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Technical Program

5AM1-01 - Keynote speech 1

Aug 5 (Mon), 09:30~10:20, Building No.23, 1F

Session Chair: Prof. Kazunori Uchida (Fukuoka Institute of Technology)

5AM1-01-1 P00354 [Keynote] Radiowave Propagation Modeling and Simulation...N/A
(09:30 ~ 10:20) *Levent Sevgi (ISTANBUL OKAN University,, Turkey)

5AM1-02 - Keynote speech 2

Aug 5 (Mon), 10:40~11:10, Building No.23, 1F

Session Chair: Prof. Desmond Sim (Feng Chia University)

5AM1-02-1 P00366 [Keynote] Antenna Fundamentals, Designs & Applications
to Satellite and Ground Antennas...N/A
(10:40 ~ 11:10) *Sudhakar Rao (Northrop Grumman, United States)

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Aug 5 (Mon), 11:10~11:40, Building No.23, 1F

Session Chair: Prof. Desmond Sim (Feng Chia University)

5AM1-03-1 P00358 [Keynote] The Four Maxwellians...N/A
(11:10 ~ 11:40) *James Rautio (Sonnet Software, United States)

5PM1-P - Poster Session 1

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Session Chair: Prof. YouChung Chung and Wen-Jiao Liao (Daegu University and National Taiwan University of Science and Technology)

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(13:00 ~ 14:00) Yi Lin, Min Guo, Qiang Chen, Yuejun Zheng, and *Yunqi Fu (National University of Defense Technology, China)

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- 5PM1-P-4** P00027 **Wideband and low profile H-plane horn antenna...N/A**
(13:00 ~ 14:00) **Ping Wang (Chongqing University of Posts and Telecommunications, China), Qi Wu (重庆邮电大学, China)*
- 5PM1-P-5** P00040 **Application of HF OFDM Signal for Multi-Carrier Vertical Ionospheric Sounding...9**
(13:00 ~ 14:00) **Aleksai Elsukov (Volga State University of Technology, Russian Federation)*
- 5PM1-P-6** P00044 **High-Capacity System: Orthogonal Code-Time Reversal Communication...N/A**
(13:00 ~ 14:00) *Yifang Nie, *Fangwei Li, and Haibo Zhang (Chongqing University of Posts & Telecommunications, China)*
- 5PM1-P-7** P00050 **A novel honeycomb reflectarray constructed from hexagonal-ring unit is proposed for the generation of convergent orbital angular momentum (OAM) waves. The proposed hexagonal-ring unit is with very succinct structure and a wide operating band, which binds further with the hexagonal lattice and obtain a full-polarization response of the incident wave....19**
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- 5PM1-P-8** P00051 **TRC-FDTD Analysis of a TM-Pass Terahertz Waveguide Polarizer...21**
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- 5PM1-P-9** P00060 **A Low Scattering Tightly Coupled Slot Array Loaded with Metamaterial Absorber...23**
(13:00 ~ 14:00) *Xingyuan Guo, *Shiwen Yang, Yikai Chen, and Shiwei Qu (University of Electronic Science and Technology of China, China)*

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**Chengzhu Du (Shanghai University of Electric Power, China)*

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**Jia Fang (ECRIEE, China)*

5PM1-A - Array Antennas 1

Aug 5 (Mon), 14:20~16:00, Building No.12, 1F

Session Chair: Prof. Jiro Hirokawa (Tokyo Institute of Technology)

5PM1-A-1 P00346 **[Invited] Recent progress of corporate-feed plate-laminated hollow-waveguide slot array antenna...N/A**

(14:20 ~ 15:00)

**Jiro Hirokawa (Tokyo Institute of Technology, Japan)*

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- 5PM1-A-2** P00008 **Beamshaping a Monopulse Array to Suppress Sidelobes for Both Sum and Difference Beams...42**
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**Hongtao Zhang, Wei Wang, Ming Chen, and Yongqing Zou (East China Research Institute of Electronic Engineering, China), Xianling Liang (Shanghai Jiao Tong University, China)*
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Session Chair: Prof. Naoki Shinohara (Kyoto University)

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*Dmitriy Kupreyev, *Mohammad Shabi Hashmi, and Kassen Dautov (Nazarbayev University, Kazakhstan), Shalin Verma (IIITD, India)*
- 5PM1-B-2** P00282 **[Invited] New Beam Forming Technology for Narrow Beam Microwave Power Transfer...N/A**
(14:40 ~ 15:20)
**Naoki Shinohara, Naoki Hasegawa, Seishiro Kojima, and Nobuyuki Takabayashi (Kyoto University, Japan)*
- 5PM1-B-3** P00287 **Review of Multiple-Transmitter Array Control in Near-field Wireless Power Transfer...N/A**
(15:20 ~ 15:40)
**Dukju Ahn (Incheon National University, Korea), Do-Hyeon Kim (Samsung Electronics, Korea)*

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5PM1-B-4 P00288 **The method of simplifying Litz wire using Finite-element analysis for Wireless Power Transfer simulation...N/A**
(15:40 ~ 16:00)
**Jaehoon Kim, Doojong Um, and Euijun Hwang (Altair Engineering Korea, Korea)*

5PM1-C - [Special Session 3] Advanced Ant. Techniques & Novel Ant. Solutions for 5G
Aug 5 (Mon), 14:20~16:00, Building No.12, 1F
Session Chair: Prof. Guan-Long Huang (Shenzhen University)

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**Chow-Yen-Desmond Sim and Heng-You Liu (Feng Chia University, Taiwan)*

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**Huan-Chu Huang (vivo Mobile Communication Co., Ltd, Taiwan)*

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*Guodong Jing, *Luyu Zhao, Xiaoyuan Zhao, Yujia Liu, and Yuqi He (Xidian university, China)*

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(15:20 ~ 15:40)
*Shu-Min Liao, Kai-Dong Hong, Chong-Zhi Han, *Guan-Long Huang, and Tao Yuan (Shenzhen University, China)*

5PM1-C-5 P00281 **Co-Location Arranged Handset Antenna Pairs for 5G MIMO Applications...N/A**
(15:40 ~ 16:00)
*Chong-Zhi Han, Shu-Min Liao, Kai-Dong Hong, *Guan-Long Huang, and Tao Yuan (Shenzhen University, China)*

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Session Chair: Prof. Hongjun Kim (Kyungpook National University)

- 5PM1-D-1** P00365 [Invited] Introduction to Active CRLH Components...N/A
(14:20 ~ 14:40) **Hongjun Kim (Kyungpook National University, Korea)*
- 5PM1-D-2** P00080 **High-voltage and High-stability Nanosecond Pulser Based on Avalanche Transistors...N/A**
(14:40 ~ 15:00) **Yao Jiawei, Cheng Zhenbo, Zhang Shoulong, Yan Youjie, and Jiang Tingyong (Northwest Institute of Nuclear Technology, China)*
- 5PM1-D-3** P00200 **Arbitrary Waveform Generator Using a Nonlinear Transmission Line Harmonic Generator and a Phase Shifter...69**
(15:00 ~ 15:20) *Chanwoo Kim, Jaemin Bae, Heeje Han, Soonwoo Park, and *Hongjun Kim (Kyungpook National University, Korea)*
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- 5PM1-D-5** P00255 **A 1.1V 400MHz 4th order filter with feedforward miller compensation OPAMP for 5G applications...N/A**
(15:40 ~ 16:00) *Vikas Aggarwal (Cadence Design Systems, India), *Sankaran Aniruddhan (Indian Institute of Technology Chennai, India)*

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Aug 5 (Mon), 14:20~16:00, Building No.12, 1F

Session Chair: Prof. Toni Bjorninen (Tampere University of Technology)

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(14:20 ~ 14:40) **yusnita rahayu, Rosdiansyah rosdiansyah, and Rahyul Amri (Universitas Riau, Indonesia), Razali Ngah (Universiti Teknologi Malaysia, Malaysia)*

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**Shubin Ma, Shahbaz Ahmed, Nikta Pournoori, Lauri Sydänheimo, and Leena Ukkonen (Tampere University, Finland), Jan Rabaey (University of California at Berkeley, United States), Toni Björninen (Tampere University, Finland)*

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*Dongkwon Choi and *Wonbin Hong (Pohang University of Science and Technology (POSTECH), Korea)*

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Session Chair: Prof. Wanchun Tang (Nanjing Normal University)

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**Khairayu Badron (International Islamic University Malaysia, Malaysia)*

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*Junyi Yao and *Wanchun Tang (Nanjing Normal University, China)*

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*Arun Kumar Verma (Vidyadaan Institute of Technology & Management, India), Ranbir nandan (Patna University, Patna, India), *Aditi Verma (Raheja Mindspace IT Park, Hyderabad, India)*

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5PM2-B-5 P00218 **Measurement of XPD for 30 GHz radio link due to rain for tropical indian climate...N/A**
(17:40 ~ 18:00)
*Arun Kumar Verma (Vidyadaan Institute of Technology & Management, India), *Ranbir Nandan (Patna University, Patna, India), Aditi Verma (Raheja Mindspace IT Park, Hyderabad, India)*

5PM2-C - Signal Processing for RADARs 1

Aug 5 (Mon), 16:20~18:20, Building No.12, 1F

Session Chair: Prof. Zhou Liang (Huazhong University of Science and Technology)

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**Jie Chang and Yun Lin (Harbin Engineering University, China)*

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Aug 5 (Mon), 16:20~18:20, Building No.12, 1F
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**Mohammad S. Sharawi (Polytechnique, Canada)*

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*Phalguni Mathur and *Sujith Raman (Bharathiar University, India)*

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Aug 5 (Mon), 16:20~18:20, Building No.12, 1F
Session Chair: Prof. Hung-Wei Wu (Kun Shan University)

5PM2-E-1 P00351 **[Invited] New antibody-free rare cell screening platform Using Optical and Microwave biosensing Technique...N/A**
(16:20 ~ 17:00)
**Hung-Wei Wu (Kun Shan University, Taiwan)*

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- 5PM2-E-2** P00102 **Design of Efficient Implantable Antennas for Medical Application...N/A**
(17:00 ~ 17:20) *BaoYi Wang and *Hui Li (Dalian University of Technology, China), Fei Wu (The Affiliated Zhongshan Hospital of Dalian University, China)*
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(18:00 ~ 18:20) *Xiao-Yu Zhang and *Jong-Chul Lee (Kwangwoon University, Korea)*

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Aug 6 (Tue), 08:00~08:40, Building No.12, 1F

Session Chair: Prof. Jihak Jung (Asan Campus of Korea Polytechnics)

6AM0-A-1 P00176 **[Invited] Microwave metasurfaces based on geometric phase and applications in the manipulation of wavefront...N/A**
(08:00 ~ 08:40)

*Yang Li, *Kuang Zhang, Guohui Yang, and Qun Wu (Harbin Institute of Technology, China)*

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Aug 6 (Tue), 09:00~10:40, Building No.12, 1F

Session Chair: Prof. Jens Bornemann (University of Victoria)

6AM1-A-1 P00029 **[Invited] Single-Layer End-Fire Substrate Integrated Waveguide Antenna Systems...N/A**
(09:00 ~ 09:40)

*Sara Salem Hesari (UNIVERSITY OF VICTORIA, Canada), Chad Bartlett (University of Victoria, Canada), *Jens Bornemann (UNIVERSITY OF VICTORIA, Canada), Yu Luo (Tianjin University, China)*

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*Feiyang Xia and *Yujian Cheng (University of Electronic Science and Technology, China)*

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*Miao Wu and *Hui Li (Dalian University of Technology, China)*

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*Heejun Park, Changhyeong Lee, Gwang-gyun Namgung, Yejune Seo, and *Sungtek Kahng (Incheon National University, Korea)*

Aug 6 (Tue)

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6AM1-B - [Special Session 1-I] New Technology and Knowledge in Electromagnetics

Aug 6 (Tue), 09:00~10:40, Building No.12, 1F

Session Chair: Prof. Hiroshi Maeda (Fukuoka Institute of Technology)

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**Guan ChaiEu and Fujimoto Takafumi (Nagasaki University, Japan)*

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*Seita Kono (Oita university, Japan), *Takato Kudou (Oita University, Japan)*

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*Keisuke Haari, Naoki Higashinaka, and *Hiroshi Maeda (Fukuoka Institute of Technology, Japan)*

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(10:20 ~ 10:40)

**Budiman P.A. Rohman and Masahiko Nishimoto (Kumamoto University, Japan)*

6AM1-C - Antennas 1

Aug 6 (Tue), 09:00~10:40, Building No.12, 1F

Session Chair: Dr. Amit Kumar Singh (Korea Advanced Institute of Science and Technology)

6AM1-C-1 P00017 **A novel Inline Capacitive Series MEMS Switch with Dielectric Anchor for use with Reconfigurable Antennas...156**

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**Sayan Sarkar (Jadavpur University, India)*

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6AM1-C-3 P00108 **[Invited] Circularly Polarized Self-oscillating Active Integrated Slot-Loop Antenna Using Cross-Coupled Pair...160**
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(10:20 ~ 10:40) *Ji-Hun Hong (Chungnam national university, Korea), *Jong-Myung Woo, Yoon-Seon Choi, Dong-Su Choi, and Hyo Jin Lee (Chungnam National University, Korea)*

6AM1-D - Passive Devices

Aug 6 (Tue), 09:00~10:40, Building No.12, 1F

Session Chair: Prof. Dmitry Kholodnyak (Saint Petersburg Electrotechnical University)

6AM1-D-1 P00182 **Filtering 180° Hybrid Coupler Using Dual Composite Right-/Left-Handed Resonators...165**
(09:00 ~ 09:20) *Yu-Hsien Chen and *Yi-Hsin Pang (National University of Kaohsiung, Taiwan)*

6AM1-D-2 P00201 **Ku-band Rotary joint...N/A**
(09:20 ~ 09:40) **Tayyab Azim (KAIST, Korea)*

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(09:40 ~ 10:00) **PRASHANT KUMAR VARSHNEY and M Jaleel Akhtar (Indian Institute of Technology Kanpur, India)*

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6AM1-D-4 P00230 **A Micro-fabricated radio frequency biosensor based on microwave resonator using integrated passive device technology for selective detection of uric acid...N/A**
(10:00 ~ 10:20)

*Zhi-Ji Wang, Eun-Seong Kim, Chul-Ho Kang, Bao-Hua Zhu, Jian Chen, and *Nam-Young Kim (Kwangwoon University, Korea)*

6AM1-D-5 P00262 **Laser Beam Self-cleanup for Multi-mode Fiber by Self-written Waveguide...N/A**
(10:20 ~ 10:40)

**Haoyu Li (Harbin Institute of Technology, China)*

6AM1-E - [Special Session 6-I] Toward Practical Applications of Metmaterial and Plasmonics in Visible Freq.

Aug 6 (Tue), 09:00~10:40, Building No.12, 1F

Session Chair: Prof. Junsuk Rho (Pohang University of Science and Technology)

6AM1-E-1 P00128 **Dielectric metasurfaces for holography, color printing and crypto-display...N/A**
(09:00 ~ 09:20)

**Junsuk Rho (POSTECH, Korea)*

6AM1-E-2 P00134 **Tailoring Radiative Properties of Micro/Nanostructures for Solar Thermal Applications...N/A**
(09:20 ~ 09:40)

**Bong Jae Lee (Korea Advanced Institute of Science and Technology, Korea)*

6AM1-E-3 P00142 **Diatomic metasurface for multi-functional light field manipulation...N/A**
(09:40 ~ 10:00)

**Xiangping Li (Jinan University, China)*

6AM1-E-4 P00143 **Broadband visible metamaterial absorber for vivid color pixel...N/A**
(10:00 ~ 10:20)

**Sung-Hoon Hong (ETRI, Korea)*

6AM1-E-5 P00165 **Design of Anti-Hermitian Photodetector using Semiconductor Metasurface...180**
(10:20 ~ 10:40)

**Soo Jin Kim (Korea University, Korea)*

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6AM1-F - RADAR Hardware

Aug 6 (Tue), 09:00~10:40, Building No.12, 2F

Session Chair: Dr. JaeHee Kim (Korea Railroad Research Institute)

6AM1-F-1 P00047 **Compact Circularly-Polarized Microstrip Antenna for Hand-Held RFID Reader...181**
(09:00 ~ 09:20)

**Dawei Ding, Dawei Li, Zhuang Li, and Lixia Yang (Jiangsu University, China)*

6AM1-F-2 P00058 **94 GHz Three-Dimensional Imaging Radar for Environmental Detection...183**
(09:20 ~ 09:40)

*WU HongMing (Northeastern University, China), *Qi Feng (Shenyang Institute of Automation, Chinese Academy of Sciences, China)*

6AM1-F-3 P00178 **[Invited] Beam steering antennas...185**
(09:40 ~ 10:00)

**Jong-Myung Woo (Chungnam National University, Korea)*

6AM1-F-4 P00219 **Blood Bank Management based on Chipless RFID...189**
(10:00 ~ 10:20)

*Vijay Sharma and *Mohammad Hashmi (IIT Delhi, India)*

6AM1-F-5 P00222 **Radar data processing for detecting the front vehicle...191**
(10:20 ~ 10:40)

**Jae Hee Kim, Dae-Hyun Kim, and Moo-Ryong Choi (Korea Railroad Research Institute, Korea)*

6AM1-P - Poster Session 2

Aug 6 (Tue), 11:00~12:00, Building No.12, 1F

Session Chair: Prof. SangWook Park and Seojun Park (Daegu University and Simplex Technologies)

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(11:00 ~ 12:00)

**Sun K. Hong and Kang Hyeok Lee (Soongsil University, Korea)*

6AM1-P-2 P00067 **Encryption Device for Enhanced Physical Security of Wireless Wave Transmission...195**
(11:00 ~ 12:00)

**Sun K. Hong and Hong Soo Park (Soongsil University, Korea)*

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- 6AM1-P-3** P00068 **Terahertz Wave Attenuation in Magnetized Thermal Plasmas...197**
(11:00 ~ 12:00) *Weizhong Yan and Xudong Bai (Shanghai Aerospace Electronics Co., Ltd, China)
- 6AM1-P-4** P00077 **Flexible single band-notched ultra-wideband MIMO antenna...N/A**
(11:00 ~ 12:00) *Chengzhu Du (Shanghai University of Electric Power, China)
- 6AM1-P-5** P00085 **A Circularly Polarized 2×2 Patch Array Antenna for 45 GHz Band (IEEE 802.11aj) Applications...N/A**
(11:00 ~ 12:00) Chenfeng Li, *Xiaowei Zhu, and Ling Tian (School of Information Science and Engineering, Southeast University Nanjing 210096, P. R. China, China)
- 6AM1-P-6** P00088 **Designing a Broadband Circularly Polarized Patch Antenna Array for Millimeter-Wave Beamforming...205**
(11:00 ~ 12:00) *Shihyuan Yeh and Zhong Chen (Texas A&M University, United States)
- 6AM1-P-7** P00094 **Mixing Matrix Estimation of Underdetermined Blind Source Separation based on Improved Density Clustering Algorithm...N/A**
(11:00 ~ 12:00) Linyu Wang, Gangyang Hou, and *Jianhong Xiang (Harbin Engineering University, China)
- 6AM1-P-8** P00104 **Coaxial-to-Microstrip Transition for 5G Millimeter Wave Communication Band...N/A**
(11:00 ~ 12:00) Heesu Wang and *Ikmo Park (Ajou University, Korea)
- 6AM1-P-9** P00107 **Bandwidth-Enhanced Dual-Polarized Base Station Antenna with Multiple Resonant Modes...212**
(11:00 ~ 12:00) Suidao Fu, *Zhenxin Cao, and Peng Chen (Southeast University, China)
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**Hyuk-je Kim, Chung-Sup Kim, Ju-Yeon Hong, and Young-Jun Chong (ETRI, Korea)*

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(11:00 ~ 12:00)

*Muhammad Panji Kusuma Paraja and *Achmad Munir (Institut Teknologi Bandung, Indonesia)*

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(11:00 ~ 12:00)

**Qi Liu (Hangzhou Dianzi University, China)*

6AM1-P-14 P00162 **Multi-probe Spherical Near-field Antenna Measurement System for 5G Application...N/A**

(11:00 ~ 12:00)

**Geonho Jang (Korea Radio Promotion Association, Korea)*

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**Ravi Pratap Singh Kushwah (ACE ANTENNA TECHNOLOGY, India)*

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**Jung Ick Moon, Sang Won Kim, Seong Min Kim, and In Kui Cho (Electronics and Telecommunications Research Institute, Korea)*

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Session Chair: Prof. Chi-Hyung Ahn (Korea Railroad Research Institute)

6PM1-P-1 P00028 **Fast Yagi-Uda Antenna Optimization...236**

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**Tomas Lonsky, Pavel Hazdra, and Jan Kracek (Czech Technical University in Prague, Czech Republic)*

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- 6PM1-P-6 P00117** **Design of a Double-band Frequency Selective Surface with Stable Performance...248**
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*Ming Yang (Bozhou University, China), *Shixian Chen (Nanjing University, China)*
- 6PM1-P-7 P00123** **A Compact Balanced Quad-band BPF Based on Coupled Complementary Split-Ring Resonators (CCSRRs)...252**
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*Xiao-hang Zhang, *Xue-han Hu, and Feng Wei (Xidian University, China)*
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*Minjoo Jeong, Hanul Bong, Anees Abbas, and Niamat Hussain (Chungbuk National University, Korea), Seung Yeop Rhee (Chonnam National University, Korea), Seong Gyoon Park and *Nam Kim (Kongju National University, Korea)*
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*Jiabao Wang, *Yufa Sun, Haoran Zhu, and Fan Li (Anhui University, China)*
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- 6PM1-P-13** P00290 **A differentially-fed dual-band dual-polarized stacked ring patch antenna for 5G millimeter-Wave communications...N/A**
(13:00 ~ 14:00)
**Jiangcheng Chen, Markus Berg, and Aarno Pärssinen (University of Oulu, Finland)*
- 6PM1-P-14** P00169 **Performance Analysis of Subcarrier Index Modulation for FrFT-OFDM System...273**
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*Yingshuang Bai, Ming Diao, and *Zengmao Chen (Harbin Engineering University, China), Changqing Deng (TIANJIN 712 COMMUNICATION & BROADCASTING CO, LTD., China)*
- 6PM1-P-15** P00198 **A Novel Symbol Synchronization Scheme Based on Chirp signals for Wireless Communication Systems...277**
(13:00 ~ 14:00)
*Xiaoyan Ning, Yifan Nie, *Zhiguo Sun, and Shurui Zhao (Harbin Engineering University, China)*

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**Jihak Jung (Asan Campus of Korea Polytechnics, Korea)*

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Aug 6 (Tue), 14:20~16:00, Building No.12, 1F

Session Chair: Prof. Tzyh-Ghuang Ma (National Taiwan University of Science and Technology)

6PM1-A-1 P00352 **[Invited] Generation of OAM Vortex Beams Using Metasurfaces...N/A**
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**Long Li (Xidian University, China)*

6PM1-A-2 P00035 **[Invited] Design of Advanced Reflectarrays and Their Application in Future Antenna Systems...284**
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*Hang Bai and *Yujian Cheng (University of Electronic Science and Technology of China, China)*

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Session Chair: Prof. Mohammad S. Sharawi (Polytechnique Montreal)

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**Enhao Wang, Wang Weimin, Wu Yongle, Tan Xiaohua, and Liu Yuanan (Beijing University of Posts and Telecommunications, China)*

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**Mohammed Adel Awwad, Noor Younis Rafaiah, and Omar Saraereh (Princess Sumaya University for Technology, Jordan)*

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*Gwang-gyun Namgung, Changhyeong Lee, Heejun Park, Yejune Seo, and *Sungtek Kahng (Incheon National University, Korea)*

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**Efri Sandi (Universitas Negeri Jakarta, Indonesia)*

6PM1-C - Array Antennas 4/Adaptive Circuits

Aug 6 (Tue), 14:20~16:00, Building No.12, 1F

Session Chair: Prof. Ho-Sub Shin (Kunsan National University)

6PM1-C-1 P00184 **The GPS Array Antennas for Adaptive Beamforming with CRLH Phase Shifters...N/A**

(14:20 ~ 14:40)

*Heejun Park, Changhyeong Lee, Gwang-gyun Namgung, and Yejune Seo (Incheon National University, Korea), Inkyu Yang (Ace Technology, Korea), *Sungtek Kahng (Incheon National University, Korea)*

6PM1-C-2 P00196 **Gain Enhancement of MSA Array Integrated with Thin Wire Metamaterial Structure for Radar Applications...303**

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**Paowphattra Kamphikul (Chiang Mai University, Thailand), Saran Kampeephat, Pittaya Pintachan, and Naruebet Khruphaet (Rajamangala University of Technology Isan, Thailand), Rangsan Wongsan (Suranaree University of Technology, Thailand)*

6PM1-C-3 P00348 **[Invited] Design of Single-band and Dual-band Electronically Tunable Microwave Filters...N/A**

(15:00 ~ 15:30)

**Dmitry Kholodnyak (Saint Petersburg Electrotechnical University, Russian Federation)*

Aug 6 (Tue)

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6PM1-C-4 P00362 **[Invited] Mobile Network Evolution to Support Industry Revolution...N/A**
(15:30 ~ 16:00) *Dongjoo Park (Ericsson-LG, Korea)

P00298 **[Withdrawal] Patch Antenna Design for Mobile 5G mmWave Antenna Module**
*Sangkil Kim (Pusan National University, Korea)

6PM1-D - EMT 1

Aug 6 (Tue), 14:20~16:00, Building No.12, 1F

Session Chair: Dr. Semyon Presnyakov (National Research University Higher School of Economics)

6PM1-D-1 P00009 **Antenna Analysis Using FDTD and Equivalent Circuits...307**
(14:20 ~ 14:40) *Yong Wang and Scott Langdon (Remcom Inc., United States)

6PM1-D-2 P00216 **Building a Macromodel of the Satellite Antenna Equivalent Electrical Circuit...309**
(14:40 ~ 15:00) *Nikolay Borisov, Semyon Presnyakov, and Natalya Kravchenko (National Research University Higher School of Economics, Russian Federation)

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(15:00 ~ 15:20) VADHER PRATIK, *MAHESH SINGH BISHT, and KUMAR VAIBHAV SRIVASTAVA (INDIAN INSTITUTE OF TECHNOLOGY KANPUR, India)

6PM1-D-4 P00183 **[Invited] A Study on Spectral-Domain Approach to Plane-Wave Scattering from Finite Periodic Lamellar Grating...313**
(15:20 ~ 16:00) *Koki Watanabe (Fukuoka Institute of Technology, Japan)

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6PM1-E - Antennas 2

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Session Chair: Prof. Jong-Myung Woo (Chungnam National University)

6PM1-E-1 P00006 **Design of Dual-band Implantable Antenna with Shorting Pins...315**
(14:20 ~ 14:40) **Lijie Xu, Dengyu Hua, Xiaoyu Jin, and Zhu Duan (Nanjing University of Posts and Telecommunications, China)*

6PM1-E-2 P00012 **Dual-Band Bandpass Filtering Monopole Antenna with Independently Tunable Frequencies...317**
(14:40 ~ 15:00) **Seyed-Ali Malakooti and Christophe Fumeaux (University of Adelaide, Australia)*

6PM1-E-3 P00016 **Effects of Two Different Modified Ground Planes on an Equilateral Triangular Ring-Shaped Patch Antenna...319**
(15:00 ~ 15:20) **Sayan Sarkar and Bhaskar Gupta (Jadavpur University, India)*

6PM1-E-4 P00113 **A Wide Beam-Steering Dipole Array Antenna for 5G Smartphone...321**
(15:20 ~ 15:40) **yusnita rahayu (Universitas Riau, Indonesia)*

6PM1-E-5 P00177 **Omni-directional microstrip antenna for GBAS...323**
(15:40 ~ 16:00) **Dong-Su Choi, Yoon-Seon Choi, Ji-Hun Hong, Hyo-Jin Lee, and Jong-Myung Woo (Chungnam National University, Korea)*

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Aug 6 (Tue), 14:20~16:00, Building No.12, 1F

Session Chair: Prof. Rainer Kronberger (TH Cologne)

6PM1-F-1 P00003 **Continuous Tunable Transmission Band Frequency Selective Raserber Radome with Inter-Absorption Band Based on Varactor...326**
(14:20 ~ 14:40) **Min Guo, Qiang Chen, Yuejun Zheng, Zhanshan Sun, and Yunqi Fu (National University of Defense Technology, China)*

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6PM1-F-2 P00170
(14:40 ~ 15:00)

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Transmission Mode Switching and Frequency Tuning Characteristic...329**
*Ratanak Phon and *Sungjoon Lim (Chung Ang University, Korea)*

6PM1-F-3 P00189
(15:00 ~ 15:20)

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Tags...331**
*Jinyoung Kwon, Changhyeong Lee, Heejun Park, Gwang-gyun Namgung, Yejune Seo, and *Sungtek Kahng (Incheon National University, Korea)*

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(15:20 ~ 15:40)

Frequency-Selective Structure with Two-Side Absorption Band...N/A
*Zhefei Wang, *Jiahui Fu, Yulin Zhao, Zhiyi Zhang, and Kuang Zhang (Harbin Institute of Technology, China)*

6PM2-A - EMT 2

Aug 6 (Tue), 16:20~18:20, Building No.12, 1F
Session Chair: Prof. Jun Shibayama (Hosei University)

6PM2-A-1 P00353
(16:20 ~ 17:00)

**[Invited] Computational Electromagnetics (CEM) and Multiphysics (MP)
Methods for Simulating Complex Electromagnetic Environment Effects...N/A**
**Wen-Yan Yin (Zhejiang University, China)*

6PM2-A-2 P00112
(17:00 ~ 17:20)

**[Invited] Path Loss along Random Rough Surface in Terms of
Propagation Order of Distance...339**
**Kazunori Uchida (Fukuoka Institute of Technology, Japan)*

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(17:20 ~ 17:40)

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6PM2-A-4 P00195 **FDTD Analysis of an InSb-Coated Dielectric Cylinder Array...348**
(17:40 ~ 18:00) **Jun Shibayama, Sumire Takahashi, Junji Yamauchi, and Hisamatsu Nakano (Hosei University, Japan)*

6PM2-A-5 P00360 **Input and Output Multiplexers (Purpose, Realization, Design and Layout Issues, PIM and Multipaction)...N/A**
(18:00 ~ 18:20) **Ralf Ihmels (MICIAN, Germany)*

6PM2-B - [Special Session 1-II] New Technology and Knowledge in Electromagnetics

Aug 6 (Tue), 16:20~18:20, Building No.12, 1F

Session Chair: Prof. Koki Watanabe and YouChung Chung (Fukuoka Institute of Technology and Daegu University)

6PM2-B-1 P00045 **A Polarization Agile Self-Oscillating Active Integrated 2x2 Array Antenna Using PSK Modulators...350**
(16:20 ~ 16:40) **Maodudul Hasan, Eisuke Nishiyama, and Ichihiko Toyoda (Saga University, Japan)*

6PM2-B-2 P00048 **Broadband polarization converting metasurface with periodic bow-tie-shaped unit cells...352**
(16:40 ~ 17:00) *Takashi Noishiki, Ryuji Kuse, and *Takeshi Fukusako (Kumamoto University, Japan)*

6PM2-B-3 P00100 **4 x 4 phased array antenna on a chip for 0.3 THz application...N/A**
(17:00 ~ 17:20) **Haruichi Kanaya, Kota Tsugami, and Kazutoshi Kato (Kyushu University, Japan)*

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**Kamin Kangkarn and Koki Watanabe (Fukuoka Institute of Technology, Japan)*

6PM2-C - Antennas 3

Aug 6 (Tue), 16:20~18:20, Building No.12, 1F

Session Chair: Prof. Guan ChaiEu (Nagasaki University)

6PM2-C-1 P00015 A novel Star-Shaped Wideband Patch Antenna with Central Circular Slot for WLAN and WiMAX Applications...360
(16:20 ~ 16:40)

**Sayan Sarkar and Bhaskar Gupta (Jadavpur University, India)*

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*Jinyoung Kwon, Changhyeong Lee, Heejun Park, Gwang-gyun Namgung, Yejune Seo, and *Sungtek Kahng (Incheon National University, Korea)*

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6PM2-D - EMT 3

Aug 6 (Tue), 16:20~18:20, Building No.12, 1F

Session Chair: Prof. Eng Leong Tan (Nanyang Technological University)

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(16:40 ~ 17:00) *Shuming Zhang and *Wanchun Tang (Nanjing Normal University, China)*

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(17:00 ~ 17:20) *Ryota Kazui and *Hitoshi Shimasaki (Kyoto Institute of Technology, Japan)*

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(17:20 ~ 18:00) *Eng Leong Tan and *Ding Yu Heh (Nanyang Technological University, Singapore)*

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(18:00 ~ 18:20) **Yun He (China Academy of Space Technology (Xi'an), China)*

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Aug 6 (Tue), 16:20~18:20, Building No.12, 1F

Session Chair: Prof. Erwin B Daculan (University of San Carlos)

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**Erwin B Daculan (University of San Carlos, Philippines)*

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6PM2-F - Absorbers 2

Aug 6 (Tue), 16:20~18:20, Building No.12, 2F

Session Chair: Prof. Yongjun Huang (University of Electronic Science and Technology of China)

6PM2-F-1 P00004 A Wideband Tunable Active Absorptive Radome...397

(16:20 ~ 16:40)

**Min Guo, Qiang Chen, Yuejun Zheng, Zhanshan Sun, and Yunqi Fu (National University of Defense Technology, China)*

6PM2-F-2 P00013 STUDY OF VEGETATION/FOLIAGE EFFECTS FOR RADIO MILITARY APPLICATION SYSTEM IN TROPICAL FOREST...N/A

(16:40 ~ 17:00)

**Khairayu Badron (International Islamic University Malaysia, Malaysia)*

6PM2-F-3 P00021 [Invited] A Novel Quasi-full-angle Miniaturized Absorber Based on Strong Coupling Mechanism...406

(17:00 ~ 17:40)

*Tianwu Li, *Erping Li, liming Zhou, and Da Li (Zhejiang University, China)*

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6PM2-F-4 P00065
(17:40 ~ 18:00)

Wideband Microwave Absorber based on Triangle Folded Dipole Element...408

**Yumei Chang, Lin Wang, and Wenhan Jiao (Nanjing University of Posts and Telecommunications, China)*

6PM3 - Keynote speech 4

Aug 6 (Tue), 19:00~19:40, Banquet, Gyeongwon Jae

Session Chair: Prof. Changwon Jung (Seoul Nat'l Univ. of Science & Technology)

6PM3-1 P00355
(19:00 ~ 19:40)

[Keynote] Change of Vehicles radar : Automotive radars : Past and Current and Future...N/A

**Jaeho Hwang (HYUNDAI MOBIS, Korea)*

Aug 6 (Tue)

Technical Program

7AM0-A - Invited Speaker 2

Aug 7 (Wed), 08:00~08:40, Building No.12, 1F

Session Chair: Prof. Shen Zhongxiang (Nanyang Technological University)

7AM0-A-1 P00231 [Invited] Accurate design of aperture tunable antenna systems using radiation pattern data...N/A

(08:00 ~ 08:40)

**Jussi Rahola (Optenni Ltd, Finland)*

7AM0-B - Invited Speaker 3

Aug 7 (Wed), 08:00~08:40, Building No.12, 1F

Session Chair: Prof. Yilong Lu (Nanyang Technological University)

7AM0-B-1 P00361 [Invited] Satcom Ground Segment Antennas: Market Trends and Technology Impact...N/A

(08:00 ~ 08:40)

**Fabrizio De Paolis (European Space Agency, United Kingdom)*

7AM1-A - [Special Session 4-I] Measurement/Post-Processing Techniques & ETRI RF Technologies

Aug 7 (Wed), 09:00~10:40, Building No.12, 1F

Session Chair: Dr. Tae-Won Kang (Korea Research Institute of Standard and Science)

7AM1-A-1 P00350 [Invited] Traceable Millimeter-Wave Modulated-Signal Source for Over-The-Air Device Characterization...N/A

(09:00 ~ 09:40)

**Robert Horansky (NIST, United States)*

7AM1-A-2 P00217 MEF simulation study to evaluate the incidence of the UAV body in the radiation pattern of the HyperLOG 4025 antenna for DVB-T2 signal measurement....413

(09:40 ~ 10:00)

*Hector Guillermo Parra (universidad distrital francisco josé de caldas, Colombia), Victor Angulo and *Elvis Eduardo Gaona (universidad distrital francisco jose de caldas, Colombia)*

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7AM1-A-3 P00299 **A Self-Equalized 8-poles Channel Filter for Ka band Satellite Payloads...418**
(10:00 ~ 10:20)

**Hongyeal Lee, Manseok Uhm, and Inbok Yom (Electronics and Telecommunications Research Institute (ETRI), Korea), Duckki Baek and Pilyong Lee (PILAS, Korea)*

7AM1-A-4 P00297 **Auto Phase Tracking for Regional Boosted-Beam in Beamforming Phase Array Antenna...420**
(10:20 ~ 10:40)

**Seong-Mo Moon, Sohyeun Yun, Dong-Pil Chang, and In-Bok Yom (ETRI, Korea)*

7AM1-B - Antennas 5

Aug 7 (Wed), 09:00~10:40, Building No.12, 1F

Session Chair: Prof. Nam Kim (Chungbuk National University)

7AM1-B-1 P00197 **[Invited] Improving the Gain of Monopole Antenna Using Wire Medium Structure and Dielectric...422**
(09:00 ~ 09:40)

**Saran Kampeephat (Rajamangala University of Technology Isan, Thailand), Paowphattra Kamphikul (Chiang Mai University, Thailand), Winyou Silabut (Rajamangala University of Technology Isan, Thailand), Rangsan Wongsan (Suranaree University of Technology, Thailand)*

7AM1-B-2 P00139 **A Circularly Polarized Fabry-Perot Cavity Antenna For Millimeter-Wave Applications...424**
(09:40 ~ 10:00)

*Niamat Hussain, Jiwoong Park, and Anees Abbas (Chungbuk National University, Korea), Minjoo Jeong (Chungbuk National University, Korea), Seungyeop Rhee (Chungbuk National University, Korea), Panyol Kim (Ministry of Science and ICT, Korea), *Nam Kim (Chungbuk National University, Korea)*

7AM1-B-3 P00174 **End-fire Yagi Antenna with DGS for WBAN Applications...426**
(10:00 ~ 10:20)

*Amanat Kafizov and *Mohammad Hashmi (Nazarbayev University, Kazakhstan), Dinesh Rano (IIIT, India)*

Aug 7 (Wed)

Technical Program

7AM1-B-4 P00206 Antenna Design and Circuit Design for the RDA-Based Wireless Power Transmission...428
(10:20 ~ 10:40)
*Myunggi Kim, Taebum Gu, and *Heung-Gyoon Ryu (Chungbuk National University, Korea)*

7AM1-C - Antennas 6

Aug 7 (Wed), 09:00~10:40, Building No.12, 1F
Session Chair: Dr. Jussi Rahola (Optenni)

7AM1-C-1 P00018 Investigation of a Flexible Reconfigurable Antenna using Liquid Crystal...430
(09:00 ~ 09:20)
*Licheng Yang, Yujie Zhang, *Chi-Yuk Chiu, Shanpu Shen, and Ross Murch (Hong Kong University of Science and Technology, Hong Kong)*

7AM1-C-2 P00023 A Wideband Printed-Dipole Antenna for 5G Communication Application...432
(09:20 ~ 09:40)
*Heng Du (Southeastern University, China), Bo Hu, Hui Zhang, Xutao Yu, and *Peng Chen (Southeast University, China)*

7AM1-C-3 P00056 Circular Polarized Conical Beam Antenna for Vehicle Mounted Applications...434
(09:40 ~ 10:00)
**Hamza Nawaz, Xianling Liang, Junping Geng, Weiren Zhu, and Ronghong Jin (Shanghai Jiao Tong University, China)*

7AM1-C-4 P00149 Half-mode SIW based tunable CRLH leaky-waveantenna for emerging 5G applications...436
(10:00 ~ 10:20)
**Anirban Sarkar and Sungjoon Lim (Chung-Ang University, Korea)*

7AM1-C-5 P00190 mm Wave Dual-band Antenna for Beamforming...438
(10:20 ~ 10:40)
*Yejune Seo, Heejun Park, Changhyeong Lee, and Gwang-gyun Namgung (Incheon National University, Korea), Kyungseok Kahng (ASSA ABLOY Korea, Korea), *Sungtek Kahng (Incheon National University, Korea)*

Technical Program

7AM1-D - Antennas 7

Aug 7 (Wed), 09:00~10:40, Building No.12, 1F

Session Chair: Prof. Hitoshi Shimasaki (Kyoto Institute of Technology)

7AM1-D-1 P00049 A Low-Profile and Wideband Dual-Mode MIMO Antenna For Diversity Applications...440

(09:00 ~ 09:20)

*Ke Zhang, *Zhi Hao Jiang, Xiaowei Zhu, and Wei Hong (Southeast university, China)*

7AM1-D-2 P00119 Wideband Aperture coupled Rectangular Dielectric Resonator Antenna for 5G Applications...442

(09:20 ~ 09:40)

**Abinash Gaya (UTM, Wireless Communication Center, Malaysia), Haizal Jamaluddin (UTM, Wireless Communication Center, Malaysia)*

7AM1-D-3 P00171 A Circularly Polarized Annular Patch Antenna and the Influence of a Conductive Protrusion on its Axis...444

(09:40 ~ 10:00)

*Shota Sodenaga and *Hitoshi Shimasaki (Kyoto Institute of Technology, Japan)*

7AM1-D-4 P00292 A Millimeter-wave Open Slot Antenna with 60% Bandwidth...446

(10:00 ~ 10:20)

**Xuan Yi and Hang Wong (City University of Hong Kong, China)*

7AM1-D-5 P00294 LoRa 900MHz Band Small Antenna Design...

(10:20 ~ 10:40)

**Gyungmin Lee (INCHEON NATIONAL UNIVERSITY, Korea)*

7AM1-E - Lens Antennas

Aug 7 (Wed), 09:00~10:40, Building No.12, 1F

Session Chair: Prof. Danai Torrungrueng (King Mongkut's University of Technology North Bangkok)

7AM1-E-1 P00093 [Invited] Compact One-Eighth Spherical Dielectric Lens Antenna on a Corner Reflector...450

(09:00 ~ 09:20)

**Danai Torrungrueng, Sangwon Kittiwittayapong, Titipong Lertwiriayapapa, and Danai Torrungrueng (King Mongkut's University of Technology North Bangkok, Thailand)*

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7AM1-E-2 P00105 Side Lobe Level Suppression of THz Bowtie Antenna on Hemispherical Dielectric Lens...452
(09:20 ~ 09:40)
*Catur Apriono, Farida Ulfah, and *Eko Tjipto Rahardjo (Universitas Indonesia, Indonesia)*

7AM1-E-3 P00202 Millimeter Wave Beam Shaping Using Polarization Response-Enhanced Thin Lens...N/A
(09:40 ~ 10:00)
*Inseop Yoon (Inha University, Korea), Yeongmyeong Park and *jungsoek Oh (Seoul National University, Korea)*

7AM1-E-4 P00234 Dual Beam High Gain Antenna for 5th Generation Communication System using Metasurface Lens...456
(10:00 ~ 10:20)
**AMIT KUMAR SINGH and SEONG OOK PARK (Korea Advanced Institute of Science and Technology, Korea)*

7AM1-F - Recoufigurable Antennas & Active Devices

Aug 7 (Wed), 09:00~10:40, Building No.12, 2F

Session Chair: Dr. Fabrizio De Paolis (European Space Agency)

7AM1-F-1 P00286 Satellite Visibility and Geometry Analysis for GNSS Positioning in an Urban Environment...458
(09:00 ~ 09:20)
**Binfang Wang, Wei-Jiang Zhao, En-Xiao Liu, Xian-Ke Richard Gao, Wenzu zhang, and Ching Eng Png (Institute of High Performance Computing, Singapore)*

7AM1-F-2 P00243 A Differentially Fed Dual-Polarized Antenna for Satellite Applications...460
(09:20 ~ 09:40)
*Xue Ren and *Hang Wong (City University of Hong Kong, China)*

7AM1-F-3 P00194 A Coupling Coefficient Reconfigurable Patch Coupler Using Metallic Loading...N/A
(09:40 ~ 10:00)
*Shui Hong Wang and *Shao Yong Zheng (Sun Yat-sen University, China), Yong Mei Pan (South China University of Technology, China)*

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7AM1-F-4 P00075 A Slot Based Pattern Reconfigurable Antenna...466
(10:00 ~ 10:20) *Saeed Ahmad Haydhah, Rifaqat Ahmad Hussein, and Ali Muqaibel (KFUPM, Saudi Arabia), *Mohammad S. Sharawi (Montreal University, Canada)*

7AM1-P - Poster Session 4

Aug 6 (Tue), 11:00~12:00, Building No.12, 1F

Session Chair: Prof. Dukju Ahn (Incheon National University)

7AM1-P-1 P00019 Millimeter Wave Passive Frequency Routing Technique for Low-cost Multi-Band Selectable Transceiver Systems...468
(11:00 ~ 12:00) **Zhou Du and Kimmo Aronktyö (Nokia Bell Labs, Finland)*

7AM1-P-2 P00069 Efficiency Improvement of a patch antenna using a double negative material and Particle Swarm Optimization...472
(11:00 ~ 12:00) **Winyou - Silabut (Rajamangala University of Technology Isan, Thailand), Vuttichai Kesornpatumanun (Expressway Authority of Thailand, Thailand), Somsin Wangkhuntod and Saran Kampeephat (Rajamangala University of Technology Isan, Thailand)*

7AM1-P-3 P00083 The Inverse Gamma Distribution: A New Shadowing Model...475
(11:00 ~ 12:00) **Seong Ki Yoo (Queen's University Belfast, United Kingdom), Simon L Cotton and Lei Zhang (QUB, United Kingdom), Paschalis C Sofotasios (Khalifa University, United Arab Emirates)*

7AM1-P-4 P00121 A Low-Profile Wideband Wide-Scan Tightly Coupled Dipole Array for X-Band...477
(11:00 ~ 12:00) **Ya-Ru Wang, Xiaolin Zhang, and Jie Wang (The 38th Research Institute of CETC, China), Mouping Jin and Yuefei Dai (Anhui Province Engineering Laboratory for Antennas and Microwave, China)*

7AM1-P-5 P00124 A 5G low-profile Planar Ultrawideband Modular Antenna (PUMA) Array...480
(11:00 ~ 12:00) **Jie Wang (the 38th research institute of CETC, China), Xiaolin Zhang, Ya-Ru Wang, Mouping Jin, and Yuefei Dai (the 38th research institute of CETC, China)*

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- 7AM1-P-6** P00130 **Compact ultra-wideband MIMO antenna with double notch...483**
(11:00 ~ 12:00) *Wang Kang and *Yufa Sun (Anhui University, China)*
- 7AM1-P-7** P00135 **A high gain parabolic antenna based on gradient metasurface...486**
(11:00 ~ 12:00) *Hanul Bong, Min-Joo Jeong, Niamat Hussain, Ji-woong Park, and Anees Abbas (CHUNGBUK NATIONAL UNIV., Korea), Seung-Yeop Rhee (Chonnam National University, Korea), Bong-Gyun Kang and *Nam Kim (CHUNGBUK NATIONAL UNIV., Korea)*
- 7AM1-P-8** P00138 **Eight-Port MIMO Slot Antennas for 5G C-band applications...488**
(11:00 ~ 12:00) **Wen-Shan Chen and Bang-Yun Lin (Southern Taiwan University of Science and Technology, Taiwan), Hong-Twu Chen and Yung-Tao Liu (R.O.C. Military Academy, Taiwan)*
- 7AM1-P-9** P00148 **Near-field assessment of 20-kW wireless power transfer system for electric vehicles...N/A**
(11:00 ~ 12:00) **SangWook Park (Daegu University, Korea)*
- 7AM1-P-10** P00155 **A Novel Direction Finding Approach for Wideband Frequency Hopping Signal...492**
(11:00 ~ 12:00) *Zengmao Chen, *Bin Li, Gong Cheng, Zhiguo Sun, and Xiaoyan Ning (Harbin Engineering University, China)*
- 7AM1-P-11** P00158 **Research on Space Power Combining Efficiency of Time-Domain Array Antenna...N/A**
(11:00 ~ 12:00) **Wanzeng Cai and Tingyong Jiang (Northwest Institute of Nuclear Technology, China)*
- 7AM1-P-12** P00232 **An L-Band Bandpass Filter Based on Intertwined Inductor and Centered-Located Capacitor Using Integrated Passive Device Technology...498**
(11:00 ~ 12:00) *Bao-Hua Zhu, Eun-Seong Kim, Zhi-Ji Wang, Chul-Ho Kang, Jian Chen, and *Nam-Young Kim (Kwangwoon University, Korea)*

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- 7AM1-P-13** P00233 **Realization of Micro-Fabricated Bandpass Filter with Intertwined Inductors and Meandered-Line Coupling Capacitor on GaAs substrate by Integrated Passive Device Technology...N/A**
(11:00 ~ 12:00)
*Jian Chen, Eun-Seong Kim, Zhi-Ji Wang, Chul-ho Kang, Bao-Hua Zhu, and *Nam-Young Kim (Kwangwoon University, Korea)*
- 7AM1-P-14** P00209 **A CPW-fed UWB flexible antenna with double band-notched characteristics...N/A**
(11:00 ~ 12:00)
**Chengzhu Du (Shanghai University of Electric Power, China)*
- 7AM1-P-15** P00210 **Compact CPW-Fed Triple-Band Antenna for WiMAX/WLAN/5G Applications...N/A**
(11:00 ~ 12:00)
**Chengzhu Du (Shanghai University of Electric Power, China)*
- 7AM1-P-16** P00364 **Compact Cpw-Fed Monopole Antenna for 5 GHz WLAN Applications...N/A**
(11:00 ~ 12:00)
**Ho-Sub Shin (Kunsan Nat'l University, Korea), In-Tae Choi (Thermalsolutions Inc., Korea)*

7PM1-P - Poster Session 5

Aug 6 (Tue), 13:00~14:00, Building No.12, 1F

Session Chair: Prof. Eisuke Nishiyama (Saga University)

- 7PM1-P-1** P00137 **Dual-Polarized Yagi-Like Multilayered Slot Antenna for 5G C-band Application...512**
(13:00 ~ 14:00)
**Wen-Shan Chen and Bing-Xiu Cai (Southern Taiwan University of Science and Technology, Taiwan), Horng-Dean Chen (National Kaohsiung Normal University, Taiwan)*
- 7PM1-P-2** P00140 **The Dumbbell DGS for Reducing Mutual Coupling between Microstrip Circularly Polarized Antennas...514**
(13:00 ~ 14:00)
*Di Gao, Suidao Fu, Xin Quan, and *Zhenxin Cao (Southeast University, China)*

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- 7PM1-P-3** P00151 **Design of a Dual-Polarized Cross Dipole Antenna with Wide Beamwidth...N/A**
(13:00 ~ 14:00)
*Jia-Wen Hao, *Feng Wei, and Xiao-Wei Shi (Xidian University, China)*
- 7PM1-P-4** P00164 **Compressive Sampling Matching Pursuit Algorithm Via D-J Matching Criterion...N/A**
(13:00 ~ 14:00)
**JianHong Xiang and Meng Yao (Harbin Engineering University, China)*
- 7PM1-P-5** P00166 **A Butterfly Space Harmonic Leaky-Wave Antenna Based on Substrate Integrated Waveguide...N/A**
(13:00 ~ 14:00)
*Han Wu and *Leilei Liu (Nanjing University of Posts and Telecommunications, China)*
- 7PM1-P-6** P00167 **Mixing Matrix Estimation of Underdetermined Blind Source Separation based on Improved Density Clustering Algorithm ...525**
(13:00 ~ 14:00)
*Linyu Wang, Gangyang Hou, and *Jianhong Xiang (Harbin Engineering University, China)*
- 7PM1-P-7** P00223 **High-Efficiency Polarization Converter by Transmissive Metasurface...527**
(13:00 ~ 14:00)
*Yizhuo Yu and *Weiren Zhu (Shanghai Jiao Tong University, China)*
- 7PM1-P-8** P00237 **Selective Detection of DNA by the Radio Frequency Biosensor Based on Microwave Resonator using Integrated Passive Device Technology...N/A**
(13:00 ~ 14:00)
*Eun-Seong Kim, Parshant Kumar Sharma, and Zhi-Ji Wang (Kwangwoon University, Korea), Chul-Ho Kang (Kwangwoon Univeristy, Korea), Bao-Hua Zhu, Jian Chen, Gyan Raj Koirala, and *Nam-Young Steve Kim (Kwangwoon University, Korea)*
- 7PM1-P-9** P00244 **Design of High Efficiency Transmitter Considering Impedance Variation with WPT Coil Misalignment...532**
(13:00 ~ 14:00)
*Seokhyeon Go and *kyungHeon Koo (Incheon National University, Korea)*

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- 7PM1-P-10** P00246 **A Method For Ice Thickness Characterization Using GNSS C/N0 data...534**
(13:00 ~ 14:00) **Ankit Regmi, Markus Berg, and Aarno Pärssinen (University of Oulu, Finland)*
- 7PM1-P-11** P00249 **A Compact Tunable Impedance Matching Pad Based on LTCC: Its Applications...539**
(13:00 ~ 14:00) *Seojun Park (Simplex Technologies Co., Ltd., Korea), Changhyeong Lee, Heejun Park, and *Sungtek Kahng (Incheon National University, Korea)*
- 7PM1-P-12** P00274 **Array Antenna Coverage: For High Rise Building Scenarios...541**
(13:00 ~ 14:00) **Ravi Pratap Singh Kushwah (ACE ANTENNA TECHNOLOGY, India)*
- 7PM1-P-13** P00301 **Thermally switchable electromagnetic induced transparency in terahertz metamaterials...N/A**
(13:00 ~ 14:00) **Dheeraj Pratap (IIT Kanpur, India)*
- 7PM1-P-14** P00254 **A Dual Polarization MIMO Antenna Array Decoupling Based on Meta-Surface...547**
(13:00 ~ 14:00) *Yinfeng Xia, *Yingsong Li, SHengyuan Luo, and Wei Xue (Harbin Engineering University, China)*
- 7PM1-P-15** P00271 **Design And Improvement Of An X-Band Printed Dipole Array Antenna...N/A**
(13:00 ~ 14:00) **Jia Fang (ECRIEE, China)*
- 7PM1-P-16** P00141 **Millimeter-Wave Planar Electromagnetic Lens Design Using Frequency-Selective Surfaces...551**
(13:00 ~ 14:00) **Rao Shahid Aziz (KAIST, Korea)*

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7PM1-A - EMT 3

Aug 7 (Wed), 14:10~16:10, Building No.12, 1F

Session Chair: Prof. Levent Sevgi (OKAN Universitesi)

7PM1-A-1 P00212 **Mutual coupling reduction Using Via Fence in Microstrip Antenna...554**

(14:10 ~ 14:30)

**Laxmikant Minz (KAIST, Korea)*

7PM1-A-2 P00146 **A Study on Modeling of Sea Clutter Echo for Short Time of Measurement...556**

(14:30 ~ 14:50)

*Myungjun Lee, Jieun Kim, Sangmin Lee, and Bohyun Ryu (POSETCH, Korea), Hyeonmu Jeon (Hanwha system, Korea), *Kyungtae Kim (POSETCH, Korea)*

7PM1-A-3 P00357 **Broadband Frequency Dependence of Iterative Matrix Solution Convergence with UFFT...N/A**

(14:50 ~ 15:10)

**Brian Rautio (Sonnet Software, United States), Vladimir I. Okhmatovski (University of Manitoba, Canada), Jay K Lee (Syracuse University, United States)*

7PM1-A-4 P00248 **High-Order Small Perturbation Method of Scattering from Conducting Random Rough Surfaces: TM Case...N/A**

(15:10 ~ 15:30)

**Qing Wang (Xidian University, China), Chen Lin (Yangzhou Marine Electronic Instruments Institute, China), Shan Jiang, Lei Li, and Zhenya Lei (Xidian University, China)*

7PM1-B - [Special Session 5] Recent Advances in Antenna and Propagation

Aug 7 (Wed), 14:10~16:10, Building No.12, 1F

Session Chair: Prof. Shih-Yuan Chen (National Taiwan University)

7PM1-B-1 P00103 **Effects of Metal Patch Shape on Radar Cross Section Reduction Performance for Phase Cancellation Structures...561**

(14:10 ~ 14:30)

**Wen-Jiao Liao (National Taiwan University of Science and Technology, Taiwan)*

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- 7PM1-B-2** P00109 **Recent Advancements in Array Design for Wide Coverage K-band Radar Applications...563**
(14:30 ~ 14:50)
*Huy Nam Chu, Hua-Chien Liao, and *Tzyh-Ghuang Ma (National Taiwan University of Science and Technology, Taiwan), Jui-Hung Wu and Nai-Hao Cheng (WHETRON ELECTRONICS CO., LTD., Taiwan)*
- 7PM1-B-3** P00131 **Enhanced Phase Compensation Method for 3-D Microwave Holographic Imaging...565**
(14:50 ~ 15:10)
*Hsu-Chi Chen and *Shih-Yuan Chen (National Taiwan University, Taiwan)*
- 7PM1-B-4** P00157 **Compact Size Printed Reconfigurable Antenna Design with Slotted Ground Structure...567**
(15:10 ~ 15:30)
**Chow-Yen-Desmond Sim, Gang-Yan Fan, and Yu-Hsuan Lin (Feng Chia University, Taiwan)*
- 7PM1-B-5** P00224 **Recent Advancements in Real-World Implementation of Frequency-Coded Chipless RFID...569**
(15:30 ~ 15:50)
*Tong-Yang Jiang, Fei-Peng Lai, and *Yen-Sheng Chen (National Taipei University of Technology, Taiwan)*
- 7PM1-B-6** P00225 **Latest developments of SIW based leaky-wave antennas for several modern wireless applications...571**
(15:50 ~ 16:10)
**Anirban Sarkar (Chung-Ang University, Korea), Animesh Biswas and M. Jaleel Akhtar (Indian Institute of Technology Kanpur, India)*
- 7PM1-C - [Special Session 7] Advanced Base-Station Antennas for 5G Applications**
Aug 7 (Wed), 14:10~16:10, Building No.12, 1F
Session Chair: Prof. Zhang Xiuyin (Northwestern Polytechnical University)
- 7PM1-C-1** P00215 **Height Reduction of Base-station Antenna using Meta-surface...574**
(14:10 ~ 14:30)
**Hailiang Zhu and Yuwei Qiu (Northwestern Polytechnical University, China), Jinliang Bai and Pei Zheng (Beijing Institute of Long March Aerospace Vehicles, China), Gao Wei (Northwestern Polytechnical University, China)*

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- 7PM1-C-2 P00238 Pin-Loaded Dual-Resonant High Gain Patch Antenna Array with Extremely Thin Profile...577**
(14:30 ~ 14:50)
*Yun Shao, Zhuang Li, Jian Yu, and *Wen-Jun Lu (Nanjing University of Posts and Telecommunications, China)*
- 7PM1-C-3 P00252 Cross-Band Scattering Suppression for Multi-Band Base Station Antenna Arrays...579**
(14:50 ~ 15:10)
**Can Ding (University of Technology Sydney, Australia)*
- 7PM1-C-4 P00257 A Novel Base Station Antenna Element for 3G/LTE/Sub-6 GHz 5G Applications...581**
(15:10 ~ 15:30)
**Yejun He, Jun Li, Chao Li, Long Zhang, and Sai-Wai Wong (Shenzhen University, China)*
- 7PM1-C-5 P00260 Dual-band Base Station Antenna Using Filtering Dipole Elements...N/A**
(15:30 ~ 15:50)
*Yun Fei Cao, *Chao Feng Ding, Xiu Yin Zhang, and Yi Yang Liu (South China University of Technology, China)*
- 7PM1-C-6 P00276 Dual-band Antenna Array Decoupling Method with Meta-surface...586**
(15:50 ~ 16:10)
*Feng Liu, *Luyu Zhao, Jiayin Guo, and Yingzeng Yin (Xidian University, China)*

7PM1-D - Array Antenna Synthesis Theories

Aug 7 (Wed), 14:10~16:10, Building No.12, 1F

Session Chair: Dr. Ravi Pratap Singh Kushwa (Ace Antenna Technology)

- 7PM1-D-1 P00036 Investigating a Reversed-Field Sidelobe Cancelling Technique on Array Sidelobes Beamshaping...588**
(14:10 ~ 14:30)
**Shihyuan Yeh (Texas A&M University, United States)*
- 7PM1-D-2 P00037 Multiple orbital angular momentum modes generation using time modulated concentric circular arrays...N/A**
(14:30 ~ 14:50)
*Jie Liu, *Xi Liao, and Yang Wang (Chongqing University of Posts and Telecommunications, China), Jie Zhang (The University of Sheffield, United Kingdom)*

Technical Program

7PM1-D-3 P00078 **Generation of OAM Radio Waves Using A Single Antenna in Uniform Circular Motion...593**
(14:50 ~ 15:10)

**Rui Chen (Xidian University, China)*

7PM1-D-4 P00247 **On Possibility of Kaiser Function Utilization for Power Weighted Linear Array Antennas...595**
(15:10 ~ 15:30)

*Hartuti Mistialustina, Chairunnisa Chairunnisa, Mohammad Ridwan E endi, and *Achmad Munir (Institut Teknologi Bandung, Indonesia)*

7PM1-D-5 P00263 **Detecting Faulty Elements in Antenna Array Using Extreme Learning Machine...597**
(15:30 ~ 15:50)

*Xiaochao Jiang, Jiahui Qin, and *Tao Jiang (Harbin Engineering University, China)*

7PM1-E - [Special Session 4-II] Measurement Techniques & ETRI RF Technologies

Aug 7 (Wed), 14:10~16:10, Building No.12, 1F

Session Chair: Dr. Manseok Uhm (Electronics and Telecommunications Research Institute (ETRI))

7PM1-E-1 P00270 **[Invited] New Measurements Concept of Electrically Large Active Antenna Systems in Compact Test Chambers...599**
(14:10 ~ 14:30)

**Hendrik Bartko, Benoit Derat, and Adam Tankielun (Rohde & Schwarz, Germany)*

7PM1-E-2 P00363 **Study on Anomaly occurred in Circular Waveguide Cavity Filter, clarified as 'Microwave Breakdown' ...N/A**
(14:30 ~ 14:50)

**Sun Ik Lee, Joongpyo Kim, and Wongyu Lim (Korea Aerospace Research Institute, Korea)*

7PM1-E-3 P00211 **Plasma density profile measurement with frequency modulated continuous wave radar...N/A**
(14:50 ~ 15:10)

**Seong-Heon Seo (National Fusion Research Institute, Korea), Kyu Han (Raytech, Inc., United States)*

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- 7PM1-E-4** P00296 **Design of Ka band Antenna for Flexible Satellite Payload...N/A**
(15:10 ~ 15:30) *Sohyeun Yun (ETRI, Korea)
- 7PM1-E-5** P00295 **K-band 4th-order Tunable Filter Using Dual TE₂₁₁ Mode and TE₀₁₁ Mode...608**
(15:30 ~ 15:50) *Changsoo Kwak, Manseok Uhm, and Inbok Yom (ETRI, Korea)
- 7PM1-F - Signal Processing for RADARs 2**
Aug 7 (Wed), 14:10~16:10, Building No.12, 2F
Session Chair: Dr. Jaehoon Kim (Altair Engineering Korea)
- 7PM1-F-1** P00283 **[Invited] Radar Micro-Doppler Analysis and Its Applications...N/A**
(14:10 ~ 14:50) *Kyung-Tae Kim (POSTECH, Korea)
- 7PM1-F-2** P00277 **A Simple Deep Learning Network for Face Recognition Using Laplacian faces...611**
(14:50 ~ 15:10) *Liu Weide and Xiang Jianhong (School of information and communication engineering, China)
- 7PM1-F-3** P00284 **Automotive radar simulations using RCS characteristics of moving vehicles...N/A**
(15:10 ~ 15:30) *Jaehoon Kim (Altair Engineering Korea, Korea)
- 7PM1-F-4** P00291 **Design of Integrated Mast Considering Both Antenna Interference and RCS...622**
(15:30 ~ 15:50) Youngjae Choi and *Insik Choi (Hannam University, Korea), Yonghwan Jung (Agency for Defense Development, Korea)

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7PM2-A - Array Antennas 5

Aug 7 (Wed), 16:20~18:20, Building No.12, 1F

Session Chair: Prof. Qing-Xin Chu (South China University of Technology)

- 7PM2-A-1** P00163 **Circularly Polarized Sequential Phased Array Antenna Fed Using Proximity Coupling Method...624**
(16:20 ~ 16:40)
*Chairunnisa Chairunnisa (Institut Teknologi Bandung, Indonesia), Nurul Fadilah (National Institute of Aeronautics and Space, Indonesia), Mohammad Ridwan Effendi and *Achmad Munir (Institut Teknologi Bandung, Indonesia)*
- 7PM2-A-2** P00199 **Small and High-Gain Array Antenna for WPT Over Several Meters...626**
(16:40 ~ 17:00)
*Changhyeong Lee, Heejun Park, Gwang-gyun Namgung, and Yejune Seo (Incheon National University, Korea), Yongseok Lim (Korea Electronics Technology Institute, Korea), *Sungtek Kahng (Incheon National University, Korea)*
- 7PM2-A-3** P00239 **Integration of 5G MIMO Antenna Array with Low-Profile GSM Band Base-Station Antenna...628**
(17:00 ~ 17:20)
*Yufeng Zhu, *Yikai Chen, and Shiwen Yang (University of Electronic Science and Technology of China, China)*
- 7PM2-A-4** P00241 **Design of Compact Broadband Antenna for Modern Multi-Array Application...630**
(17:20 ~ 17:40)
**Rui Wu, Qing-Xin Chu, and Quan Xue (South China University of Technology, China)*
- 7PM2-A-5** P00242 **Metamaterial Based Leaky Wave Antenna...632**
(17:40 ~ 18:00)
*Yejune Seo, Heejun Park, Changhyeong Lee, and Gwang-gyun Namgung (Incheon National University, Korea), Jinsu Jeon (ACE Technolgt, Korea), *Sungtek Kahng (Incheon National University, Korea)*

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7PM2-B - [Special Session 6-II] Toward Practical Applications of Metmaterial and Plasmonics in Visible Freq.

Aug 7 (Wed), 16:20~18:20, Building No.12, 1F

Session Chair: Prof. Wei-Chuan Shih (U Houston)

7PM2-B-1 P00127 [Invited] Artificial chirality evolution in micro-/nano-scale 3D plasmonic metamaterials...N/A
(16:20 ~ 17:00)
**Junsuk Rho (POSTECH, Korea)*

7PM2-B-2 P00168 Extraordinary LSPR sensitivity on plasmonically-coupled alloy disk array enables ultrasensitive smartphone biosensing...N/A
(17:00 ~ 17:20)
**Wei-Chuan Shih (U Houston, United States)*

7PM2-B-3 P00208 Perfect Light Absorption Technologies...N/A
(17:20 ~ 17:40)
**Masanobu Iwanaga (National Institute for Materials Science, Japan)*

7PM2-B-4 P00214 Biosensors for Identifying Hazardous Adulterants in Edibles...639
(17:40 ~ 18:00)
*Hafiz Saad Khaliq (Information Technology University of the Punjab, Lahore, Pakistan, Pakistan), Kashif Riaz and Muhammad Zubair (Information Technology University of the Punjab, Pakistan), *Muhammad Qasim Mehmood (Information Technology University of the Punjab, Lahore, Pakistan, Pakistan)*

7PM2-B-5 P00228 Daytime, passive radiative coolers with tailored photonic structures for improved cooling capacity...N/A
(18:00 ~ 18:20)
**Young Min Song (GIST, Korea)*

7PM2-C - [Special Session 2] Functional Metasurfaces Theories and Applications

Aug 7 (Wed), 16:20~18:20, Building No.12, 1F

Session Chair: Prof. Weiren Zhu (Shanghai Jiao Tong University)

7PM2-C-1 P00106 Ultra-thin metasurface exhibiting Pancharatnum Berry geometric phase for efficient manipulation of transmissive waves...644
(16:20 ~ 16:40)
*Muhammad Rizwan Akram and *Weiren Zhu (Shanghai Jiao Tong University, China)*

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7PM2-C-2 P00175 **Electrically tunable metamaterial absorber with independent frequency and amplitude modulation...646**

(16:40 ~ 17:00)

*Jin Zhang, Chong He, and *Weiren Zhu (Shanghai Jiao Tong University, China)*

7PM2-C-3 P00185 **Experimental Demonstration of Microwave Airy Beam Generation Based on Metasurface...648**

(17:00 ~ 17:20)

**Yongjun Huang (University of Electronic Science and Technology of China, China), Hualong Yu (University of Electronic Science and Technology of China, Chile), Liang Ma, Jian Li, Zhao Yang, Wei Hu, Daniele Insera, and Guangjun Wen (University of Electronic Science and Technology of China, China)*

7PM2-C-4 P00204 **Nonlinear Metasurface Antenna Radome for Power Protection Application...650**

(17:20 ~ 17:40)

*Jian Li, *Yongjun Huang, Liang Ma, Zhao Yang, Wenran Lv, and Guangjun Wen (University of Electronic Science and Technology of China, China)*

7PM2-C-5 P00205 **Single-layer Tri-band Metasurface with Independent Phase Control at Therahertz Frequencies...652**

(17:40 ~ 18:00)

*Rensheng Xie, Guohua Zhai, and *Jun Ding (East China Normal University, China), Hualiang Zhang (University of Massachusetts Lowell, United States)*

7PM2-C-6 P00240 **Deterministically exciting individual plasmonic dipole with a three-dimensional orientation...N/A**

(18:00 ~ 18:20)

**Fajun Xiao (Northwestern Polytechnical University, China)*

7PM2-D - [Special Session 4-III] Measurement Techniques & ETRI RF Technologies

Aug 7 (Wed), 16:20~18:20, Building No.12, 1F

Session Chair: Prof. Razvan D. Tamas (Constanta Maritime University)

7PM2-D-1 P00265 **[Invited] Specular Reflection Measurements in a Multipath Site at Intermediate-Field Ranges...658**

(16:20 ~ 17:00)

**Razvan D. Tamas and Liliana Anchin (Constanta Maritime University, Romania), Ilie Valentin Mihai (Institute of Electronics and Telecommunications of Rennes, France), George Caruntu (Constanta Maritime University, Romania)*

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7PM2-D-2 P00043 A Terahertz Planar Near-field Measurement Setup For High-gain Antennas...662
(17:00 ~ 17:20)
*Quan Yuan, *Zhang-cheng Hao, and Zheng Bo Jiang (Southeast University, China)*

7PM2-D-3 P00034 Dual-Band Dual-Polarized Reflectarray for Multiple Spot Beam Applications in Ka-band...664
(17:20 ~ 17:40)
**Min Zhou, Stig Busk Sørensen, Niels Vesterdal, and Michael Forum Palvig (TICRA, Denmark)*

7PM2-D-4 P00227 Shape Perturbed Tunable Planar RF Resonator for the Dielectric Measurement in wide frequency range...666
(17:40 ~ 18:00)
**Nilesh Kumar Tiwari, PRASHANT KUMAR VARSHNEY, Surya Prakash Singh, and M Jaleel Akhtar (Indian Institute of Technology Kanpur, India)*

7PM2-D-5 P00289 A Multi-function Chip for the Beamforming Network of Ka-band Reconfigurable Beam Antenna...N/A
(18:00 ~ 18:20)
**Jin-Cheol Jeong, Manseok Uhm, Dong-Pil Jang, and In-Bok Yom (ETRI, Korea)*

7PM2-E - Metamaterials 2

Aug 7 (Wed), 16:20~18:20, Building No.12, 1F

Session Chair: Dr. Mohammad Alibakhshikenari (University of Rome Tor Vergata)

7PM2-E-1 P00081 Ultra flat metasurface antenna with 40dB gain...N/A
(16:20 ~ 16:40)
*Gabriele Minatti and Francesco Caminita (Wave Up, Italy), *Enrica Martini (University of siena, Italy), Cristian Della Giovampaola (Wave Up, Italy), Marco Sabbadini (ESA-ESTEC, Italy), Fabrizio De Paolis (ESA-ECSAT, Italy), Stefano Maci (University of Siena, Italy)*

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7PM2-E-2 P00092
(16:40 ~ 17:00)

Amalgamation of Metamaterial and SIW Technologies for Realizing Wide-Bandwidth and High-Radiation Properties of On-Chip Antennas for Application in Packaging of Terahertz Components...673

**Mohammad Alibakhshikenari (University of Rome Tor Vergata, Italy), Bal S. Virdee (London Metropolitan University, United Kingdom), Chan H. See (Edinburgh Napier University, United Kingdom), Sam Jeffery Fishlock, Navneet Soin, and James McLaughlin (University of Ulster, Ireland), Raed A. Abd-Alhameed (University of Bradford, United Kingdom), Ernesto Limiti (University of Rome Tor Vergata, Italy)*

7PM2-E-3 P00193
(17:00 ~ 17:20)

Beam Steerable High Gain Antenna for 5G Application Using Graded Index Metasurface Lens...675

**AMIT KUMAR SINGH and Seong OoK Park (Korea Advanced Institute of Science and Technology, Korea)*

7PM2-E-4 P00261
(17:20 ~ 17:40)

Reflection-type Multi-focus Metasurface Based on Pancharatnam-Berry Phase Elements...N/A

**Xumin Ding (Harbin Institute of Technology, China)*

7PM2-E-5 P00091
(17:40 ~ 18:00)

Terahertz On-Chip Antenna Based on Metasurface and SIW with Stacked Layers of Resonators on GaAs Substrate...679

**Mohammad Alibakhshikenari (University of Rome Tor Vergata, Italy), Bal S. Virdee (London Metropolitan University, United Kingdom), Chan H. See (Edinburgh Napier University, United Kingdom), Sam Jeffery Fishlock, Navneet Soin, and James McLaughlin (University of Ulster, Ireland), Raed A. Abd-Alhameed (University of Bradford, United Kingdom), Ernesto Limiti (University of Rome "Tor Vergata", Italy)*

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