

## International Workshop on Emerging Technologies for 5G Wireless Cellular Networks

In conjunction with IEEE GLOBECOM 2014, Monday, December 8, Austin, TX, USA

### Workshop Chairs

Wei Yu, University of Toronto, Canada  
Charlie (Jianzhong) Zhang, Samsung Research America at Dallas, USA  
Peiyong Zhu, Huawei Technologies, Canada

### Technical Program Chairs

Huseyin Arslan, Istanbul Medipol University, Turkey  
Lingjia Liu, University of Kansas, USA  
Tommy Svensson, Chalmers University of Technology, Sweden  
Halim Yanikomeroglu, Carleton University, Canada

### Plenary Speakers

Jens Zander, KTH Royal Institute of Technology, Sweden  
Jianglei Ma, Huawei Technologies, Canada  
Akbar Sayeed, University of Wisconsin-Madison, USA  
Wilhelm Keusgen, Fraunhofer HHI, Germany  
Erik Dahlman, Ericsson Research, Sweden  
Erik G. Larsson, Linköping University, Sweden  
Robert Heath, The University of Texas at Austin, USA

### Panel Program

#### 5G: What to expect, and where to start?

##### Panelists:

Gerhard Fettweis, Technische Universität Dresden, Germany  
Theodore S. Rappaport, NYU Polytechnic School of Engineering, USA  
Hendrik Berndt, Wireless World Research Forum  
Wen Tong, Huawei Technologies, Canada  
JiYun Seol, Samsung Electronics, USA

### Technical Program Committee

Hatem Abou-zeid, Queen's University  
Ibrahim Abualhaol, Carleton University  
Abdulkareem Adinoyi, Carleton University  
Raviraj Adve, University of Toronto  
Kelvin Au, Huawei Technologies  
Erdem Bala, InterDigital  
Anantharam Balasubramanian, Interdigital Communications  
Hadi Baligh, Huawei Technologies  
Tuncer Baykas, Istanbul Medipol University  
Anass Benjebbour, NTT DoCoMo, Inc.  
Shengrong Bu, University of Glasgow  
Gurhan Bulu, Hacettepe University  
Houda Chafnaji, INPT Rabat  
Ngoc Dao, Huawei Technologies  
Zaher Dawy, American University of Beirut  
Pawel Dmochowski, Victoria University of Wellington  
Qinghe Du, Xi'an Jiaotong University  
Salman Durrani, The Australian National University  
Ozgur Ertug, Gazi University  
Hamid Farmanbar, Huawei Technologies  
Jong-kae Fwu, Intel Corporation  
Tolga Girici, TOBB University of Economics and Technology  
Ramy Gohary, Carleton University  
David González G, Aalto University  
Kamal Harb, University of King Fahd of Petroleum and Mineral  
Mark Hawryluck, Huawei Technologies  
Ekram Hossain, University of Manitoba  
Hazer Inaltekin, Antalya International University  
Yupeng Jia, National Instruments  
Shi Jin, Southeast University  
Mehmet Kemal Karakayali, Bell Labs, Alcatel-Lucent  
Witold Krzymien, University of Alberta / TRILabs

### Call for papers

The wireless cellular network has been one of the most successful communications technologies of the last three decades. The advent of smartphones and tablets over the past several years has resulted in an explosive growth of data traffic over the cellular network not seen in previous generations. With the proliferation of more smart terminals communicating with servers and each other via broadband wireless networks, numerous new applications have also emerged to take advantage of wireless connectivity. As the fourth generation (4G) networks, namely LTE-A, mature and become great commercial success, the research community is now increasingly looking beyond 4G and into future 5G technologies both in standardization body such as 3GPP, and in research projects such as the EU FP7 METIS. The increased importance of 5G is also evidenced by its central role in the emerging EU Horizon2020 research program in Europe and the recent establishment of the South Korea, China, and Japan joint 5G Forum.

Fundamental requirements that have emerged for radio access networks in the 2020 and beyond era include: 1) Capabilities for supporting massive capacity and massive connectivity; 2) Support for an increasingly diverse set of services, application and users – all with extremely diverging requirements for work and life; 3) Flexible and efficient use of all available non-contiguous spectrum for wildly different network deployment scenarios. These requirements bring a number of challenges to the design of future wireless networks, including the capability of supporting diverse traffic characteristics, massive connectivity due to massive number of devices (including machine-type terminals), and the densification and heterogeneity of such networks.

This workshop will be a venue to brainstorm on and to identify the emerging concepts, technologies, and analytical tools for 5G cellular networks. We aim to bring together leading researchers in both academia and industry, and to provide a forum for researchers from diverse backgrounds to share their views on what 5G should be and to have an open dialogue on the future of wireless research. The goal is to identify key 5G technology drivers that can deliver significant capacity, coverage and user-experience benefits. Topics of interest include, but are not limited to the following:

- Novel radio access network (RAN) architectures
  - HetNets with overlay of high- and low-power nodes
  - CoMP (coordinated multi-point) transmission and reception
  - Distributed antenna systems
  - Advanced relaying, user terminal relaying
  - Small cell deployment, femtocells, picocells
  - Terminal intelligence
  - Energy efficiency
- Advanced radio resource management (RRM) techniques
  - Interference management, interference awareness
  - Inter-cell interference coordination (ICIC, eICIC)
  - Artificial intelligence in wireless communications
  - Congestion management
- Emerging technologies in physical layer
  - Interference-robust air interface
  - Higher-order massive MIMO
  - Active antenna systems (AAS)
  - Full-duplex and flexible duplex systems
  - Multiuser communications
  - Network information theory
  - Novel modulation and coding schemes
  - Beyond OFDM(A)
- Novel services
  - Enhanced voice and video
  - Machine-to-machine (M2M), machine-type communications (MTC)
  - Point-to-point (P2P) / device-to-device (D2D) communications
  - Low-latency services, real-time control applications
  - Telepresence
- mmW technologies
  - Channel characteristics and modeling
  - Feasibility studies
  - System design aspects
- Spectrum
  - Aggregation of intra and inter-band carriers for both FDD and TDD
  - Cognitive radio and dynamic spectrum access
  - Adaptive radio access techniques
- Prototype and test-bed for emerging 5G technologies

Moon-il Lee, InterDigital Communication  
Pascal Lorenz, University of Haute Alsace  
Jianglei Ma, Huawei Technologies  
Nicholas Mastronarde, State University of New York at Buffalo  
Hani Mehrpouyan, California State University  
Keivan Navaie, University of Leeds  
Hosein Nikopour, Huawei Technologies  
Apostolos Papanthanasios, Intel Corporation  
Hamid Saeedi, Tarbiat Modares University  
Karim Seddik, American University in Cairo  
Jaspreet Singh, Samsung Telecommunications America  
Cenk Toker, Hacettepe University  
Dimitris Toumpakaris, University of Patras  
Zekeriya Uykan, Aalto University  
Murat Uysal, Ozyegin University  
Stefan Valentin, Bell Labs  
Xiaodong Xu, Beijing University of Posts and Telecommunications  
Rui Yang, Interdigital  
Yavuz Yapici, TUBITAK  
Yang Yi, University of Kansas  
Yifei Yuan, ZTE Corporation  
Yasir Zaki, New York University Abu Dhabi (NYUAD)  
Liqing Zhang, Huawei Technologies

#### Important Dates

<b>Full Paper Submission:</b>	<del>21 July 2014</del>
Acceptance Notification:	1 September 2014
Camera-Ready Submission:	1 October 2014
Workshop:	8 December 2014

Papers should be submitted using EDAS (<http://edas.info/newPaper.php?c=17539>).

The authors should follow the IEEE guidelines that apply to all GLOBECOM submissions when preparing their contributions (maximum paper length: 6 pages with 10-pt font).