



## W7: Technology Trials and Proof-of-Concept Activities for 5G Evolution & Beyond 5G 2019

Sunday 22 September 2019 • 14:00 – 17:30 • Kealohilani Tower Kaimuki 3 (2<sup>nd</sup> floor)

The 5th generation (5G) cellular communication systems are going to be launched in 2019. New technology concepts for the next generation mobile communications including 5G Evolution and Beyond 5G (B5G) are about to be investigated in many research entities. On top of that, research and development activities are about to be initiated. In these regards, this workshop is aiming to provide opportunities to present the latest trials and the proof-of-concept activities for next generation mobile communications. Distinguished speakers from industry as well as from academia will present their latest research and development results and will prove their perspective regarding the new directions of mobile communications. Through the discussion at the workshop, it is also expected to promote the exchange of new ideas among researchers. This workshop is supported by the Technical Committee on Radio Communication Systems (RCS), IEICE. *Note: Regular presentations are allocated 17 minutes maximum, which includes 3 minutes of discussion.*

General Co-Chairs: Tomoaki Ohtsuki (Keio University), Erik Dahlman (Ericsson Research)

TPC Co-Chairs: Yukitoshi Sanada (Keio University), Shinsuke Ibi (Doshisha University)

Publicity Chairs: Fumiaki Maehara (Waseda University), Yuyuan Chang (Tokyo Tech.)

Keynote Chairs: Satoshi Suyama (NTT DOCOMO), Toshihiko Nishimura (Hokkaido University)

Advisors: Fumiya Adachi (Tohoku University), Seiichi Sampei (Osaka University), Mamoru Sawahashi (Tokyo City University), Satoshi Denno (Okayama University), Eisuke Fukuda (Fujitsu Lab.), Hidekazu Murata (Kyoto University)

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Takashi Seyama, Fujitsu Limited  
Takumi Takahashi, Osaka University  
Tetsuya Yamamoto, Panasonic Corporation  
Yuichi Miyaji, Toyohashi University of Technology

14:00 Opening Address: Tomoaki Ohtsuki, Keio University

Keynote I: Outcomes of Korea - Japan Joint 5G Collaboration (tentative) (25 minutes)  
HyeonWoo Lee, Dankook University; Yukihiko Okumura, NTT DOCOMO

Session I— Chair: Tomoaki Ohtsuki, Keio University

Performance Evaluation of Prefetching Algorithm for Real time Edge Content Delivery in 5G System

Makoto Nakamura, Hiroaki Nishiuchi, Khanh Tran Gia, Kei Sakaguchi, Tokyo Institute of Technology; Konstantin Koslowski, Julian Daube, Fraunhofer HHI; Ricardo Santos, Karlstad University

Field Trial Activities on 5G NR V2V Direct Communication Towards Application to Truck Platooning

Koichi Serizawa, Manabu Mikami, Kohei Moto, Hitoshi Yoshino, SoftBank Corp.

Field Experimental Evaluation on 5G V2N Low Latency Communication for Application to Truck Platooning

Kohei Moto, Manabu Mikami, Koichi Serizawa, Hitoshi Yoshino, SoftBank Corp.

Parameter Estimation for Block Diagonalization based Hybrid Beamforming in Massive MIMO Communications

Kenta Tsuge, Yuyuan Chang, Kazuhiko Fukawa, Tokyo Institute of Technology; Satoshi Suyama, Yukihiko Okumura, NTT DOCOMO

15:30 Refreshments break

16:00 Keynote I: Seiichi Sampei, Osaka University (25 minutes)

Session II— Chair: Yukitoshi Sanada, Keio University

Uplink Multi-User Massive MIMO using Gaussian BP in Highly Correlated Actual Environments

Tatsuki Okuyama, Kazushi Muraoka, Satoshi Suyama, NTT DOCOMO; Jun Mashino, NTT; Yukihiko Okumura, NTT DOCOMO; Shinsuke Ibi, Doshisha University; Takumi Takahashi, Seiichi Sampei, Osaka University

Indoor Experimental Trial in High SHF Wide-band Massive MIMO Hybrid Beamforming

Nobuhide Nonaka, Kazushi Muraoka, Satoshi Suyama, NTT DOCOMO.; Jun Mashino, NTT; Kenichiro Kamohara, Mitsubishi Electric Corporation; Manabu Sakai, Mitsubishi Electric Corporation Information Technology R&D Center; Hiroki Iura, Mitsubishi Electric Corp.; Masayuki Nakazawa, Mitsubishi Electric Corporation; Yukihiko Okumura, NTT DOCOMO

Experimental Trials of 5G Ultra High-Density Distributed Antenna Systems

Shinya Kumagai, Fujitsu Limited; Takaharu Kobayashi, Teppei Oyama, Fujitsu; Chiyoshi Akiyama, Masafumi Tsutsui, Daisuke Jitsukawa, Takashi Seyama, Takashi Dateki, Hiroyuki Seki, Morihiko Minowa, Fujitsu Limited; Tatsuki Okuyama, NTT DOCOMO; Jun Mashino, NTT; Satoshi Suyama, Yukihiko Okumura, NTT DOCOMO

Channel Extrapolation for FDD Massive MIMO: Procedure and Experimental Results

Thomas Choi, Francois Rottenberg, Jorge Gomez, Akshay Ramesh, Peng Luo, University of Southern California; Charlie Zhang, Samsung; Andreas F. Molisch, University of Southern California

Measurement of OFDM Signals with PAPR Reduction in the Presence of Hardware Impairments

Hua Wang, Keysight Technologies; Xiaoming Chen, Xi'an Jiaotong University; Jiangying Zhang, EM-Testing