# iWEM2022 Final Program

| Time | Room A | Foyer B | Foyer C |
|---|---|---|---|
| **Monday, August 29** | | | |
| 09:30-10:00 | M1: *Opening Ceremony* | | *Exhibition* |
| 10:00-10:40 | M2: *Keynote Speech1* | | *Exhibition* |
| 11:00-11:40 | M3: *Keynote Speech2* | | *Exhibition* |
| 13:00-14:20 | M4: *Reflectarray Antennas, Metasurfaces, and Relevant Technologies* | | *Exhibition* |
| 14:40-16:00 | | POS1: *Poster Session1* | *Exhibition* |
| 16:20-17:40 | M6: *Antennas for Wireless Communications and Sensing* | | *Exhibition* |
| **Tuesday, August 30** | | | |
| 09:00-09:40 | T1: *Keynote Speech3* | | *Exhibition* |
| 09:50-11:05 | T2: *iWEM2022 Student Award Finalist Session1* | | *Exhibition* |
| 11:15-12:15 | T3: *iWEM2022 Student Award Finalist Session2* | | *Exhibition* |
| 13:20-14:50 | T4: *Radio Propagation and its Applications toward Beyond 5G and 6G Era* | | *Exhibition* |
| 15:05-16:25 | | POS2: *Poster Session2* | *Exhibition* |
| 16:40-18:00 | T6: *Recent Progress in Antennas and Propagation* | | *Exhibition* |
| **Wednesday, August 31** | | | |
| 09:00-10:30 | W1: *Antenna Design for 5G/Wi-Fi 6E Wireless Applications* | | *Exhibition* |
| 10:45-12:25 | W2: *Metamaterial and Related Topics* | | *Exhibition* |
| 12:30-13:00 | W3: *Award & Closing* | | *Exhibition* |

## Monday, August 29

### Monday, August 29 9:30 - 10:00 (Asia/Tokyo)

**M1: Opening Ceremony**

Chair: Naobumi Michishita (National Defense Academy, Japan)

### Monday, August 29 10:00 - 10:40 (Asia/Tokyo)

**M2: Keynote Speech1**

"Latest trends in commercialization, regulations and standardization for Wireless Power Transfer/Transmission (WPT) systems", Hiroki Shoki (Toshiba Corp., Japan)
Chair: Keizo Cho (Chiba Institute of Technology, Japan)

### Monday, August 29 11:00 - 11:40 (Asia/Tokyo)

**M3: Keynote Speech2**

"From low frequency to super low frequency: antenna design, minimization and applications", Yingsong Li, (Harbin Eng. Univ., China)
Chair: Masaharu Takahashi (Chiba University, Japan)

### Monday, August 29 13:00 - 14:20 (Asia/Tokyo)

**M4: Reflectarray Antennas, Metasurfaces, and Relevant Technologies**

Chairs: Keisuke Konno (Tohoku University, Japan), Kentaro Murata (Iwate University, Japan)

**13:00** ***Design of Reflectarrays Focusing on Near-Field Region Using Method of Moments***
Keisuke Konno and Qiang Chen (Tohoku University, Japan)

**13:20** ***A Wideband, Simultaneous Amplitude-Phase-Control Unit Cell for Shaped-Beam Transmitarray Antennas***
Sen Liu (NICT, Japan); Qiang Chen (Tohoku University, Japan)

**13:40** ***Development of Intelligent Reflecting Surfaces for Mobile Communication Systems***
Hiromi Matsuno, Takuya Ohto and Takahiro Hayashi (KDDI Research, Inc., Japan)

**14:00** ***Concept of Reconfigurable Intelligent Surface for WPT: Calibration, Estimation and Synthesization***
Kentaro Murata and Naoki Honma (Iwate University, Japan)

### Monday, August 29 14:40 - 16:00 (Asia/Tokyo)

**POS1: Poster Session1**

Chair: Miyuki Hirose (Kyushu Institute of Technology, Japan)

**POS1.1** ***A Series-Fed Ultra-wideband Antenna Array***
Yaozong Sui, Xingyu Zhou, Hongfei Chang, Xinlong Xu, Xin Meng, Yuhao Zhang and Wei-Hua Zong (Qingdao University, China)

**POS1.2** ***Analysis Results of Single-Layered Reflectarray Antenna with Split Rectangular Loop Elements***
Masayoshi Takao, Shigeru Makino and Yusuke Kaimori (Kanazawa Institute of Technology, Japan)

**POS1.3** ***Scanning Spot Beam Reflectarray Antenna Study***
Yusuke Kaimori, Shigeru Makino and Masayoshi Takao (Kanazawa Institute of Technology, Japan)

**POS1.4** ***Directivity Measurement of a Weight-Polarized Beam-Steering MIMO Antenna with a Circular Phased Array***
Yuto Sekino and Kazuhiro Honda (University of Toyama, Japan)

**POS1.5** ***Block Maximum SNR Method with Adaptive Transmit Diversity for Multi-User MIMO Communications***
Kaito Sakazaki, Nobuyoshi Kikuma, Kunio Sakakibara and Yoshiki Sugimoto (Nagoya Institute of Technology, Japan)

**POS1.6** ***Channel Capacity of Millimeter-Wave Communication System Using Drone Relay Stations***
Takanobu Watanabe (Niigata University, Japan)

**POS1.7** ***MACKEY type H with One-Side Short-Circuit Structure for Further Miniaturization***
Kota Hakamata (7-1 Ogigaoka & Kanazawa Institute of Technology, Japan); Keito Yokoe, Shigeru Makino and Kenji Itoh (Kanazawa Institute of Technology, Japan)

**POS1.8** ***Consideration of a One-Dimensional MACKEY Array***
Hajime Suzuki, Kichi Wakayama, Shigeru Makino and Kenji Itoh (Kanazawa Institute of Technology, Japan)

**POS1.9** ***Radiation Characteristic on Metal Platform with Mushroom-like EBG Structures***
Takumi Nishime, Naobumi Michishita and Hisashi Morishita (National Defense Academy, Japan)

**POS1.10** ***Unit cell structure of Huygens' Metasurfaces Reducing Beam Squint in Series-Fed Array***

Maria Ishida and Keizo Cho (Chiba Institute of Technology, Japan); Naobumi Michishita (National Defense Academy, Japan); Tanan Hongnara (Denki Kogyo Co. Ltd. & Japan, Japan); Takayoshi Sasaki (DKK Co., Ltd., Japan); Keisuke Sato (Denki Kogyo co., Ltd., Japan); Ichiro Oshima (Denki Kogyo Co., Ltd., Japan); Hiroaki Nakabayashi (Chiba Institute of Technology, Japan); Warangkana Chaihongsa (DKK Co., Ltd, Japan)

**POS1.11** ***Evaluation of Attenuation by Tree in 300-GHz-band Wireless Communications***
Keisuke Matsui, Shunta Takagi and Akihiko Hirata (Chiba Institute of Technology, Japan)

**POS1.12** ***Reduction of synthetic aperture array element in THz imaging using compressed sensing***
Rio Yanagi (Information and Communication Systems Engineering, Japan)

**POS1.13** ***Numerical Evaluation on Tank Effect in a Pseudo-Scale Air-Sea Two-Layer Experimental Model***
Anri Kamiya and Nozomu Ishii (Niigata University, Japan); Masaharu Takahashi (Chiba University, Japan); Qiang Chen (Tohoku University, Japan)

**POS1.14** ***A Study of Transmitting Devices for Wireless-Powered Small Sensors for Home Health Care***
Konosuke Shiba and Masaharu Takahashi (Chiba University, Japan)

**POS1.15** ***A Novel 60 GHz Spatial Synthetic Exposure Set-up for the Study of Thermal Perception Thresholds for Biological Effects of 5G and Beyond Wireless Systems***
Kohei Yamamoto and Takashi Hikage (Hokkaido University, Japan); Hiroshi Masuda (Kurume University School of Medicine, Japan); Tatsuya Ishitake (Kurume University, Japan); Kun Li (Kagawa University, Japan); Akiko Nagai (Aichi Gakuin University, Japan)

**POS1.16** ***Characteristic Analysis of Vehicular 2×2 MIMO Antenna correlation in Actual Environment***
Tomonori Ikeda and Mitoshi Fujimoto (University of Fukui, Japan); Kazuma Tomimoto (Softbank Corp., Japan); Ryo Yamaguchi (SOFTBANK Corp., Japan)

**POS1.17** ***Evaluation of undersea position estimation using curved surfaces generated by machine learning***
Shinnosuke Sakaya and Masaharu Takahashi (Chiba University, Japan)

**POS1.18** ***Leaky-Wave Focusing Antenna With Modified Slot Array Antenna For Polarization Diversity***
Kevin Kipruto Mutai (Tohoku University, Japan); Hiroyasu Sato (Tohouku University, Japan); Qiang Chen (Tohoku University, Japan)

**POS1.19** ***RSSI-Based Intruder Localization Method Using k-Nearest Neighbor with Hybrid Circuits***
Shizuma Watanabe, Kohei Uchisawa, Naoki Honma and Kentaro Murata (Iwate University, Japan)

**POS1.20** ***Simulation of Digital-to-RF Upconversion Using Harmonic Images of DAC Output***
Sho Sarukawa and Hiroyuki Arai (Yokohama National University, Japan)

**POS1.21** ***Design of a Single-Layer Dual-Band and Wideband Multi-Ring Microstrip Antenna Fed by an L-probe***
Masaya Takahashi, Sakuyoshi Saito and Yuichi Kimura (Saitama University, Japan)

**POS1.22** ***Design of a dual-ring microstrip antenna excited by an inclined slot on a narrow wall of the rectangular waveguide for a 45-degree linearly-polarized planar array***
Takuma Sato, Sakuyoshi Saito and Yuichi Kimura (Saitama University, Japan)

**POS1.23** ***Study on Electromagnetic Resonance Antennas in the Vicinity of Human Body***
Toshiya Hiramoto (Kanazawa Institute of Technology, Japan); Koichi Hirabayashi (Fukuvi Chemical Industry Co., Ltd, Japan); Keisuke Noguchi (Kanazawa Institute of Technology, Japan)

**POS1.24** ***Study on MIMO Communication using Microwave Guided-Modes Propagating along PVC Pipe Wall***
Masafumi Suzuki, Kota Fukazawa and Akihiko Hirata (Chiba Institute of Technology, Japan); Hiroshi Murata (Mie University, Japan); Masato Mizukami (Muroran Institute of Technology, Japan)

**POS1.25** ***Decoupling design of quad polarization patch antenna using neutralization bridge***
Ryoto Ohgushi, Shota Takato and Hiroyuki Arai (Yokohama National University, Japan)

**POS1.26** ***Broadband Design Using Thin Metal Box and Folded Dipole Antenna***
Yukiko Wada and Naobumi Michishita (National Defense Academy, Japan); Atsushi Yamamoto (Panasonic Corporation, Japan); Kazuhiro Matsumoto and Tetsuya Hishikawa (Panasonic, Japan); Hisashi Morishita (National Defense Academy, Japan)

**POS1.27** ***Study on Dual-band Antennas with a Modified Conical Antenna and a Parasitic Helical Element***
Ryuji Hirohara (Kanazawa Institute of Technology, Japan); Shinpei Fusazaki (DOCOMO CS Hokuriku, Inc., Japan); Keisuke Noguchi (Kanazawa Institute of Technology, Japan)

**POS1.28** ***A Multi-band Metal-frame Antenna for Wi-Fi 6E System in a Terminal Device***
Jui-Han Lu (National Kaohsiung Marine University, Taiwan); Wei-Ren Chuang and Bo-Ming Chen (National Kaohsiung University of Science and Technology, Taiwan)

**POS1.29** ***Progress on Single Feeding Array: From Yagi Antenna to Quality Wideband Linear Array***
Chi Lidong (Hunan University, China); Yihong Qi (DBJ Technologies, Canada)

## Monday, August 29 16:20 - 17:40 (Asia/Tokyo)

**M6: Antennas for Wireless Communications and Sensing** ↑

Chairs: Kwai-Man Luk (City University of Hong Kong, Hong Kong), Keisuke Noguchi (Kanazawa Institute of Technology, Japan)

**16:20** ***Microstrip Patch Antennas with Enhanced Linearly- or Circularly-Polarized Beamwidth: A Mini-Review***
Neng-Wu Liu (Xidian University, China); Lei Zhu (University of Macau, Macao)

**16:40** ***Radiation Suppression Index of Filtering Antennas***
Kwok Chung (Huizhou University & Qingdao University of Technology, China); Xin Cheng (Huizhou University, China); Botao Feng (Shenzhen University, China)

**17:00** ***Surface Wave Antenna Metallic Cell Pattern Design By Using Neural Network Method***
Jiashu Yang and Kin-Fai Kenneth Tong (University College London, United Kingdom (Great Britain))

**17:20** ***Dual-band Shared-Aperture Antenna With Large Frequency Ratio for 5G Applications***
Yue Zhao and Lei Ge (Shenzhen University, China)

## Tuesday, August 30

### Tuesday, August 30 9:00 - 9:40 (Asia/Tokyo)

#### T1: Keynote Speech3

"Open Resonator Antennas with spherical Fabry-Perot Cavity for 6G", Kwai Man Luk (City Univ. Hong Kong, Hong Kong)
Chair: Nozomu Ishii (Niigata University, Japan)

### Tuesday, August 30 9:50 - 11:05 (Asia/Tokyo)

#### T2: iWEM2022 Student Award Finalist Session1

Chair: Yuichi Kimura (Saitama University, Japan)

**9:50** ***Space-time adaptive method for the MR/FDTD computation time reduction***
Kei Asahi and Takuji Arima (Tokyo University of Agriculture and Technology, Japan)

**10:05** ***Design of a MIMO Open-Slot Antenna Module with Dual-Band Circular Polarization***
Wei Li, Chien- Sheng Chen and Chien-Jen Wang (National University of Tainan, Taiwan)

**10:20** ***Experimental and Numerical Study of Near-Field Gain of an Underwater Dipole Antenna at 6 GHz***
Keita Sekiya and Nozomu Ishii (Niigata University, Japan); Yuto Shimizu and Tomoaki Nagaoka (National Institute of Information and Communications Technology, Japan)

**10:35** ***Sampling Points Reduction in Over The Air***
Takaharu Nakase, Yusuke Mitsui and Hiroyuki Arai (Yokohama National University, Japan)

**10:50** ***Fast-human-aware High-efficiency Beamforming for Microwave Wireless Power Transfer***
Kyoshiro Muramatsu, Kentaro Murata and Naoki Honma (Iwate University, Japan)

### Tuesday, August 30 11:15 - 12:15 (Asia/Tokyo)

#### T3: iWEM2022 Student Award Finalist Session2

Chair: Narihiro Nakamoto (Mitsubishi Electric Corporation, Japan)

**11:15** ***Miniaturization of Wilkinson Power Divider Using Zigzag Combination of Microstrip and CPW Lines***
Kangtai Zheng and Jimhong He (Huizhou University, China); Kwok Chung (Huizhou University & Qingdao University of Technology, China); Guoming Lai (Huizhou University, China); Yingsong Li (Harbin Engineering University, China); Botao Feng (Shenzhen University, China)

**11:30** ***120-GHz-band Close Proximity Wireless Communication Using Metamaterial Integrated Glass Substrate***
Tomohiro Kumaki, Satoshi Ozeki and Akihiko Hirata (Chiba Institute of Technology, Japan); Osamu Kagaya (ASAHI GLASS CO., LTD., Japan)

**11:45** ***Design of Microstrip-Line-Fed Rotman-lens Beamforming Network at 274 GHz***
Takafumi Morioka, Shumpei Kishi, Kunio Sakakibara, Yoshiki Sugimoto and Nobuyoshi Kikuma (Nagoya Institute of Technology, Japan)

**12:00** ***Linearly Polarized 1-Bit Reconfigurable Reflectarray Based on ME Dipole***
Bingjie Xiang (City University of Hong Kong, China); Kwai-Man Luk (City University of Hong Kong, Hong Kong)

### Tuesday, August 30 13:20 - 14:50 (Asia/Tokyo)

#### T4: Radio Propagation and its Applications toward Beyond 5G and 6G Era

Chairs: Minoru Inomata (NTT, Japan), Takashi Tomura (Tokyo Institute of Technology, Japan)

**13:20** ***Indoor and outdoor 300-GHz-band wireless propagation experiments for beyond 5G application***
Akihiko Hirata, Shunta Takagi and Keisuke Matsui (Chiba Institute of Technology, Japan)

(Invited)

**13:50** ***Pioneering New Frequency bands towards 6G Mobile Communication Systems***
Wataru Yamada, Minoru Inomata, Nobuaki Kuno and Motoharu Sasaki (NTT, Japan); Mitsuki Nakamura, Koshiro Kitao, Takahiro Tomie and Satoshi Suyama (NTT DOCOMO, INC., Japan)

**14:10** ***A Study of the horizontal and vertical arrival angles at the mobile station in high elevation angle environment***
Hideki Omote, Akihiro Sato and Sho Kimura (Softbank Corp., Japan); Shoma Tanaka (SoftBank Corp., Japan); Ho-Yu Lin (Softbank Corp., Japan)

**14:30** ***3D-cell control technology for frequency sharing between HAPS and terrestrial systems***
Yuki Hokazono, Hinata Kohara, Yoshihisa Kishiyama and Takahiro Asai (NTT DOCOMO, INC., Japan)

## Tuesday, August 30 15:05 - 16:25 (Asia/Tokyo)

### POS2: Poster Session2

Chair: Kazuhiro Honda (University of Toyama, Japan)

**POS2.1** ***C/N0-Based GNSS Multipath Mitigation Methods: Research, Challenges, and Prospects***
Yuping Tan (College of Electrical and Information Engineering, Hunan University, China); Fuhai Li (Hunan University, China); Yihong Qi (unknown)

**POS2.2** ***Wideband Circularly Polarized MIMO Antenna for Sub 6 GHz 5G Application***
Zin Mar Phyo, Takafumi Fujimoto and Chai-Eu Guan (Nagasaki University, Japan)

**POS2.3** ***A Design of L-probe Fed Miniaturized Patch Antenna for Earth Sensing Platform via LEO Satellite***
Haruki Otomo, Takashi Hikage and Manabu Yamamoto (Hokkaido University, Japan); Kazumitsu Sakamoto and Yosuke Fujino (NTT Corporation, Japan)

**POS2.4** ***Large-Scale MIMO OTA Method for Realizing the Full-Rank Channel Matrix in Cluster Environment***
Rio Kitamura and Kazuhiro Honda (University of Toyama, Japan)

**POS2.5** ***Orthogonal Polarization Omnidirectional Antenna Using a Halo Antenna Loaded with Short Elements***
Tomokazu Mizutani and Naobumi Michishita (National Defense Academy, Japan); Hiroshi Sato (Panasonic Corporation, Japan); Yoshio Koyanagi (Panasonic, Japan); Hisashi Morishita (National Defense Academy, Japan)

**POS2.6** ***Merging Roundtrip Channels Between Two SIMO Stations for Human-Body Localization***
Abudusaimi Abuduaini, Naoki Honma and Kentaro Murata (Iwate University, Japan); Takeshi Nakayama and Shoichi Iizuka (Panasonic Corporation, Japan)

**POS2.7** ***Evaluation of Availability of 300-GHz-Band Wireless Fronthaul Link during Torrential Rain***
Shoichiro Furukawa, Ryo Okumura and Akihiko Hirata (Chiba Institute of Technology, Japan)

**POS2.8** ***A Study of Rain Attenuation Prediction Method by Deep Learning***
Yuji Komatsuya and Tetsuro Imai (Tokyo Denki University, Japan); Miyuki Hirose (Kyushu Institute of Technology, Japan)

**POS2.9** ***Estimation of Human Body Shadowing for Indoor Propagation in the 5G Frequency Band Using Parallel FDTD Analysis***
Kazuki Yoshida, Takashi Hikage and Manabu Omiya (Hokkaido University, Japan)

**POS2.10** ***Dual-Frequency Sharing in MACKEY Q Type***
Koki Iijima, Keito Yokoe, Shigeru Makino and Kenji Itoh (Kanazawa Institute of Technology, Japan)

**POS2.11** ***Optimization of Axial Ratio Characteristics of Circularly Polarized MACKEY***
Michinori Yoneda, Keito Yokoe, Shigeru Makino and Kenji Itoh (Kanazawa Institute of Technology, Japan)

**POS2.12** ***Circularly Polarized MACKEY with Improved Axial Ratio***
Keito Yokoe (Kanazawa Institute of Technology, Japan); Kota Hakamata (7-1 Ogigaoka & Kanazawa Institute of Technology, Japan); Shigeru Makino and Kenji Itoh (Kanazawa Institute of Technology, Japan)

**POS2.13** ***Using FEM Simulation to Estimation of Active Implantable Medical Device EMI Characteristic in the 4G and 5G Sub-6 Frequency Bands***
Takuji Nishikawa, Takashi Hikage and Manabu Yamamoto (Hokkaido University, Japan)

**POS2.14** ***Reflection and Shadowing Loss due to Human Body in 300-GHz-band Wireless Links***
Shunta Takagi, Keisuke Matsui and Akihiko Hirata (Chiba Institute of Technology, Japan); Takahiro Hayashi and Kazuki Takezawa (KDDI Research, Inc., Japan)

**POS2.15** ***An Experimental System Based on Pseudo-Scale Model of Air-Sea Two-Layer Problem Operated at 100 MHz***
Taiga Wakabayashi and Nozomu Ishii (Niigata University, Japan); Masaharu Takahashi (Chiba University, Japan); Qiang Chen (Tohoku University, Japan)

**POS2.16** ***Development of a microwave bedsore detection method using wavelet transforms***
Yusuke Asano and Masaharu Takahashi (Chiba University, Japan)

**POS2.17** ***Estimation Accuracy of an AOA Antenna in Rice Propagation Environment Using OTA Apparatus***

Kaito Otsubo and Kazuhiro Honda (University of Toyama, Japan)

**POS2.18** ***Position Estimation of Two Thin Cylindrical Targets Using Time Reversal Algorithm with Reflectors***
Hanns Christian J. Chua, Keizo Cho, Hiroaki Nakabayashi and Koji Suizu (Chiba Institute of Technology, Japan)

**POS2.19** ***Broadband Feed Structure of TM11 and TM21 Co-located Annular Ring Patch Antenna***
Ami Sugawara and Keizo Cho (Chiba Institute of Technology, Japan)

**POS2.20** ***A Study on Miniaturization and Group Delay Characteristic of Half-Shaped UWB Monopole Antenna with Coupling Structure***
Chikayo Hata and Nobuyasu Takemura (Nippon Institute of Technology, Japan)

**POS2.21** ***Design of a circularly-polarized two-element microstrip antenna array excited by a cross slot on a broad wall of the rectangular waveguide for a waveguide-fed planar array***
Mina Endo, Sakuyoshi Saito and Yuichi Kimura (Saitama University, Japan)

**POS2.22** ***Resonant Frequency Control of a Varactor-Loaded Single-Layer Triple-Band Miniaturized Microstrip Antenna Fed by an L-probe with Straight Shorted Elements***
Ibuki Asahina, Sakuyoshi Saito and Yuichi Kimura (Saitama University, Japan)

**POS2.23** ***A Consideration on Low Profile Design of a Wideband Ring Microstrip Antenna Fed by an L-probe***
Atsuki Kawahashi, Sakuyoshi Saito and Yuichi Kimura (Saitama University, Japan)

**POS2.24** ***A Helmet Antenna Using Disk-Loaded Monopole Antenna for Disaster Prevention***
Taiyo Kai (National Defense Academy of Japan, Japan); Naobumi Michishita and Hisashi Morishita (National Defense Academy, Japan)

**POS2.25** ***28 GHz 6-sector dual-polarized antenna for indoor base station***
Shota Matsumoto and Hiroyuki Arai (Yokohama National University, Japan)

**POS2.26** ***Design of broadband patch antennas using metasurfaces***
Naoto Tomiyama (Yokohama National University, Japan); Satoshi Sugaya (Yokahama National University, Japan); Jo Tamura and Hiroyuki Arai (Yokohama National University, Japan)

**POS2.27** ***Characteristics of a High-impedance Folded Dipole Antenna in the Millimeter Wave Band***
Koki Yamashiro (Kanazawa Institute of Technology, Japan); Yoshiki Takashima (Tokyo Electrical Construction, Japan); Keisuke Noguchi (Kanazawa Institute of Technology, Japan)

**POS2.28** ***Small WIFI/WLAN antenna for narrow boarder design***
Wei-Chiang Jhang (National Taipei University of Technology, Taiwan)

**POS2.29** ***A Wideband Millimeter Wave Antenna based on Symmetric Serrated-Slot***
Cheng Peng, Ming Zhai, Yizhu Shen and Sanming Hu (Southeast University, China)

## Tuesday, August 30 16:40 - 18:00 (Asia/Tokyo)

### T6: Recent Progress in Antennas and Propagation

Chairs: Sarawuth Chaimool (Khon Kaen University, Thailand), Tetsuro Imai (Tokyo Denki University, Japan)

**16:40** ***Alternately Coupled Magnetoinductive Waveguide with Nulls-Free Characteristic for Two-Way Wireless Power Transfer Application***
Sarawuth Chaimool (Khon Kaen University, Thailand); Chawalit Rakluea (Rajamangala University of Technology Thanyaburi & King Mongkut's University of Technology North Bangkok, Thailand); Apisak Worapishet (Mahanakorn University of Technology, Thailand); Yan Zhao (Chulalongkorn University, Thailand); Prayoot Akkaraekthalin (King Mongkut's University of Technology North Bangkok, Thailand)

**17:00** ***Very-Low-Profile, Dual-Polarized Oblong Loop***
Saou-Wen Su (ASUSTek Computer Inc., Taiwan)

**17:20** ***A Simple Weight Calculation Method for Generalized Imperfect Block Diagonalization in MU-MIMO Downlink***
Tadatomo Sato and Teruji Ide (National Institute of Technology, Kagoshima College, Japan)

**17:40** ***Basic Study of Map Image Processing for Simple Path Loss Prediction Using CNN***
Kiyoaki Itoi and Hiroaki Nakabayashi (Chiba Institute of Technology, Japan)

# Wednesday, August 31

## Wednesday, August 31 9:00 - 10:30 (Asia/Tokyo)

### W1: Antenna Design for 5G/Wi-Fi 6E Wireless Applications

Chairs: Takuji Arima (Tokyo University of Agriculture and Technology, Japan), Wen-Shan Chen (Southern Taiwan University of Science and Technology, Taiwan)

**9:00** ***Design of high gain antennas by using two-element array integrated with a Fabry-Perot Cavity***
Wen-Shan Chen, Rong-Da Lin and Chien-Ping Lee (Southern Taiwan University of Science and Technology, Taiwan)

(Invited)

**9:30** ***Miniaturized, Wi-Fi 6E Notebook Antenna Using an In-Series Chip Inductor***
Saou-Wen Su (ASUSTek Computer Inc., Taiwan)

**9:50** ***A Compact Hybrid Antenna for 5G Sub-6GHz MIMO Operation***
Hong-Jun Lin and Kai-Ping Yang (National Kaohsiung University of Science and Technology, Taiwan); Jui-Han Lu (National Kaohsiung Marine University, Taiwan)

**10:10** ***12x12 dual-slots MIMO antenna for 5G metal-rim smart phone applications***
Huan-Sheng Lyu and Hsin-lung Su (National Pingtung University, Taiwan)

## Wednesday, August 31 10:45 - 12:25 (Asia/Tokyo)

### W2: Metamaterial and Related Topics

Chairs: Toru Takahashi (Mitsubishi Electric Corporation, Japan), Shigeki Takeda (Ibaraki University, Japan)

**10:45** ***A mmWave Transmitarray with Patch Array Feed***
Xiaolong Huang (Princeton University, USA); Guanghui Xu (East China Research Institute of Electronic Engineering, China); Tyler Blundo, Zijian Shao and Kaushik Sengupta (Princeton University, USA)

**11:05** ***Development of Terahertz EM-wave Absorber***
Masao Fujita (Company & Maxell, Ltd., Japan); Sangyeop Lee (Tokyo Institute of Technology, Japan); Kyoya Takano (Tokyo University of Science, Japan); Masayuki Toyoda (Maxell, Ltd., Japan); Shinsuke Hara (National Institute of Information and Communications Technology, Japan); Issei Watanabe (National Institute of Infomation and Communications Technology, Japan); Akifumi Kasamatsu (National Institute of Information and Communications Technology, Japan)

**11:25** ***A Study on Controlling the Direction of the Scattering Pattern on Meta-Surface Reflector***
Yuko Rikuta, Akira Maruyama and Hiroki Hagiwara (Nihon Dengyo Kosaku Co., Ltd., Japan)

**11:45** ***Numerical Study of the Coupled Metamaterial Microstrip Lines***
Hu Wei, Xiaofei Xu and Kaya Pi (Shanghai University, China)

**12:05** ***Probe-fed Wideband Planar Phased Array Antenna Element Using Stacked Rectangular and U-slot Patches in Low Vertical Profile***
Jiale Lv, Xiaofei Xu and Bei Zhang (Shanghai University, China)

## Wednesday, August 31 12:30 - 13:00 (Asia/Tokyo)

### W3: Award & Closing

Chair: Naobumi Michishita (National Defense Academy, Japan)