

W9: Technologies and Proof-of-Concept Activities for 6G 2023 (TPoC6G 2023)

The 5th generation (5G) mobile communication system was just launched in 2019. New technologies and their technical concepts for 5G Evolution (5GE) (5G-Advanced in 3GPP) and the 6th generation (6G) mobile communication system are about to be investigated in many research entities. On top of them, research and development activities for 6G are about to be initiated. This workshop is aiming to provide opportunities to present the latest wireless and mobile network technologies and the proof-of-concept (PoC) activities for 5GE and 6G. Distinguished speakers from industry and academia will present their latest research and development results and discuss their perspectives regarding the new directions towards 6G. The discussion at the workshop is also expected to promote the exchange of new ideas among researchers.

General Co-Chair

Kenichi Higuchi, Tokyo University of Science

TPC Co-Chairs

Satoshi Suyama, NTT DOCOMO

Koichi Adachi, The University of Electro-Communications

Yuyuan Chang, Tokyo Institute of Technology

Publicity Chair

Osamu Muta, Kyushu University

Keynote Co-Chairs

Yukitoshi Sanada, Keio University

Toshihiko Nishimura, Hokkaido University

Advisories

Fumiyuki Adachi, Tohoku University

Seiichi Sampei, Osaka University

Mamoru Sawahashi, Tokyo City University

Satoshi Denno, Okayama University

Eisuke Fukuda, Tokyo Institute of Technology

Hidekazu Murata, Yamaguchi University

Tomoaki Ohtsuki, Keio University

Eiji Okamoto, Nagoya Institute of Technology

Technical Program Committee

Akinori Nakajima, Mitsubishi Electric Corporation

Hiraku Okada, Nagoya University

Hiromichi Tomeba, Sharp Corporation

Jin Nakazato, The University of Tokyo

Kazunori Hayashi, Kyoto University

Koji Yamamoto, Kyoto Institute of Technology

Masakatsu Ogawa, Sophia University

Megumi Kaneko, National Institute of Informatics

Naoto Ishii, NEC Corporation

Nobuhiko Miki, Kagawa University

Shun Kojima, The University of Tokyo

Takashi Seyama, Fujitsu Limited

Takumi Takahashi, Osaka University

Yuichi Miyaji, Aichi Institute of Technology

Program

Tuesday, 20 June 2023 9:00-10:30 Affari 3.2

Session 1

Chair: Kenichi Higuchi, Tokyo University of Science, Japan.

Opening Address by General Co-Chair

Kenichi Higuchi, Tokyo University of Science, Japan.

Invited Talk

Mobile Terminal Collaboration: A Spectrum and Energy Efficient Transmission Technique for Future Cellular Networks

Hedekazu Murata, Yamaguchi University, Japan,
Yuta Ida, Yamaguchi University, Japan, Kazuki Maruta, Tokyo University of Science, Japan, Yutaka Jitsumatsu, Tokyo Institute of Technology, Japan, Osamu Muta, Kyusyu University, Japan, Hiraku Okada, Nagoya University, Japan, Eiji Okamoto, Nagoya Institute of Technology, Japan, Yukitoshi Sanada, Keio University, Japan, Toshihiko Nishimura, Hokkaido University, Japan, Satoshi Denno, Okayama University, Japan.

Technical Talks I

1 Cloud and Edge Computing Empowered Mobility Digital Twin for Automated Driving: Design and Proof-of-Concept

Kui Wang, Zongdian Li, Tao Yu, and Kei Sakaguchi, Tokyo Tech., Japan.

2 Measurement and Characteristic Analysis of RIS-assisted Wireless Communication Channels in Sub-6 GHz Outdoor Scenarios

Jifeng Lan, Jian Sang, Mingyong Zhou, Boning Gao, Shengguo Meng, Xiao Li, Wankai Tang, Shi Jin, Qiang Cheng, and Tie Jun Cui, Southeast University, China, Ertugrul Basar, Koç University, Turkey.

3 Time-Varying Channel Prediction for Pilot Contamination Mitigation in Hybrid Massive MIMO Communications

Yuki Ono, Yuyuan Chang, and Kazuhiko Fukawa, Tokyo Tech., Satoshi Suyama and Takahiro Asai, NTT DOCOMO, INC., Japan.

Tuesday, 20 June 2023 11:00-12:30 *Affari 3.2*

Session 2

Chair: Satoshi Suyama, NTT DOCOMO, INC., Japan.

Technical Talks II

4 A PUCCH Coverage Enhancement Scheme for 5G/6G Wireless Communications

Wenqi Luo, Congxi Liu, Xiaoxu Wu, and Hang Long, Beijing University of Posts and Telecommunications, China.

5 Proposal of Self-Interference Canceller Using DMRS for Full Duplex Mobile Communications

Takumi Yasaka and Hiroyuki Otsuka, Kogakuin University, Japan, Takayuki Yamada and Satoshi Suyama, NTT DOCOMO, INC., Japan.

6 Improving Semi-Blind Interference Suppression on Multi-Cell Massive MIMO Systems by Multi-Antenna Users

Kazuki Maruta, Tokyo University of Science, Japan.

7 Clustering Method in Downlink Cell-Free MIMO Using Layered Partially Non-orthogonal ZF-Based Beamforming

Daisuke Ishii, Takanori Hara, and Kenichi Higuchi, Tokyo University of Science, Japan, Nobuhide Nonaka, NTT

DOCOMO, INC., Japan.

8 Null-Space Expansion Technique for Linear MIMO Reception over Time-Variant Channels

Yuki Ohi and Hidekazu Murata, Yamaguchi University, Japan, Makoto Taromaru, Fukuoka University, Japan, Tatsuhiko Iwakuni, Daisei Uchida, and Naoki Kita, NTT, Japan.

9 User-initiated Suboptimal Multiuser Joint Transmit-Receive Diversity in an Asymmetric MIMO Fading Channel

Fumiyuki Adachi and Ryo Takahashi, Tohoku University, Japan.

Online

Technical Talk

10 Measurement-based Analysis and Modeling of Channel Characteristics in an Indoor-office Scenario at 100 GHz

Shenrong Li, Pan Tang, Yu Tong, Zhaowei Chang, Zhenfeng Huang, Yunhao Ni, Wenqi Zhao, and Jianhua Zhang, Beijing University of Posts and Telecommunications, China.

Note: For each regular presentation, 15 minutes are allocated; and for the invited talk, 30 minutes are allocated.