

**UC4G Final Project Workshop 2012
29-31 May 2012, Edinburgh, UK**

Earl Mountbatten Building 1.82, Heriot-Watt University, EH14 4AS

Day 1 (Tue. 29 May 2012) Programme:

8:30-09:30 Registration	
Welcome Speeches and Project Overview (Chair: Prof. Stephen McLaughlin, School of EPS, HWU)	
09:30-10:10	1) Welcome speech (Prof. Steve Chapman, Principal of HWU) 2) Welcome speech (Mr Futao Chen, Minister Counselor, Science & Technology Section, China Embassy in London) 3) Welcome speech (Prof. Fei Ji, NSFC) 4) Welcome speech (Dr. Edward Clarke, RCUK)
10:10-10:50	Achievements and outlook of the UC4G project (Prof. Cheng-Xiang Wang, HWU, PI of the UC4G project)
10:50-11:00	1) Opening ceremony for the 'UK-China Joint R&D Centre for Future Wireless Networks' (Prof. Steve Chapman, Mr Futao Chen, Dr Edward Clarke, Prof. Fei Ji, Prof. Peter Grant, Prof. Joe McGeehan, Prof. Cheng-Xiang Wang) 2) Photo taking (all the attendees)
11:00-11:30 Coffee break/poster event	
Session 1.1: UC4G Wireless MIMO Testbed (Chair: Prof. Joe McGeehan, Univ. of Bristol)	
11:30-13:00	UC4G wireless MIMO testbed results and demo: 1) Testbed introduction (Dr. Pat Chambers & Dr. Zengmao Chen, HWU) 2) Spatial Modulation Introduction (Prof. Harald Haas, UoE) 3) Spatial Modulation Performance Using Channel Measurements (Dr. Will Thompson, Prof. Mark Beach, and Prof. Joe McGeehan, Univ. of Bristol) 4) Spatial Modulation Performance Using Testbed (Mr. A. Younis & Prof. Harald Haas, UoE) 5) Wireless MIMO Testbed Demos (RAs at HWU, UoE, and Bristol)
13:00-14:00 Lunch/poster event	
Session 1.2: Wireless Testbed Development (Chair: Prof. Peter M Grant)	
14:00-14:40	Wideband digital predistortion (DPD) (Dr Lei Xu, Altera)
14:40-15:20	Radio prototyping with Graphical System Design (Mr Ben Lavasani, National Instruments)
15:20-15:50 Coffee break/poster event	
15:50-16:30	Wireless testbed developments in China (Dr Pat Chambers on behalf of Prof. Yang Yang, WiCO, and Prof. Xiaofeng Tao, BUPT)
16:30-17:30 Testbed Discussions (Moderated by Joe McGeehan, Peter Grant, and Cheng-Xiang Wang)	
18:30-21:00 Dinner in Imperial Palace: 36 Inglis Green Road, Edinburgh, EH14 2ER	

Day 2 (Wed. 30 May 2012) Programme:

08:30-09:00 Registration	
Session 2.1: Green Communications I (Chair: Prof. John Thompson)	
09:00-09:45	<i>Invited speech 1:</i> The Green Radio Project – An Overview of Outcomes (Prof. Tim O'Farrell, University of Sheffield)
09:45-10:30	<i>Invited speech 2:</i> IP Networking - the future and evolution (Prof. Zhili Sun, University of Surrey)
10:30-11:00 Coffee break/poster event	
11:00-11:45	<i>Invited speech 3:</i> Random-Network coding (Dr Chadi Khirallah, University of Edinburgh)
11:45-12:30	<i>Invited speech 4:</i> Research on energy efficiency of 4G cellular networks with co-channel interference (Prof. Xiaohu Ge, HUST)
12:30-13:30 Lunch/poster event	
Session 2.2: Green Communications II (Chair: Prof. Tim O'Farrell)	
13:30-14:15	<i>Invited speech 5:</i> An overview of research advances in the green radio research programme (Prof. John Thompson, UoE)
14:15-15:00	<i>Invited speech 6:</i> Energy efficiency potential of wireless communication networks (Dr. Muhammad Ali Imran, University of Surrey)
15:00-15:30 Coffee break/poster event	
15:30-16:15	<i>Invited speech 7:</i> Robust and energy efficient transmission strategies for cellular networks (Dr. Mohammad Reza Nakhai, KCL)
16:15-17:15 Discussions on Green Communications (Moderated by John Thompson and Tim O'Farrell)	
18:30-21:00 Dinner in The Dome: 14 George Street, Edinburgh, EH2 2PF	

Day 3 (Thur. 31 May 2012) Programme:

8:30-9:00 Registration	
Session 3.1: (B)4G I (Chair: Dr Chunfeng Cui)	
09:00-09:30	<i>Invited speech 1:</i> Threshold for free window duplex (Prof. Bingli Jiao, Peking University)
09:30-10:00	<i>Invited speech 2:</i> Trends of future wireless networks (Prof. Dongfeng Yuan, Shandong University)
10:00-10:30	<i>Invited speech 3:</i> Physical layer network coding for 4G & beyond (Prof. Alister Burr, University of York)
10:30-11:00 Coffee break/poster event	
Session 3.2: (B)4G II (Chair: Prof. Dongfeng Yuan)	
11:00-11:30	<i>Invited speech 4:</i> View on future wireless networks of China Mobile (Dr Chunfeng Cui, China Mobile)
11:30-12:00	<i>Invited speech 5:</i> Block-spread CDMA: Unifying Multiple Access in Cellular Networks (Dr Justin Coon, Toshiba Research Europe)
12:00-12:30	<i>Invited speech 6:</i> Visible Light Communications (Prof. Harald Haas, UoE)
12:30-13:30 Lunch/poster event	
Session 3.3: (B)4G III (Chair: Prof. Harald Haas)	
13:30-14:00	<i>Invited speech 7:</i> Cognitive resource management for 4G wireless networks (Prof. Jiandong Li, Xidian University)
14:00-14:30	<i>Invited speech 8:</i> Towards a Self-regulating Society of Cognitive Radios (Dr. Kai-Kit Wong, UCL)
14:30-15:00	<i>Invited speech 9:</i> The Isle of Bute TV white space radio testbed (Prof. Bob Stewart, University of Strathclyde)
15:00-15:15 Coffee break/poster event	
15:15-16:00 Final discussion (Moderated by Peter Grant and Cheng-Xiang Wang)	
End of workshop	

Posters on display during the workshop:

Theme 1: Advanced Wireless Testbed Development	
1. Initial Set-up of A Joint UK-China Open Access Testbed	Jian Sun, Shandong University, China
2. Spatial Modulation Implementation on the MIMO Test-Bed	Raed Mesleh, University of Tabuk, Saudi Arabia
3. Development of a LTE simulator and its validation on the PXI-e based testbed system in Heriot-watt University	Wuxiong Zhang, WiCO, China, Jian Sun, Shandong University, China, Xuemin Hong, Xiamen University, China, and Cheng-Xiang Wang, Heriot-Watt University, UK
4. Feasibility Study on a UK-China Open Access (B)4G Wireless Mobile Communication Testbed	Xuemin Hong, Xiamen University, China
5. Implementation of FPGA-based channel emulator on the UC4G wireless testbed	Xiangyang Wang, Southeast University, China
Theme 2: Green Communications	
6. Spectral-Energy Efficiency Trade-off for Mobile Femtocell Networks with Resource Partitioning Schemes	Fourat Haider, Cheng-Xiang Wang, Heriot-Watt University, UK, Harald Haas, University of Edinburgh, UK, Dongfeng Yuan, Shandong University, China, Haiming Wang, Xiqi Gao, Xiao-Hu You, Southeast University, China, and Erol Hepsaydir, Hutchison 3G UK
7. Spectral-Energy Efficiency Trade-off in Cognitive Radio Networks with Peak Interference Power Constraints	Fourat Haider, Cheng-Xiang Wang, Heriot-Watt University, UK, Xuemin Hong, Xiamen University, China, Harald Haas, University of Edinburgh, UK, Dongfeng Yuan, Shandong University, China, and Erol Hepsaydir, Hutchison 3G UK
8. The Lazy Base Station	Hauke Holtkamp, Harald Haas, University of Edinburgh
9. Green Wireless Communications: Fundamentals and Technology	Liqiang Zhao, Xidian University, China
10. The Optimal planning of antenna localizations of wireless MIMO Systems	Ming Chen, Southeast University, China
11. Energy Efficient Technologies for Cooperative MIMO Mobile Communication Systems Based on Interference Coordination	Xiaohu Ge, Huazhong University of Science and Technology, China, and Cheng-Xiang Wang, Heriot-Watt University, UK
Theme 3: Signal Processing for B4G Technologies	
12. Random Network Coding for Video Streaming over LTE/LTE-A	Chadi Khirallah and John S. Thompson, University of Edinburgh
13. Coordinated Radio Resource Management (CoRRM) for LTE-Advanced	Hui Song, Ranplan Wireless Network Design Ltd.
14. Robust Transmit Beamforming: A Probabilistic Constrained Optimization Approach	Huiqin Du and Pei-Jung Chung, University of Edinburgh, UK

15. Block Diagonalization Based Multiuser MIMO Aided Downlink Relaying	Wei Liu, Xidian University, China
16. On Minimizing Packet Loss Rate and Delay for Mesh-based P2P Streaming Services	Zhiyong Liu, China Academy of Telecommunication Research, Dan He, Zhili Sun, University of Surrey, UK, and Denian Shi, China Academy of Telecommunication Research
Theme 4: Channel Estimation and Modelling	
17. A Non-Stationary MIMO Channel Model for High-Speed Train Communication Systems	Ammar Ghazal, Cheng-Xiang Wang, Heriot-Watt University, UK, Harald Haas, University of Edinburgh, UK, Mark Beach, University of Bristol, UK, Xiaofeng Lu, Huawei Technologies, China, Dongfeng Yuan, Shandong University, China, and Xiaohu Ge, Huazhong University of Science and Technology, China
18. Cooperative MIMO Channel Modeling and Multilink Spatial Correlation Properties	X. Cheng, Peking University, China, C.-X. Wang, Heriot-Watt University, UK, H. Wang, X. Gao, X.-H. You, Southeast University, China, D. Yuan, Shandong University, China, B. Ai, Beijing Jiaotong University, China, Q. Huo, L. Song, and B. Jiao, Peking University, China
19. Wideband Channel Modeling and ICI for V2V Communication Systems	X. Cheng, Peking University, China, Q. Yao, Heriot-Watt University, UK, M. Wen, Peking University, China, C.-X. Wang, Heriot-Watt University, UK, L. Song, and B. Jiao, Peking University, China
20. Channel Estimation of LTE Downlink in High Mobility Environment	Xuewu Dai, University College London, UK, Wuxiong Zhang, Jing Xu, WiCO, China, John E. Mitchell, University College London, UK, and Yang Yang, WiCO, China
21. Interval Representation Modeling of the Internet Traffic	Zhili Sun, University of Surrey, UK, and Zhiyong Liu, CATR, China
22. Low Profile Three-Dimensional Orthogonally Polarized Antennas	Hong Jun Tang, Southeast University, China, and Kin-Fai Tong, University College London, UK
Theme 5: Cooperative MIMO	
23. Efficient Interference Mitigating Strategies for Two-Way Relay Channels	Agisilaos Papadogiannis, Chalmers University of Technology, Sweden, Alister G. Burr, University of York, UK, and Meixia Tao, Shanghai Jiaotong University, China
24. A System Level Performance Investigation of Relaying Techniques	Ivan Ku, Cheng-Xiang Wang, Heriot-Watt University and John Thompson, University of Edinburgh
25. Optimal Resource Allocation for Heterogeneous Transmission in Multi-Cell OFDMA Systems	Qinghai Yang, Xidian University, China
26. Near Capacity FEC Codes for Non-Regenerative MIMO-Aided Relays	Soon Xin Ng, Lajos Hanzo, University of Southampton, UK, Wei Liu and Jian-Dong Li, Xidian University, China
27. Network Coded Modulation for Two-Way Relaying	Wei Chen, Tsinghua University, China
28. Multi-hop Uplink and Downlink Connectivity Probabilities in	Wuxiong Zhang, WiCO, China, Yu Chen, University College London, Yang Yang, WiCO, China, Xiangyang Wang, Southeast University, Yu Zhang, National



**UK-China Science Bridges:
R&D on (B)4G Wireless Mobile Communications (UC4G)**



Infrastructure-Based Vehicular Networks	Engineering Research Center for Broadband Networks and Applications, Xuemin Hong, Xiamen University, and Guoqiang Mao, University of Sydney, Australia
29. Inter-Cell Interference Mitigation for OFDMA Femtocells Sharing Spectrum with Macro Underlay	Xiaoli Chu, University of Sheffield, UK
30. Optimization of RRU/UE Pairs for Multi-Point to Multi-UE Coordinated Transmissions	Yongzhao Li, Xidian University, China, Simon Armour and Joe McGeehan, University of Bristol, UK

Abbreviations:

- BUPT: Beijing University of Post and Telecommunications, China
- CATR: China Academy of Telecommunication Research
- HUST: Huazhong University of Science and Technologies, China
- HWU: Heriot-Watt University, UK
- KCL: Kings College London, UK
- MOST: Ministry of Science and Technology, China
- NSFC: National Natural Science Foundation of China
- RCUK: Research Councils UK
- UoE: University of Edinburgh, UK
- WiCO: Shanghai Research Centre for Wireless Communications, China

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