distributed Beamforming	Performance Evaluation for Wireless Networks	LTE and LTE-Advanced 2	Signal Detection	Resource Allocation for Cognitive Radio	Positioning and Mobile Applications	OFDM 2	

5 On Optimum Segment Combining Weight for ICI Self-Cancellation in OFDM Systems under Doubly Selective Fading Channels
Chun-Ying Ma, Sheng-Wen Liu, and Chia-Chi Huang, National Chiao Tung University, Taiwan

Monday, 7 May 2012 11:00-12:30 422
1G: Spectrum Sensing 1
Chair: Prof. Chin-Liang Wang, National Tsing Hua University, Taiwan

1 Design Aspects of a Television White Space Device Prototype
Mohammad Azizur Rahman, Chunyi Song, and Hiroshi Harada, NICT, Japan

2 Prioritized Spectrum Sensing Scheme Based on Semi-Markov Process
Bo Wang, Zhiyong Feng, Ping Zhang, and Dongyan Huang, Beijing University of Posts and Telecommunications, China

3 Design of a New Signal Structure for Active Sensing in Cognitive Radio Systems
Han-Wei Chen, and Chin-Liang Wang, National Tsing Hua University, Taiwan

4 A Complete Framework for Spectrum Sensing based on Spectrum Change Points Detection for Wideband Signals
Wael Guibene, Eurecom, France, Aawatif Hayar, Universite Hassan II, Casablanca, Morocco, Morocco, Monia Turki, Ecole nationale d'ingénieurs de Tunis, Tunisia, and Dirk Slock, Eurecom, France

Monday, 7 May 2012 11:00-12:30 503
1Pa: Positioning, Mobile Applications and Services Posters
1 Hybrid TOA/AOA Cooperative Localization in Non-line-of-sight Environments
Genming Ding, Zhenhui Tan, State Key Laboratory of Rail Traffic ControlSafety, China, Lingwen Zhang, Institute of Broadband Wireless Mobile Communications, China, Ziqi Zhang, State Key Laboratory of Rail Traffic ControlSafety, China, and Jinbao Zhang, EMC Laboratory, China

2 Received Signal Strength Fingerprint and Footprint Assisted Indoor Positioning Based on Ambient Wi-Fi Signals
Jenq-Shiou Leu, and Hung-Jie Tzeng, National Taiwan University of Science and Technology, Taiwan

3 Calibration-free Approaches for Robust Wi-Fi Positioning Against Device Diversity: A Performance Comparison
Shih-Hau Fang, Chu-Hsuan Wang, Sheng-Min Chiou, and Po-Chiang Lin, Yuan-Ze University, Taiwan

4 Research on Context-Awareness Service Adaptation Mechanism in IMS under Ubiquitous Network
Wen'an Zhou, Jie Chang, and Junde Song, Beijing University of Posts and Telecommunications, China

5 Analysis on the Accuracy of Decision Making Systems for Hypertension Monitoring
Di Lin, Fabrice Labeau, McGill University, Canada, Xidong Zhang, and GuiXia Kang, Ministry of Education, China

6 An Active 3-Dimensional Localization Scheme for Femtocell Subscribers Using E-UTRAN
Aquil Mirza Mohammed, Zeeshan Shakir Muhammad, and Mohamed-Slim Alouini, KAUST, Saudi Arabia

Monday, 7 May 2012 11:00-12:30 503
1Pb: Transportation Posters
1 An automatic Empty Vehicle Detection systemfor Airport People Movers applications
Joerg Schuette, Dresden University of Technology, Germany, Crawford Chris, Bombardier Transportation, United States, and Sven Scholz, Dresden University of Technology, Germany

2 Gulliver: A Test-bed for Developing, Demonstrating and Prototyping Vehicular Systems
Elad Michael Schiller, Mitra Pahlavan, and Marina Papatriantafilou, Chalmers University of Technology, Sweden

3 Transport Commons: A community based public transport system
Farzad Safaei, University of Wollongong, Australia

4 Coexistence of Downlink High-Speed Railway Communication System with TDD-LTE Cellular Communication System
Bingjun Han, Yinming Liang, Liang Huo, Xin Zhang, and Dacheng Yang, Beijing University of Posts and Telecommunications, China

Monday, 7 May 2012 11:00-12:30 503
1Pc: Vehicular Electronics and Telematics Posters
1 Realization of DBF-OFDM Transceiver for Vehicular Communication Using FPGA Chip
Jeich Mar, and Chi-Cheng Kuo, Yuan-Ze University, Taiwan

2 Energy-optimized Driving with an Autonomous Vehicle in Urban Environments
Falko Saust, Jörn Marten Wille, and Markus Maurer, Technische Universität Braunschweig, Germany

3 A New Routing Protocol for Interference and Path-Length Minimization in Vehicular Networks
Peppino Fazio, Mauro Tropea, Fiore Veltri, and Salvatore Marano, University of Calabria, Italy

4 Load Balanced VANET Routing in City Environments
Hosna Tashakkori Hashemi, and Siavash Khorsandi, Amirkabir University of Technology, Iran, Islamic Republic of

5 A Method of Preventing Unauthorized Data Transmission in Controller Area Network
Tsutomu Matsumoto, Masato Hata, Masato Tanabe, Katsunari Yoshioka, and Kazuomi Oishi, Yokohama National University, Japan

Monday, 7 May 2012 14:00-15:30 411
2A: Radio Resource Management
Chair: Prof. Zhong Xiaofeng, Tsinghua University, China

1 Elastic Game Based Radio Resource Management
Kinda Khawam, Johanne Cohen, Dana Marinca, and Samir Tohme, Versailles University, France

2 Advanced Power Saving Mechanism in IEEE 802.16m Wireless Metropolitan Area Networks
Shiann-Tsong Sheu, Lu-Wei Chen, National Central University, Taiwan, and Jenhui Chen, Chang Gung University, Taiwan

3 Joint Mode Selection and Power Allocation Schemefor Power-Efficient Device-to-Device (D2D)Communication
Minchae Jung, Kyuho Hwang, and Sooyong Choi, Yonsei University, South Korea

4 Downlink Radio Resource Management for LTE-Advanced System with Combined MU-MIMO and Carrier Aggregation Features
Hung Tuan Nguyen, Aalborg University, Denmark, and Istvan Z. Kovacs, Nokia Siemens Networks, Denmark

5 Radio Resource Allocation for Low-Medium-Altitude Aerial Platform Based TD-LTE Networks against Disaster
Liqiang Zhao, Jiangtao Yi, Xidian University, China, Fumiyuki Adachi, Tohoku University, Japan, and Hailin Zhang, Xidian University, China

Monday, 7 May 2012 14:00-15:30 412
2B: MIMO Channel Techniques
Chair: Prof. Wei Liu, Xidian University, China

1 A Design of Transmit Weights for Non-regenerative Multiuser MIMO Relay System
Cong Li, and Yasunori Iwanami, Nagoya Institute of Technology, Japan

2 Analysis of CQI Prediction for MU-MIMO in LTE Systems
Biljana Badic, Rajarajan Balraj, Tobias Scholand, Intel Mobile Communications GmbH, Germany, and Zijian Bai, and Stanislaus Iwelski, University of Duisburg-Essen, Germany

3 Efficient Low Complexity Turbo Equalization with soft interference cancellation in MIMO system
Wang Yanlong, Chang Yongyu, and Yang Dacheng, Beijing University of Posts and Telecommunications, China

4 Minimum Mean Partial Interference Criterion for Serial Processing Structure of Equalizer and MLD in Multipath Fading MIMO Channel
Tsuyoshi Hasegawa, Fujitsu Laboratories Ltd., Japan

5 Ordered Precoder Designs for MIMO Interference Channels Based on Interference Alignment
Wei Fang, Huan Sun, and Jinhui Chen, Alcatel-Lucent Shanghai Bell, China

Monday, 7 May 2012 14:00-15:30 413
2C: Cooperative Communications with Network Coding
Chair: Prof. Soon Xin (Michael) Ng, University of Southampton, UK

1 Near-Capacity FEC Codes for Non-Regenerative MIMO-Aided Relays
Soon Xin Ng, University of Southampton, United Kingdom, Wei Liu, Jiandong Li, Xidian University, China, and Lajos Hanzo, University of Southampton, United Kingdom

2 Multi-user Analog Network Coding with Spread Spectrum
Shunfu Mao, Jangseob Kim, and Jungwoo Lee, Seoul National University, South Korea

3 Throughput Optimization for MIMO Y Channels with Physical Network Coding and Adaptive Modulation
Keov Kolyan Teav, Zhendong Zhou, and Branka Vucetic, The University of Sydney, Australia

4 Joint Hierarchical Modulation and Network Coding for Two Way Relay Networks
Rizwan Ahmad, and Mazen O. Hasna, Qatar University, Qatar

5 Network synchronization scheme for scalable two-way multi-hop network employing MIMO network coding
Yutaro Kida, Keiichi Mizutani, Gia Khanh Tran, Tokyo Institute of Technology, Japan, Takehiro Miyamoto, Nihon Dengyo Kosaku, Japan, Kei Sakaguchi, and Kiyomichi Araki, Tokyo Institute of Technology, Japan

Monday, 7 May 2012 14:00-15:30 414
2D: Vehicular Ad-Hoc Network
Chair: Dr. Wen-Hsing Kuo, Yuan-Ze University, Taiwan

1 Scalable VANET Simulations with NS-3
Ricardo Fernandes, and Michel Ferreira, Instituto de Telecomunicações, DCC/FC - University of Porto, Portugal

2 Performance Analysis of CSMA/CA Broadcast Relay Network for ITS V2V Communications
Huiting Cheng, and Yasushi Yamao, Advanced Wireless Communication Research Center, the University of Electro-Communications, Japan

3 Distance-Aware Routing with Copy Control in Vehicle-Based DTNs
Wei-Zen Lo, Jhih-Siao Gao, and Shou-Chih Lo, National Dong Hwa University, Taiwan

4 V-DESYNC: Desynchronization for Beacon Broadcasting on Vehicular Networks
Tossaphol Settawatcharawanit, Supasate Choochaisri, Chalermek Intanagonwiwat, and Kultida Rojviboonchai, Chulalongkorn University, Thailand

5 Light-Weight Reliable Broadcast Message Delivery for Vehicular Ad-hoc Networks
Yoonyoung Sung, and Meejeong Lee, Ewha Womans University, Korea, Republic of

Monday, 7 May 2012 14:00-15:30 421
2F: Transmission Techniques 1
Chair: Prof. Wu Yan, Eindhoven University of Technology, The Netherlands

1 Fast Baseband Polynomial Inverse Algorithm for Nonlinear System Compensation
Yuelin Ma, Yoshihiko Akaiwa, and Yasushi Yamao, University of Electro-Communications, Japan

2 Frequency-Hopping/M-ary Frequency-Shift Keying Wireless Sensor Network Monitoring Multiple Source Events
Fucheng Yang, and Lieliang Yang, University of Southampton, United Kingdom

3 Gaussian Pulse Shape Optimization of BFDM in Time-Frequency Dispersive Channels
Daisuke Goto, Takaya Yamazato, Nagoya University, Japan, and Bayarpurev Mongol, National University of Mongolia, Mongolia

4 Orthogonal Signalling in the Gaussian Wiretap Channel in the Wideband Regime
Ke Zhang, Miguel Rodrigues, Faculdade de Ciencias da Universidade do Porto / IT Porto, Portugal, Martin Tomlinson, Mohammed Ahmed, University of Plymouth, United Kingdom, and Francisco Cercas, Instituto de Telecomunicações/ISCTE-IUL, Portugal

5 Performance Analysis of OOK Modulated Signals in the presence of ADC Quantization Noise
Nauman Kiyani, Holst Centre/IMEC-NL, Netherlands, Pieter Harpe, Eindhoven University of Technology, Netherlands, and Guido Dolmans, Holst Centre/IMEC-NL, Netherlands

Monday, 7 May 2012 14:00-15:30 422
2G: Interference Control
Chair: Prof.Satoshi Suyama, Tokyo Institute of Technology, Japan

1 An Enhanced D-S Theory Cooperative Spectrum Sensing Algorithm against SSDF Attack
Yong Han, School of Electronic Science and Engineering, National University of Defense Technology, Changsha, China, China

2 Comparative Analysis on Interference Suppressive Transmission Schemes for White Space Radio Access
Rohit Datta, Gerhard Fettweis, TU Dresden, Germany, Yasunori Futatsugi, and Masayuki Ariyoshi, NEC Corporation, Japan

3 Interference Avoidance Transmission by Partitioned Frequency- and Time-domain Processing
Yasunori Futatsugi, and Masayuki Ariyoshi, NEC Corporation, Japan

4 Sensing-throughput Tradeoff in Cluster-based Cooperative Cognitive Radio Networks: A Novel Frame Structure
Gaofeng Nie, Ying Wang, Gen Li, and Mingyue Xu, Wireless Technology Innovation Institute, Beijing University of Posts and Telecommunications, China

5 Near-Optimal Spectrum Allocation for Cognitive Radio Networks
Tsung-Cheng Wu, I-Shou University, Taiwan, Yaqing Mao, Beijing Jiaotong University, China, and Yi-Sheng Su, Chang Jung Christian University, Taiwan

Monday, 7 May 2012 14:00-15:30 503
2P: Antennas and Propagation Posters
1 A High Speed Channel Field Test Scheme based on Additional Baseband Processor
Zaixue Wei, Yanhua Mou, Shuibing Wen, and Dacheng Yang, Beijing University of Posts and Telecommunications, China

2 Disconnection Probability Improvement by using Artificial Multi Reflectors for Millimeter-wave Indoor Wireless Communications
Hirokazu Sawada, Shunya Takahashi, and Shuzo Kato, Tohoku University, Japan

3 Direct Learning Predistorter with A New Loop Delay Compensation Algorithm
Zhengdai Li, Jingming Kuang, and Nan Wu, Beijing Institute of Technology, China

4 Designs of the Monopole Slot Antenna Arrays Operated at the WLAN Band
Chien-Jen Wang, National University of Tainan, Taiwan

5 Simulation and Measurement of Narrow-Band Antennas for Small Terminals
Mauro Pelosi, Ondrej Franek, Aalborg University, Denmark, Mikael Knudsen, Intel Mobile Communications Denmark Aps, Denmark, and Gert Pedersen, Aalborg University, Denmark

6 A Novel Wideband Printed Diversity Antenna for Mobile Handsets
Dongya Shen, Teng Guo, Fuqiang Kuang, Yunnan University, China, Xiupu Zhang, University of Concordia, , Canada, and Ke Wu, Montreal University, Canada

7 Neural Networks Model of an UWB Channel Path Loss in a Mine Environment
Mina Kalakh, Nahi Kandil, and Nadir Hakem, UQAT-LRTCS, Canada

8 Angle-dependent Path Loss Measurements Impacted by Car Body Attenuation in 2.45 GHz ISM band
Martin Blesinger, Erwin Biebl, Thomas Gehrsitz, Joerg Eerspaecher, Technische Universitaet Muenchen, Germany, Peter Fertl, Oliver Klemp, and Helmut Kellermann, BMW Forschung und Technik, Germany

9 Outdoor Channel Characterization of MIMO-LTE Antenna Configurations through Measurements
Christos Oikonomopoulos-Zachos, Taleb Ould, and Matthias Arnold, IMST GmbH, Germany

10 MIMO Channel Model and Correlation Between Channel Matrix Elements in Multipath Channel
Hiroaki Nakabayashi, Shota Igarashi, Tomohiro Hamashima, and Shigeru Kozono, Chiba Institute of Technology, Japan

11 Decision-Directed MIMO Channel Tracking with Efficient Error Propagation Mitigation
Emna Eitel, and Joachim Speidel, University of Stuttgart, Germany

12 A Non-Stationary MIMO Channel Model for High-Speed Train Communication Systems
Ammar Ghazal, Cheng-Xiang Wang, Heriot-Watt University, United Kingdom, Harald Haas, University of Edinburgh, United Kingdom, Mark Beach, University of Bristol, United Kingdom, Xiaofeng Lu, Huawei Technologies Co., Ltd., China, Dongfeng Yuan, Shandong University, China, and Xiaohu Ge, Huazhong University of Science and Technology, China

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Monday, 7 May 2012 16:00-17:30 411
3A: Cooperative Networks
Chair: Prof. Yaoqing (Lamar) Yang, University of Nebraska-Lincoln, USA

1 Relay Placement of Two-Way Multi-Hop Relay Network with Power Adaptation in a Realistic Shadowing Environment
Namzilp Lertwiram, Gia Khanh Tran, Kei Sakaguchi, and Kiyomichi Araki, Tokyo Institute of Technology, Japan

2 A Proposal on Network Control Architecture for CoMP JT with IP Network between eNBs
Takao Okamawari, Hideki Hayashi, and Teruya Fujii, Softbank Mobile Corporation, Japan

3 Area Spectral Efficiency of Cooperative Network With Opportunistic Relaying
Lei Zhang, University of Victoria, Canada, Mazen Hasna, Qatar University, Qatar, and Hong-Chuan Yang, University of Victoria, Canada

4 Predictive Control for Energy Efficiency in Wireless Cellular Networks
Shuhuan Wen, Yanshan University, China, and F. Richard Yu, Carleton University, Canada

5 Sensor Integration to LTE/LTE-A Network through MC-CDMA and Relaying
Feng Hu, Nandana Rajatheva, Matti Latva-aho, University of Oulu, Finland, and Xiaohu You, Southeast University, China

Monday, 7 May 2012 16:00-17:30 412
3B: Green Systems
Chair: Dr. Andre F. dos Santos, Bell Labs, Alcatel-Lucent, Germany

1 On the Impact of Sleep Modes and BW Variation on the Energy Consumption of Radio Access Networks
Vinay Suryaprakash, Albrecht Fehske, Technische Universitaet Dresden, Germany, Andre Fonseca dos Santos, Bell Labs, Alcatel-Lucent, Germany, and Gerhard Fettweis, Technische Universitaet Dresden, Germany

2 Enhancing Energy Efficiency in LTE with Antenna Muting
Per Skillermark, and Pål Frenger, Ericsson AB, Sweden

3 Power-Capacity-Tradeoff for Low Energy Interference Limited Cellular Networks
Weisi Guo, and Tim O'Farrell, University of Sheffield, United Kingdom

4 Dynamic Traffic Management for Green Open Access Femtocell Networks
Antonio De Domenico, Rohit Gupta, and Emilio Calvanese Strinati, CEA-LETI Minatec, France

5 Improving Network Energy Efficiency through Transmit Antenna Number and Transmission Mode Selection in Multicell Systems
Shichao Li, and Ling Qiu, University of Science and Technology of China, China

Monday, 7 May 2012 16:00-17:30 413
3C: Implementations
Chair: Dr. Julian Webber, Hokkaido University, Japan

1 Experimental Evaluations on 4-by-2 MU-MIMO Achieving 1 Gbps Throughput Using AMC with Outer-Loop Threshold Control for LTE-Advanced Downlink
Keisuke Saito, Yuichi Kakishima, Teruo Kawamura, Yoshihisa Kishiyama, NTT DOCOMO, Japan, Hidekazu Taoka, DOCOMO Communication Laboratories Europe GmbH, Germany, and Hidehiro Andoh, NTT DOCOMO, Japan

2 Indoor Experiments of Real-Time MU-MIMO with CSI Feedback Scheme for Wireless LAN Systems
Koichi Ishihara, Yusuke Asai, Riichi Kudo, Takeo Ichikawa, and Masato Mizoguchi, NTT, Japan

3 Field Evaluations on a Prototype System of Cooperative Multi-Cell MIMO Transmission for Asynchronous Inter-Site Base Station Networks
Manabu Mikami, Masayuki Miyashita, Haruya Miyajima, Kenji Hoshino, Hitoshi Yoshino, and Teruya Fujii, Softbank Mobile Corp., Japan

4 11 GHz Band 4x4 MIMO-OFDM Broadband Experimental System for 5 Gbps Super High Bit-Rate Mobile Communications
Satoshi Suyama, Hiroyuki Fukuda, Hiroshi Suzuki, and Kazuhiko Fukawa, Tokyo Institute of Technology, Japan

5 Enhanced Virtual Antenna Mapping (E-VAM)
Brendan McWilliams, Yannick Le Pézennec, Vodafone Group, Spain, Theodosia Papatheologou, Vodafone Group, United Kingdom, Luis Anaya, Julio Urbano, and Miguel Arranz, Vodafone Group, Spain

Monday, 7 May 2012 16:00-17:30 414
3D: M2M Communications
Chair: Prof. Tommy Svensson, Chalmers University of Technology, Sweden

1 Contention Based Access for Machine-type Communications over LTE
Kaijie Zhou, Navid Nikaein, Raymond Knopp, and Christian Bonnet, Eurecom, France

2 Asymmetric Uplink-Downlink Assignment for Energy-Efficient Mobile Communication Systems
Peter Rost, Andreas Maeder, and Xavier Perez-Costa, NEC Laboratories Europe, Germany

3 Effective Interference Cancellation Mechanisms for D2D Communication in Multi-Cell Cellular Networks
Shaoyi Xu, Beijing Jiaotong University, China, Haiming Wang, Renesas Mobile R&D, China, and Tao Chen, Renesas Mobile R&D, Finland

4 In-device Coexistence Interference Evaluation and Detection in LTE-A System
Weiwei Wang, Yanling Lu, Haibo Xu, and Hua Zhou, Fujitsu R&D Center, China

5 Coverage and Capacity Analysis for Machine Type Communications in LTE
Rapeepat Ratasuk, Jun Tan, and Amitava Ghosh, Nokia Siemens Networks, United States

Monday, 7 May 2012 16:00-17:30 421
3F: Parameter Estimation 1
Chair: Prof. Yasunori Iwanami, Nagoya Institute of Technology, Japan

1 Efficient Link Quality Prediction for OFDM Systems
Xiaoqin Wang, and Xin Wang, FUJITSU R&D CENTER CO., LTD., China

2 Iterative Blind OFDM Parameter Estimation and Synchronization for Cognitive Radio Systems
Jason Gejie Liu, Xianbin Wang, The University of Western Ontario, Canada, and Jean-Yves Chouinard, Laval University, Canada

3 Joint Channel and Doppler Spread Estimation over Time-Varying Flat-Fading Channels
Kai-Jie Yang, Chin-Liang Wang, and Yuh-Ren Tsai, National Tsing Hua University, Taiwan

4 Low-Complexity Carrier Frequency Offset Estimation for Multiuser Offset QAM Filter Bank Multicarrier Systems Uplink
Hamid Saeedi-Sourck, Isfahan University of Technology, Iran, Islamic Republic of, Yan Wu, J.W.M. Bergmans, Eindhoven University of Technology, Netherlands, Saeed Sadri, Isfahan University of Technology, Iran, Islamic Republic of, and Behrouz Farhang-Boroujeny, University of Utah, United States

5 Sample-Autocorrelation-Function-Based Frequency Estimation of a Single Sinusoid in AWGN
Hua Fu, and Pooi-Yuen Kam, National University of Singapore, Singapore

Monday, 7 May 2012 16:00-17:30 422
3G: Antennas
Chair: Dr. Hironobu Hatamoto, Oki Electric Industry Co., Ltd, Japan

1 The Effect of the User's Body on High-Q and Low-Q Planar Inverted F Antennas for LTE Frequencies
Samantha Caporal Del Barrio, Mauro Pelosi, Ondrej Franek, and Gert F. Pedersen, Aalborg University, Denmark

2 A CPW-fed Slot Antenna for Multiple Wireless Communication Systems
Yang Tai, Chun-Ming Lin, Kai-Long Hsiao, National University of Tainan, Taiwan, Yun-Jui Lee, National Chiao Tung University, Taiwan, and Chien-Jen Wang, National University of Tainan, Taiwan

3 A Novel Multi-beam Lens Antenna for High Altitude Platform Communications
Run-nan Cai, Ming-chuan Yang, Xing-qi Zhang, Ming Li, and Xiao-feng Liu, Communication Research Center Harbin Institute of Technology, China

4 Microstrip to Parallel Strip Balun as Spiral Antenna Feed
Kalyany Vinayagamoorthy, Jacob Coetzee, and Dhammika Jayalath, Queensland University of Technology, Australia

5 Miniaturized MIMO-PIFA with Pattern and Polarization Diversity
Soham Ghosh, Thanh-Ngon Tran, and Tho Le-Ngoc, McGill University, Canada

Monday, 7 May 2012 16:00-17:30 503
3Pa: Cognitive Radio and Spectrum Sensing Posters

1 Pseudo BER based SNR Estimation for Energy Detection Scheme in Cognitive Radio
Tian Tian, Hisato Iwai, Hideichi Sasaoka, Doshisha University, Japan

2 Sequential Cooperative Spectrum Sensing Technique for Cognitive Radio System in Correlated Channel
Warit Prawatmuang, and Daniel K.C. So, University of Manchester, United Kingdom

3 Optimal Queueing Control in Hybrid Overlay/Underlay Spectrum Access in Cognitive Radio Networks
Cuong T. Do, Nguyen H. Tran, and Choong Seon Hong, Kyung Hee University, Korea, Republic of

4 Utility-based Scheduling Algorithm for Multiple Services in OFDM Cognitive Radio Networks
Qiongyao Li, Pengfei Lu, Zhongyuan Yu, Shijia Ma, and Wen'an Zhou, Beijing University of Posts and Telecommunications, China

Monday, 7 May 2012 16:00-17:30 503
3Pb: Cooperative Communications, distributed MIMOs and Relaying Posters 1

1 Cooperative ARQ with Fairness via Vickrey Auction-Based Spectrum Leasing
Takuya Yamada, and Tomoaki Ohtsuki, Keio University, Japan

2 On Reliable Multicast with Network coding-ARQ for Relay Cooperation Cells
Qi Song, Yonghua Li, Zhiqiang He, and Jiaru Lin, Beijing University of Posts and Telecommunications, China

3 Resource Allocation in User-Centric Wireless Networks
Huseyin Haci, Huiling Zhu, and Jiangzhou Wang, University of Kent, United Kingdom

4 Optimized Power Allocation Scheme for Land Mobile Satellite Cooperative Diversity Communications
Xu Wang, Mingchuan Yang, and Qing Guo, Communication Research Center Harbin Institute of Technology, China

5 Optimal and Suboptimal Power Allocations for MIMO based Multi-Hop OFDM Systems
Yuan-Bin Lin, Wu-Hsiu Wu, and Yu T. Su, National Chiao Tung University, Taiwan

6 Coverage-Extended Cooperative Geographic Routing with Optimal Power Allocation for Wireless Multihop Networks
Syue-Ju Syue, Chin-Liang Wang, National Tsing Hua University, Taiwan, Vincent Gauthier, Telecom Sud Paris, France, and Pei-Shan Tsai, National Tsing Hua University, Taiwan

7 Performance Analysis and Power Allocation of Multi-hop Multi-branch Relays with Data Storage over Generalized Fading Channels
Sonia Sadeque, Simon Fraser University, Canada, Sami Muhaidat, Khalifa University of Science, Technology, Research, United Arab Emirates, and Rodney Vaughan, Simon Fraser University, Canada

8 Performance Comparison of Relaying and User Cooperation in Multi-Cell Scenarios
Fernando Sanchez, Nicolai Czink, and Thomas Zemen, FTW Telecommunications Research Center Vienna, Austria

9 Compressed Channel Estimation for Sparse Multipath Non-orthogonal Amplify-and-forward Cooperative Networks
Guan Gui, Wei Peng, Abolfazl Mehbodniya, and Fumiyuki Adachi, Tohoku University, Japan

Tuesday 8 May 2012

Tuesday, 8 May 2012 11:00-12:30 411
4A: Resource Allocation for Relaying 1
Chair: Prof. Shinsuke Ibi, Osaka University, Japan

1 Power Allocation For Direct/Cooperative AF Relay Switched SC-FDMA
Masayuki Nakada, Tatsunori Obara, Tetsuya Yamamoto, and Fumiyuki Adachi, Tohoku University, Japan

2 Suboptimal Power Allocation for a Two-Path Successive Relay System with Full Interference Cancellation
Chang-Chen Chu, Hung-Chin Wang, and Chin-Liang Wang, National Tsing Hua University, Taiwan

3 Relaying with Deadline Constraint: Energy Minimization with Full Channel State Information
Chin Keong Ho, Peng Hui Tan, and Sumei Sun, A*STAR, Singapore

4 Inter-Sector Cooperative Relaying for Network Power Minimization
Koichi Adachi, and Sumei Sun, Institute for Infocomm Research, Singapore

5 Energy-Efficient Resource Optimization for Relay-Aided Uplink OFDMA Systems
Yun Jiang, Jianhua Zhang, Xiaofan Li, and Wei Xu, Beijing University of Posts and Telecommunications, China

Tuesday, 8 May 2012 11:00-12:30 412
4B: Estimation and Detection Techniques
Chair: Dr. Jianming Wu, Fujitsu Research and Development Center Co., LTD., China

1 Training Symbol Design for Channel Estimation and IQ Imbalance Compensation in OFDM Systems
Emmanuel Manasseh, Shuichi Ohno, and Masayoshi Nakamoto, Hiroshima University, Japan

2 A Low-Complexity Semi-Blind Joint CFO and Data Estimation Algorithm for OFDM systems
Kilbom Lee, Sung-Hyun Moon, and Inkyu Lee, Korea University, South Korea

3 Improved Cell Search and Initial Synchronization Using PSS in LTE
Zhongshan Zhang, University of ScienceTechnology Beijing (USTB), China, Ming Lei, NEC Laboratories China, China, Keping Long, University of ScienceTechnology Beijing (USTB), China, and Yong Fan, Beijing LOIT Technology, China

4 A New Noise Variance Based Layered Pruning ML-DFE Algorithm
Shubo Ren, Xinyu Mao, Jianjun Wu, and Haige Xiang, Institute of Modern Communications, PKU, China

5 A New Method for Inter-Cell Interference Estimation in Uplink SC-FDMA Networks
Fatima Zohra Kaddour, Telecom ParisTech, France, Emmanuelle Vivier, Institut Supérieur d'Electronique de Paris (ISEP), France, Mylene Pischella, Conservatoire National des Arts et Métiers (CNAM), France, and Philippe Martins, Telecom ParisTech, France

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4C: CoMP and Multiuser MIMO
Chair: Dr. Masayuki Hoshino, Panasonic Corporation, Japan

1 Improved and Opportunistic Interference Alignment Schemes for Multi-Cell Interference Channels
Tiangao Gou, UC Irvine, United States, Toshiaki Koike-Akino, and Philip Orlik, MERL, United States

2 Efficient Feedback Design for Interference Alignment in MIMO Interference Channel
Sungyoon Cho, Hyukjin Chae, Kaibin Huang, Dongku Kim, Yonsei University, South Korea, Vincent K. N. Lau, Hong Kong University of Science & Technology, Hong Kong, and Hanbyul Seo, LG Electronics, South Korea

3 Incorporating Stiefel Geometry in Codebook Design and Selection for Improved Base Station Cooperation
Renaud-Alexandre Pitaval, and Olav Tirkkonen, Aalto University, Finland

4 New Interference Suppression Precoding Scheme for Downlink Multi-User Multi-Stream MIMO Systems
Yanzhi Sun, Muqing Wu, and Qilin Guo, Beijing University of Posts and Telecommunications, China

5 Sum Rate Maximizing Zero Interference Linear Multiuser MIMO Transmission
Helka-Liina Määttänen, Renesas Mobile Europe Ltd, Finland, and Olav Tirkkonen, Aalto University School of Electrical Engineering, Finland

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4D: Cellular Networks 1
Chair: Dr. Michael Einhaus, Panasonic R&D Center Germany, Germany

1 An Interference Coordination Scheme for Picocell Range Expansion in Heterogeneous Networks
Che-Sheng Chiu, Chunghwa Telecom Laboratories, Taiwan, and Chia-Chi Huang, National Chiao Tung University, Taiwan

2 Utility-based Dynamic Multi-service Bandwidth Allocation in Heterogeneous Wireless Networks
Wenchao Fei, Hui Tian, and Rongrong Lian, Beijing University of Posts and Telecommunications, China

3 Detection and Protection of Macro-Users in Dominant Area of Co-channel CSG Cells
Yuanye Wang, Aalborg University, Denmark, Klaus Pedersen, and Frank Frederiksen, Nokia Siemens Networks, Denmark

4 Impact of Path Loss Exponents on Antenna Location Design for GDAS
Wence Zhang, Chunjuan Diao, Mei Zhao, and Ming Chen, National Mobile Communications Research Laboratory, Southeast University, China

5 RACH Collision Probability for Machine-type Communications
Ray-Guang Cheng, Chia-Hung Wei, NTUST, Taiwan, Shiao-Li Tsao, NCTU, Taiwan, and Fang-Ching Ren, ITRI, Taiwan

4E: Modulation and Coding
Chair: Dr. Sumei Sun, Institute for Infocomm Research, Singapore

1 Digital Compensation of Cross-Modulation Distortion in Multimode Transceivers
H. Habibi, Y. Wu, E. J. G. Janssen, and J. W. M. Bergmans, Eindhoven University of Technology, Netherlands

2 DS-CDMA with M-ary Orthogonal Modulation for Wireless Sensor Networks Simultaneously Monitoring Multiple Events
Ee How Sim, and Lie-Liang Yang, University of Southampton, United Kingdom

3 Factor Graph Based Joint Detection/Decoding for LDPC Coded Large-MIMO Systems
Lakshmi Narasimhan T, Ananthanarayanan Chockalingam, and B. Sundar Rajan, Indian Institute of Science, India

4 SNR-Adaptive Input Quantization for Turbo Decoding
Injae Yoo, and In-Cheol Park, Korea Advanced Institute of Science and Technology (KAIST), Korea, Republic of

5 Viterbi Demodulation in Two-Level FH-CDMA Wireless Systems Based on Reed-Solomon Codes
Lun-Cheng Tsao, Hou-Shou Chen, Guu-Chang Yang, National Chung Hsing University, Taiwan, Cheng-Yuan Chang, National United University, Taiwan, and Wing C. Kwong, Hofstra University, United States

4F: Vehicular Electronics and Telematics
Chair: Prof. Falko Dressler, University of Innsbruck, Austria

1 Optimal Placement and Configuration of Roadside Units in Vehicular Networks
Yingsi Liang, Hui Liu, and Dinesh Rajan, Southern Methodist University, United States

2 On the Necessity of Accurate IEEE 802.11p Models for IVC Protocol Simulation
David Eckhoff, FAU Erlangen, Germany, Christoph Sommer, and Falko Dressler, University of Innsbruck, Austria

3 Achieving Data Utility Fairness in Periodic Dissemination for VANETs
Ramon Schwartz, Anthony Ohazulike, and Hans Scholten, University of Twente, Netherlands

4 An IEEE 802.11p based Distributed Channel Assignment Scheme Considering Emergency Message Dissemination
I-Chiao Chu, Po-Yu Chen, and Wen-Tsuen Chen, National Tsing Hua University, Taiwan

5 Experimental study of Bluetooth, ZigBee and IEEE 802.15.4 technologies on board high-speed trains
Jorge Higuera, Elli Kartsakli, José Luis Valenzuela, Andrés Laya, Universitat Politecnica de Catalunya, Spain, Raquel Martinez, and Alicia Aguilar, ADIF, Spain

4G: Extreme Propagation Environments
Chair: Prof. Samantha Caporal Del Barrio, Aalborg University, Denmark

1 Novel Hybrid Propagation Model inside Tunnels
Ke Guan, Zhangdui Zhong, Bo Ai, State Key Laboratory of Rail Traffic ControlSafety, Beijing Jiaotong University, China, and Cesar Briso-Rodriguez, Escuela Universitaria de Ingenieria Tecnica de Telecomunicacion, Universidad Politecnica de Madrid, Spain

2 Statistical Evaluation of Multipath Component Lifetime in the Car-to-Car Channel at Urban Street Intersections Based on Geometrical Tracking
Panagiotis Paschalidis, Kim Mahler, Andreas Kortke, Michael Peter, and Wilhelm Keusgen, Fraunhofer HHI, Germany

3 Parametric Modeling of the Cross-Correlation for Large-Scale-Fading of Propagation Channels
Xuefeng Yin, Xu Zhou, Zhifeng Zhang, Tongji University, China, Myung-Don Kim, ElectronicsTelecommunications Research Institute, Korea, Korea, Republic of, and Hyun Kyu Chung, Electronics and Telecommunications Research, Korea, Korea, Republic of

4 Wind-Induced Slow Fading in Foliated Fixed Wireless Links
Tien Han Chua, Ian Wassell, University of Cambridge, United Kingdom, and Tharek Abd. Rahman, Universiti Teknologi Malaysia, Malaysia

5 Broadband Channel Measurement for the High-Speed Railway Based on WCDMA
Jiahui Qiu, Cheng Tao, Liu Liu, and Zhenhui Tan, Institute of Broadband Wireless Mobile Communications, China

4Pa: Ad-Hoc, Mesh and Sensor Networks Posters

1 Iterative Distributed Amplitude Optimization for Distributed Detection in Wireless Sensor Networks
Jeongseok Ha, KAIST, South Korea

2 Fair Clustering for Energy Efficiency in a Cooperative Wireless Sensor Network
Sungjin Park, Woongsup Lee, and Dong-ho Cho, KAIST, South Korea

3 SNR-based Link Quality Estimation
Wee Lum Tan, Peizhao Hu, NICTA, Australia, and Marius Portmann, University of Queensland, Australia

4 Multi-Radio Multi-Channel Allocation in Competitive Wireless Ad hoc Networks
Jingrong Wen, Muqing Wu, and Xiong Tang, Beijing University of Posts and Telecommunications, China

5 Quadratic Estimation of Success Probability of Greedy Geographic Forwarding in Unmanned Aeronautical Ad-hoc Networks
Rostam Shirani, Marc St-Hilaire, Thomas Kunz, Carleton University, Canada, Yifeng Zhou, Jun Li, and Louise Lamont, Communications Research Centre Canada, Canada

4Pb: Green Networks Posters

1 La VoLTE: novel cross Layer optimized mechanismof Video transmission over LTE for DRX
Ritesh Kumar Kalle, Amar Kumar Nandan, and Debabrata Das, IIIT Bangalore, India

2 Fast Control Channel Decoding for LTE UE Power Saving
Mads Lauridsen, Anders Riis Jensen, and Preben Mogensen, Aalborg University, Denmark

3 Long Term Evolution Downlink Packet Scheduling using A Novel Proportional-Fair-Energy Policy
Charles Turyagyenda, Timothy O'Farrell, and Weisi Guo, The University of Sheffield, United Kingdom

4 Energy savings in mobile broadband network based on load predictions: opportunities and potentials
Saulius Samulevicius, Troels Bundgaard Sørensen, Torben Bach Pedersen, Aalborg University, Denmark, and Gilbert Micallef, Department of Electronic Systems, Denmark

5 Energy Efficiency Evaluation of SISO and MIMO between LTE-femtocells and 802.11n Networks
Siyi Wang, Weisi Guo, and Tim O'Farrell, The University of Sheffield, United Kingdom

6 Energy Efficient Distributed Beamforming with Sensor Selection in Wireless Sensor Networks
Duc To, Toan To, and Jinho Choi, Swansea University, United Kingdom

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4Pc: Wireless Access Posters 1

1 Performance Enhancements in TDMA-based Tactical Wireless Networks
Sewon Han, Hngik University, South Korea, Ji-Hoon Park, Hyun-Ho Shin, and Byung-Seo Kim, Hongik University, South Korea

2 Code Detection in a CDMA-based Common Channel
Yu-Feng Chou, Ray-Guang Cheng, National Taiwan University of ScienceTechnology, Taiwan, and Fang-Ching Ren, ITRI, Taiwan

3 Low PAPR Precoding Design with Dynamic Channel Assignment for SCBT System
Juinn-Horng Deng, Sheng-Yang Huang, and Jeng-Kuang Hwang, Yuan-Ze university, Taiwan

4 Interference Cancellation and Coordination Scheme for Sounding Reference Signal in Multiple-beam Mobile Satellite Communication System
Ying Si, Yadan Zheng, Shubo Ren, and Jianjun Wu, Institution of Advanced Communications, PKU, China

5 Opportunistic Multicast Scheduling with Coding in OFDM-based Wireless Cellular Networks
Mingming Li, Xiaoxiang Wang, Hongtao Zhang, and Mingwei Tang, Beijing University of Posts and Telecommunications, China

6 Coordinated in-band ad-hoc transmission underlying cellular networks
Junyi FENG, Samir SAOUDI, Telecom Bretagne, France, Letian RONG, and Thomas DERHAM, Orange Labs Tokyo, Japan

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5A: MIMO Channel Techniques for UMTS
Chair: Prof. Zhang Zhongshan, University of Science and Technology Beijing, China

1 Enhancements to MIMO Enabled Cells in WCDMA Cellular Systems
Zbigniew Matuszewski, Michal Panek, Przemyslaw Czerepinski, Nokia Siemens Networks, Poland, Terence Dodgson, and Thomas Chapman, Roke Manor Research, United Kingdom

2 Evaluation of MIMO Transmission for HSUPA
Roman Maslennikov, Sitronics Labs, Russian Federation, Przemyslaw Czerepinski, Nokia Siemens Networks, Poland, Mikhail Shkerin, Alexey Trushanin, Mikhail Shashanov, and Vyacheslav Shumilov, Sitronics Labs, Russian Federation

3 Field Experiments on Closed-Loop SU-MIMO Transmission Considering Effect of Antenna Configurations in LTE-Advanced Uplink
Shinpei Yasukawa, Teruo Kawamura, Yoshihisa Kishiyama, NTT DOCOMO, Inc., Japan, Hidekazu Taoka, DOCOMO Communications Laboratories Europe GmbH, Germany, and Hidehiro Andoh, NTT DOCOMO, Inc., Japan

4 System Evaluation of MU-MIMO and Multi-cluster Allocation in LTE-Advanced Uplink
Akihiko Nishio, Panasonic Corporation, Japan, Takashi Iwai, Atsushi Matsumoto, Panasonic Mobile Communications R&D Lab. Co., Ltd., Japan, and Daichi Imamura, Panasonic Corporation, Japan

5 Study of Leakage-Based Precoding Scheme that Supports Coordinated Multi-Point Operation for LTE
Masayuki Hoshino, Panasonic Corporation, Japan, Hui Tong, Panasonic R&D Center China, China, Tomohumi Takata, Panasonic Mobile Communications R&D Lab. Co., Ltd., Japan, Yasuaki Yuda, and Daichi Imamura, Panasonic Corporation, Japan

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5B: Wireless Networks
Chair: Prof. Hiraku Okada, Nagoya University, Japan

1 CARLA: Combining Cooperative Relaying and LinkAdaptation for IEEE 802.11 Wireless Networks
Li Li, University of Bristol, United Kingdom, Zhong Fan, Toshiba Research Europe Limited, United Kingdom, and Dritan Kaleshi, University of Bristol, United Kingdom

2 Effects of relaying on network lifetime in 2.4GHz IEEE802.15.4 based body area networks
Pooyan Abouzar, Kaveh Shafiee, David G. Michelson, and Victor C.M. Leung, University of British Columbia, Canada

3 New Results on the Connectivity in Wireless Ad Hoc Networks
Min-Kuan Chang, Che-Ann Shen, and Min-Han Chuang, National Chung Hsing University, Taiwan

4 Dynamic Quota-Based Routing in Delay-Tolerant Networks
Shou-Chih Lo, and Wei-Rong Liou, National Dong Hwa University, Taiwan

5 Dijkstra-Based Higher Capacity Route Selection Algorithm Using Bounded Length and State Change for Automobiles
I-Te Lin, Keio University, Japan, Dilip Sarkar, University of Miami, United States, Tutomu Murase, NEC Corporation, Japan, and Iwao Sasase, Keio University, Japan

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5C: Cognitive Networks
Chair: Dr. Hiromasa Fujii, NTT DOCOMO, INC., Japan

1 Adaptive Weighted Scheduling in Cognitive Radio Networks
Feng Wang, Weihua Zuang, University of Waterloo, Canada, Mikael Gidlund, ABB AB, Corporate Research, Sweden, Stephen Culver, and Dong Xuanming, NokiaSiemens Networks, Denmark

2 Partial Relay Selection in Underlay Cognitive Networks with Fixed Gain Relays
Syed Imtiaz Hussain, Texas A&M University at Qatar, Qatar, Mohamed-Slim Alouini, King Abdullah University of Science and Technology, Saudi Arabia, Mazen Hasna, Qatar University, Qatar, and Khalid Qaraqe, Texas A&M University at Qatar, Qatar

3 A congestion avoidance routing protocol for cognitive scale-free networks
Min Sheng, Yan Shi, and ChangWan Peng, Xidian University, China

4 Secondary Spectrum Access Based on Cooperative OFDM Relaying
Weidang Lu, Xuanli Wu, Qingzhong Li, and Naitong Zhang, School of Electronics and Information Engineering, Harbin Institute of Technology, China

5 Secondary Spectrum Sharing in Primary Multicasting Systems
Jung-Hwa Wui, Hanyang University, Korea, Republic of

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5D: Relaying 2
Chair: Prof. Lie-Liang Yang, University of Southampton, UK

1 Frequency Offset and Channel Estimation in Co-Relay Cooperative OFDM Systems
Zhongshan Zhang, Jian Liu, Keping Long, University of ScienceTechnology Beijing (USTB), China, and Yong Fan, Beijing LOIT Technology Ltd, China

2 Decoding Schemes for Amplify-and-Forward Cooperative OFDM-Based Wireless LAN Systems
Hayato Fukuzono, NTT Network Innovation Laboratories, NTT Corporation, Japan

3 Bit-Wise Partial Noise Elimination in Cooperative Decode-Amplify-Forward Relay Node
Shinsuke Ibi, Naoyuki Takada, and Seiichi Sampei, Osaka University, Japan

4 Non-regenerative Multi-way Relaying: Ordered MMSE-SIC Receivers Exploiting Temporal Diversity
Jianfei Cao, and Zhangdui Zhong, State Key Lab. of Rail Traffic Control and Safety, Beijing Jiaotong University, China

5 Regenerative Multi-way Relaying: Relay Precoding and Ordered MMSE-SIC Receiver
Jianfei Cao, Zhangdui Zhong, and Fanggang Wang, Beijing Jiaotong University, China

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5E: WiMAX/WLAN
Chair: Prof. Sourav Dhar, Sikkim Manipal Institute of Technology, India

1 A Data Mapping Algorithm for Two-Level Requests in WiMAX Systems
Tsern-Huei Lee, Chi-Hsien Liu, Arleth Soleiy Garth Campbell, National Chiao Tung University, Taiwan, and Yaw-Wen Kuo, National Chi Nan University, Taiwan

2 A Performance Comparison of Mobile WiMAX Spectrums: 2.5 GHz vs. 3.65 GHz
Pradhumna Shrestha, Michael Hempel, Puttipong Mahasukhon, Tao Ma, and Hamid Sharif, University of Nebraska-Lincoln, United States

3 Performance Evaluation of Audio-Video Telephony in WiMAX Networks
Young-June Choi, and Kyungtae Kim, Ajou University, Korea, Republic of

4 Delayed Contention DCF MAC Protocol for IEEE 802.11 Wireless LANs
Yaw-Wen Kuo, and Wei-Fu Lu, National Chi Nan University, Taiwan

5 Measuring VoIP Performance in IEEE 802.11p Vehicular Networks
Francesca Martelli, M. Elena Renda, Paolo Santi, IIT - CNR, Italy, and Marco Volpetti, Università degli Studi di Pisa, Italy

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5F: Interference Mitigation 1
Chair: Prof. Witold A. Krzymień, University of Alberta, Canada

1 A Low Complexity Interference Suppression Scheme for High Mobility STBC-OFDM Systems
Chorng-Ren Sheu, Jia-Wei Liu, Chuan-Yuan Huang, Industrial Technology Research Institute, Taiwan, and Chia-Chi Huang, National Chiao Tung University, Taiwan

2 A Novel Subspace Decomposition-Based Detection Scheme with Soft Interference Cancellation for OFDMA Uplink
Yung-Ping Tu, Wen-Hsien Fang, and Yie-Tarng Chen, National Taiwan University of Science and Technology, Taiwan

3 Inter-Signal Interference Cancellation Filter for Four-Element Single Sideband Modulation
Yi Jiang, Zhenyu Zhou, Waseda University, Japan, Masahiko Nanri, Panasonic Mobile Communications Co., Ltd., Japan, Gen-Ichiro Ohta, and Takuro Sato, Waseda University, Japan

4 IQ Imbalance Estimation Scheme with Intercarrier Interference Self-Cancellation Pilot Symbols in OFDM Direct Conversion Receivers
Hiroyuki Miyashita, Mamiko Inamori, Yukitoshi Sanada, Keio University, Japan, and Teruji Ide, Kagoshima National College of Technology, Japan

5 Non-orthogonal Access Scheme over MultipleChannels with Iterative Interference Cancellation and Fractional Sampling in OFDM Receiver
Hiroyuki Osada, Mamiko Inamori, and Yukitoshi Sanada, Keio University, Japan

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5G: Positioning
Chair: Prof. Shinsuke Hara, Osaka City University, Japan

1 Probabilistic Neural Network For RSS-Based Collaborative Localization
Peisen Zhao, Chunxiao Jiang, Tsinghua University, China, Hongyang Chen, The University of Tokyo, Japan, and Yong Ren, Tsinghua University, China

2 A GPS pseudorange based cooperative vehicular distance measurement technique
Daiqin Yang, Nanyang Technological University, Singapore, Fang Zhao, Singapore-MIT Alliance for Research & Technology, Singapore, Kai Liu, Hock Beng Lim, Nanyang Technological University, Singapore, Emilio Frazzoli, and Daniela Rus, Massachusetts Institute of Technology, United States

3 A Calibration-free RSS-based Mobile Positioning System
Shih-Hau Fang, Ying-Tso Hsu, Bo-Cheng Lu, and Wen-Hsing Kuo, Yuan-Ze University, Taiwan

4 Study of TOA Positioning using UWB Reflected Waves
Masaru Shimizu, Takayuki Fujiwara, and Shinji Uebayashi, Chukyo University, Japan

5 Location-aided Multi-user Beamforming for 60 GHz WPAN Systems
Congzheng Han, Xiaoyi Zhu, Angela Doufexi, University of Bristol, United Kingdom, and Taskin Kocak, Bahcesehir University, Turkey

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5P: Multiple Antenna Systems and Space-Time-Frequency Processing Posters

1 A simple proof of the generalized optimum continuous running-approximation based on a class of multi-legged-type signals
Yuichi Kida, Ohu University, Japan, and Takuro Kida, Tokyo Institute of Technology, Japan

2 Sum Rate of p-Sphere Encoding for MIMO Broadcast Channels with Reduced Peak Power
Mahmood Mazrouei-Sebdani, and Witold Krzymień, University of Alberta /TRLabs, Canada

3 Reduced-Complexity Single-Carrier E-SDM for Wideband Transmissions
Cristian Davidescu, Yasutaka Ogawa, Julian Webber, Toshihiko Nishimura, and Takeo Ohgane, Hokkaido University, Japan

4 Multi-Antenna Selection using Space Shift Keyingin MIMO Systems
Wei-Ho Chung, and Cheng-Yu Hung, Academia Sinica, Taiwan

5 Joint SVD-GSVD Precoding Technique and Secrecy Capacity Lower Bound for the MIMO Relay Wire-tap Channel
Marouen Jilani, and Tomoaki Ohtsuki, Keio University, Japan

6 Power Allocation Algorithms for ZF-THP Sum Rate Optimization in Multi-user Multi-antenna Systems
Wookbong Lee, Changick Song, Sangrim Lee, Kilbom Lee, Korea University, South Korea, Jin Sam Kwak, LG Electronics, South Korea, and Inkyu Lee, Korea University, South Korea

7 Proportionally Fair User Scheduling for Multiuser MIMO Systems with Unequal Average SNR Users
Yuyuan Chang, and Kiyomichi Araki, Tokyo Institute of Technology, Japan

8 MLD-based MU-MIMO Detection Scheme for LTE Downlink
Chimato Koike, Daisuke Ogawa, Takashi Seyama, and Takashi Dateki, Fujitsu Laboratories Ltd., Japan

9 A New MIMO detection algorithm based on the Gaussian graphical model
Mohammed Teeti, Ying Zhuang Liu, and Jun Sun, Huazhong University of Science and Technology, China

10 HARQ Throughput Performance of Training Sequence Aided SC-MIMO Using Reduced Complexity ML Block Detection
Tetsuya Yamamoto, and Fumiyuki Adachi, Tohoku University, Japan

11 Simulation Analysis of Wireless Channel Effect on IEEE 802.11n Physical Layer
Ali Bouhlel, Valéry Guillet, Orange Labs, France, Ghais El Zein, and Gheorghe Zaharia, INSA RENNES, France

12 **Impact of Base Station Antenna Tilt on the Performance of Network MIMO Systems**

Nima Seifi, Chalmers University of Technology, Sweden, Mikael Coldrey, Ericsson AB, Sweden, Michail Matthaiou, and Mats Viberg, Chalmers University of Technology, Sweden

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6A: LTE and LTE-Advanced 1
Chair: Dr. Peter Rost, NEC Europe Labs

1 **Simple Channel Predictors for Lookahead Scheduling**
Thomas Werthmann, Matthias Kaschub, Magnus Proebster, Universität Stuttgart, Germany, and Stefan Valentin, Bell Labs, Alcatel-Lucent, Germany

2 **Improved Detection of ACK/NACK Messages in the LTE Uplink Control Channel**
Danyo Danev, Yi Wu, and Erik G. Larsson, Linköping University, Sweden

3 **Traffic-based DRX Cycles Adjustment Scheme for 3GPP LTE Systems**
Yu-Ping Yu, and Kai-Ten Feng, National Chiao Tung University, Taiwan

4 **Self-Optimisation of Antenna Beam Tilting in LTE Networks**
Rouzbeh Razavi, Bell Labs, Alcatel-Lucent, Ireland

5 **Auto-Tuning of Downlink Power of LTE Femtocells Adaptive to Various Interference Conditions**
Motoki Morita, Yasuhiko Matsunaga, and Kojiro Hamabe, NEC Corporation, Japan

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6B: Scheduling and Resource Control
Chair: Dr. Yasuhiko Tanabe, Toshiba Corporation, Japan

1 **A Frequency-domain Sounding Scheme for LTE TDD Beamforming Systems**
baolong zhou, Shanghai Jiaotong University, Alcatel-Lucent Shanghai Bell, China, Lingge Jiang, Shanghai Jiaotong University, China, Shengjie Zhao, Lu Zhang, Alcatel-Lucent Shanghai Bell, China, Chen He, Shanghai Jiaotong University, China, Zhining Jiang, and Kun zhao, Alcatel-Lucent Shanghai Bell, China

2 **Long Step User Selection Algorithm for Unitary Beamforming**
Yan Li, Yi Sun, and Feng Zhou, Dalian University Of Technology, China

3 **Reduced Complexity Joint User and Receive Antenna Selection Algorithms for SLNR-based Precoding in MU-MIMO Systems**
Piya Patcharamaneepakorn, Angela Doufexi, and Simon Armour, University of Bristol, United Kingdom

4 **Efficient Channel Estimation Method for MIMO Antenna Selection Systems Exploiting Temporal Correlation of Channel**
Yousuke Naruse, and Jun-ichi Takada, Tokyo Institute of Technology, Japan

5 **Performance of Outer-Loop Control for AMC Based on Mutual Information in MIMO-OFDM Downlink**
Teppei Ebihara, Tokyo City University, Japan, Hidekazu Taoka, DOCOMO Germany, Nobuhiko Miki, NTT DOCOMO, Japan, and Mamoru Sawahashi, Tokyo City University, Japan

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6C: Cooperative MIMO
Chair: Dr. Takahiro Asai, NTT DOCOMO, INC., Japan

1 **Error Compensated MMSE-based Multi-User Precoding for Coordinated Multi-Point Transmission**
Dennis Hui, and Kambiz Zangi, Ericsson Research, United States

2 **On the Frequency Allocation for Coordinated Multi-Point Joint Transmission**
June Hwang, Seung Min Yu, Seong-Lyun Kim, Yonsei university, South Korea, and Riku Jantti, Aalto university, Finland

3 **Improving Throughput by Multi-cell Coordinated Vertical Plane Beam Control with Pre-coding**
Kenji Hoshino, and Teruya Fujii, Softbank Mobile Corp., Japan

4 **Iterative Inter-Cluster Interference Cancellation for Cooperative Base Station Systems**
Kazuki Maruta, Atsushi Ohta, Masataka Iizuka, and Takatoshi Sugiyama, NTT Access Network Service Systems Laboratories, Japan

5 **Design of Delay-Tolerant Space-time Codes with Linear MMSE Receivers**
Wenjin Wang, and Fu-Chun Zheng, University of Reading, United Kingdom

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6D: Green Technology
Chair: Dr. Pål Frenger, Ericsson AB, Sweden

1 **A Measurement Based Energy Model for IEEE 802.16e Mobile WiMAX Devices**
Bjoern Dusza, Christoph Ide, and Christian Wietfeld, TU Dortmund University, Germany

2 **Power Allocation in Energy Harvesting Relay Systems**
Imtiaz Ahmed, Aissa Ikhlef, Robert Schober, University of British Columbia, Canada, and Ranjan K. Mallik, Indian Institute of Technology, Delhi, India

3 **Energy Saving Dynamic Relaying Scheme in Wireless Cooperative Networks Using Markov Decision Process**
Yifei Wei, Chaowei Wang, Mei Song, Yue Ma, Beijing University of PostsTelecommunications, China, and Xiaojun Wang, Dublin City University, Ireland

4 **Design of Predistorter Using Measured Nonlinear Characteristics of Power Amplifier with Memory Effect**
Yasuyuki Oishi, Shigekazu Kimura, Eisuke Fukuda, Takeshi Takano, Fujitsu Laboratories Ltd., Japan, Daisuke Takago, Yoshimasa Daido, Kanazawa Institute of Technology, Japan, and Kiyomichi Araki, Tokyo Institute of Technology, Japan

5 **Optimization of broadcasting scheme for the CASoRT system**
Shuo Hou, Xiaofeng Zhong, and Shunliang Mei, Tsinghua University, China

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6E: Femtocell Networks
Chair: Dr. Yoshihisa Kishiyama, NTT DOCOMO, Japan

1 **Secure and Multihomed Vehicular Femtocells**
Suneth Namal, Jani Pellikka, and Andrei Gurtov, University of Oulu, Finland

2 **Learning-based Cell Selection Method for Femtocell Networks**
Chaima Dhahri, and Tomoaki Ohtsuki, Keio University, Japan

3 **A Novel Coordinated Spectrum Assignment Scheme for Densely Deployed Enterprise LTE Femtocells**
Yi Wu, Hai Jiang, and Dongmei Zhang, Nokia Siemens Networks, China

4 **Incentive Mechanism for Uplink Interference Avoidance in Two-Tier Macro-Femto Networks**
Zhu Xiao, Peng Wang, Xu Zhang, Shyam Mahato, University of Bedfordshire, United Kingdom, Lei Chen, Ranplan Wireless Network Design Ltd, UK, United Kingdom, and Jie Zhang, University of Sheffield, United Kingdom

5 **Fuzzy Logic Controllers for Traffic Sharing in Enterprise LTE Femtocells**
J. M. Ruiz-Aviles, S. Luna-Ramirez, M. Toril, and F. Ruiz, University of Malaga, Spain

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6F: Parameter Estimation 2
Chair: Prof. Yukitoshi Sanada, Keio University, Japan

1 Factor-Graph-Based Iterative Receiver Design in the Presence of Strong Phase Noise
Hongjie Zhao, Nan Wu, Hua Wang, and Jingming Kuang, Beijing Institute of Technology, China

2 Low Complexity SNR Estimation for Linear Modulations on AWGN Channel
Chaoxing Yan, Hua Wang, Nan Wu, and Jingming Kuang, Beijing Institute of Technology, China

3 Stochastic NDA CRLB for DOA Estimation over SIMO Systems
Faouzi Bellili, Achref Methenni, Sofiene Affes, INRS-EMT, Canada, and Alex Stephenne, Huawei Canada, Canada

4 Theoretical Study of the Impact of Channel Estimation Errors on the Performance of IDMA Detectors
Manouane Caza-Szoka, Adel Omar Dahmane, Universite du Quebec à Trois-Rivieres, Canada, Claude D'Amours, University of Ottawa, Canada, and Frederic Domingue, Universite du Quebec à Trois-Rivieres, Canada

5 Unsupervised Bit Error Rate Estimation Using Maximum Likelihood Kernel Methods
jia dong, Samir Saoudi, TELECOM BRETAGNE, France, and Tarik Ait-Idir, INPT, Morocco

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6G: Wireless Sensor Networks 1
Chair: Prof. Takaya Yamazato, Nagoya University, Japan

1 Long Duration Broadcast Authentication for Wireless Sensor Networks
Yongsheng Liu, Jie Li, University of Tsukuba, Japan, and Minyi Guo, Shanghai Jiao Tong University, China

2 Energy-efficient Barrier Coverage in WSNs with Adjustable Sensing Ranges
Han Xu, Bang Wang, Wenyu Liu, and Changqing Wang, Huazhong University of Science and Technology, China

3 TBRA: Termites Based Routing Algorithm in 3D Wireless Sensor Networks
Mu-Sheng Lin, Jenq-Shiou Leu, Wen-Chi Yu, Kuen-Han Li, National Taiwan University of Science and Technology, Taiwan, and Jean-Lien C. Wu, St. John's University, Taiwan

4 Implicit Location Update Enhanced Reliability for Mobile Sinks in WSNs
Yongbin Yim, Hosung Park, Jeongcheol Lee, Seungmin Oh, and Sang-Ha Kim, Chungnam National University, Korea, Republic of

5 In-Network Local Distributed Estimation for Power-constrained Wireless Sensor Networks
Santosh Shah, and Baltasar Beferull-Lozano, Universidad de Valencia, Spain

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6P: Transmission Technologies Posters
1 Algorithm-Architecture Co-Optimization of Area-Efficient SDR Baseband for Highly Diversified Digital TV Standards
Kiyotaka Kobayashi, Hidekuni Yomo, Panasonic Corporation, Japan, Min Li, Raf Appeltans, Hans Cappelle, Amir Amin, Aissa Couvreur,

Matthias Hartmann, André Bourdoux, Praveen Raghavan, Antoine Dejonghe, and Liesbet Van der Perre, Imec, Belgium

2 N-ary Biorthogonal Pulse Position Shape Modulation for Hybrid TH/DS Multiple Access UWB System
Ye-Shen Shen, National Formosa University, Taiwan, Fang-Biau Ueng, National Chung Hsing University, Taiwan, Wen-Min Kao, National Formosa University, Taiwan, and Jui-Chi Chang, National Chung Hsing University, Taiwan

3 Space-Time-Frequency Trellis Coding for Multiband OFDM Ultra Wideband Wireless Systems
Phuc Le Ngoc, Le Chung Tran, and Farzad Safaei, University of Wollongong, Australia

4 Physical-layer Network Coding using FSK Modulation under Frequency Offset
Terry Ferrett, West Virginia University, Morgantown, WV, USA, United States, Hideki Ochiai, Yokohama National University, Japan, and Matthew Valenti, West Virginia University, Morgantown, WV, USA, United States

5 Transmission of discrete constellations under strong interference
Dimitrios-Alexandros Toumpakaris, University of Patras, Greece, Jungwon Lee, Samsung Electronics, United States, and Rizwan Ghaffar, University of Waterloo, Canada

6 Adaptive Linearization Through Narrowband Feedback
Alexander Lozhkin, and Michiharu Nakamura, Fujitsu Laboratories Ltd., Japan

7 A Novel SLM Method for PAPR Reduction of OFDM System
Lei Ning, Mingchuan Yang, Zhenyong Wang, and Qing Guo, Communication Research Center Harbin Institute of Technology, China

8 A Low Complexity Multiuser Interference Compensation Scheme for OFDMA Uplink
Yang Zhang, Jiandong Li, Lihua Pang, and Qin Liu, Xidian University, China

9 Iterative Timing Recovery with Turbo Decoding at Very Low SNRs
Jianrong Bao, Minjian Zhao, Jie Zhong, and Yunlong Cai, Zhejiang University, China

10 A Novel Hardware Implementation Mechanism for AR4JA Codes in Deep Space Communication
Ming Li, Mingchuan Yang, Xingqi Zhang, and Qing Guo, Harbin Institute of Technology, China

11 Communications Receivers Employing Wavelet-Domain Zero-Forcing Equalization of Multipath Fading Channels
Canute Vaz, and David Daut, Rutgers, The State University of New Jersey, United States

12 Enhanced DFT-based Channel Estimation for LTE Uplink
Meilong Jiang, Guosen Yue, Narayan Prasad, and Sampath Rangarajan, NEC Labs America, United States

13 An Adaptive MIMO Detection Approach for LTE Advanced Uplink
Jijian Chen, and Xinsheng Zhao, Southeast University, China

14 Research on the Performance of Noisy Chaotic Neural Network based on Travelling Salesman Problem
Haibo Zhang, Xiaoxiang Wang, and Hongtao Zhang, Beijing University of Posts and Telecommunications, China

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7A: Practical Aspects of Cognitive Radio
Chair: Dr. Ha-Nguyen Tran, NICT, Japan

1 Channel-Based Detection of Primary User Emulation Attacks in Cognitive Radios
Wen-Long Chin, Chun-Lin Tseng, Chun-Shen Tsai, Wei-Che Kao, and Chun-Wei Kao, National Cheng Kung University, Taiwan

2 A Reduced-Complexity Multiband MIMO Receiver with Estimation of Analog Devices Imperfection
Tomoya Ohta, Kyoto University, Japan, Satoshi Denno, Okayama University, Japan, and Masahiro Morikura, Kyoto University, Japan

3 Non-Linear Distortion Noise Control by Clipping and Filtering in Spectrum Sharing Systems
Seiichiro Okamoto, Shigeru Tomisato, Okayama University, Japan, Hiromasa Fujii, NTT DOCOMO, Inc., Japan, Masaharu Hata,

Okayama University, Japan, Shunji Miura, and Hidetoshi Kayama, NTT DOCOMO, Inc., Japan

4 Efficient Coding Scheme for Broadcast Cognitive Pilot Channel in Cognitive Radio Networks
Qixun ZHANG, Zhiyong FENG, and Ping ZHANG, Beijing University of Posts and Telecommunications, China

5 Reducing load of geo-location database by querying with secondary user's preferred channels
Ha-Nguyen Tran, Yohannes D. Alemseged, Chen Sun, and Hiroshi Harada, NICT, Japan

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7B: Cellular Networks 2
Chair: Dr. Hong Yang, Bell Laboratories, Alcatel-Lucent, USA

1 Base Station Placement Based on Force Fields
Fred Richter, and Gerhard Fettweis, Technische Universitaet Dresden, Germany

2 Ping-pong Reduction using Sub cell Movement Detection
Zoltán Fehér, Budapest University of Technology and Economics, Hungary, András Veres, Ericsson Hungary LTD., Hungary, and Zalán Heszberger, Budapest University of Technology and Economics, Hungary

3 GSM/GPRS Bearers Efficiency Analysis for Machine Type Communications
Ming Fang, Xing Zhu, Huawei Technologies Co., Ltd., China, Miguel Torres, Huawei Technologies Co., Ltd., Spain, Luis Anaya, Vodafone Group, Spain, and Leo Patanapongpibul, Vodafone Group, United Kingdom

4 Verification of Link Performance Prediction for CDMA
Michal Panek, and Przemyslaw Czerepinski, Nokia Siemens Networks, Poland

5 Difference-Based Joint Parameter Configuration for MRO and MLB
Jie Chen, Hongcheng Zhuang, Huawei Technologies Co., Ltd, China, Beletskiy Andrian, Huawei Technologies Co., Ltd, Moldova, and You Li, Huawei Technologies Co., Ltd, China

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7C: Relays for LTE
Chair: Prof. Li Yong, Beijing University of Post and Telecommunications, China

1 A Study of UE-to-UE Interference between TDD Systems
Muhammad Imadur Rahman, Erik Dahlman, David Astély, Anders Wallén, and Leif R. Wilhelmsson, Ericsson Research, Sweden

2 Protocol Impact of LTE Relays on User Performance
Riikka Susitaival, Ericsson, Finland

3 Evaluation of Potential Relay Locations in a Urban Macro-Cell Scenario with Applicability to LTE-A
Ignacio Rodriguez, Claudio Coletti, and Troels B. Sørensen, Aalborg University, Denmark

4 The Potential of Moving Relays--- A Performance Analysis
Yutao Sui, Agisilaos Papadogiannis, and Tommy Svensson, Chalmers University of Technology, Sweden

5 LTE In-Band Relay Prototype and Field Measurement
Rui Fan, Jiansong Gan, Zhiheng Guo, Weihong Liu, Hai Wang, Ericsson China Communication Company, China, Kristofer Sandlund, Ericsson AB., Sweden, Jianjun Liu, Xiaodong Shen, and Guangyi Liu, China Mobile Research Institute, China

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7D: MIMO Detection Techniques
Chair: Prof. Camilla Hollanti, Aalto University, Finland

1 Signal De-multiplexing in Branch Metric Calculation for Spatially Multiplexed MIMO System
Yukitoshi Sanada, Keio University, Japan

2 A Tree Pruning Algorithm For MIMO Sphere Decoding Based On Path Metric
Shiliang Wang, Xiaolong Guo, Songlin Sun, Beijing University of Posts and Telecommunications, China, Tiehong Tian, Shizhen Sun, China Unicom System Integration Limited Corporation, China, and Xiaojun Jing, Beijing University of Posts and Telecommunications, China

3 A Virtual Successive Detection for Cooperative MU-MIMO Systems with Reduced CSI
Akihito Taya, Kyoto University, Japan, Satoshi Denno, Okayama University, Japan, Koji Yamamoto, Masahiro Morikura, Kyoto University, Japan, Daisuke Umehara, Kyoto Institute of Technology, Japan, Hidekazu Murata, and Susumu Yoshida, Kyoto University, Japan

4 Kalman-based MIMO Receivers using Gaussian Sum Approximations
Dawoon Lee, and Sooyong Choi, Yonsei University, South Korea

5 Frequency Domain Turbo Equalization for MIMO-CPSC Systems with Large Delay Spreads
Yogendra U. Itankar, and Ananthanarayanan Chockalingam, Indian Institute of Science, India

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7E: Wireless Sensor Networks 2
Chair: Dr. Yasunori Owada, NICT, Japan

1 Synchronization of Wireless Sensor Networks using Natural Environmental Signals Based on Noise-Induced Phase Synchronization Phenomenon
Makoto Harashima, Hiroyuki Yasuda, and Mikio Hasegawa, Tokyo University of Science, Japan

2 Radio-disjoint Geographic Multipath Routing for Reliable Data Transfer in Lossy WSNs
Jeongcheol Lee, Hosung Park, Seungmin Oh, and Sang-Ha Kim, Chungnam National University, Korea, Republic of

3 A Novel Data Collection Scheme for WSNs
Jie Li, Xiucai Ye, University of Tsukuba, Japan, and Li Xu, FuJian Normal University, China

4 Sequential Compressive Sensing in Wireless Sensor Networks
Jinping Hao, University of Bristol, United Kingdom, Filippo Tosato, Toshiba Telecommunications Research Lab, United Kingdom, and Robert Piechocki, University of Bristol, United Kingdom

5 Utilization of Partial Common Information in Distributed Compressive Sensing
JeongHun Park, SeungGye Hwang, DongKu Kim, Yonsei University, Korea, Republic of, and JangHoon Yang, Korean German Institute of Technology, Korea, Republic of

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7F: Transportation
Chair: Prof. Sumin Zhang, Jilin University, China

1 Driver Modeling for Simulation of Transportation Systems
Sumin Zhang, and Weiwen Deng, Jilin University, China

2 A 3D Virtual Radar System for Prediction and Evaluation of Radar Sensor Performance in Traffic Monitoring
Chengcheng Jiang, Hangzhou Dianzi University, China, Yan Wu, Jean-Paul Linnartz, Marco Haverlag, and Xin Wang, Eindhoven University of Technology, Netherlands

3 Development and Evaluation of ITS Information Communication System for Electric Vehicle
Yuriko Hattori, Tomokazu Shimoda, Mitsubishi Heavy Industries, Ltd., Japan, and Masayoshi Ito, Mitsubishi Motors Corporation, Japan

4 Optimal Charging Control for Electric Vehicles in Smart Microgrids with Renewable Energy Sources
Li Zhu, Beijing Jiaotong University, China, F. Richard Yu, Carleton University, Canada, Bin Ning, and Tao Tang, Beijing Jiaotong University, China

5 Toward Real-time Vehicle Detection Using Stereo Vision and an Evolutionary Algorithm
Vinh Dinh Nguyen, Thuy Tuong Nguyen, Dung Duc Nguyen, and Jae Wook Jeon, Sungkyunkwan University, South Korea

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7G: Interference Mitigation 2
Chair: Prof. Tomoaki Ohtsuki, Keio University, Japan

1 Clustering for Interference Alignment in a Multiuser Interference Channel
Sujie Chen, and Roger S. Cheng, Hong Kong University of Science and Technology, Hong Kong

2 Distributed Interference Avoidance
Woon Hau Chin, Toshiba Research Europe Limited, United Kingdom

3 Interference Alignment: Improved design viaprecoding vectors
Yasser Fadlallah, Abdeldjalil Aïssa-El-Bey, Karine Amis, and Ramesh Pyndiah, Institu Telecom, Telecom Bretagne, France

4 Joint Channel Information Estimation and Data Detection for OFDM-Based Systems Under Unknown Interference
The-Hanh Pham, and Ying-Chang Liang, Institute for Infocomm Research (I2R), Singapore

5 Suppression of Constant Modulus Interference in Multimode Transceivers by Closed-Loop Tuning of a Nonlinear Circuit
H. Habibi, Y. Wu, E. J. G. Janssen, P.G.M. Baltus, and J. W. M. Bergmans, Eindhoven University of Technology, Netherlands

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7P: Cooperative Communications, distributed MIMOs and Relaying Posters 2

1 Cell Edge Throughput Improvement by Base Station Cooperative Transmission Control with Reference Signal Interference Canceller in LTE System
Atsushi Nagate, Daigo Ogata, and Teruya Fujii, Softbank Mobile Corp., Japan

2 Joint Preprocessing Techniques for Downlink CoMP Transmission in Multipath Fading Channels
Jeng-Shin Sheu, and Chia-Hui Hsieh, National Yunlin University of Science & Technology, Taiwan

3 Partial Joint Processing with Efficient Backhauling in Coordinated MultiPoint Networks
Tilak Rajesh Lakshmana, Chalmers University of Technology, Sweden, Carmen Botella, Universitat de València, Spain, and Tommy Svensson, Chalmers University of Technology, Sweden

4 Multiuser MIMO Transmission in Distributed Antenna Systems with Heterogeneous User Traffic
Long Gao, Sudhanshu Gaur, and Joydeep Acharya, Hitachi America, Ltd, United States

5 Inter-Cell Interference Coordination for a Downlink OFDMA Relay Network with Multicells
Junho Eun, Hanmok Shin, and Jae Hong Lee, Seoul National University, South Korea

6 Performance of Two-Hop Communication Links Employing Various Relay Processing Schemes
Jia Shi, and Lie-Liang Yang, University of Southampton, United Kingdom

7 A Low-Complexity Practical Quantize-and-Forward Scheme for Two-hop Relay Systems
Duong T. Tran, Ecole Polytechnique Federale de Lausanne, Switzerland, Sumei Sun, and Ernest Kurniawan, Institute for Infocomm Research, A*STAR, Singapore

8 A Gain Matrix Design Method to Ensure Reciprocity in TDD MIMO Two-Hop Relay Systems
Lei Song, Lihua Li, Beijing University of Posts and Telecommunications, China, and Markku Juntti, University of Oulu, Finland

9 Cluster-based Fair Allocation Algorithm for Multi-relay Single Carrier Distributed Networks
Homa Eghbali, Simon Fraser University, Canada, Ibrahim Abualhaol, Sami Muhaidat, and Youssef Iraqi, Khalifa University of Science, Technology, and Research, United Arab Emirates

10 Adaptive Modulation in Decode-and-Forward (DF) Cooperative Communications
Chih-Yung Song, Min-Kuan Chang, and Guu-Chang Yang, National Chung Hsing University, Taiwan

11 Dynamic Decode and Forward With Network Coding
Wei-Cheng Liu, National Chung Cheng University, Taiwan, and Yu-Neng Chen, Wistron Corporation, Taiwan

12 A Minimum Bit Error-Rate Detector for Amplify and Forward Relaying Systems
Qasim Ahmed, Mohamed-Slim Alouini, and Sonia Aissa, KAUST, Saudi Arabia

13 Bound Analysis of Physical Layer Network Coding in Interference-Limited Two-way Relaying System
Fei Yang, Meiyu Huang, Sihai Zhang, and Wuyang Zhou, University of Science and Technology of China (USTC), China

14 A Physical-Layer Network Coding Scheme Based on Linear MIMO Detection
Hao-Hsiang Chung, Shiuan-Hao Kuo, Graduate Institute of Communication Engineering, National Taiwan University, Taiwan, and Mao-Chao Lin, Dept. of Electrical Engineering, National Taiwan University, Taiwan

15 Location-aided Transmit Strategy in Bidirectional Relay over MISO Rician Channels
Dong Xu, Zijian Bai, Guido Bruck, and Peter Jung, University of Duisburg-Essen, Germany

16 Capacity of a Modulo-Sum Arbitrary SISO Relay Network
Youvaraj Sagar, Jie Yang, and Hyuck Kwon, Wichita State University, United States

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8A: Spectrum Sensing 2
Chair: Prof. Takeo Fujii, The University of Electro-Communciations, Japan

1 Spectrum Sensing for Cognitive Radio Based on Multiple Antenna
Huan Cong Nguyen, Elisabeth de Carvalho, and Ramjee Prasad, Aalborg University, Denmark

2 Efficient Cooperative Spectrum Sensing for Cognitive Wireless Relay Networks over Rayleigh Flat Fading Channels
Quoc-Tuan Vien, Huaglory Tianfield, and Brian Stewart, Glasgow Caledonian University, United Kingdom

3 Predicted Eigenvalue Threshold Based Spectrum Sensing With Correlated Multiple-Antennas
Kais Hassan, Univ Lille Nord de France, France, Roland Gautier, Université Européenne de Bretagne, France, Université de Brest , CNRS, France, Iyad Dayoub, Univ Lille Nord de France, France, Emanuel Radoi, Université Européenne de Bretagne, France, Université de Brest, France, and Marion Berbineau, Univ Lille Nord de France

4 Spectrum Sensing for Networked System Using 1-bit Compressed Sensing with Partial Random Circulant Measurement Matrices
Doohwan Lee, NTT Network Innovation Laboratories, Japan, Tatsuya Sasaki, Graduate School of Information Science and Technology, The University of Tokyo, Japan, Takayuki Yamada, Kazunori Akabane, Yo Yamaguchi, and Kazuhiro Uehara, NTT Network Innovation Laboratories, Japan

5 A Reliable Collaborative Spectrum Sensing Scheme Based on the ROCQ Reputation Model for Cognitive Radio Networks
Ming Zhou, Huifang Chen, Lei Xie, and Kuang Wang, Zhejiang University, China

6 The Idle Period Distribution for CSMA/CA Networks for Spectrum Sensing Applications
Raymond Jayabal, Institute for Infocomm Research, Singapore, and Chiew Tong Lau, Nanyang Technological University, Singapore

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8B: Coordinated Transmission
Chair: Dr. Muhammad Imadur Rahman, Ericsson Research, Sweden

1 Overview of Single Frequency Multipoint Transmission Concepts for HSDPA and Performance Evaluation of Intra-site Multiflow Aggregation Scheme
Dmitry Petrov, Ilmari Repo, Magister Solutions Ltd., Finland, and Marko Lampinen, Renesas Mobile Europe, Finland

2 Multi-BS Cooperative Interference Control for LTE Systems
Daigo Ogata, Softbank Mobile Corp., Japan, Atsushi Nagate, Sotbank Mobile Corp., Japan, and Teruya Fujii, Softbank Mobile Corp., Japan

3 Dual Decomposition Based Power Allocation for Downlink OFDM Non-Coherent Cooperative Transmission System
Xin Chen, Xiaodong Xu, Xiaofeng Tao, and Hui Tian, Beijing University of Posts and Telecommunications, China

4 Performance Analysis of Enhanced Inter-cell Interference Coordination in LTE-Advanced Heterogeneous Networks
Yuanye Wang, Aalborg University, Denmark, and Klaus Pedersen, Nokia Siemens Networks, Denmark

5 Joint Transmission for LTE-Advanced Systems with Non-Full Buffer Traffic
Yong-Ping Zhang, Liang Xia, Philipp Zhang, Shulan Feng, Jingyuan Sun, and Xiaotao Ren, Huawei Technologies, China

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8C: Resource Allocation for Relaying 2
Chair: Prof. Koji Yamamoto, Kyoto University, Japan

1 Performance Analysis of Two-way Relay Selection Scheme Based on ARDT Protocol
Meiyu Huang, Fei Yang, Sihai Zhang, and Wuyang Zhou, University of Science and Technology of China (USTC), China

2 Energy Efficient Relay Selection for Two-Way Relay System
Qi Sun, Lihua Li, and Lei Song, Beijing University of Posts and Telecommunications, China

3 Outage Probability of Joint Relay Selection and Power Allocation for Two-Way Relay Networks over Rayleigh Fading Channels
Zheng Ren, Yongyu Chang, Yongliang Zhang, and Dacheng Yang, Beijing University of Posts and Telecommunications, China

4 Optimal Design of Probabilistic Slot Allocation for Multiple-Sensor Relaying Networks
Insook Kim, and Dongwoo Kim, Hanyang University, South Korea

5 Optimal Progressive Precoder Design for ARQ Packet Retransmissions in Nonregenerative MIMO Relay Systems
Zhengyu Zhang, and Ling Qiu, University of Science and Technology of China, China

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8D: Predistortion and Equalization
Chair: Prof. Yasushi Yamao, The University of Electro-Communications, Japan

1 A New Loop-delay Estimation Algorithm for Amplifier Predistortion System
Zhengdai Li, Xiaonian He, and Nan Wu, Beijing Institute of Technology, China

2 Time Domain Delay Items Design for Memory Orthogonal Polynomial Predistorter
Zhan Shi, Hui Li, Jianmin Zhou, Fujitsu R&D Center CO., Ltd., China, and Jianming Wu, Fujitsu R&D Center CO., Ltd., Canada

3 Compressed Sensing Techniques for Decision Feedback Equalization of Sparse Wireless Channels
Evangelos Vlachos, Aris Lalos, Giannis Lionas, and Kostas Berberidis, University of Patras, Greece

4 H-infinity Filter with Adaptive Robustness Level for Space-Time Equalization
Fabiano de S. Chaves, INdT - Nokia Institute of Technology, Brazil, Joao M. T. Romano, University of Campinas - UNICAMP, Brazil, Mohamed Abbas-Turki, and Hisham Abou-Kandil, ENS-Cachan, France

5 Reliability-based Precancellation of Inter-Carrier Interference for Highly Mobile OFDM Systems
Rana Desouky Kazamel, University of Stuttgart, Germany, Nabil Sven Loghin, Sony Deutschland GmbH, Germany, and Joachim Speidel, University of Stuttgart, Germany

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8E: Wireless LAN
Chair: Dr. Noriyuki Fukui, Mitsubishi Electric Corporation, Japan

1 An Orthogonal Polarization based MIMO Transmission for Advanced 60GHz WLAN
Masahiro Umehira, Toshiaki Sasame, Ibaraki University, Japan, and Hirokazu Sawada, Tohoku University, Japan

2 Novel Wi-Fi Throughput Estimation Method Considering CSMA/CA Behavior
Yuichi Imagaki, Kanshiro Kashiki, Kosuke Yamazaki, and Akira Yamaguchi, KDDI R&D Laboratories Inc., Japan

3 A Throughput Model for CSMA/CA with a Cross-Layer Payload-Dropping Optimization
Raymond Jayabal, Institute for Infocomm Research, Singapore, and Chiew Tong Lau, Nanyang Technological University, Singapore

4 Adaptive Pushout: A Buffer Management Scheme to Improve TCP Fairness in Wireless LANs
Kazushige Hayashi, Shigeo Shioda, Nobuyoshi Komuro, Shiro Sakata, Chiba University, Japan, and Tutomu Murase, NEC, Japan

5 How much can Wi-Fi offload? - A Large-scale Dense-urban Indoor Deployment Study
Liang HU, Claudio Coletti, Aalborg University, Denmark, Jan Elling, Telenor, Denmark, Preben Mogensen, Nokia Siemens Networks, Denmark, and Huan Nguyen, Aalborg University, Denmark

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8F: MIMO Channels
Chair: Prof. Ke Guan, Beijing Jiaotong University, China

1 A Study on Power Delay Profile Measurement using IEEE 802.11g based Long Preamble Signals for WLAN Systems at 2.4 GHz band
Hironobu Hatamoto, Satoru Shimizu, Oki Electric Industry Co., Ltd., Japan, Yasuhiro Kanaoka, and Ikuo Yamashita, Kansai Electric Power Co., Inc., Japan

2 Prediction and Measurement of Multiuser MIMO-OFDM Channel in Rural Australia
Hajime Suzuki, David Robertson, CSIRO, Australia, Nisal Ratnayake, and Karla Ziri-Castro, Queensland University of Technology, Australia

3 Carrier Frequency Characteristic of Time-Spatial Profile in Outdoor LOS Environments
Hideki Omote, Yosuke Sugita, Yoshichika Ohta, and Teruya Fujii, Softbank Mobile, Japan

4 MIMO Hardware Simulator: Digital Block Design for 802.11ac Applications with TGn Channel Model Test
Bachir Habib, Gheorghe Zaharia, and Ghais El Zein, IETR/INSA de Rennes, France

5 **An Empirical Investigation of Multi-path Clusters in an Outdoor MIMO Propagation Environment**
Lian Chang, Jianhua Zhang, Fenghua Zhang, and Baoling Liu, Beijing University of Posts and Telecommunications, China

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8G: Transmission Techniques 2
Chair: Dr. Koichi Adachi, Institute for Infocomm Research, Singapore

1 **A Spectrally Efficient Transmission Scheme for Signals with Large Bandwidth**
Paulo Silva, IT/ISE, University of Algarve, Portugal, and Rui Dinis, IT/FCT, New University of Lisbon, Portugal

2 **An Optimal Multiuser Beamforming Scheme based on the Worst SNR in Cellular Systems**
Da Wang, Peking University, China, Lin Bai, Beihang University, China, Chen Chen, Peking University, China, Wenyang Guan, Swansea University, United Kingdom, Ye Jin, Peking University, China, and Jinho Choi, Swansea University, United Kingdom

3 **Channel selection HARQ feedback in LTE-Advanced**
Fredrik Berggren, Huawei Technologies Sweden AB, Sweden, and Jianghua Liu, Huawei Technologies Co., Ltd, China

4 **Impact of Nonlinear Devices in Software Radio Signals**
Slavisa Tomic, ISR and FCT-UNL, Portugal, Rui Dinis, Instituto de Telecomunicações, Portugal, and Marko Beko, UNINOVA and ULHT, Portugal

5 **In-Building DAS for High Data Rate Indoor Mobile Communication**
Temitope Alade, Hassan Osman, University of Kent, United Kingdom, and Miranda Ndula, Liverpool School of Tropical Medicine, United Kingdom

6 **Control Channel Design for Carrier Aggregation between LTE FDD and LTE TDD Systems**
Yong Li, Beijing University of PostsTelecommunications, China, Qin Mu, Liu Liu, Lan Chen, DOCOMO Beijing Communications Laboratories Co., Ltd., China, Mugen Peng, and Wenbo Wang, Beijing University of Posts and Telecommunications, China

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8P: Wireless Networks Posters

1 **The Reliable Packet Transmission Based on PMIPv6 Route Optimization**
NamYeong Kwon, Sungkyunkwan University, Korea, Republic of, Moonseong Kim, Korean Intellectual Property Office, Korea, Republic of, Seung-Tak Oh, and Hyunseung Choo, Sungkyunkwan University, Korea, Republic of

2 **The Performance Study of Optimal Contention Window for IEEE 802.11 DCF Access Control**
Chien-Erh Weng, and Chun-Yin Chen, National Kaohsiung Marine University, Taiwan

3 **Online Detection of Fake Access Points using Received Signal Strengths**
Taebeom Kim, Haemin Park, Hyunchul Jung, and Heejo Lee, Korea University, South Korea

4 **Application of Tagged User Analysis to FU-FB Slotted ALOHA Performance over Frequency Selective Fading Channels**
Khurram Masood, Muhammad Saqib Sohail, Asrar U H Sheikh, and Mohamed A. Haleem, King Fahd University of Petroleum & Minerals, Saudi Arabia

5 **A Comparative Study of Mixed Traffic Scenarios for Different Scheduling Algorithms in WiMAX**
Milad Alizadeh, Rudzidatul Dziyauddin, Dritan Kaleshi, and Angela Doufexi, University of Bristol, United Kingdom

6 **Simple Formulas for Area Coverage Probability of Cellular Wireless Networks**
Hong Yang, Bell Laboratories, United States

7 **Interference Analysis and Performance Evaluation on the Coexistence of Macro and Micro/Pico Cells in LTE Networks**
Yang LAN, and Atsushi Harada, DOCOMO Beijing Communications Laboratories Co., Ltd., China

8 **Optimal Resource Allocation for Multi-Access in Heterogeneous Wireless Networks**
Jie Miao, Zheng Hu, Canru Wang, Rongrong Lian, and Hui Tian, Beijing University of Posts and Telecommunications, China

9 **Self-Organized Resource allocation for LTE Pico Cells: A Reinforcement Learning Approach**
Afef Feki, Véronique Capdevielle, Alcatel-Lucent Bell Labs France, France, and Elom Sorsy, Telecom Bretagne, France

10 **Heterogeneous Wireless Network Traffic Load Estimation based on Chaos Theory**
Xue Han, Yucheng Zhang, Liang Huang, and Jinglin Shi, Institute of Computing Technology, CAS, China

11 **The Gain of a Targeted Introduction of OSG Femtocells into a LTE Macro Network**
Kimmo Hiltunen, NomadicLab, Ericsson Research, Oy L M Ericsson Ab, Finland

12 **A Dynamic MaxPRB-adjusting Scheduling Scheme based on SINR Dispersion Degree in LTE System**
Wenyu Li, Beijing University of PostsTelecommunications, China, Chao Zhang, Li Jin, Zhongfang Wang, Lin Zhang, and Yu Liu, Beijing University of Posts and Telecommunications, China

13 **QoS verification for Minimization of Drive Tests in LTE networks**
Fedor Chernogorov, and Timo Nihtilä, Magister Solutions Ltd., Finland

14 **QoS-Aware Load Balancing Algorithm for Joint Group Call Admission Control in Heterogeneous Networks**
Rongrong Lian, Hui Tian, Wenchao Fei, Jie Miao, and Canru Wang, Beijing University of Posts and Telecommunications, China

15 **Handover Methods Considering Channel Conditions of Multiple Aggregated Carriers**
Mingju Li, Liu Liu, Xiaoming She, and Lan Chen, DOCOMO Beijing Communications Laboratories Co., Ltd, China

16 **A Reliable Broadcast Transmission Approach Based on Random Linear Network Coding**
Hongkun Xi, Xiaoxiang Wang, and Yuan Zhao, Hongtao Zhang, Beijing University of Posts and Telecommunications, China

17 **Joint Source-Network Coding Optimization for Video Streaming over Wireless Multi-hop Networks**
Huali Cui, Xi'an Jiaotong University, China, Depei Qian, BeiHang University, China, Xingjun Zhang, Cuiping Jing, and Yifei Sun, Xi'an Jiaotong University, China

18 **Mobile Relay Amplifying Matrix Design of the Cooperative Distributed MMSE Relaying for AF Wireless Mobile Networks**
Kanghee Lee, Hyuck Kwon, Yazan Ibdah, Wenhao Xiong, and Edwin Sawan, Wichita State University, United States

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9A: Green Radio Links
Chair: Prof. Danyo Danev, Linköping University, Sweden

1 **Rate Control for Energy Minimization of DelayConstrained Cellular Transmissions**
Nof Abuzainab, Anthony Ephremides, University of Maryland, United States, and Andre Santos, Bell Labs/Alcatel-Lucent, Germany

2 **Evaluation of Control Channel Performance with Adaptive Radio Unit Activation in LTE**
Pål Frenger, Ericsson AB, Sweden, Havish Koorapaty, and Jiann-Ching Guey, Ericsson Research, United States

3 **Modulation optimization for achieving energy efficient communications over fading channels**
Fernando Rosas, and Christian Oberli, Pontificia Universidad Católica de Chile, Chile

4 Simplified Sequential Linear Assignment Algorithm for Energy Efficient Resource Allocation
Jingon Joung, Peng Hui Tan, Chin Keong Ho, and Sumei Sun, Institute for Infocomm Research, Singapore

5 Energy-Efficient Subcarrier-and-Bit Allocation in Multi-User OFDMA Systems
Fourat Haider, Cheng-Xiang Wang, Harald Haas, Heriot-Watt University, United Kingdom, Erol Hepsaydir, 3G UK, United Kingdom, and Xiaohu Ge, Huazhong University of Science and Technology, China

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9B: Resource Allocation
Chair: Prof. Jungang Liu, Univerisity of Ottawa, Canada

1 Enhanced Multiuser Eigenmode Transmission for Joint Frequency-spatial Resource Allocation in OFDM-MIMO Downlink Systems
Fanglei Sun, Huan Sun, Mingli You, Tao Yang, and Jinhui Chen, Alcatel-Lucent Shanghai Bell Co., China

2 Admission and Allocation Policies in Heterogeneous Wireless Networks with Handover
Pierre Coucheney, Inria, France, Emmanuel Hyon, Universite Paris Ouest Nanterre - LIP6, France, and Corinne Touati, Inria, France

3 A Novel Rate Adaptation Scheme for Dynamic Bandwidth Management in Wireless Networks
Peppino Fazio, Mauro Tropea, Fiore Veltri, and Salvatore Marano, University of Calabria, Italy

4 Joint beam adaptation in 60GHz interference channel via sequential stochastic approximation
Ke Dong, Xuewen Liao, and Shihua Zhu, Xi'an Jiaotong University, China

5 A Dynamic Channel Assignment Scheme for Distributed Antenna Networks
Ryusuke Matsukawa, Tatsunori Obara, and Fumiyuki Adachi, Tohoku University, Japan

Wednesday, 9 May 2012 14:00-15:30 413
9C: Relaying 3
Chair: Dr. Tsuguhide Aoki, Toshiba Corporation, Japan

1 Iterative Spatial Demapping for Two Correlated Sources with Power Control over Fading MAC
Khoirul Anwar, Japan Advanced Institute of Science and Technology (JAIST), Japan, and Tad Matsumoto, Japan Advanced Institute of Science and Technology (JAIST) and Center for Wireless Communication, University of Oulu, Finland, Japan

2 Iterative Frequency-Domain Channel Estimation and Equalization for Relay-Assisted SFBC Single-Carrier Systems
Haitao Zhang, Xin Zhang, and Dacheng Yang, Beijing University of Posts and Telecommunications, China

3 Inter-cell Interference Cancelation Schemes Using Alternate Relay Transmission
Jae-Woo Kwon, Seong-Ho Park, and Young-Chai Ko, Korea University, South Korea

4 Cooperative Communications with Opportunistic Nonorthogonal Amplify-and-Forward Relaying
Li Chen, Sun Yat-sen University, China, Rolando Carrasco, Newcastle University, United Kingdom, and Ian Wassell, University of Cambridge, United Kingdom

5 A New Cooperative Transmission Strategy for Physical-Layer Security with Multiple Eavesdroppers
Chin-Liang Wang, Ting-Nan Cho, and Kai-Jie Yang, National Tsing Hua University, Taiwan

Wednesday, 9 May 2012 14:00-15:30 414
9D: Performance Evaluation for Wireless Access
Chair: Dr. Lan Yang, DOCOMO Beijing Labs, China

1 Incremental Redundancy for LDPC Codes of 2nd Generation DVB Systems
Nabil Sven Loghin, Sony Deutschland GmbH, Germany, Makiko Kan, Sony Corporation, Japan, and Jan Zoellner, Technische Universitaet Braunschweig, Germany

2 A New Switching Scheme for DVB-RCS+M Return Link in a Land based Scenario
Mauro Tropea, Peppino Fazio, and Salvatore Marano, University of Calabria, Italy

3 Characterisation of Other-cell Interference in Co-channel WCDMA Small Cell Networks
Rouzbeh Razavi, Stepan Kucera, Cristian Androne, and Holger Claussen, Bell Labs, Alcatel-Lucent, Ireland

4 Investigation of Network Virtualization and Load Balancing Techniques in LTE Networks
Ming Li, Hamburg University of Technology, Germany, Liang Zhao, Xi Li, University of Bremen, Germany, Xiaona Li, Hamburg University of Technology, Germany, Yasir Zaki, University of Bremen, Germany, Andreas Timm-Giel, Hamburg University of Technology, Germany, and Carmelita Görg, University of Bremen, Germany

5 Distance dependent Call Blocking Probability, and Area Erlang Efficiency of Cellular Networks
Subhendu Batabyal, and Suvra Das, Indian Institute of Technology Kharagpur, India

Wednesday, 9 May 2012 14:00-15:30 415
9E: Beam/Null-Forming
Chair: Prof. Kentaro Nishimori, Niigata University, Japan

1 Resource Block Basis MMSE Beamforming for Interference Suppression in LTE Uplink
Eiji Mochida, Sumitomo Electric Industries, Ltd., Japan, Mitsuru Hirakawa, Innovation Core SEI, Inc., United States, Takashi Yamamoto, Yoshizo Tanaka, Yoshihiro Hamada, Yoji Okada, and Mitsuo Sugimoto, Sumitomo Electric Industries, Ltd., Japan

2 System-level performance of interference suppression receivers in LTE system
Kari Pietikäinen, Renesas Mobile Europe Ltd., Finland, Felipe Del Carpio, Aalto University, Finland, Helka-Liina Määttänen, Marko Lampinen, Tommi Koivisto, and Mihai Enescu, Renesas Mobile Europe Ltd., Finland

3 Investigation on Advanced Receiver Employing Interference Rejection Combining in Asynchronous Network for LTE-Advanced Downlink
Yusuke Ohwatari, Nobuhiko Miki, Tetsushi Abe, NTT DOCOMO, INC., Japan, and Hidekazu Taoka, DOCOMO Communications Laboratories Europe GmbH, Germany

4 Novel Robust Adaptive Beamforming
Chia-Cheng Huang, and Ju-Hong Lee, National Taiwan University, Taiwan

5 A Study on Transmit Beamforming at Source Node in MISO-SISO/MIMO-MIMO AF Relays
Naohito Kiyomi, Julian Webber, Toshihiko Nishimura, Takeo Ohgane, and Yasutaka Ogawa, Hokkaido University, Japan

Wednesday, 9 May 2012 14:00-15:30 421
9F: Resource Allocation for Wireless Ad Hoc Networks
Chair: Prof. Katsuhiro Naito, Mie University, Japan

1 Efficient Continuous Object Tracking with Virtual Grid in Wireless Sensor Networks
WoonSik Kim, Agency for Defense Development, Korea, Republic of, Hosung Park, Jeongcheol Lee, and Sang-Ha Kim, Chungnam National University, Korea, Republic of

2 Topology-Transparent Distributed Multicast and Broadcast Scheduling in Mobile Ad Hoc Networks
Yiming Liu, Tsinghua University, China, Victor O. K. Li, Ka-Cheong Leung, University of Hong Kong, Hong Kong, and Lin Zhang, Tsinghua University, China

3 Minimum Latency Data Diffusion in Intermittently Connected Mobile Networks
Maheswaran Sathiamoorthy, University of Southern California, United States, Wei Gao, Pennsylvania State University, United States, Bhaskar Krishnamachari, University of Southern California, United States, and Guohong Cao, Pennsylvania State University, United States

4 Robust Networking for Bandwidth Constrained Mobile Tactical Radios
Li Li, Minghui Shi, Communications Research Centre Canada, Canada, and Thomas Kunz, Carleton University, Canada

5 A Transmit Power Control Algorithm for Data Acquisition Systems
Kazuyuki Ozaki, Yun Wen, Hiroshi Fujits, Fujitsu Laboratories LTD., Japan, Chao Lv, Jun Tian, Jianming Wu, Fujitsu Research and Development Center Co., Ltd, China, and Makoto Yoshida, Fujitsu Laboratories LTD., Japan

Wednesday, 9 May 2012 14:00-15:30 422
9G: Channel Estimation
Chair: Prof. Rui Dinis, Universidade Nova de Lisboa, Portugal

1 An effective channel estimation scheme for bi-directional two-timeslot OFDM relay transmission using analog network coding
Yuta Koshimizu, and Eiji Okamoto, Nagoya Institute of Technology, Japan

2 Channel Estimation for OFDM Systems over Time-Varying and Sparse Dispersive Channels
Qilin Guo, Muqing Wu, Qinjuan Zhang, Xiaofang Hao, and Yanzhi Sun, Beijing University of Posts and Telecommunications, China

3 Improving Multi-Dimensional Graph-Based Soft Channel Estimation
Christopher Knievel, Peter Adam Hoeher, University of Kiel, Germany, Alexander Tyrrell, and Gunther Auer, Docomo Euro-Labs, Germany

4 Iterative MAP Channel Estimation Based on Factor Graph for OFDM Mobile Communications
Kazushi Muraoka, Kazuhiko Fukawa, Hiroshi Suzuki, and Satoshi Suyama, Tokyo Institute of Technology, Japan

5 Performance of Decision-Directed Channel Estimation Using Low-Rate Turbo Codes for DFT-Precoded OFDMA
Keita Miwa, Tokyo City University, Japan, Nobuhiko Miki, Teruo Kawamura, NTT DOCOMO, Japan, and Mamoru Sawahashi, Tokyo City University, Japan

Wednesday, 9 May 2012 14:00-15:30 503
9P: Wireless Access Posters 2

1 Performance Analysis of IEEE 802.11ac DCF with Hidden Nodes
Zheng Chang, Olli Alanen, Toni Huovinen, Timo Nihtilä, Magister Solutions Ltd, Finland, Eng Hwee Ong, Jarkko Kneckt, Nokia, Finland, and Tapani Ristaniemi, University of Jyväskylä, Finland

2 Impact of Amplitude Component on HSUPA Closed Loop Transmit Diversity Performance
Petri Eskelinen, Frans Laakso, Magister Solutions Ltd., Finland, and Marko Lampinen, Renesas Mobile Corporation, Finland

3 Study of Radio Resource Allocation Scheme for Single Carrier FDMA in LTE Network
Yen-Wen Chen, National Central University, Taiwan, I-Hsuan Peng, Minghsin University of ScienceTechnology, Taiwan, and Chien-Yu Lai, National Central University, Taiwan

4 Self-Optimization of RACH Power Considering Multi-cell Outage in 3GPP LTE Systems
Wonbo Lee, Dongmyoung Kim, Seoul National University, South Korea, Seunghyun Choi, University of Michigan, United States, Kyung-Joon Park, DGIST, South Korea, Sunghyun Choi, Seoul National University, South Korea, Ki-Young Han, Samsung, South Korea

5 On the Role of Downlink Control Information in the Provision of QoS for NRT Services in LTE
David González G, Mario Garcia-Lozano, Silvia Ruiz, and Joan Olmos, Universitat Politècnica de Catalunya, Spain

6 A Cooperative Downlink Power Setting Scheme for CA-based Femtocells
Ben Wang, Yinghai Zhang, Weidong Wang, Beijing University of Posts and Telecommunications (BUPT), China, Ming Lei, and Lei Jiang, NEC Laboratories China, NEC (China) Co., Ltd., China

7 Dynamic Clustering based Sub-band Allocation in Dense Femtocell Environments
Wei Li, Wei Zheng, Xiangming Wen, and Tao Su, Beijing University of Posts and Telecommunications, China

8 Enhanced Inter-cell Interference Coordination in Heterogeneous Networks for LTE-Advanced
Shaoyi Xu, Beijing Jiaotong University, China, Jing Han, Renesas Mobile R&D, China, and Tao Chen, Renesas Mobile R&D, Finland

9 Inter-tier Handover in Macrocell/Relay/Femtocell Heterogeneous Networks
Guanding Yu, Chuang Ma, Zhejiang University, China, and Jietao Zhang, Huawei, China

10 Load Balance based Dynamic Inter-Cell Interference Coordination for Relay Enhanced Cellular Network
Jun Wang, Jianguo Liu, Dongyao Wang, Jiyong Pang, Gang Shen, and Jinhui Chen, Alcatel Lucent Shanghai Bell, China

11 Enhanced Dynamic Inter-cell Interference Coordination Schemes for LTE-Advanced
Jing Wang, Xiaoming She, and Lan Chen, DOCOMO Beijing Communications laboratories Co., Ltd, China

12 DM-RS Based Open-Loop CoMP in LTE-A System
Jian Zhang, Yuantao Zhang, Yi Zhang, Yi Wang, and Hua Zhou, Fujitsu Research and Development Center Co., Ltd, Beijing, China

13 Joint Scheduling for Multi-Service in Coordinated Multi-Point OFDMA Networks
Binru Huang, Jingya Li, and Tommy Svensson, Chalmers University of Technology, Sweden

14 Estimation of Effective Radio Resource Usage for VoIP Scheduling in OFDMA Cellular Networks
Suvra Das, Priyangshu Ghosh, and Prabhu C, Indian Institute of Technology Kharagpur, India

15 Delta Metric Scheduling for LTE-Advanced Uplink Multi-user MIMO Systems
Peng Shang, Xudong Zhu, Lu Zhang, Jinsong Wu, and Jinhui Chen, Alcatel-Lucent Bell Labs (China), China

16 TD-LTE Network Evolution With In-band And Out-band Micro Cells Deployment
ZhuYan Zhao, Jian Wang, Hao Guan, Nokia Siemens Networks, China, Preben Mogensen, Nokia Siemens Networks, Denmark, GuangYi Liu, and XiaoDong Shen, China Mobile Research Institute, China

Wednesday, 9 May 2012 16:00-17:30 411
10A: Distributed Beamforming
Chair: Prof. Kenichi Higuchi, Tokyo University of Science, Japan

1 Robust Distributed Cognitive Relay Beamforming
P Ubaidulla, King Abdulla University of ScienceTechnology, Saudi Arabia, and Sonia Aissa, INRS, University of Quebec, Canada

2 Optimization for Outage Probability Constrained Robust Downlink Collaborative Beamforming
Zheng Dong, Ju Liu, Shandong University, China, He Chen, The University of Sydney, Austria, and Hongji Xu, Shandong University, China

3 Beamforming Optimization for Generalized MIMO Y Channels with Both Multiplexing and Diversity
Zhendong Zhou, and Branka Vucetic, The University of Sydney, Australia

4 Two-Cell Coordinated Transmission Scheme Based on Interference Alignment and MU-MIMO Beamforming
Chongning Na, Xiaolin Hou, and Atsushi Harada, DOCOMO Beijing Communications Laboratories Co., Ltd., China

5 Distributed Filter-and-Forward Beamforming for Two-Way Relaying Networks under Channel Uncertainties
Chen Luo, Chengwen Xing, Zesong Fei, Beijing Institute of Technology, China, Shaodan Ma, University of Macau, China, and Jingming Kuang, Beijing Institute of Technology, China

Wednesday, 9 May 2012 16:00-17:30 412
10B: Performance Evaluation for Wireless Networks
Chair: Prof. Asrar U. H. Sheikh, King Fahd University of Petroleum & Minerals, Saudi Arabia

1 Performance Analysis for Direction of Arrival Estimating Algorithms
Pradhumna Shrestha, Michael Hempel, Puttipong Mahasukhon, Tao Ma, and Hamid Sharif, University of Nebraska-Lincoln, United States

2 Evaluation of the SCTP Optimal Path Selection with Ant Colony Optimization Probabilistic Equation Implementation
Muhammad Ariff Baharudin, Minh Quang Tran, and Eiji Kamioka, Shibaura Institute of Technology, Japan

3 Area Spectral Efficiency of Soft-Decision Space-Time-Frequency Shift Keying Aided Slow Frequency Hopping Multiple Access
Lajos Hanzo, and Hoang Anh Ngo, University of Southampton, United Kingdom

4 A Study on a Transmit Antenna Directivity Control of Adaptive Array for Secure Wireless Transmission Based on the Multi-Path Routing
Masaaki Yamanaka, Hiroshima International University, Japan, Shinichi Miyamoto, Seiichi Sampei, Osaka University, Japan, and Norihiko Morinaga, Hiroshima International University, Japan

5 RAR: Risk Aware Revocation mechanism for Vehicular Networks
Carlos Gañán, José L. Muñoz, Oscar Esparza, Jorge Mata-Díaz, Juanjo Alins, Universitat Politècnica de Catalunya, Spain, Carlos Silva-Cardenas, and Gumercindo Bartra-Gardini, Pontificia Universidad Católica del Perú, Peru

Wednesday, 9 May 2012 16:00-17:30 413
10C: LTE and LTE-Advanced 2
Chair: Dr. Fan Rui, Ericsson China Communications, China

1 Support of Low Complexity LTE Terminals
Yuichi Morioka, Sony Europe Ltd., United Kingdom, and Martin Beale, IPWireless Inc., United Kingdom

2 System-level Modeling and Evaluation of Interference Suppression Receivers in LTE System
Marko Lampinen, Renesas Mobile Europe Ltd., Finland, Felipe Del Carpio, Aalto University, Finland, Tero Kuosmanen, Tommi Koivisto, and Mihai Enescu, Renesas Mobile Europe Ltd., Finland

3 Investigation on Rate Matching and Soft Buffer Splitting for LTE-Advanced Carrier Aggregation
Kazuaki Takeda, Yuta Sagae, Naoto Ohkubo, NTT DOCOMO, INC., Japan, and Hiroyuki Ishii, DOCOMO Innovations, INC., United States

4 Uplink Control for Low Latency HARQ in TDD Carrier Aggregation
Yang Lu, Liu Liu, Mingju Li, and Lan Chen, DOCOMO Beijing Communications Laboratories Co., Ltd, China

Wednesday, 9 May 2012 16:00-17:30 414
10D: Signal Detection
Chair: Dr. Mamoru Sawahashi, Tokyo City University, Japan

1 2-step QRM-MLBD using Detection Ordering for Single-Carrier Transmission
Katsuhiro Temma, Tetsuya Yamamoto, and Fumiyuki Adachi, Tohoku University, Japan

2 Compressive Sensing Multi-User Detection with Block-Wise Orthogonal Least Squares
Henning Schepker, Univeristy of Bremen, Germany, and Armin Dekorsy, University of Bremen, Germany

3 Overlap QRM-ML Block Signal Detection for Single-Carrier Transmission without CP Insertion
Hideyuki Moroga, Tetsuya Yamamoto, and Fumiyuki Adachi, Tohoku University, Japan

4 Superposed Band Detection Based on Error Probability Using Initial Likelihood Masking
Tomoaki Ohtsuki, Genji Hayashi, Keio University, Japan, Jun Mashino, and Takatoshi Sugiyama, NTT Access Network Service Systems Laboratories, Japan

5 Investigation on Data Identification Problem for Data-Dependent Superimposed Training
Kuei-Cheng Chan, National Taiwan University, Taiwan, Wei-Chieh Huang, Industrial Technology Research Institute, Taiwan, Chih-Peng Li, Institute of Communications Engineering, National Sun Yat-Sen University, Taiwan, and Hsueh-Jyh Li, Graduate Institute of Communication Engineering, National Taiwan University, Taiwan

Wednesday, 9 May 2012 16:00-17:30 415
10E: Resource Allocation for Cognitive Radio
Chair: Prof. Ta-Sung Lee, National Chiao Tung University, Taiwan

1 A Mini-Slot Sensing with Selective Coordinator in Cognitive Radio System
Lijun Peng, Zhiyong Feng, Rong Li, and Ping Zhang, Beijing University of Posts and Telecommunications, China

2 Optimal Power Allocation in a Spectrum Sharing System with Partial CSI
Xitao Gong, Guido Dartmann, Adrian Ispas, and Gerd Ascheid, ICE, RWTH Aachen University, Germany

3 A Distributed Cluster-Based Self-Organizing Approach to Resource Allocation in Femtocell Networks
Wei-Sheng Lai, and Ta-Sung Lee, National Chiao Tung University, Taiwan

4 An Auction Approach to Resource Allocation in OFDM-Based Cognitive Radio Networks
Lihong Cao, Wenjun Xu, Jiaru Lin, Kai Niu, and Zhiqiang He, Beijing University of Posts and Telecommunications, China

5 Joint Sparse Spectrum Reconstruction and Information Fusion via l1-Minimization
Andreas Bollig, Steven Corroy, and Rudolf Mathar, RWTH Aachen University, Germany

Wednesday, 9 May 2012 16:00-17:30 421
10F: Positioning and Mobile Applications
Chair: Prof. Kazunori Hayashi, Kyoto University, Japan

1 SafeTRIP: A Bi-directional Communication System Operating in S-band for Road Safety and Incident Prevention
Massimo Celidonio, Dario Di Zenobio, Ermanno Fionda, Fondazione Ugo Bordoni, Italy, Guillermo Grau Panea, INDRA, Spain, Sebastien Grazzini, EUTELSAT SA, France, Bernhard Niemann, Fraunhofer Institut für Integrierte Schaltungen, Germany, Lorenzo Pulcini, Fondazione Ugo Bordoni, Italy, Sandro Scalise, Institute of Communications and Navigation, DLR, Germany, Emanuele Sergio, Fondazione Ugo Bordoni, Italy, and Sabino Titomanlio, M.B.I., Italy

2 RF-based Vehicle Detection and Speed Estimation
Nehal Kassem, Microsoft Corporation, United States, Ahmed Kosba, Alexandria University, Egypt, and Moustafa Youssef, Egypt-Japan Univ. of Sc. & Tech. (E-JUST), Egypt

3 CRT-based AL-FEC and Its Application on Streaming over the WiMAX Networks for High-Speed Rail Reception
Shih-Ying Chang, and Hsin-Ta Chiao, ITRI, Taiwan

4 Estimating Step Distance Using Simple Harmonic Motion
Kun-Chan Lan, and Wen-Yuah Shih, National Cheng Kung University, Taiwan

Wednesday, 9 May 2012 16:00-17:30 422
10G: OFDM 2
Chair: Prof. Hideki Ochiai, Yokohama National University, Japan

1 Approaching the Maximum Likelihood Performance with Nonlinearly Distorted OFDM Signals
João Guerreiro, FCT-UNL, Portugal, Rui Dinis, Instituto de Telecomunicações, Portugal, and Paulo Montezuma, UNINOVA, Portugal

2 OFDM Signal Transmission by EPWM Transmitter in Nonlinear RoF Channel
Xiaoxue Yu, Motoharu Matsuura, Shinsuke Yokozawa, and Yasushi Yamao, Advanced Wireless Communication Research Center, the University of Electro-Communications, Japan

3 PAPR Reduction Techniques with Hybrid SLM-PTS Schemes for OFDM Systems
HONG-JIE CHOU, PING-YOU LIN, and JUNG-SHAN LIN, National Chi Nan University, Taiwan

4 Power and Rate Adaptation for MQAM/OFDM Systems under Fast Fading Channels
Zhicheng Dong, Provincial Key Lab of Information, Southwest Jiaotong University, School of Engineering, Tibet University, China, Pingzhi Fan, Weixi Zhou, Provincial Key Lab of Information, Southwest Jiaotong University, China, and Erdal Panayirci, Kadir Has University, Turkey

5 Realizing up and downlink subcarrier allocation in Orthogonal Frequency Division Duplex (OFDD) Systems
Shenghong Li, and Ross Murch, The Hong Kong University of Science & Technology, Hong Kong

3rd Green Wireless Communications and Networks Workshop

Chairs:
John Thompson, University of Edinburgh
Timothy O'Farrell, University of Sheffield

TPC
Simon Armour, University of Bristol
Xiang Chen, Tsinghua University
Ngoc-Dung Dao, Huawei Technologies Canada Co., Ltd.
Simon Fletcher, NEC Corporation
Weisi Guo, University of Sheffield
Congzheng Han, Ofcom
Go Hasegawa, Osaka University
Oliver Holland, King's College London
Chadi Khirallah, University of Edinburgh
Jinsong Wu, Bell Laboratories
Sihai Zhang, University of Science and Technology of China
Liqiang Zhao, Xidian University

Sunday, 6 May 9:30-10:40 Room 413
Opening Keynotes
Fundamentals of Green Wireless Communications
Liqiang Zhao, Xidian University

An Overview of Research Advances in the Mobile VCE Green Radio Project
Chadi Khirallah, University of Edinburgh

1040-1050 Coffee Break

Sunday, 6 May 10:50-12:50 Room 414
Energy Efficient Wireless Networks
Chair: Chadi Khirallah, University of Edinburgh

1. On the Bandwidth-Power Tradeoff for Heterogeneous Wireless Networks with Orthogonal Bandwidth Allocation
Shunqing Zhang, Huawei Technologies Co. Ltd; Shugong Xu, Huawei Technologies Co. Ltd.

2. Capacity-Energy-Cost Tradeoff in Small Cell Networks
Weisi Guo, Timothy O'Farrell, University of Sheffield

3. Cooperative Virtual Cell Clustering for Green Cellular Networks
Feng Chen, Xiaowei Qin, University of Science and Technology of China

4. Energy Efficiency and Spectral Efficiency Trade-off of a Novel Interference Avoidance Approach for LTE-Femtocell Networks
Siyi Wang, The University of Sheffield; Charles Turyagyenda, Timothy O'Farrell, University of Sheffield

5. Energy-Efficient Cellular Network Design Based On User's Mobility and Service Characteristics
Haibao Ren, University of Science and Technology of China; Ming Zhao, University of Science & Technology of China; Wuyang Zhou, University of Science and Technology of China; Jinkang Zhu, USTC; Dong Peng, Research Institute of China Mobile

6. Energy-friendly Network Selection in Heterogeneous Wireless Networks
Juan Fan, Sihai Zhang, Wuyang Zhou, University of Science and Technology of China

1250-1400 Lunch Break

Sunday, 6 May 14:00-14:45 Room 413
Afternoon Keynote
A Novel Hyper-Cellular Architecture for Globally Resource-optimized and Energy-Efficient Networks (GREEN)
Zhisheng Niu, Tsinghua University

Sunday, 6 May 14:45-16:45 Room 414
Energy Efficient Wireless Techniques
Chair: Matthew Wu, Huawei

1. Energy-efficient multi-user scheduling with IR-HARQ
Ye Wu, Dr. Shugong Xu, Huawei Technologies, Co. Ltd.

2. Computational Complexity and Energy Consumption Analysis of Dynamic Resource Scheduling Algorithms for LTE
Congzheng Han, Ofcom; Simon Armour, University of Bristol

1525-1545 Coffee Break

3. Lowering Area Power Consumption via Coded Cooperation Assisted by Layered Relays
Na Deng, Ming Zhao, Wuyang Zhou, Jinkang Zhu University of Science and Technology of China, China

4. Power-Delay Tradeoff Improvement with Adaptive Modulation Scheme under Practical Power Model
Yan Chen, Huawei Technologies Co. Ltd.; Shunqing Zhang, Huawei Technologies Co. Ltd; Shugong Xu, Huawei Technologies Co. Ltd.

5. Transmit Precoding for Receive Spatial Modulation Using Imperfect Channel Knowledge
Athanasios Stavridis, Sinan Sinanovic, University of Edinburgh; Marco Di Renzo, CNRS-SUPELEC-Univ Paris-Sud; Harald Haas, University of Edinburgh

1645 Close of Workshop

Vehicular Electronics 2012 (VE2012)

Chair:
Onur Altintas, Toyota InfoTechnology Center

Sunday, 6 May 9:30-9:40 Room 414
VE2012 Opening

Sunday, 6 May 9:40-10:30 Room 414
VE2012 Session 1
Chair: Onur Altintas, Toyota InfoTechnology Center

1. **A Comprehensive Analysis of Beacon Dissemination in Vehicular Networks**
   Hoa-Hung Nguyen, Adhitya Bhawiyuga and Han-You Jeong, Pusan National University

2. **SCB: Store-Carry-Broadcast Scheme for Message Dissemination in Sparse VANET**
   Sok-Ian (Ines) Sou, National Cheng Kung University; Yinman Lee, National Chi Nan University

10:30 - 11:00 Break

Sunday, 6 May 11:00-12:30 Room 414
VE2012 Session 2
Chair: Onur Altintas, Toyota InfoTechnology Center

1. **A research on Generic Functional System Requirement Engineering Concept and Management Tool**
   Seungbeom Kim, Guy Championnet and Louis Lee, Hyundai Carnes Co. Ltd.

2. **Virtualization for Testing in Model-driven Distributed System**
   Youngheum Kim, Seungyong Lee and Seungbeom Kim, Hyundai Carnes

3. **Slim Size Card Key Development, #1122080**
   Park Dongsik and Lee Ilyoung, Continental Automotive Systems Corporation

4. **Development of Image Synthesis Algorithm with Multi-Camera**
   Kapje Sung, Joongryoul Lee, Junsik An and Eugene Chang, Hyundai Motors

12:30 - 14:00 Lunch break

Sunday, 6 May 14:00-15:30 Room 414
VE2012 Session 3
Chair: Haris Kremo, Toyota InfoTechnology Center

1. **Development of an Integrated Driving path Estimation Algorithm for ACC and AEBS Using Multi-sensor Fusion**
   Lee Dongwoo, Kim Beomjun, Kyongsu Yi, Seoul National University; Lee Jaewan, Korea Automobile Testing & Research Institute

2. **Lateral Disturbance Compensation Using Motor Driven Power Steering**
   Kyuwon Kim, Jaewoong Choi and Kyongsu Yi, Seoul National University

3. **Robust moving object detection using beam pattern for night-time driver assistance**
   Rui Zhang, Eunsoo Park, Yongji Yun, Hakil Kim and Hyoungrae Kim, Inha University

Poster Introductions
1. **Detection of Stochastic Noise in Vehicular Applications**
   Jia-Sheng Hu, National University of Tainan; Feng-Rung Hu, National Taichung University of Education

2. **Fail-safe Control Strategy of Traction Motor in Electric Mobility with Sensorless Control Scheme**
   Ilhan Kim, Hyeongsu Kim, Taesuk Kwon and Hyeoundong Lee, Hyundai Mobis

3. **Optimum Design of the Electric Vehicle Traction Motor using the Hairpin Winding**
   Dae-Sung Jung, Yong-Ho Kim, Un-Ho Lee and Hyeoun-Dong Lee, Hyundai Mobis

15:30 - 16:00 Coffee and Posters

Sunday, 6 May 16:00-16:45 Room 414
VE2012 Session 4
Chair: Haris Kremo, Toyota InfoTechnology Center

1. **Coordinated Control of Tractive and Braking Forces using High Slip for Improved Turning Performance of an Electric Vehicle equipped with In-wheel Motors**
   Wongun Kim and Kyongsu Yi, Seoul National University

2. **Development of a Combined Steering Torque Overlay and Differential Braking Control for Side Crash Prevention**
   Dongwook Kim, Junyung Lee and Kyongsu Yi, Seoul National University