



## [WeA1] [SS16] Defense Antenna Systems for Aerospace, Surveillance and Reconnaissance

Session Date November 6 (Wed.), 2024

Session Time 12:50–15:10

Session Room Room A

Session Chair Prof. Ick-Jae Yoon (Chungnam National University, Republic of Korea)  
Dr. Youngwan Kim (LIG Nex1 Co., Ltd., Republic of Korea)

[WeA1\_01] 12:50–13:10

Ultra-Wideband Phased Array Antenna for Electronic Warfare in Unmanned Aerial Vehicle

Byeonggi Mun, Tae-Jung Kim, Wang-Yong Lee, Hyosang Moon, and Nam-Woo Choi (LIG Nex1 Co., Ltd., Republic of Korea)

[WeA1\_02] 13:10–13:30

A K-Band 4-Channel Active Phased Array RX Beamformer IC on 65nm CMOS for Satellite Communications

Duyong Seo, Sangpill Lee, and Choongho Song (LIG Nex1 Co., Ltd., Republic of Korea); Moonkyu Cho (Korea National University of Transportation, Republic of Korea); Seungwan Jung (GRIT CIC, Republic of Korea)

[WeA1\_03] 13:30–13:50

Design Results of a Wideband Active Electrically Scanned Array(AESA) Antenna for X-band Satellite Synthetic Aperture Radar(SAR) Application

Gwon Gu Khang, Ho-jun Yang, Yuri Lee, and Jongpil Kim (LIG Nex1 Co., Ltd., Republic of Korea)

[WeA1\_04] 13:50–14:10

A Ka-Band 4-Channel Active Phased Array TX Beamformer IC on 65nm CMOS for Satellite Communications

Yeonsu Na, Sanpill Lee, and Choongho Song (LIG Nex1 Co., Ltd., Republic of Korea); Moonkyu Cho (Korea National University of Transportation, Republic of Korea); Seungwan Jung (GRIT CIC, Republic of Korea)

[WeA1\_05] 14:10–14:30

X-band Isolation Structure Design for Reducing Coupling between Antennas

Young Jin Song and Dohyeon Kim (Soongsil University, Republic of Korea); Hyosang Moon (LIG Nex1 Co., Ltd., Republic of Korea); Sun. K. Hong (Soongsil University, Republic of Korea)

[WeA1\_06] 14:30–14:50

A Cavity-Backed Planar Dipole Antenna with High FBR and Wide Beamwidth for L-Band Applications

Dohyeon Kim and Young Jin Song (Soongsil University, Republic of Korea); Hyosang Moon (LIG Nex1 Co., Ltd., Republic of Korea); Sun. K. Hong (Soongsil University, Republic of Korea)

[WeA1\_07] 14:50–15:10

Design Approach for Radomes Through Ray Tracing, Simulation, and Measurement

Min-Seok Cha and Donghoon Lee (Chungnam National University, Republic of Korea); Jong-Gyun Baek, Dong-Kyun Lee, and Youngwan Kim (LIG Nex1 Co., Ltd., Republic of Korea); Ick-Jae Yoon (Chungnam National University, Republic of Korea)



## [WeB1] [SS18] Antenna and Propagation for 5G and Beyond Part 2

Session Date	November 6 (Wed.), 2024
Session Time	12:50–15:10
Session Room	Room B
Session Chair	Prof. Mohamad kamal A Rahim (Universiti Teknologi Malaysia, Malaysia) Prof. Mohd Haizal jamaluddin ( Universiti Teknologi Malaysia, Malaysia)

### [WeB1\_01]

12:50–13:10

#### Dual-Layer 4x4 Butler Matrix for 5G Application through via Optimization

Fatimah Nur Mohd Redzwan and Nurul Huda Abd Rahman (Universiti Teknologi MARA Shah Alam, Malaysia); Yoshihide Yamada (Universiti Teknologi Malaysia, Malaysia); Suhaila Subahir (Universiti Teknologi MARA Shah Alam, Malaysia); Intan Izafina Idrus (Taylor's University, Malaysia); Noorlindawaty Md Jizat (Multimedia University, Malaysia); Nurfarahin Miswadi (Universiti Teknologi MARA Shah Alam, Malaysia)

### [WeB1\_02]

13:10–13:30

#### Slots Effect on CPW Pentagonal Patch Antenna for 3.5 GHz 5G and 5.9 GHz DSRC Applications

Amier Hafizun Ab Rashid (Universiti Teknikal Malaysia Melaka, Malaysia & Kolej Komuniti Segamat, Malaysia); Badrul Hisham Ahmad and Nornikman Hassan (Universiti Teknikal Malaysia Melaka, Malaysia); Saidatul Norlyna Azemi (Universiti Malaysia Perlis, Malaysia)

### [WeB1\_03]

13:30–13:50

#### Wideband Single-Element MIMO DRA for 5G Millimeterwave Applications

Hamza Ahmad and Mohd Haizal Jamaluddin (Universiti Teknologi Malaysia, Malaysia); Fauziahanim Che Seman (Universiti Tun Hussein Onn Malaysia, Malaysia); Abdullah Abdullah (Chung-Ang University, Republic of Korea); Nida Nasir (Universiti Teknologi Malaysia, Malaysia)

### [WeB1\_04]

13:50–14:10

#### Reconfigurable Dual-Band Reflective Metasurface

Taufiqurrachman, Mohamad Kamal B. A. Rahim, and Noor Asmawati Binti Samsuri (Universiti Teknologi Malaysia, Malaysia); Yusuf Nur Wijayanto (National Research and Innovation Agency (BRIN), Indonesia); Nur Syahirah Mohd Yaziz (Universiti Teknologi Malaysia, Malaysia)

### [WeB1\_05]

14:10–14:30

#### A Dual Broadband Substrate Integrated Waveguide Dielectric Resonator Antenna with T-Slot for 5G mmWave Applications

Nida Nasir and Mohd Haizal Jamaluddin (Universiti Teknologi Malaysia, Malaysia), Nor Hidayu Shahdan (Politeknik Ibrahim Sultan, Malaysia); Hamza Ahmad (Universiti Teknologi Malaysia, Malaysia); Syed Muzahir Abbas (Macquarie University, Australia)

### [WeB1\_06]

14:30–14:50

#### Beamforming at 26/28GHz for 5G Networks: Array Antennas and Rotman Lens Integration

Abd Al Menam A. Alazzawi, Mohamad Kamal A Rahim, Osman Ayop, Noor Asmawati Samsuri, and Noor Asniza Murad (Universiti Teknologi Malaysia, Malaysia)



# ISAP 2024

November 5/Tue. ~ 8/Fri., 2024 | Songdo Convensia, Incheon, Korea

[WeB1\_07]

14:50-15:10

Bistatic Microwave Imaging with Different Transmission Positions Using Multiband Sensors for Breast Tumor Detection

Dalila Misman and Nurul Huda Abd Rahman (Universiti Teknologi MARA Shah Alam, Malaysia); Mohamad Zoinol Abidin Abd. Aziz (Universiti Teknikal Malaysia Melaka, Malaysia)



## [WeC1] [SS29] Korea Antenna Measurements

Session Date November 6 (Wed.), 2024

Session Time 12:50–15:10

Session Room Room C

Session Chair Dr. Michitaka Ameya (National Institute of Advanced Industrial Science and Technology, Japan)  
Prof. Soon-Soo Oh (Chosun University, Republic of Korea)

[WeC1\_01] 12:50–13:10

Efficient Sampling Method for Planar Near-Field to Farfield Transformation Using Gaussian Process Regression

Michitaka Ameya and Yuto Kato (National Institute of Advanced Industrial Science and Technology, Japan)

[WeC1\_02] 13:10–13:30

RF Absorber Treatment Recommendations on Roll over Azimuth Spherical Near Field Anechoic Ranges  
Gwenaël Dun (NSI-MI Technologies, USA & AMETEK S.A.S., France); Mark Ingerson and Vince Rodriguez (NSI-MI Technologies, USA)

[WeC1\_03] 13:30–13:50

Active Probe Array for Spherical Near-Field Measurement of 5G User Equipment

Kangwook Kim (Gwangju Institute of Science and Technology, Republic of Korea); Jinsoup Joung and Byungkwan Jang (Dabin Systems Inc., Republic of Korea); Soon-Soo Oh (Chosun University, Republic of Korea); Jong-Hyuk Lim and Jeongan Lee (National Radio Research Agency, Republic of Korea)

[WeC1\_04] 13:50–14:10

Increasing Antenna Measurement Throughput Using Signal Routing Automation

Eric Kim, Patrick Pelland, Eddy Park, Dave Fooshe, and Stephen Blalock (NSI-MI Technologies, USA)

[WeC1\_05] 14:10–14:30

Active Performance Verification of 28 GHz 5G Beam-Forming Antenna Module Using CATR Chamber

Seho Park and Yena Kim (Korea Radio Promotion Association, Republic of Korea); Hee-Young Kim (Doosan Electronics Co., Ltd., Republic of Korea); Teasoo Moon and Junghyun Park (Anritsu Corporation, Republic of Korea)

[WeC1\_06] 14:30–14:50

Radiated Immunity Test for Platform Screen Door(PSD) Sensors Using Broadband Signals

Seho Park, Geon-Ho Jang, and Young-Choul Lim (Korea Radio Promotion Association, Republic of Korea); Gye-Don Kim and Hyeong-Bae Ahn (National Radio Research Agency, Republic of Korea)

[WeC1\_07] 14:50–15:10

Analysis of Plane-Wave Synthesis Block in the Fresnel Region for Beam Peak Search

Soon-Soo Oh and Kyeong-Min Na (Chosun University, Republic of Korea); Jeongan Lee and Jong-Hyuk Lim (National Radio Research Agency, Republic of Korea)



## [WeD1] [SS07] Antennas and Propagation in Relevance to Space Activities (1/2)

Session Date November 6 (Wed.), 2024

Session Time 12:50–15:10

Session Room Room D

Session Chair: TBA

[WeD1\_01]

12:50–13:10

L Band Array Antenna Design for Data Collection Satellite Payload

Manseok Uhm (Electronics and Telecommunications Research Institute, Republic of Korea); Sangsoo Lee (Microwave Technologies Group Corporation, Republic of Korea); Sohyeun Yun (Electronics and Telecommunications Research Institute, Republic of Korea); Yongdeuk Lee (Microwave Technologies Group Corporation, Republic of Korea); Hongyeol Lee and Dongpil Chang (Electronics and Telecommunications Research Institute, Republic of Korea)

[WeD1\_02]

13:10–13:30

Development and Mission Objectives of KOMPSAT-6 and Next Advanced SAR Satellite System

Byoung-Gyun Lim, Seon-Ho Lee, Jae-Cheol Yoon, and Jin-Hee Kim (Korea Aerospace Research Institute, Republic of Korea)

[WeD1\_03]

13:30–13:50

Spaceborne SAR Antenna Development Status and Plans Suitable for Tip and Cue Monitoring

Jinbong Sung, Seyoung Kim, Jonghwan Lee, Dongwoo Yi, Jiho Ryu, and Jaeduk Lee (Agency for Defense Development, Republic of Korea)

[WeD1\_04]

13:50–14:10

Research and Development of Phased Array Antenna System with Ultra-Wideband Elements

Takashi Maeda, Yuta Kobayashi, Tsutomu Yano, Nguyen Tat Trung, and Naoya Tomii (Japan Aerospace Exploration Agency, Japan)

[WeD1\_05]

14:10–14:30

Novel Multiply-Deployable Array Antenna with Hexagonal Panels for Space Activity

Tadashi Takano, Ryuya Ban, and Kenji Saegusa (Nihon University, Japan)

[WeD1\_06]

14:30–14:50

Measurement Result of Broadband Reflectarray Antenna by Controlling Phase Center of Primary Radiator for Space Application

Ryusei Yamada and Toru Fukasawa (Kanazawa Institute of Technology, Japan); Shinichi Yamamoto, Yasuhiro Nishioka, and Naoya Noguchi (Mitsubishi Electric Corporation, Japan); Shigeru Makino (Kanazawa Institute of Technology, Japan)

[WeD1\_07]

14:50–15:10

A Study on Miniaturized Patch Antenna Array with Circular Polarization for Earth Sensing Platform via LEO Satellite

Hayato Furumido, Takashi Hikage, and Manabu Yamamoto (Hokkaido University, Japan); Kazumitsu Sakamoto and Yosuke Fujino (NTT Corporation, Japan)





[WeE1] [SS05] IEEE AP-S TCAM Sponsored Antenna Measurement Session: Emerging Techniques for mmW/THz Coverage Design and Expansion

Session Date	November 6 (Wed.), 2024
Session Time	12:50–15:10
Session Room	Room E
Session Chair	Prof. Wonbin Hong (Pohang University of Science and Technology, Republic of Korea) Prof. Minseok Kim (Niigata University, Japan)

[WeE1\_01] 12:50–13:10

A Study on Application Effect of RIS on Channel Capacity in Urban Macrocell Environment  
Kyohei Kusano and Tetsuro Imai (Tokyo Denki University, Japan)

[WeE1\_02] 13:10–13:30

Point-to-Point Reflector Design for Illuminating Designated Region at 28 GHz Band  
Cong Minh Hieu Le, Yuxuan Zhang, Hang Song, Nopphon Keerativoranan, and Jun-ichi Takada (Tokyo Institute of Technology, Japan)

[WeE1\_03] 13:30–13:50

Measurement-Based Indoor Channel Capacity Analysis at 300 GHz for Coverage Design  
Minghe Mao (Niigata University, Japan); Anirban Ghosh (Niigata University, Japan & SRM University Andhra Pradesh, India); Minseok Kim (Niigata University, Japan)

[WeE1\_04] 13:50–14:10

Real-Time Control Verification of Reconfigurable Intelligent Surface (RIS) Integrated with Direction of Arrival (DoA) Systems  
Donggeun An, Youngno Youn, Daehyeon Kim, Wonhyung Heo, Myeonggin Hwang, Suho Chang, and Wonbin Hong (Pohang University of Science and Technology, Republic of Korea)

[WeE1\_05] 14:10–14:30

Streamlined Characterization Methodology for Chip-Level Antenna Performance : Electrical and Mechanical Analysis and Optimization  
Dongseop Lee, Bahrami Sirous, and Wonbin Hong (Pohang University of Science and Technology, Republic of Korea)

[WeE1\_06] 14:30–14:50

Terahertz Measurements for Wideband Metasurfaces  
Hang Wong and Yat Sing To (City University of Hong Kong, Hong Kong, China)

[WeE1\_07] 14:50–15:10

A Study on CNN-Based Rain Attenuation Prediction Considering Spatial Characteristics for Millimeter Wave Propagation  
Edgar Mujuni and Miyuki Hirose (Kyushu Institute of Technology, Japan); Tetsuro Imai (Tokyo Denki University, Japan)



## [WeF1] Antennas and Propagation for Vehicular Communications

Session Date	November 6 (Wed.), 2024
Session Time	12:50–14:50
Session Room	Room F
Session Chair:	Dr. Rocio Rodriguez Cano (Aalborg University, Denmark)

[WeF1\_01] 12:50–13:10

### Multiband, Dual-Strip Biplanar Monopole for Internet of Things Applications

Saou-Wen Su (National Kaohsiung University of Science and Technology, Taiwan); Yen-Liang Kuo (HTC Corporation, Taiwan)

[WeF1\_02] 13:10–13:30

### Broadband Enhancement of mm-Wave Radiation through Glass for 5G Phones

Rocio Rodriguez-Cano, Kun Zhao, and Shuai Zhang (Aalborg University, Denmark)

[WeF1\_03] 13:30–13:50

### Reconfigurable mmWave Planar Phased Array

Saiful Islam and Hyoungsuk Yoo (Hanyang University, Republic of Korea)

[WeF1\_04] 13:50–14:10

### Position and Polarization Effect Analysis on Received Power of Vehicular Antenna

Yuika Nakayama, Eisuke Nishiyama (Saga University, Japan); Ryo Yamaguchi, Kazuma Tomimoto, Masayuki Miyashita (SoftBank Corp., Japan); Ichihiko Toyoda (Saga University, Japan)

[WeF1\_05] 14:10–14:30

### Effect of Radio Wave Absorber in Vehicle Communication for Co-Channel Full-Duplex

Junya Uchida and Mitoshi Fujimoto (University of Fukui, Japan); Ryo Yamaguchi and Kazuma Tomimoto (SoftBank Corp., Japan)

[WeF1\_06] 14:30–14:50

### Doppler Spectrum Generation Method Considering Unsteady Moving Scatterers in V2V Communications

Tatsuya Kutsukawa and Hiroaki Nakabayashi (Chiba Institute of Technology, Japan)



## [WeG1] [SS15] WPT for Sustainable Wireless Systems and Scattering/Diffraction/RCS

Session Date: November 6 (Wed.), 2024

Session Time: 12:50–15:10

Session Room: Room G

Session Chair:  
Prof. Qiaowei Yuan (Tohoku Institute of Technology, Japan)  
Prof. Sangkil Kim (Pusan National University, Republic of Korea)

[WeG1\_01] 12:50–13:10

Far-field Energy Harvesting System for ePaper Display

Nohyeom Ha, Gyoungdeuk Kim, and Sangkil Kim (Pusan National University, Republic of Korea)

[WeG1\_02] 13:10–13:30

Development of a High Total Efficiency Beam-Forming Antenna with a Flat-Top Beam in Radiative-Near-Field Wireless Power Transfer

Naoki Shinohara, Yuuki Kagata, Bo Yang, and Tomohiko Mitani (Kyoto University, Japan)

[WeG1\_03] 13:30–13:50

Accuracy Improvement of Magnetic Field Measurement in WPT Systems

Yunchong Tang and Qiaowei Yuan (Tohoku Institute of Technology, Japan)

[WeG1\_04] 13:50–14:10

Batteryless NFC Sensor Tag for Temperature Threshold Monitoring

Richard Fischbacher (Graz University of Technology, Austria & Silicon Austria Labs, Austria); Lukas Görtschacher (NXP Semiconductors, Austria); Bernhard Auinger (Silicon Austria Labs, Austria); Wolfgang Bösch and asmin Grosinnger (Graz University of Technology, Austria)

[WeG1\_05] 14:10–14:30

Efficient Wide-Power-Range RF Power Harvesting System for Self-Sustainable Wireless Sensor Nodes

Kuo Guan, Lei Guo, and Xuwang Li (Dalian University of Technology, China); Yangping Zhao (Shenzhen University, China); Ke Wu (Polytechnique Montréal, Canada)

[WeG1\_06] 14:30–14:50

Near-Field WPT for Sustainable Wireless Systems

Jasmin Grosinger (Graz University of Technology, Austria & Tohoku University, Japan)

[WeG1\_07] 14:50–15:10

Estimation Method of Bistatic Scattering Field for Reflectarray with Various Angle of Incidence

Keiji Sawairi, Hiroshi Hashiguchi, and Naobumi Michishita (National Defense Academy, Japan)





## [WeH1] [SS27] Intelligent Antennas, Metasurfaces, and Systems for B5G and 6G

Session Date: November 6 (Wed.), 2024

Session Time: 12:50–15:10

Session Room: Room H

Session Chair: Dr. Shu-Lin Chen (University of Technology Sydney, Australia)  
Dr. Maral Ansari (Commonwealth Scientific and Industrial Research Organisation, Australia)

[WeH1\_01] [Invited Paper] 12:50–13:10

### Physical Optics Applied to 2-D PPW Lens Antennas

Mingzheng Chen and Pilar Castillo-Tapia (KTH Royal Institute of Technology, Sweden); Francisco Mesa (University of Seville, Spain); Oscar Quevedo-Terue (KTH Royal Institute of Technology, Sweden)

[WeH1\_02] [Invited Paper] 13:10–13:30

### All-Dielectric Terahertz 1D Leaky-Wave Antenna Based on Vertically Asymmetric Grating

Miantong Sun (Terahertz Engineering Laboratory, Australia); Nghia Nguyen-Trong (Nextwaves Industries Pte. Ltd., Singapore); Withawat Withayachumnankul (Terahertz Engineering Laboratory, Australia)

[WeH1\_03] 13:30–13:50

### A Dual-Band Circular Polarization Selective Surface at $Q/V$ -Band

Yuan Li (Southeast University, China); Kunjing Zhong (ZTE Corporation, China); Zhi Hao Jiang and Wei Hong (Southeast University, China)

[WeH1\_04] 13:50–14:10

### Dispersion Analysis of Quasi Twist-Symmetric Structures

Hairu Wang, Oskar Zetterstrom (KTH Royal Institute of Technology, Sweden); Francisco Mesa (Universidad de Sevilla, Spain); Oscar Quevedo-Teruel (KTH Royal Institute of Technology, Sweden)

[WeH1\_05] 14:10–14:30

### Low Sidelobe Design of Comb-Line Array Antenna Using Modified Stubs in Millimeter-Wave Band

Jae-Ho Lee (Kunsan National University, Republic of Korea); Dong-Wook Seo (Korea Maritime & Ocean University, Republic of Korea)

[WeH1\_06] 14:30–14:50

### Low-Sidelobe Design of Intelligent Reflecting Surface Using Liquid Crystal

Hiroyasu Sato, Rio Matsuda, Hideo Fujikake, and Qiang Chen (Tohoku University, Japan)

[WeH1\_07] 14:50–15:10

### Prototype Evaluation of a Metasurface for Sub-6 GHz Beam Tilting Applied to Glass Surface

Masafumi Kawaguchi, Riku Ohtaki, and Keizo Cho (Chiba Institute of Technology, Japan); Keiya Uchida, Masashi Yamamoto, and Yuki Inoue (NTT Docomo Inc., Japan)



[WeA2] [SS26] Antenna Applications for RADAR Systems

Session Date November 6 (Wed.), 2024

Session Time 16:10–18:30

Session Room Room A

Session Chair Dr. Ji Hyun Jung (Hanwha Systems Co., Ltd., Republic of Korea)  
Dr. Kyunghyun Oh (Hanwha Systems Co., Ltd., Republic of Korea)

[WeA2\_01] 16:10–16:30

Design of Phased Array-fed Reflector Antenna with Improved Aperture Efficiency Using Beam Synthesis  
Sungsik Ohm, Wongu Seo, Seulgi Park, Kihun Kim, and Sungkyun Park (Hanwha Systems Co., Ltd., Republic of Korea)

[WeA2\_02] 16:30–16:50

Acceleration Method of Antenna Calibration for Fully Digital Radar Using OFDM  
Minkyu Park, Wooyong Yang, and Chanhong Park (Hanwha Systems Co., Ltd., Republic of Korea); Dongjin Yeom and Sanghyun Park (Agency for Defense Development, Republic of Korea)

[WeA2\_03] 16:50–17:10

Study on Antenna Beam Performance for Next-Generation SAR Satellite  
Sungpeel Kim, Donghyun Kim, Yong Hyeok Lee, and Seong Sik Yoon (Hanwha Systems Co., Ltd., Republic of Korea)

[WeA2\_04] 17:10–17:30

Large-Scale Phased Array Antenna Phase-Only Beam Broadening  
David Lobzhanidze, Nam Moon Kim, and Ji Hyun Jung (Hanwha Systems Co., Ltd., Republic of Korea)

[WeA2\_05] 17:30–17:50

Design and Electrical Performance Analysis of Mesh Reflector Antenna for SAR Satellite  
Changwon Seo, Sia Lee, Insung Park, and Seong Sik Yoon (Hanwha Systems Co., Ltd., Republic of Korea); Kitae Park, Seung Eun Ka, and Jae W. Lee (Korea Aerospace University, Republic of Korea)

[WeA2\_06] 17:50–18:10

Analysis of the Kriging Interpolation for Estimating an Atmospheric Refractivity in Korea  
Doyoung Jang (Hanwha Systems Co., Ltd., Republic of Korea); Hosung Choo (Hongik University, Republic of Korea); Nammoon Kim (Hanwha Systems Co., Ltd., Republic of Korea)

[WeA2\_07] 18:10–18:30

Development of X-Band Conformal Antenna for UAV  
G. Kim, J. Heo, Y. Jung, and B. Lee (Hanwha Systems Co., Ltd., Republic of Korea); H. Park and S. Seo (Agency for Defense Development, Republic of Korea); D. Lee and K. Hwang (Sungkyunkwan University, Republic of Korea)



## [WeB2] [SS17] Antenna and Propagation for 5G and Beyond Part 1

Session Date	November 6 (Wed.), 2024
Session Time	16:10–18:50
Session Room	Room B
Session Chair	Prof. Azremi Abdullah Al-Hadi (Universiti Malaysia Perlis, Malaysia) Prof. Mohamad Zoinol Abidin Abd Aziz (Universiti Teknikal Malaysia Melaka, Malaysia)

### [WeB2\_01]

16:10–16:30

#### Design and Optimization of a CPW–Fed Patch Antenna for Ground Penetrating Radar Using APAST

Mohd Syahir Ahmad Azhari and Saidatul Norlyana Azemi (Universiti Malaysia Perlis, Malaysia); Mimi Diana Ghazali (Universiti Teknologi MARA, Malaysia); Che Muhammad Nor Che Isa, Azremi Abdullah Al Hadi, and Ainur Fasiah Mohd Fazilah (Universiti Malaysia Perlis, Malaysia)

### [WeB2\_02]

16:30–16:50

#### Tri-Band Minkowski Island Split Ring Resonator Patch Antenna for WLAN and 5G Applications

Nornikman Hassan and Badrul Hisham Ahmad (Universiti Teknikal Malaysia Melaka, Malaysia); Amier Hafizun Ab Rashid (Universiti Teknikal Malaysia Melaka, Malaysia & Kolej Komuniti Segamat, Malaysia); Saidatul Norlyna Azemi (Universiti Malaysia Perlis, Malaysia)

### [WeB2\_03]

16:50–17:10

#### Reflective Metasurface on Different Position of Fractal Koch Shape

Nur Syahirah Mohd Yaziz, Mohamad Kamal A. Rahim, Farid Zubir, Noor Asmawati Samsuri, and Nabilah Ripin (Universiti Teknologi Malaysia, Malaysia); Taufiqurrachman (National Research and Innovation Agency, Indonesia)

### [WeB2\_04]

17:10–17:30

#### Partial Discharge Detection Using Log–Periodic Antenna

Zulbirri Faizol, Farid Zubir, Abdulkadir B. Shallah, Mohd Hafizi Ahmad, Norhafezaidi Mat Saman, Mohamad Kamal A. Rahim, Osman Ayop, and Mohamad Rijal Hamid (Universiti Teknologi Malaysia, Malaysia)

### [WeB2\_05]

17:30–17:50

#### On–Body Performance Analysis of Wearable Antipodal Vivaldi Antenna for 5G Applications

Sadia Afroz, Azremi Abdullah Al-Hadi, Saidatul Norlyana Azemi, Wee Fwen Hoon, Surentiran Padmanathan, Che Muhammad Nor Che Isa, and Bikash Chandra Sahoo (Universiti Malaysia Perlis, Malaysia); Yen San Loh, Lun Hao Tung, Lai Ming Lim, Zambri Samsudin, and Idris Mansor (Jabil Circuits Sdn. Bhd., Malaysia); Ping Jack Soh (University of Oulu, Finland)

### [WeB2\_06]

17:50–18:10

#### Analysis of Bending and Human Body Effects of Compact Full Flexible Antipodal Vivaldi Antenna for 3.5 GHz in 5G sub–6 GHz Wearable Applications

Bikash Chandra Sahoo, Azremi Abdullah Al-Hadi, Saidatul Norlyana Azemi, Wee Fwen Hoon, Surentiran Padmanathan, Che Muhammad Nor Che Isa, and Sadia Afroz (Universiti Malaysia Perlis, Malaysia); Yen San Loh, Muhammad Syahir Mahyuddin, Lai Ming Lim, Zambri Samsudin, and Idris Mansor (Jabil Circuits Sdn. Bhd., Malaysia); Ping Jack Soh (University of Oulu, Finland)



# ISAP 2024

November 5/Tue. ~ 8/Fri., 2024 | Songdo Convensia, Incheon, Korea

[WeB2\_07]

18:10-18:30

Multibeam Radiation Patterns of Positive and Negative Index Lens Antennas

I. H. Idris (National Defence University of Malaysia, Malaysia); M. F. Al-Ghifarry, K. Kamardin, and Y. Yamada (Universiti Teknologi Malaysia, Malaysia); M. T. Jusoh (National Defence University of Malaysia, Malaysia)

[WeB2\_08]

18:30-18:50

Wearable Wideband High-Gain Low-SAR Antenna with Bending and Wet Conditions Analysis at Sub-6 GHz 5G Band

Shehab Khan Noor and Muzammil Jusoh (Universiti Malaysia Perlis, Malaysia); Huda A. Majid (Universiti Tun Hussein Onn Malaysia, Malaysia); Thennarasan Sabapathy (Universiti Malaysia Perlis, Malaysia); Samir Salem Al-Bawri (Universiti Kebangsaan Malaysia, Malaysia); Mudrik Alydrus (Universitas Mercu Buana, Indonesia); Mat Nor Mohd Ismail (Universiti Malaysia Perlis, Malaysia)



## [WeC2] [SS01] HF/VHF Antennas and mmW/sub-THz Antennas

Session Date November 6 (Wed.), 2024

Session Time 16:10–18:30

Session Room Room C

Session Chair Prof. Kunio Sakakibara (Nagoya Institute of Technology, Japan)

Prof. Hang Wong (City University of Hong Kong, Hong Kong, China)

[WeC2\_01]

16:10–16:30

Wide-Angle Multi-Beam Spherical Homogeneous Dielectric Lens Antenna in 270 GHz Band

Yoshiki Sugimoto, Takeyuki Tsuchida, Shota Takada, Kunio Sakakibara, Takanori Narita, and Nobuyoshi Kikuma (Nagoya Institute of Technology, Japan)

[WeC2\_02]

16:30–16:50

Substrate-Integrated Inverted-L Monopole Array for Sub-THz High-Coverage Mobile Communications

Alberto Hernández-Escobar (Universidad de Málaga, Spain & Tokyo Institute of Technology, Japan); Takashi Tomura (Tokyo Institute of Technology, Japan)

[WeC2\_03]

16:50–17:10

A Ka-Band Amplitude and Phase Controllable Transmitarray Based on 3D-Printing Technology

Pin-Hong Chen, Chia-Kai Wang, and Tzyh-Ghuang Ma (National Taiwan University of Science and Technology, Taiwan)

[WeC2\_04]

17:10–17:30

A Hexagonally Shaped Unit Cell for Holographic-Based Leaky Wave Antennas

Thomas Frey, Aurel Baader, Maximilian Döring, Christian Waldschmidt, and Tobias Chaloun (Ulm University, Germany)

[WeC2\_05]

17:30–17:50

Dual-Polarized Dual-Band Leaky-Wave Antenna-in Package Concept Based on Dual-Mode Grid-Shaped Microstrip Line for Upper-Mid Band and Millimeter-Wave Applications

Dongseop Lee, Sirous Bahrami, Jeonghyo Lee, Myoungsun Kim, Geon Park, and Wonbin Hong (Pohang University of Science and Technology, Republic of Korea)

[WeC2\_06]

17:50–18:10

Microwave and Millimeter-Wave Metasurfaces for Integrated Satellite-Terrestrial Communications

Shuai Gao and Hang Wong (City University of Hong Kong, Hong Kong, China)

[WeC2\_07]

18:10–18:30

Frequency Reconfigurable Miniature Monopole Antenna Using Magneto-Dielectric Material

Evan Grimaud, Ala Sharaiha, and Anne-Claude Tarot (IETR-University of Rennes, France); Jean-Luc Mattei, Alexis Chevalier, and Hanadi Breiss (Université de Bretagne Occidentale, France & Laboratoire des Sciences et Techniques de l'information de la Communication et de la Connaissance, France); Richard Lebourgeois (Thales Research and Technology, France); Rachid Jaoui (Direction générale de l'Armement, France)





[WeD2] [SS07] Antennas and Propagation in Relevance to Space Activities (2/2)

Session Date	November 6 (Wed.), 2024
Session Time	16:10–18:10
Session Room	Room D
Session Chair	TBA

[WeD2\_01] 16:10–16:30

An Effect of Time Reversal Based Multiple Beacon Selection on Wireless Power Transfer Performance  
Young-seok Lee, Jungsuek Oh, and Sangwook Nam (Seoul National University, Republic of Korea)

[WeD2\_02] 16:30–16:50

Numerical Estimation of Indoor Propagation Characteristics Considering Human–Body Shadowing for Beam–Type Wireless Power Transfer  
Yugo Shimoyachi, Kohsuke Ushimaru, and Takashi Hikage (Hokkaido University, Japan)

[WeD2\_03] 16:50–17:10

Design of PCB–Based Spiral Radiation Elements for Radial Line Slot Antenna  
Gen Nakayama and Takashi Tomura (Tokyo Institute of Technology, Japan)

[WeD2\_04] 17:10–17:30

Iterative Weight Calculation for Beamforming with Broad Nulls in Microwave Power Transfer  
Zhengdong Lin, Hiroyuki Morikawa, and Yoshiaki Narusue (The University of Tokyo, Japan)

[WeD2\_05] 17:30–17:50

Experimental Verification of Ultra–Broadband Double–Layer Hexagonal Metamaterial Absorber Composed with Rhombus Carbon Tiles  
Yongjune Kim (The University of Suwon, Republic of Korea); Yehrin Jo, Min–Ah Yoon, Won–Woo Choi, Kichul Kim (Center for Advanced Meta–Materials, Republic of Korea); Keon–Soo Jang (The University of Suwon, Republic of Korea); Hakjoo Lee (Center for Advanced Meta–Materials, Republic of Korea)

[WeD2\_06] 17:50–18:10

Low–Cost Phased Array with Switchable Dual Circular Polarization Based on Subarray  
Hui Ying Hou and Yu Jian Cheng (University of Electronic Science and Technology of China, China)



## [WeE2] [SS14] Radio Wave Propagation Researches in Terahertz Band

Session Date	November 6 (Wed.), 2024
Session Time	16:10–18:30
Session Room	Room E
Session Chair	TBA

[WeE2\_01] 16:10–16:30

Measurement and Modeling of Basic Transmission Loss in Factory Environments at 300 GHz Frequency under LOS Conditions

Seok Yoon, Taehong Kim, and Junoh An (Institute for Future Radio Engineering, Republic of Korea); Jangsuk Choi and Hyunji Bae (National Radio Research Agency, Republic of Korea)

[WeE2\_02] 16:30–16:50

Characteristics of Window Penetration Loss (WinPL) and Its Impact on ITU-R Building Entry Loss (BEL) Models

Young Chul Lee, Seongwon Oh, and Chul Woo Byeon (Mokpo National Maritime University, Republic of Korea)

[WeE2\_03] 16:50–17:10

Antenna Misalignment Effect for Kiosk Data Downloading Environment at 285GHz

Jinhyung Oh and Jong Ho Kim (Electronics and Telecommunications Research Institute, Republic of Korea)

[WeE2\_04] 17:10–17:30

mm-Wave/sub-THz Hemispherical Far-Field Measurement System Supporting Various Testing Scenarios: Research Survey and Possibility

Jae-Yeong Lee (Electronics and Telecommunications Research Institute, Republic of Korea & Pohang University of Science and Technology, Republic of Korea); Dong-Young Kim and Eui-Su Lee (Electronics and Telecommunications Research Institute, Republic of Korea); Taehyung Kim (Ansys Korea, Republic of Korea); Wonbin Hong (Pohang University of Science and Technology, Republic of Korea)

[WeE2\_05] 17:30–17:50

Analysis of Rain Attenuation Statistics at 50–70 GHz and 240–300 GHz

Heejun Park, Jangsuk Choi, and Hyunji Bae (National Radio Research Agency, Republic of Korea)

[WeE2\_06] 17:50–18:10

Human Blockage Measurement Using Robot Platform

Jae-Yong Kwon and Woohyun Chung (Korea Research Institute of Standards and Science, Republic of Korea); Jong Ho Kim (Electronics and Telecommunications Research Institute, Republic of Korea); Jangsuk Choi (National Radio Research Agency, Republic of Korea)

[WeE2\_07] 18:10–18:30

Thermoelectric Circularly Polarized Z-Shaped Nanoantenna for Infrared Polarimetry

Yudhistira Yudhistira and Sangjo Choi (Kyungpook National University, Republic of Korea)



## [WeF2] [SS12] Special Session on Integrated Sensing-and-Communications

Session Date	November 6 (Wed.), 2024
Session Time	16:10-18:30
Session Room	Room F
Session Chair	Prof. Seung-Woo Ko (Inha University, Republic of Korea)

[WeF2\_01] 16:10-16:30

### Integration of GAT and GCN for WiFi Positioning

Yu-Jin Moon and Seung-Woo Ko (Inha University, Republic of Korea)

[WeF2\_02] 16:30-16:50

### Analysis on Degree of Symmetry in Both Legs with Walking Motion Using a Compact Radar Sensor

Inoh Choi (Pukyong National University, Republic of Korea); Min Kim (Korea Institute of Ocean Science and Technology, Republic of Korea); Sangbin Cha (Pukyong National University, Republic of Korea); Eugin Hyun, Youngseok Jin, and Jieun Bae (Daegu Gyeongbuk Institute of Science and Technology, Republic of Korea)

[WeF2\_03] 16:50-17:10

### Near-Field Localization for Coprime Array

Cong Zhou (Southern University of Science and Technology, China & Harbin Institute of Technology, China); Hongqiang Cheng and Changsheng You (Southern University of Science and Technology, China)

[WeF2\_04] 17:10-17:30

### Robust Keypoint Learning Framework for Visual Odometry in Dynamic Environments

Suji Kim and Inwook Shim (Inha University, Republic of Korea)

[WeF2\_05] 17:30-17:50

### Integrated Sensing and Communications Signal SINR Prediction with Multi-Beam Statistical Channel

Xinhao Li, Yihang Jiang, Fanyi Meng, Xiaoyang Li, Kaifeng Han, and Guangxu Zhu (The Chinese University of Hong Kong, China & China Academy of Information and Communications Technology, China)

[WeF2\_06] 17:50-18:10

### A Novel Low-Profile Ka-Band Circularly Polarized Double-Folded Transmitarray Antenna

Youhui Feng, Shengchi Zhu, and Zhenxin Cao (Southeast University, China)

[WeF2\_07] 18:10-18:30

### Path Loss Measurements and Analysis in an Urban Low-Rise/Suburban Environment at 159 GHz

Myung-Don Kim, Jae-Joon Park, Juyul Lee, Kyung-Won Kim, Byung Su Kang, and Heon Kook Kwon (Electronics and Telecommunications Research Institute, Republic of Korea)



[WeG2] [SS25] Computational Electromagnetic Modeling for Classical and Quantum Applications

Session Date November 6 (Wed.), 2024

Session Time 16:10–18:30

Session Room Room G

Session Chair TBA

[WeG2\_01] [Invited Paper]

16:10–16:30

Numerical Analysis of Electromagnetic Scattering from Extremely Large Platform Based on Discontinuous Galerkin Integral Equation

Chung Hyun Lee (Hyundai Mobis Company, Republic of Korea)

[WeG2\_02] [Invited Paper]

16:30–16:50

Fast Automatic Mesh Generation Method for FDTD Solver

Ming Fang, Zhitao Rao, Jian Feng, and Zhixiang Huang (Anhui University, China); Wei E. I. Sha (Hangzhou University, China); Xianliang Wu (Anhui University, China)

[WeG2\_03]

16:50–17:10

Numerical Modeling of Dissipative Cavity Quantum Electrodynamics without Markovian Approximation

Dong–Yeop Na (Pohang University of Science and Technology, Republic of Korea); Weng Cho Chew (Purdue University, USA)

[WeG2\_04]

17:10–17:30

Scattering of Non–Classical Lights in N–Port Systems

Bowoo Jang and Dong–Yeop Na (Pohang University of Science and Technology, Republic of Korea)

[WeG2\_05]

17:30–17:50

Body–of–Revolution Electromagnetic Particle–in–Cell Simulations on Unstructured Meshes for Modeling Lunar Magnetic Anomalies

Hong Bin Kim and Dong–Yeop Na (Pohang University of Science and Technology, Republic of Korea)

[WeG2\_06]

17:50–18:10

Mixed E–B Finite–Element Time–Domain Scheme for Modeling Nonreciprocal Radiative Cooling Structures

Jun Heo and Dong–Yeop Na (Pohang University of Science and Technology, Republic of Korea)

[WeG2\_07]

18:10–18:30

A Study on Fast Inverse Laplace Transform for Transient Electromagnetic Analyses

Koki Watanabe (Fukuoka Institute of Technology, Japan)



[WeH2] [SS13] Recent Advances and Applications of Intelligent Metasurface and Periodic Structure

Session Date November 6 (Wed.), 2024

Session Time 16:10–18:30

Session Room Room H

Session Chair Prof. Kwok L. Chung (Huizhou University, China)  
Prof. Hailiang Zhu (Northwestern Polytechnical University, China)

[WeH2\_01] 16:10–16:30

Frequency Reconfigurable Frequency Selective Surface Based on PIN Diodes

Huairan Zhou, Hailiang Zhu, Jiankai Xu, Yujie Di, and Gengchen Wang (Northwestern Polytechnical University, China)

[WeH2\_02] 16:30–16:50

Combined L-Shaped Broadband Metasurface Absorber

Gengchen Wang, Hailiang Zhu, Huairan Zhou, Yujie Di, Jiankai Xu, and Mengzhe He (Northwestern Polytechnical University, China)

[WeH2\_03] 16:50–17:10

A Semi-Transmissive Cylindrical Metasurface Enabled Dual-Band Shared-Aperture DRA

Xing-Yu Cheng and Can Ding (University of Technology Sydney, Australia); Richard W. Ziolkowski (The University of Arizona, USA)

[WeH2\_04] 17:10–17:30

An Overview of Self-Powered Reconfigurable Metasurfaces (SPRM): A Brief Review

Kwok L. Chung (Huizhou University, China)

[WeH2\_05] 17:30–17:50

Design of a Compact Low-Profile Wideband Metasurface Antenna

Wei Zhu, Mei Li, and Ming-Chun Tang (Chongqing University, China)

[WeH2\_06] 17:50–18:10

Exploiting Symmetries for the Dispersion Analysis of Periodic Structures

Jesus M. Jimenez-Suarez (KTH Royal Institute of Technology, Sweden); Francisco Mesa (Universidad de Sevilla, Spain); Oscar Quevedo-Teruel (KTH Royal Institute of Technology, Sweden)

[WeH2\_07] 18:10–18:30

Angular Selective in Periodic Structures: Performance, Methods, and Prospects

Yaojia Yang, Fan Yang, Shenheng Xu, and Maokun Li (Tsinghua University, China)





# ISAP 2024

November 5/Tue. ~ 8/Fri., 2024 | Songdo Convensia, Incheon, Korea

## [ThA1] [SS02] Advanced Antenna Systems for Accelerating Innovation of mmW/THz Industry

Session Date November 7 (Thu.), 2024

Session Time 11:00–12:40

Session Room Room A

Session Chair Dr. Jae–Yeong Lee (Electronics and Telecommunications Research Institute, Republic of Korea)

[ThA1\_01]

11:00–11:20

Design and Consideration of Broadband 60–GHz Antenna in Package

Tae Hwan Jang (Hanyang University, Republic of Korea); Hong Yi Kim (Korea Advanced Institute of Science and Technology, Republic of Korea)

[ThA1\_02]

11:20–11:40

Millimeter–Wave/Sub–Terahertz Absorber/Reflector/Radome Design

Sangyeop Lee (Tokyo Institute of Technology, Japan)

[ThA1\_03]

11:40–12:00

High Gain and Low Gain Roll–Off Mechanically Beam–Steerable Transmitarray Antennas

Peng Mei and Shuai Zhang (Aalborg Univerisity, Denmark)

[ThA1\_04]

12:00–12:20

A 33 GHz 2D Beam Scanning Lens Antenna with Center Tapering for SATCOM Applications

Seongwoog Oh (Kwangwoon University, Republic of Korea)

[ThA1\_05]

12:20–12:40

Terahertz R&D Status and Future Strategy, Radio Propagaion Perspective in RRA

Jangsuk Choi and Hyunji Bae (National Radio Research Agency, Republic of Korea)



## [ThB1] [SS04] Recent Trends in Beam-Scanning Antennas for 5G and B5G Applications

Session Date November 7 (Thu.), 2024

Session Time 11:00–12:40

Session Room Room B

Session Chair Dr. Anirban Sarkar (Indian Institute of Technology Mandi, India)  
Dr. Somak Bhattacharyya (Indian Institute of Technology (BHU) Varanasi, India)

[ThB1\_01] 11:00–11:20

A Metasurface-Based Dual Passband Filter with Sharp Rejection Band for Navigational Applications  
Vishnu Kumar Mishra, Ravi Kumar (Indian Institute of Technology (BHU) Varanasi, India); Biswajeet Mukherjee (University of Delhi, India); Vinit Kumar, Jolly Dhar (Indian Space Research Organisation, India); M. Thottapan, and Somak Bhattacharyya (Indian Institute of Technology (BHU) Varanasi, India)

[ThB1\_02] 11:20–11:40

A Phase Gradient Metasurface for Anomalous Reflection  
Goundla Srucharani, Akhila Gouda, and Saptarshi Ghosh (Indian Institute of Technology Indore, India)

[ThB1\_03] 11:40–12:00

A Terahertz Fully Compressed Elliptical Luneberg Lens with Wide-Angle Beamsteering  
Kumari Surbhi and Amit Kumar Singh (Indian Institute of Technology, Patna, India)

[ThB1\_04] 12:00–12:20

Independent Control of Spatial Wavefront of Beam Scanning Antenna with Transmissive Phase Gradient Metasurface  
Ravi Anand (Indian Institute of Technology Mandi, India); Amine Mezghani (University of Manitoba, Canada); Anirban Sarkar (Indian Institute of Technology Mandi, India)

[ThB1\_05] 12:20–12:40

Fixed-Frequency Beam-Scanning Microstrip Leaky-Wave Antenna for Ku-Band Applications  
Ravi Anand (Indian Institute of Technology Mandi, India); Debabrata Kumar Karmokar (University of South Australia, Australia); Anirban Sarkar (Indian Institute of Technology Mandi, India)



[ThC1] [SS08] IAET Special Session: Antenna Technologies for 5G/6G and Wi-Fi 6E/7 Communications

Session Date November 7 (Thu.), 2024

Session Time 11:00–12:40

Session Room Room C

Session Chair Prof. Chow–Yen–Desmond Sim (Feng Chia University, Taiwan)  
Prof. Saou–Wen Su (National Kaohsiung University of Science and Technology, Taiwan)

[ThC1\_01] 11:00–11:20

Planar, Metal–Plate Shorted Monopole for Wi–Fi 7 and 6G Applications

Saou–Wen Su (National Kaohsiung University of Science and Technology, Taiwan); Yen–Liang Kuo (HTC Corporation, Taiwan)

[ThC1\_02] 11:20–11:40

Compact MIMO Closed–Slot Antennas for 2.4/5/6 GHz Laptops

Shu–Chuan Chen, Shao–Hung Cheng (National Defense University, Taiwan); Yu–Jen Chen (National Yunlin University of Science and Technology, Taiwan)

[ThC1\_03] 11:40–12:00

Eight–Port MIMO Slot Antennas for Wi–Fi 7 Access Point Applications

Cheng–Yi Ye, Bing–Hong Cai, and Wen–Shan Chen (Southern Taiwan University of Science and Technology, Taiwan)

[ThC1\_04] 12:00–12:20

A Dual Antenna Pair Design for Wi–Fi 7 Laptop Applications

Chow–Yen–Desmond Sim, Zhao–Xiang Lin, Po–Yu Chuang, Chu–Jui Hung, Ruei–Cheng Huang (Feng Chia University, Taiwan); Hua–Ming Chen (National Kaohsiung University of Science and Technology, Taiwan)

[ThC1\_05] 12:20–12:40

A 4x4 MIMO Antenna Array for the Wi–Fi7 Access Point on a Metal Wall Application

Hsin–Lung Su and You–Sheng Zhan (National Pingtung University, Taiwan)



## [ThD1] [SS10] Reconfigurable Intelligent Surfaces 1

Session Date November 7 (Thu.), 2024

Session Time 11:00–12:40

Session Room Room D

Session Chair Prof. Byung-Wook Min (Yonsei University, Republic of Korea)  
Prof. Junesuek Oh (Seoul National University, Republic of Korea)

[ThD1\_01]

11:00–11:20

Experimental Polarizability Extraction of a Waveguide-Fed Tunable Metamaterial Element Using SIW Characterization Circuits

Insang Yoo (Yonsei University, Korea); David R. Smith, and Michael Boyarsky (Duke University, USA)

[ThD1\_02]

11:20–11:40

Toward Realization of RIS-Assisted Wireless Information and Power Transfer System: Implementation and Experiments

Je Hyeon Park, Muhammad Miftahul Amri (Sungkyunkwan University, Republic of Korea); Nguyen Minh Tran (VNU University of Engineering and Technology, Vietnam); Sung Woo Cho, Su Hyun Kim, Jina Lee, Dong In Kim, and Kae Won Choi (Sungkyunkwan University, Republic of Korea)

[ThD1\_03]

11:40–12:00

Design and Field Trial Measurement of 1-Bit Reconfigurable Intelligent Surface

Sungeun Kim and Byung-Wook Min (Yonsei University, Republic of Korea)

[ThD1\_04]

12:00–12:20

Proof of Concept for Massive Reconfigurable Intelligent Surface Enabling Beam Sustainability at Sub-THz Band

Hogyeom Kim and Junesuek Oh (Seoul National University, Republic of Korea)

[ThD1\_05]

12:20–12:40

Electrically Tunable Planar Huygens' Metasurface for Wide Beam Coverage

Sangmin Lee and Sangjo Choi (Kyungpook National University, Republic of Korea)



## [ThE1] [SS06] Antenna Technologies for Satellite Communication and Remote Sensing

Session Date	November 7 (Thu.), 2024
Session Time	11:00–12:40
Session Room	Room E
Session Chair	Prof. Yoshiki Sugimoto (Nagoya Institute of Technology, Japan) Prof. Takashi Tomura (Tokyo Institute of Technology, Japan)

[ThE1\_01] 11:00–11:20

Circularly Polarized Broadband Patch Antenna Array with a Partially Reflective Surface (PRS) for LEO Satellite Applications

Youngdeuk Kim, Nohgyeom Ha, and Sangkil Kim (Pusan National University, Republic of Korea)

[ThE1\_02] 11:20–11:40

Advanced Omnidirectional CP Antennas and Array for Satellite-to-Satellite Communications

Wei Lin and Huacheng Li (The Hong Kong Polytechnic University, Hong Kong, China)

[ThE1\_03] 11:40–12:00

Broadband Circularly Polarized Antenna Arrays with Anisotropic Artificial Gradient Dielectric Slabs

Sangeun Kim and Gangil Byun (Ulsan National Institute of Science and Technology Ulsan, Republic of Korea)

[ThE1\_04] 12:00–12:20

Design of Linear to Circular Polarization Conversion Reflectarray Antennas Using Foldable Substrates for Small Satellites

Koudai Suzuki, Haruki Kurokawa, Gen Nakayama, Hiraku Sakamoto, and Takashi Tomura (Tokyo Institute of Technology, Japan)

[ThE1\_05] 12:20–12:40

3D Printed Multi-Beam Flat Lens Antenna System

Maral Ansari (Commonwealth Scientific and Industrial Research Organisation, Australia); Lizhao Song and Peiyuan Qin (University of Technology Sydney, Australia); Stephanie L. Smith (Commonwealth Scientific and Industrial Research Organisation, Australia); Y. Jay Guo (University of Technology Sydney, Australia)





[ThF1] [SS31] IEEE AP-S YP Special Session (1/2)

Session Date	November 7 (Thu.), 2024
Session Time	11:00–12:40
Session Room	Room F
Session Chair	Prof. Guillermo Álvarez-Narciandi (Queen's University Belfast, UK) Prof. Gangil Byun (Ulsan National Institute of Science and Technology Ulsan, Republic of Korea)

[ThF1\_01] 11:00–11:20

Shared-Aperture Phased Array Antennas Covering Triple Bands with Wide-Angle Steering for Massive MIMO Base Stations

Shuai Zhang, Peyman Aghabeyki, and Peng Mei (Aalborg University, Denmark)

[ThF1\_02] 11:20–11:40

Reconfigurable Intelligent Electromagnetics: From Antenna to Surface Design

Yujie Zhang (National University of Singapore, Singapore)

[ThF1\_03] 11:40–12:00

Towards Handheld Millimetre-Wave Scanners: Challenges and Opportunities of Freehand Imaging Systems

Guillermo Álvarez-Narciandi (Queen's University Belfast, UK); Jaime Laviada (University of Oviedo, Spain); Maria Garcia-Fernandez (Queen's University Belfast, UK); Fernando Las-Heras (University of Oviedo, Spain)

[ThF1\_04] 12:00–12:20

Challenges and Recent Advances towards Real-Time UAV-Mounted GPR Imaging

Maria Garcia-Fernandez and Guillermo Álvarez-Narciandi (Queen's University Belfast, UK); Jaime Laviada, Yuri Álvarez, and Fernando Las-Heras (University of Oviedo, Spain)

[ThF1\_05] 12:20–12:40

Mutual Coupling Reduction Considerations for 2×2 and 3×3 Sparse Microstrip Patch Antenna Array

C. Larmour, M. A. B. Abbasi, N. Buchanan, D. Zelenchuk, and V. Fusco (Queen's University Belfast, UK)



[ThG1] [SS24] IEEE AP-S Industry Initiative Special Session: State-of-the-Art Antennas in Industry

Session Date November 7 (Thu.), 2024

Session Time 11:00-12:40

Session Room Room G

Session Chair Dr. Junho Park (KREEMO Inc., Republic of Korea)  
Dr. Youngno Youn (Incheon National University, Republic of Korea)

[ThG1\_01] 11:00-11:20

Shared-Aperture, Multiband Mobile Terminal Antennas Using Radiator and Ground Modifications

Junhyuk Ahn, Dongseop Lee (Pohang University of Science & Technology, Republic of Korea); Nakchung Choi (Samsung Electronics Co., Ltd., Republic of Korea); Wonbin Hong (Pohang University of Science & Technology, Republic of Korea)

[ThG1\_02] 11:20-11:40

Evaluation of Glass Metasurface Using Commercialized 5G mmWave Small Cell and Phone

Hyengcheul Choi, Changhyeong Lee, and Boyoung Kang (Corning Inc., Republic of Korea); Deepak Pengoria (Corning Optical Communications LLC, USA); Byoungwan Kang (Corning Inc., Republic of Korea); Shirish Nagaraj (Corning Optical Communications LLC, USA)

[ThG1\_03] 11:40-12:00

Low-Cost Stackable Phased Array Antenna Integration to Enhance Beam Coverage of Millimeter-Wave Wireless Applications

Junho Park, Beakjun Seong, and Inseok Jang (KREEMO Inc., Republic of Korea); Wonbin Hong (KREEMO Inc., Republic of Korea & Pohang University of Science and Technology, Republic of Korea)

[ThG1\_04] 12:00-12:20

Dual-Polarized and Fully Conformal Antenna Using Stacked Semi-Elliptical Shaped Polyimide Films

Mohammad Ameen and Koen Mouthaan (National University of Singapore, Singapore)

[ThG1\_05] 12:20-12:40

Closely Packed Triple Stripline UWB Antennas with Low Mutual Coupling for AoA Estimation

Hasri Ainun Harris and Jae-Young Chung (Seoul National University of Science and Technology, Republic of Korea)



## [ThH1] [SS28] Computational Electromagnetics for Large-Scale Stealth Platform

Session Date November 7 (Thu.), 2024

Session Time 11:00–12:40

Session Room Room H

Session Chair TBA

[ThH1\_01]

11:00–11:20

Investigation on Multilevel Characteristic Basis Function Method Using PMCHWT Formulation for Multi-Dielectric and PEC Composite Structures

Inhwan Kim, Hyeong-Rae Im, and Youngjae Ryu (Yonsei University, Republic of Korea); Ic-Pyo Hong (Kongju National University, Republic of Korea); Hyunsoo Lee (Agency for Defense Development, Republic of Korea); Jong-Gwan Yook (Yonsei University, Republic of Korea)

[ThH1\_02]

11:20–11:40

Efficient IPO-MoM Hybrid Method for RCS Prediction Using for Large Scatterers

Jeong-Un Yoo, Jun-Mo Park, and Il-Suek Koh (Inha University, Republic of Korea)

[ThH1\_03]

11:40–12:00

Convergence Acceleration of FETI-DPEM2 Algorithm on an Electromagnetic Field Analysis

Seung-Hoon Kang, Sangmin Lee, Younggeun Park, and SangJoon Shin (Seoul National University, Republic of Korea)

[ThH1\_04]

12:00–12:20

Enhancing Accuracy of Image-Based Near-Field to Far-Field Transformation through Hamming and Threshold Image Filter

Cheongmin Lee (Yonsei University, Republic of Korea); Ilyoung Oh (Dongyang Mirae University, Republic of Korea); Jungje Ha (Agency for Defense Development, Republic of Korea); Jong-Gwan Yook (Yonsei University, Republic of Korea)

[ThH1\_05]

12:20–12:40

Analytic Integration Approach for Precise Calculation of MoM Matrix Elements

Youngjae Ryu and Inhwan Kim (Yonsei University, Republic of Korea); Hyunsoo Lee (Agency for Defense Development, Republic of Korea); Jong-Gwan Yook (Yonsei University, Republic of Korea)



## [ThB2] Reflectarrays and Transmitarrays

Session Date	November 7 (Thu.), 2024
Session Time	14:00–15:40
Session Room	Room B
Session Chair	Prof. Keisuke Konno (Tohoku University, Japan)

[ThB2\_01] 14:00–14:20

A Transmit Array Antenna for 5G Application  
Shailendra Kaushal, Koichiro Masuko, and Ning Guan (Fujikura Ltd., Japan)

[ThB2\_02] 14:20–14:40

Design of a Broadband Dual-Polarized Transmitarray Using a High-Isolation Feeding Antenna for Radar Applications  
Tzu-Ming Huang and Yi-Cheng Lin (National Taiwan University, Taiwan)

[ThB2\_03] 14:40–15:00

Simple Estimation Method of Bistatic RCS for Transmitarray with Tilted Beam  
Hiroshi Hashiguchi and Naobumi Michishita (National Defense Academy, Japan)

[ThB2\_04] 15:00–15:20

Design of Wideband Reconfigurable Beam Scanning Transmitarray Antenna  
Qingqi He, Jinshuai Chang, Jianxun Su, and Meijun Qu (Communication University of China, China); Shan Zhao (Beijing Institute of Graphic Communication, China)

[ThB2\_05] 15:20–15:40

Enhancement of Scattering Field Strength of Reflectarray Elements by Dielectric Superstrate  
Keisuke Konno and Qiang Chen (Tohoku University, Japan)



## [ThC2] Antenna Theory and Design (1/2)

Session Date	November 7 (Thu.), 2024
Session Time	14:00–15:20
Session Room	Room C
Session Chair	TBA

### [ThC2\_01]

14:00–14:20

Design of a Deployable Offset Mesh Reflector Antenna Utilizing a Deployable Ring Truss Structure  
Changhyeon Im (Hongik University, Republic of Korea); Seul-Gi Park (Hanwha Systems Co., Ltd., Republic of Korea);  
Hosung Choo (Hongik University, Republic of Korea)

### [ThC2\_02]

14:20–14:40

Unlocking Operation Principle of Corner Truncated Antenna Enabling to Squeeze-Out Axial Ratio Bandwidth with Thick Substrate Effect  
Taeyeong Yoon, Uichan Park, and Jungsuek Oh (Seoul National University, Republic of Korea)

### [ThC2\_03]

14:40–15:00

Radar Absorbing Material Mounted Ka-Band Double-Layer Tapered Slot Antenna for X-Band Radar Cross Section Reduction  
Wonkyo Kim (Chungnam National University, Republic of Korea); Youngwan Kim, Heeduck Chae, Jihan Joo, and Jun-Beom Kwon (LIG Nex1 Co., Ltd., Republic of Korea); Ick-Jae Yoon (Chungnam National University, Republic of Korea)

### [ThC2\_04]

15:00–15:20

Cruciform Dual-Polarized High Gain Antenna for 5G Base Stations  
M.Sai Debasisa Patra and Sambhudutta Nanda (VIT-AP University, India)





## [ThD2] Reflector, Lens, and Radomes

Session Date November 7 (Thu.), 2024

Session Time 14:00–15:40

Session Room Room D

Session Chair Prof. Wang–Sang Lee (Gyeongsang National University, Republic of Korea)

### [ThD2\_01]

14:00–14:20

A Modified Compensation Method of Distorted Large Antennas Based on Best Operating Surface

Wenjuan Wang, Yuefei Yan, Zongqing Wang, Jiuyang Zhu, and Longyang Wang (Xidian University, China); Qian Xu (Xinjiang Astronomical Observatory, China); Congsi Wang (Xidian University, China)

### [ThD2\_02]

14:20–14:40

Characteristics of A Transparent Metasurface with A Cross–Mesh Structure

Yasutaka Murakami (The University of Electro Communications, Japan); Naoki Hirasawa, Atsushi Minegishi, Katsuhiko Hosokawa, and Ichiro Sudo (Iwatsu Electric, Co., Ltd., Japan); Hayato Hyakutake (Iwatsu Chemical Cross Co., Ltd., Japan)

### [ThD2\_03]

14:40–15:00

Low Scan–Loss Multi–Beam Lens Antenna Fed by Horns with Separated Phase Centers in E/H–Planes

Shota Takada, Yoshiki Sugimoto, Kunio Sakakibara, and Nobuyoshi Kikuma (Nagoya Institute of Technology, Japan)

### [ThD2\_04]

15:00–15:20

Beam Steering with 1–Bit Coding Reconfigurable Metasurface Reflector Using Mechanical Slides

Afwan Rahim, Ryuji Kuse, Makoto Sano, and Takeshi Fukusako (Kumamoto University, Japan); HoYu Lin (SoftBank Corp., Japan)

### [ThD2\_05]

15:20–15:40

A Reflectarray Antenna with Slotted Circular Patch Elements and Corrugated Horn Feeding

Mohamed Elhefnawy (Gyeongsang National University, Republic of Korea & October 6 University, Egypt); Wang–Sang Lee (Gyeongsang National University, Republic of Korea)



## [ThE2] Channel Sounding, Channel Estimation, Radar, DOA, Localization, and Sensing

Session Date November 7 (Thu.), 2024

Session Time 14:00–16:00

Session Room Room E

Session Chair TBA

[ThE2\_01] 14:00–14:20

### Initial Assessment of THz Indoor Channel with Passive Reflective Intelligent Surfaces

Bo Kum Jung and Varvara V. Elesina (Technische Universität Braunschweig, Germany); Sergio Matos (Iscte-University Institute of Lisbon, Portugal); Raffaele D’Errico (Université Grenoble Alpes, France); Thomas Kürner (Technische Universität Braunschweig, Germany)

[ThE2\_02] 14:20–14:40

### Orientation Angle Estimation of Buildings and Streets in Urban Areas Using PolSAR Data

Chino Kobayashi, Hiroyoshi Yamada, and Ryoichi Sato (Niigata University, Japan)

[ThE2\_03] 14:40–15:00

### The Practical Real-Time Radar Processing for Obstacle Detection on The Railway Track

Tossaporn Srisooksai and Satoshi Nishida (Kyosan Electric Mfg. Co., Ltd., Japan)

[ThE2\_04] 15:00–15:20

### Frequency-Diverse Computational Imaging System Enhanced by Synthetic Aperture Radar Techniques

Guillermo Álvarez-Narciandi, Maria Garcia-Fernandez, and Okan Yurduseven (Queen’s University Belfast, UK)

[ThE2\_05] 15:20–15:40

### Direction of Arrival Estimation Using a Transmitarray and a Single Antenna Element

Ryusuke Sunagawa, Hibiki Shiiba, Makoto Sano, Ryuji Kuse, and Takeshi Fukusako (Kumamoto University, Japan)

[ThE2\_06] 15:40–16:00

### Seasonal Changes of Rice Paddy Field Observed by ALOS2/PALSAR2 Polarimetric Mode

Yoshio Yamaguchi and Ryoichi Sato (Niigata University, Japan); Ryu Sugimoto (National Institute of Advanced Industrial Science and Technology, Japan)



[ThF2] [SS31] IEEE AP-S YP Special Session (2/2)

Session Date	November 7 (Thu.), 2024
Session Time	14:00–16:00
Session Room	Room F
Session Chair	Prof. Takashi Tomura (Tokyo Institute of Technology, Japan) Dr. Maria Garcia-Fernandez (Queen's University Belfast, UK)

[ThF2\_01]

14:00–14:20

Design Scheme for Shared-Aperture Base-Station Antennas with Large Aperture Ratios  
Jiawen Xu, Yang Nan, and Hui Li (Dalian University of Technology, China)

[ThF2\_02]

14:20–14:40

3-D Printed Luneburg Metasurface Lens For W-Band Sub-THz Applications  
Rahul Chowdhury, Amit K. Singh, and Akhilesh Kumar (Indian Institute of Technology, Patna, India)

[ThF2\_03]

14:40–15:00

Low-Profile and Broadband Dielectric Resonator Antenna Designs for 5G and Beyond Applications  
Lei Guo (Dalian University of Technology, China)

[ThF2\_04]

15:00–15:20

A Beamwidth-Controllable Millimeter-Wave Antenna Array With Spatial Variable Orthogonal Polarization  
Fanchao Zeng, Can Ding, and Y. Jay Guo (University of Technology Sydney, Australia)

[ThF2\_05]

15:20–15:40

Topological Insulators Supporting Surface Plasmons  
Hasan T Abbas (University of Glasgow, UK)

[ThF2\_06]

15:40–16:00

Coherent Bandwidth and Distance in an Ultra-Large-Scale Antenna Array at 15 GHz  
Jiajing Chen and Qingjiang Shi (Tongji University, China); Xuesong Cai (Lund University, Sweden)



## [ThG2] Wireless Power Transfer and Other EM Theory-Related Topics

Session Date	November 7 (Thu.), 2024
Session Time	14:00–16:00
Session Room	Room G
Session Chair	Dr. Kamilia Kamardin (University Teknologi Malaysia, Malaysia)

[ThG2\_01] 14:00–14:20

### Focal Region Ray Tracing for Spherical Reflector with Shaped Sub-Reflector

Ayuni Afiqah Arjunaidi, Yoshihide Yamada, and Kamilia Kamardin (University Teknologi Malaysia, Malaysia); Izni Husna Idris (Universiti Pertahanan Nasional Malaysia, Malaysia)

[ThG2\_02] 14:20–14:40

### A Comprehensive Analysis of 3-D Magnetic Flux Leakage for External and Internal Defects

Sungjun Cho, Hyo-Won Lee, Seong-Jin Kim, Chanhee Lee, Ji-Hoon Lee, and Jong-Won Yu (Korea Advanced Institute of Science and Technology, Republic of Korea)

[ThG2\_03] 14:40–15:00

### Illuminated Spot Size Reduction of Near Field Wireless Power Transmission

Yusuke Sato and Hiroyuki Arai (Yokohama National University, Japan)

[ThG2\_04] 15:00–15:20

### Current Control for Receiver Power Allocation of Omnidirectional Wireless Power Transfer

Seong-Jin Kim, Hyo-Won Lee, Yeong-Ju Seo, Dong-Min Seo, Ji-Young Kim, and Jong-Won Yu (Korea Advanced Institute of Science and Technology, Republic of Korea)

[ThG2\_05] 15:20–15:40

### Ferrite-Based, Low-Profile Artificial Magnetic Conductor for Magnetic Field Leakage Shielding of 6.78 MHz Wireless Power Transfer System

Seong-Hoon Choi (Chungnam National University, Republic of Korea); Sonapreetha Mohan Radha (University of Wisconsin-Madison, USA); Seungmin Ahn (Chungnam National University, Republic of Korea); In-Kui Cho and Jung Hoon Oh (Electronics and Telecommunications Research Institute, Republic of Korea); Ick-Jae Yoon (Chungnam National University, Republic of Korea)

[ThG2\_06] 15:40–16:00

### Robust Transmitting Coil Design for Wireless Power Transfer System to Mitigate Input Voltage Variations

Youbin Jun, Sanguk Lee, Jaewon Rhee, Changmin Lee, Seongho Woo, and Seungyoung Ahn (Korea Advanced Institute of Science and Technology, Republic of Korea)



## [ThH2] Computational and Numerical Techniques

Session Date	November 7 (Thu.), 2024
Session Time	14:00–16:00
Session Room	Room H
Session Chair	Dr. Ilir Gashi (University of Siena, Italy)

[ThH2\_01] 14:00–14:20

Homogenization of Glide-Symmetric Patches Using a Multimodal Transfer Matrix Method  
Moises Tercero (KTH Royal Institute of Technology, Sweden); Francisco Mesa (Universidad de Sevilla, Spain); Thi Quynh Van Hoang and Matthieu Bertrand (Thales Research & Technology, France); Oscar Quevedo-Teruel (KTH Royal Institute of Technology, Sweden)

[ThH2\_02] 14:20–14:40

Evaluation of Metal and Surface Roughness Losses in 1-D Periodic Structures Using the Multimodal Transfer Matrix Approach  
Federico Giusti (University of Siena, Italy); Francisco Mesa (Universidad de Sevilla, Spain); Enrica Martini (University of Siena, Italy); Oscar Quevedo-Teruel (KTH Royal Institute of Technology, Sweden)

[ThH2\_03] 14:40–15:00

GO Analysis of Inhomogeneous Lens Antennas through the Lax-Friedrichs Sweeping Method  
Ilir Gashi, Stefano Maci, and Matteo Albani (University of Siena, Italy)

[ThH2\_04] 15:00–15:20

Metaheuristic Optimization Techniques for Accurate and Stable CCPR-FDTD Algorithm  
Jaesun Park, Jaehoon Cho, and Kyung-Young Jung (Hanyang University, Republic of Korea)

[ThH2\_05] 15:20–15:40

Fast Numerical Simulation of Electric Field Distribution in Dielectric-Loaded Multimode Cavity  
Hyo-Won Lee, Kyung-Han Shin, Seong-Jin Kim, Sungjun Cho, Ga-Yeong Park, and Jong-Won Yu (Korea Advanced Institute of Science and Technology, Republic of Korea)

[ThH2\_06] 15:40–16:00

Capacitance of Rectangular-Coaxial Transmission Line  
Jae Youn Park and Jaeyul Choo (Andong National University, Republic of Korea)





## [ThB3] Adaptive and Reconfigurable Antennas

Session Date November 7 (Thu.), 2024

Session Time 16:20–18:20

Session Room Room B

Session Chair Prof. Chung–Tse Michael Wu (National Taiwan University, Taiwan)  
Dr. Jae–Yeong Lee (Electronics and Telecommunications Research Institute, Republic of Korea)

[ThB3\_01] [Invited Paper] 16:20–16:40

Programmable Space–Time Metamaterial Antenna–Receiver: Applications and Advancements

Shaghayegh Vosoughitabar (Rutgers University, USA); Chung–Tse Michael Wu (National Taiwan University, Taiwan)

[ThB3\_02] 16:40–17:00

Fluid–Controlled Frequency and Pattern Reconfigurable Antenna for the S–Band Applications

Md. Abu Sufian, Jaemin Lee, Domin Choi, and Anees Abbas (Chungbuk National University, Republic of Korea);

Niamat Hussain (Sejong University, Republic of Korea); Nam Kim (Chungbuk National University, Republic of Korea)

[ThB3\_03] 17:00–17:20

Dual–Band Frequency– and Mode–Reconfigurable Flexible Textile Antenna

Quoc Hung Dang (The University of Adelaide, Australia); Shengjian Jammy Chen (Flinders University, Australia & The

University of Adelaide, Australia); Christophe Fumeaux (The University of Queensland, Australia & The University of

Adelaide, Australia); Nghia Nguyen–Trong (Nextwaves Industries Pte. Ltd., Singapore)

[ThB3\_04] 17:20–17:40

Broadband Dielectric Characterization of Multilayer and Thin Film Using Tunable FSS in Waveguide

Soomin Kim, Daehyeon Kim, and Wonbin Hong (Pohang University of Science and Technology, Republic of Korea)

[ThB3\_05] 17:40–18:00

Wide–Angle Scanning Multibeam Antenna Array Using Reconfigurable Compact Vivaldi Source

Amani Cherif, Mohamed Himdi, and Xavier Castel (IETR–University of Rennes, France)

[ThB3\_06] 18:00–18:20

Electrically Reconfigurable Polarization in a High Aperture Efficiency Fabry–Perot Cavity Antenna

Yewon Kim, Soo–Jeong Kim, and Dongho Kim (Sejong University, Republic of Korea); Kyung–Hyun Oh and In–Gon

Lee (Hanwha Systems Co., Ltd., Republic of Korea)



## [ThC3] Array Antennas (1/2)

Session Date	November 7 (Thu.), 2024
Session Time	16:20–18:20
Session Room	Room C
Session Chair	Dr. Can Ding (University of Technology Sydney, Australia)

[ThC3\_01] 16:20–16:40

### A Dual-Band Dual-Polarized Antenna Array with Improved Front-to-Back Ratio

Chao Wu (Harbin Institute of Technology, China); Shuang Qiu (University of Macau, China); Jinghui Qiu, Olesandr Denisov, and Vasyi Molebny (Harbin Institute of Technology, China)

[ThC3\_02] 16:40–17:00

### A Reflection-Type Phase Shifter Using a Simplified Magic-T with a Delay Line and Parasitic Elements

Ryoto Ogushi (Yokohama National University, Japan); Jo Tamura (Nihon University, Japan); Hiroyuki Arai (Yokohama National University, Japan)

[ThC3\_03] 17:00–17:20

### A High-Density Array Antenna Using Narrow Elements for High-Power Rectenna DC Arrays

Daiki Kono, Eisuke Nishiyama, and Ichihiko Toyoda (Saga University, Japan)

[ThC3\_04] 17:20–17:40

### An Embedded Scheme-Based Dual-Band Shared Aperture Base Station Antenna Array

Yi He, Can Ding, Gengming Wei, and Y. Jay Guo (University of Technology Sydney, Australia)

[ThC3\_05] 17:40–18:00

### Low-Loss and Compact Design of Microstrip-Line-Fed Rotman-Lens Beamforming Network in 300-GHz Band

Kenta Nishimura, Kunio Sakakibara, Yoshiki Sugimoto, and Nobuyoshi Kikuma (Nagoya Institute of Technology, Japan)

[ThC3\_06] 18:00–18:20

### Out-of-Band Radiation for Antenna Array Transmission

Janne-Wha Wu (National Chung Cheng University, Taiwan); Tung-Wei Chang (National Chung Cheng University, Taiwan)



## [ThD3] Millimeter-Wave, THz, and Optical Propagation

Session Date	November 7 (Thu.), 2024
Session Time	16:20–18:20
Session Room	Room D
Session Chair	Prof. Akihiko Hirata (Chiba Institute of Technology, Japan)

[ThD3\_01] 16:20–16:40

Impact of Safety Angle on Channel Capacity in THz X-Haul Links  
Bo Kum Jung and Thomas Kürner (Technische Universität Braunschweig, Germany)

[ThD3\_02] 16:40–17:00

Design of Quasi-Optical Path and Analysis Focusing Characteristics for 220GHz Millimeter-Wave Imaging  
Nannan Wang, Weijie Chen, and Zhonglin Meng (Harbin Institute of Technology, China)

[ThD3\_03] 17:00–17:20

Evaluation of Power Delay Profiles in the Vicinity of Human Body at 300GHz Band  
Kai Nakamura and Akihiko Hirata (Chiba Institute of Technology, Japan)

[ThD3\_04] 17:20–17:40

Polarization Dependence on Delay Profile in a Conference Room at 150 and 300 GHz  
Akihiko Hirata and Keizo Cho (Chiba Institute of Technology, Japan)

[ThD3\_05] 17:40–18:00

Generation of Spatio-Temporal Propagation Path near Human Body in 300 GHz Band  
Koya Imaseki and Hiroaki Nakabayashi (Chiba Institute of Technology, Japan)

[ThD3\_06] 18:00–18:20

Connection Ratio Improvement for 300-GHz-Band Wireless Links during Local Downpours via Link Disconnection Prediction  
Keisuke Yanai and Akihiro Hirata (Chiba Institute of Technology, Japan)



## [ThE3] Radar, DOA, Localization, and Sensing (1/2)

Session Date	November 7 (Thu.), 2024
Session Time	16:20–18:20
Session Room	Room E
Session Chair	Prof. Sun K. Hong (Soongsil University, Republic of Korea)

[ThE3\_01] 16:20–16:40

Time-Series Deep Learning Based Radar Image Prediction of Pedestrian Micro-Motion Millimeter Wave Automotive Radar

Takeru Matsuoka and Shouhei Kidera (The University of Electro-Communications, Japan)

[ThE3\_02] 16:40–17:00

DOA Estimation via SVD Denoising with Coprime Array Interpolation

Siming Chen, Weibo Deng, Yanmo Hu, and Xin Zhang (Harbin Institute of Technology, China)

[ThE3\_03] 17:00–17:20

Improving Heart-Rate Estimation Accuracy Using Two-Beam Technique in Millimeter-Wave Vital-Sign Radar

Ryo Nakayama, Naoki Sawada, Naoki Honma, and Kentaro Murata (Iwate University, Japan)

[ThE3\_04] 17:20–17:40

Experimental Investigation of Environment Impacts on AOA-Based Indoor Localization

Koularp Thongsavanh and Minseok Kim (Niigata University, Japan)

[ThE3\_05] 17:40–18:00

Analysis of Nonlinear Radar Cross Section with Nonlinear Radar Equation

Sooyoung Oh and Sun K. Hong (Soongsil University, Republic of Korea)

[ThE3\_06] 18:00–18:20

Range Chirp Adjustment Algorithm for Efficient and Versatile SAR Processing Using Fractional Fourier Transform

Kang-Hyeok Seo and Chul-Ki Kim (Soongsil University, Republic of Korea)



## [ThF3] Reconfigurable Intelligent Surfaces 2

Session Date	November 7 (Thu.), 2024
Session Time	16:20–18:20
Session Room	Room F
Session Chair	Dr. Yujie Zhang (National University of Singapore, Singapore)

[ThF3\_01] 16:20–16:40

### Circularly-Polarized Reconfigurable Intelligent Surfaces for Arbitrary Beam Shaping

Moosung Kim, Geun-Yeong Jun, Jeong-Hae Lee, and Minseok Kim (Hongik University, Republic of Korea)

[ThF3\_02] 16:40–17:00

### Dual-Band, Dual-Polarized Metasurface Utilizing a Thin Liquid Crystal Layer at 28/39 GHz

Daehyeon Kim, Donggeun An, and Wonbin Hong (Pohang University of Science & Technology, Republic of Korea)

[ThF3\_03] 17:00–17:20

### RIS Subset Selection/Assignment Based on Multi Armed Bandit in Multi-RIS-Aided Communications

Aral Ertug Zorkun, Juan Andres Vasquez Peralvo, and Symeon Chatzinotas (University of Luxembourg, Luxembourg)

[ThF3\_04] 17:20–17:40

### Sub-THz Intelligent Reflective Metasurfaces Using Screen-Printed VO<sub>2</sub> Switches Column Control with Low-Cost, Highly Fabrication Scalability and High Resistivity Changing Ratio

Eiyong Park (Korea Aerospace Industrie Ltd., Republic of Korea); Junghyeon Kim and Sungjoon Lim (Chung-Ang University, Republic of Korea)

[ThF3\_05] 17:40–18:00

### Power Scalability Modeling of Reconfigurable Intelligent Surfaces for THz Applications

Praveen Naidu Vummadisetty, Juan Andres Vasquez-Peralvo, Symeon Chatzinotas, Juan Carlos Merlano Duncan, and Aral Zorkun (University of Luxembourg, Luxembourg); Tung Phan (University of Oulu, Finland)

[ThF3\_06] 18:00–18:20

### Demonstration of High-Speed Real-Time Sensing and Imaging by the Multi-Diverse Metasurfaces

Baiyang Liu (Shenzhen Technology University, China)' Hang Wong (City University of Hong Kong, Hong Kong, China)





## [ThG3] Antenna Systems for Mobile(5G, B5G, and 6G) Communications

Session Date November 7 (Thu.), 2024

Session Time 16:20–18:20

Session Room Room G

Session Chair Dr. Tung Nguyen (Ansys Japan K.K., Japan)

Prof. Danai Torrungrueng (King Mongkut's University of Technology North Bangkok, Thailand)

[ThG3\_01]

16:20–16:40

A Novel Analysis of Complementary Circular Spiral Resonator (CCSR) Based Sensors Using the BCITL Model for Dielectric Sensing Applications

Kittima Lertsakwimarn, Danai Torrungrueng, and Titipong Lertwiriayaprapa (King Mongkut's University of Technology North Bangkok, Thailand); Hsi-Tseng Chou (National Taiwan University, Taiwan)

[ThG3\_02]

16:40–17:00

Metamaterial-Based Complementary Ring Resonator for Sensing of Anaemia

Suhail Asghar Qureshi, Zuhairiah Zainal Abidin, Fauziahanim Che Seman, Muhammad Ramlee Kamarudin, Huda A. Majid, and Shaharil Mohd Shah (Universiti Tun Hussein Onn Malaysia, Malaysia)

[ThG3\_03]

17:00–17:20

Center-Fed Microstrip Antenna Array Fed by Slotted Broadband Transition from SIW to Two MSLs in 300–GHz Band

Azuki Iwamoto, Maho Tomiyama, Yoshiki Sugimoto, Kunio Sakakibara, and Nobuyoshi Kikuma (Nagoya Institute of Technology, Japan)

[ThG3\_04]

17:20–17:40

Design of Beam-Steering Matching Elements for Waveguide Radiation Aperture Array Antennas

Riku Maeda, Takashi Tomura, and Jiro Hirokawa (Tokyo Institute of Technology, Japan); Daisuke Yamanaka, Nobutaka Kidera, and Osamu Kagaya (AGC Inc., Japan)

[ThG3\_05]

17:40–18:00

Ka-Band Up/Downconverter for High-Altitude Platform Station (HAPS) for Emergency Aid

Bo-Xiang Hu and Tzyh-Ghuang Ma (National Taiwan University of Science and Technology, Taiwan)

[ThG3\_06]

18:00–18:20

End-to-End System Evaluation of an Orbital Angular Momentum Modes Multiplexing Communication System for B5G/6G Applications

Tung Nguyen (Ansys Japan K.K., Japan)



## [ThH3] MIMO, Diversity, and Their Applications

Session Date	November 7 (Thu.), 2024
Session Time	16:20–18:20
Session Room	Room H
Session Chair	Prof. Hasliza A Rahim (Universiti Malaysia Perlis, Malaysia)

[ThH3\_01] 16:20–16:40

A Transmit Diversity Scheme With Pre-Emphasis Suitable For Impulse-Radio Implant Communication  
Lijia Liu and Jianqing Wang (Nagoya Institute of Technology Nagoya, Japan)

[ThH3\_02] 16:40–17:00

Rectangular-Coordinate Orthogonal Non-Far Region Four-Multiplexing QPSK Transmission Using Monopulse Corporate-Feed Waveguide Slot Arrays  
Yuya Kato, Jiro Hirokawa, and Takashi Tomura (Tokyo Institute of Technology, Japan); Yoshio Takekoh and Koichiro Akahori (Japan Radio Co., Ltd., Japan); Toru Taniguchi (HRCP Research and Development Partnership, Japan)

[ThH3\_03] 17:00–17:20

Evaluation of Antenna Placement for LoS-MIMO in HAPS Feeder Link  
Kazuki Matsuura, Motoshi Tawada, and Yoshichika Ohta (SoftBank Corp., Japan)

[ThH3\_04] 17:20–17:40

A Basic Study of Ghost Vital Signs Removing for Non-Contact Human Vital Signs Sensing Based on mm-Wave Radar  
Kosuke Otsu, Yaokun Hu, and Takeshi Toda (Nihon University, Japan)

[ThH3\_05] 17:40–18:00

Enhancement FrFT Beamforming Method for Virtual Antenna Array in High Performance Radar  
Yong-Hwi Kwon and Chul-Ki Kim (Soongsil University, Republic of Korea)

[ThH3\_06] 18:00–18:20

Two-Port Hexagonal Bar Slotted Dual-Band MIMO Textile Antenna for WBAN and 5G Applications  
Hasliza A Rahim, Hamza A Mashagba, and Mohd Najib Mohd Yasin (Universiti Malaysia Perlis, Malaysia); Mohd Haizal Jamaluddin (Universiti Teknologi Malaysia, Malaysia); Sarun Narongkul (Songkhla Rajabhat University, Thailand); Nur Hidayah Ramli and Liyana Zahid (Universiti Malaysia Perlis, Malaysia)



## [FrB1] Mobile Antenna Design and Analysis for 5G/B5G Wireless Communications

Session Date November 8 (Fri.), 2024

Session Time 08:30–10:10

Session Room Room B

Session Chair Prof. Longyue Qu (Harbin Institute of Technology Shenzhen, China)

[FrB1\_01]

08:30–08:50

A Low-Profile Magneto-Electric Dipole Antenna with Wideband Characteristics

Heesu Wang and Ikmo Park (Ajou University, Republic of Korea)

[FrB1\_02]

08:50–09:10

Mutual Coupling Suppression of LiShu Guo-MIMO Antenna Arrays Using Dielectric Embedding

Caiying Li and Kwok L. Chung (Huizhou University, China)

[FrB1\_03]

09:10–09:30

A Compact UWB  $\pm 45^\circ$  Dual-Polarized Rectenna Based on DC Combining

Xinyi Cui, Ying Liu, Jia-Qi Zhu, Aoteng Zhang, and Yi Chen Zhong (Xidian University, China)

[FrB1\_04]

09:30–09:50

A Compact Dipole-Type MIMO Antenna Design Using Decoupling Inductor for 5G Terminal Applications

Chong Han (Harbin Institute of Technology Shenzhen, China); Rui Li and Kyung-Young Jung (Hanyang University, Republic of Korea); Huanxuan Ren (Shandong University of Science and Technology, China); Yang Liu (Shenzhen Hanyang Antenna Design Co., Ltd., China); Longyue Qu (Harbin Institute of Technology Shenzhen, China)

[FrB1\_05]

09:50–10:10

Array Filtering Antenna with Polarization Diversity for 5G Application

Dwi Astuti Cahyasiwi (Universitas Muhammadiyah Prof. DR. HAMKA); Fitri Yuli Zulkifli (Universitas Indonesia, Indonesia); Dian Widi Astuti (Universitas Mercu Buana, Indonesia); Muhammad Adnan Widodo (Universitas Muhammadiyah Prof. DR. HAMKA, Indonesia); Eko Tjipto Rahardjo (Universitas Indonesia, Indonesia); Yus Natali (Telkom University, Indonesia)



[FrC1] IEEE AP-S TCAM Sponsored Antenna Measurement Session: Antenna Measurements

Session Date	November 8 (Fri.), 2024
Session Time	08:30-10:10
Session Room	Room C
Session Chair	TBA

[FrC1\_01] 08:30-08:50

Real-Time Phased-Array Monitoring System for On-Site Calibration Using Beam-Steering Mode  
Toru Takahashi and Yoshio Inasawa (Mitsubishi Electric Corporation, Japan)

[FrC1\_02] 08:50-09:10

Plane Wave Characteristics of a Dielectric Lens Antenna with Serrated Structure for CATR Systems  
Genma Hattori (Takushoku University, Japan); Sou Ema and Yuta Horie (Microwave Factory Co., Ltd., Japan);  
Toshiyuki Maeyama (Takushoku University, Japan)

[FrC1\_03] 09:10-09:30

Calculation Methods for Phase Retrieval in Near-Field Planar Measurement  
Inhyeok Choi and Hiroyuki Arai (Yokohama National University, Japan)

[FrC1\_04] 09:30-09:50

Phase-Retrieval Method Using Wire-Grid Model in Spherical Near-Field OTA Test  
Takaharu Nakase and Hiroyuki Arai (Yokohama National University, Japan)

[FrC1\_05] 09:50-10:10

Multifunction 7-Axis Robotic Antenna Measurement System  
Jae-Yong Kwon, Woohyun Chung, Sangsu Lee, and No-Weon Kang (Korea Research Institute of Standards and  
Science, Republic of Korea)



## [FrD1] Other Antenna-Related Topics

Session Date	November 8 (Fri.), 2024
Session Time	08:30–10:10
Session Room	Room D
Session Chair	TBA

[FrD1\_01] 08:30–08:50

A Dual-Band Circular-Polarization Switchable Stacked Microstrip Antenna Loading Cross Slot and Diodes  
Hiyori Yamashita, Yuki Yoshi Ikoma, Eisuke Nishiyama, and Ichihiko Toyoda (Saga University, Japan)

[FrD1\_02] 08:50–09:10

A Study on a Low-Loss Connector for Converting a Dielectric Waveguide to a Rectangular Waveguide  
Yuko Rikuta, Uichiro Azuma, and Hiroki Hagiwara (Nihon Dengyo Kosaku Co., Ltd., Japan)

[FrD1\_03] 09:10–09:30

Wing-Shaped Wearable Textile Antenna for a Military Tracking System on Ripstop Nylon Fabric  
M.Shamsul Amri Safiai, Mohd Aziz Aris, and Nurul Huda Abd Rahman (Universiti Teknologi MARA, Malaysia)

[FrD1\_04] 09:30–09:50

Miniaturization of Patch Antenna Incorporated by Magnetized Yttrium Iron Garnet  
Rheyuniarto Sahlendir Asthan (Institut Teknologi Bandung, Indonesia & Institut Teknologi Sumatera, Indonesia);  
Tutun Juhana and Achmad Munir (Institut Teknologi Bandung, Indonesia)

[FrD1\_05] 09:50–10:10

A Wideband Patch Antenna with Radiation Pattern Reconfigurability  
Nandana Viswanathan and KJ Vinoy (Indian Institute of Science, Bengaluru, India)





## [FrE1] Propagation Theory and Models

Session Date November 8 (Fri.), 2024

Session Time 08:30–10:10

Session Room Room E

Session Chair Prof. Yong Heui Cho (Mokwon University, Republic of Korea)  
Mr. Sho Kimura (SoftBank Corp., Japan)

[FrE1\_01]

08:30–08:50

Arrival Angle Characteristics at MS in High BS and Vegetation Environment  
Sho Kimura, Akihiro Sato, and Hideki Omote (SoftBank Corp., Japan)

[FrE1\_02]

08:50–09:10

Stable Discrete Mixed Fourier Transform (DMFT) in Split-Step Parabolic Equation (SSPE) for Long-Range Electromagnetic Propagation Modeling Over Ocean Surfaces  
Yong Heui Cho (Mokwon University, Republic of Korea); Kyoung IL Kwon (Agency for Defense Development, Republic of Korea)

[FrE1\_03]

09:10–09:30

Proposal on Radio Propagation Prediction System Using Quantum Annealers  
Keita Fujita, Tetsuro Imai (Tokyo Denki University, Japan); Wataru Yamada, Minoru Inomata, and Ryotaro Taniguchi (NTT Corporation, Japan)

[FrE1\_04]

09:30–09:50

Channel Impulse Response Correlation in the Application of Dynamic Channel Characterization  
Indar Surahmat (RWTH Aachen University, Germany & Universitas Muhammadiyah Yogyakarta, Indonesia); Dirk Heberling (RWTH Aachen University, Germany & Fraunhofer FHR, Germany)

[FrE1\_05]

09:50–10:10

Measurement and Analysis of Transmission Loss at 29 GHz for Various Types of Window Glass  
Masaya Takahashi, Shoma Tanaka, Sho Kimura, Ho Yu Lin, and Akihiro Sato (SoftBank Corp., Japan)



## [FrF1] Other Propagation-Related Topics

Session Date	November 8 (Fri.), 2024
Session Time	08:30–10:10
Session Room	Room F
Session Chair	Prof. Andrés Alayón Glazunov (Linköping University, Sweden)

[FrF1\_01] 08:30–08:50

A Parallel Plate Waveguide Measurement Technique for Characterizing Frequency Selective Surfaces  
Patinavalasa Megh Sainadh, Sneha Kanjickal James, and Saptarshi Ghosh (Indian Institute of Technology Indore, India)

[FrF1\_02] 08:50–09:10

Equivalent Electrical Conductivity Measurement Method of Conductive Surface Using Power Delay Profile in Reverberation Cavity  
Kitae Park, Seung-Eun Ka, Dae-Young Hwang, and Jae W. Lee (Korea Aerospace University, Republic of Korea)

[FrF1\_03] 09:10–09:30

K-Factor Emulation in Different OTA Chambers  
Andrés Alayón Glazunov (Linköping University, Sweden); Alejandro Antón Ruiz and MHD Zaher Mahfouz (University of Twente, Netherlands)

[FrF1\_04] 09:30–09:50

Link Characteristics between Base Stations and Drones in Mobile Communication Systems with Drone Relay Stations  
Yudai Ishikawa and Tetsuro Imai (Tokyo Denki University, Japan)

[FrF1\_05] 09:50–10:10

Prediction of Atmospheric Refractivity from Clutter Images Using Deep Learning with the Tri-Linear Atmospheric Refractivity Model  
Taekyeong Jin (Hongik University, Republic of Korea); Doyoung Jang (Hanwha Systems Co., Ltd., Republic of Korea); Hosung Choo (Hongik University, Republic of Korea)



## [FrG1] Electromagnetic Theory and Inverse/Imaging Techniques

Session Date November 8 (Fri.), 2024

Session Time 08:30–10:10

Session Room Room G

Session Chair Prof. Titipong Lertwiriayapapa (King Mongkut's University of Technology North Bangkok, Thailand)  
Prof. Sanghoek Kim (Kyung Hee University, Republic of Korea)

[FrG1\_01] 08:30–08:50

Analysis of Electromagnetic Field for Dispersive Media Using Symplectic Integrator  
Koshiro Miyamoto, Seiya Kishimoto, Tokuei Sako, and Shinichiro Ohnuki (Nihon University, Japan)

[FrG1\_02] 08:50–09:10

Revolutionizing Full Image Theory Method EM Ray Tracing for Massive Propagation Analysis with Enhanced Computational Efficiency  
Yongwan Kim, Hooyoung Kim, and Jungsuek Oh (Seoul National University, Republic of Korea)

[FrG1\_03] 09:10–09:30

Preliminary Study of Generalized UTD Solution of PEC Half-Plane Diffraction by Spherical Wave Excitation  
Montree Saowadee and Titipong Lertwiriayapapa (King Mongkut's University of Technology North Bangkok, Thailand)

[FrG1\_04] 09:30–09:50

High-Resolution Three-Dimensional Millimeter Wave Imaging with Sparse Array Optimization  
Seungjae Lee and Shouhei Kidera (University of Electro-Communications, Japan)

[FrG1\_05] 09:50–10:10

Ultimate Performance of Microwave Ablation  
Sangbin Lee and Sanghoek Kim (Kyung Hee University, Republic of Korea)



## [FrH1] EMC/EMI Technologies

Session Date	November 8 (Fri.), 2024
Session Time	08:30–10:10
Session Room	Room H
Session Chair	Prof. Jung-Hoon Han (Korea Aerospace University, Republic of Korea)

[FrH1\_01] 08:30–08:50

### Evaluation of the IEMI Effects on Drone IMUs

Seung Eun Ka, Soohyun Kim, Kitae Park, and Yeonjae Kim (Korea Aerospace University, Republic of Korea); Jong Tai Jang (Korea Aerospace Research Institute, Republic of Korea); Jae W. Lee (Korea Aerospace University, Republic of Korea)

[FrH1\_02] 08:50–09:10

### Implementation of V2X Service Scenarios Compatible with ALSE Chambers

Hyok Lee and Seung-gon Park (Korea Automotive Technology Institute, Republic of Korea); Kyoung-young Jung (Hanyang University, Republic of Korea)

[FrH1\_03] 09:10–09:30

### Numerical Estimation of Interference Path Loss Characteristics for Radio Altimeter in Small Aircraft Using Parallel FDTD Analysis

Kohsuke Ushimaru, Takashi Hikage, and Manabu Omiya (Hokkaido University, Japan); Syunichi Ftatsumori, Noriaki Hiraga, Naruto Yonemoto, and Akiko Kohmura (National Institute of Maritime, Port and Aviation Technology, Japan)

[FrH1\_04] 09:30–09:50

### Complete Prediction Model for Radiated Emission from Motors and Power Cables

Joomin Park, Sungmin Park, and Ick-Jae Yoon (Chungnam National University, Republic of Korea)

[FrH1\_05] 09:50–10:10

### Wide-Incident-Angle Radio-Wave Absorber with Loop-Shape Frequency Selective Surface

Sangyeop Lee (Tokyo Institute of Technology, Japan); Takeshi Yoshida (Hiroshima University, Japan); Kyoya Takano (Tokyo University of Science, Japan); Shinsuke Hara, Issei Watanabe, and Akifumi Kasamatsu (National Institute of Information and Communications Technology, Japan); Yuko Sawaki (Maxell, Ltd., Japan)



[FrA2] [SS03] Innovative Antenna Techniques with Advanced Design, Fabrication and Materials

Session Date November 8 (Fri.), 2024

Session Time 10:30–12:30

Session Room Room A

Session Chair Prof. Wei Lin (The Hong Kong Polytechnic University, Hong Kong China)  
Prof. Guan-Long Huang (Foshan University, China)

[FrA2\_01] 10:30–10:50

Charge Supercapacitor by Ultracompact and High Efficiency Huygens Dipole Rectennas for Wireless Power Transfer Applications  
Wei Lin (The Hong Kong Polytechnic University, Hong Kong China)

[FrA2\_02] 10:50–11:10

Miniaturized Planar Ultra-Wideband Modular Antenna Design Based on Folded Active Dipole  
Yujie Di, Hailiang Zhu, Jiankai Xu, Gengchen Wang, Huairan Zhou, and Ganyu Liu (Northwestern Polytechnical University, China)

[FrA2\_03] 11:10–11:30

Graphene Conformal Antenna Array for Wireless Communication  
Yitong Xin, Haoran Zu, and Rongguo Song (Wuhan University of Technology, China)

[FrA2\_04] 11:30–11:50

Design of Tilted-Beam Parasitic Array Antennas Based on Index-Modulated Patches  
Mei Li, Zhengyi Sun, Yangning Hu, and Ming-Chun Tang (Chongqing University, China); Lei Zhu (University of Macau, China)

[FrA2\_05] 11:50–12:10

A Low Profile Quadrifilar Helical Antenna  
Zi-Yu Pang, Kam-Weng Tam (University of Macau, China); Guan-Long Huang (Foshan University, China); Qiwei Chen and Junxiao Liu (Wujing Technology, China); Wenhai Zhang (Soochow University, China); Hon-Pan Sio (Macao Science Centre, China)

[FrA2\_06] 12:10–12:30

Multi-Physics Modelling of Stretchable Antennas on Soft Materials  
Furong Yang, Kai Xu, and Chaoyun Song (King's College London, UK)





[FrB2] [SS11] Millimeter-Wave/Terahertz Arrays and Sub-Systems for 5G/6G Communications

Session Date	November 8 (Fri.), 2024
Session Time	10:30–12:30
Session Room	Room B
Session Chair	TBA

[FrB2\_01] 10:30–10:50

Millimeter-Wave Dual Circularly Polarized Large Element Spacing Phased Array Antenna with Grating Lobe Suppression

Zhicheng Huang, Shaowei Liao, and Quan Xue (South China University of Technology, China)

[FrB2\_02] 10:50–11:10

A Broadband Dual-Polarized 1-Bit Reconfigurable Reflect-Array Unit Cell at  $Ka$ -Band

Guangyao Peng and Enhao Wang (Southeast University, China); Kunjing Zhong (ZTE Corporation, China); Fan Wu, Zhi Hao Jiang, and Wei Hong (Southeast University, China)

[FrB2\_03] 11:10–11:30

Wideband Reconfigurable Proximity-Coupled Patch Antenna with Highly Flexible Polarization

Qian Ren and Pan Guo (University of Electronic Science and Technology of China, China); Shu-Lin Chen (University of Technology Sydney, Australia); Yanhui Liu (University of Electronic Science and Technology of China, China)

[FrB2\_04] 11:30–11:50

A Broadband Circularly-Polarized Transmitarray Based on Independent Control of Dual Linear Polarization

Wu-Guang Zhao, Yantao Ao, and Wei Deng (Southeast University, China); Jingxue Wang (Hohai University, China); Fan Wu and Zhi Hao Jiang (Southeast University, China)

[FrB2\_05] 11:50–12:10

A Shared Aperture Antenna Array Fed by Diplexer Integrated Power Dividers

Xiaoshuang Dong, Yujian Li, and Junhong Wang (Beijing Jiaotong University, China)

[FrB2\_06] 12:10–12:30

A D-Band I/Q Receiver with On-Chip Integrated LO Generation in 45-nm CMOS Technology

Jingbo Zhang (Sungkyunkwan University, Republic of Korea); Changjung Lee (Samsung Electronics Co., Ltd., Republic of Korea); Munkyo Seo (Sungkyunkwan University, Republic of Korea)



[FrC2] [SS20] Advanced Materials and Manufacturing for Multi-Beam/Beam-Steering Antennas

Session Date	November 8 (Fri.), 2024
Session Time	10:30–12:30
Session Room	Room C
Session Chair	Prof. Yang Yang (University of Technology Sydney, Australia) Dr. He Zhu (Commonwealth Scientific and Industrial Research Organisation, Australia)

[FrC2\_01] 10:30–10:50

Additively Manufactured Dual-Band Reflective Metasurfaces for Quadruplexed Channel and Energy Control

Jiexin Lai and Yang Yang (University of Technology Sydney, Australia); Jianfeng Zhu (South China University of Technology, China)

[FrC2\_02] 10:50–11:10

A Wideband Tunable Filtering Phase Shifter with Continuous Phase-Control

Chenyang Yuan, Zehua Liu, Jinxuan Ni, Hengrui Jiang, Yuanming Yan and Gang Zhang (Nanjing Normal University, China)

[FrC2\_03] 11:10–11:30

Reconfigurable Multi-Beam Feed Network for Individually Steering of Multiple Beams

He Zhu, Ting Zhang, and Jia Du (Commonwealth Scientific and Industrial Research Organisation, Australia)

[FrC2\_04] 11:30–11:50

All-Metal Share-Aperture High-Isolation Millimeter-Wave End-Fire and Broadside Phased Antenna Array

Zhonghe Zhang (Shenzhen University, China); He Zhu (Commonwealth Scientific and Industrial Research Organisation, Australia); Sai-Wai Wong (Shenzhen University, China); Jing-Yu Lin (Xiamen University, China); Chaoyun Song and Yejun He (Shenzhen University, China)

[FrC2\_05] 11:50–12:10

3D-Printed Flat Dielectric Lenses Using Split-Pin Unit Cell

Kevin Pulgar (Pontificia Universidad Católica de Valparaíso, Chile); Eva Rajo-Iglesias (University Carlos III of Madrid Leganés); Francisco Pizarro (Pontificia Universidad Católica de Valparaíso, Chile)

[FrC2\_06] 12:10–12:30

Loss Reduction Using Matching Layers in Metasurfaces Producing Tilted Beams for Attaching on Glass

Kenta Fujii, Keizo Cho, and Hiroaki Nakabayashi (Chiba Institute Of Technology, Japan); Naobumi Michishita (National Defense Academy, Japan); Takayoshi Sasaki, Warangkana Chaihongsa, Keisuke Sato, and Ichiro Oshima (Denki Kogyo Co., Ltd., Japan)



## [FrD2] [SS21] Special Session on Electromagnetic Security

Session Date November 8 (Fri.), 2024

Session Time 10:30–12:30

Session Room Room D

Session Chair TBA

[FrD2\_01] 10:30–10:50

Machine Learning–Based Vehicle Classification Using Electromagnetic Leakage Signals

Jonghwan Na, Yeongwoo Lee, Woosik Hur, Il–Suek Koh, and Bowon Lee (Inha University, Republic of Korea)

[FrD2\_02] 10:50–11:10

Modelling and Analysis of IEMI Backscattering System Using EM/Circuit Co–Simulation

Da–Hyun Lee and Jae–Young Chung (Seoul National University of Science and Technology, Republic of Korea)

[FrD2\_03] 11:10–11:30

Applicability of PWB Method in Wave Propagation to Electrically Large Structure

Dae–Young Hwang, Kitae Park, Jung–Hoon Han, and Jae W. Lee (Korea Aerospace University, Republic of Korea)

[FrD2\_04] 11:30–11:50

Huygens' Box–Based Split–Recombined Analysis of Electromagnetic Coupling in Small Enclosure with PCB

Dong–Ho Won, Dae–Young Hwang, Jae W. Lee, and Jung–Hoon Han (Korea Aerospace University, Republic of Korea)

[FrD2\_05] 11:50–12:10

Bandwidth Enhancement Technique for Planar Sinuous Antennas

Hyunmin Hong, Changseok Cho, and Yongshik Lee (Yonsei University, Republic of Korea)

[FrD2\_06] 12:10–12:30

Impact of Electric Field Coupling on High–Frequency Magnetic Probe Calibration

Eakhwan Song (Kwangwoon University, Republic of Korea)



[FrE2] [SS19] Antenna and Propagation for Wireless Communication and Beyond

Session Date November 8 (Fri.), 2024

Session Time 10:30–12:30

Session Room Room E

Session Chair Prof. Fauziahanim Che Seman (Universiti Tun Hussein Onn Malaysia, Malaysia)  
Prof. Noor Asniza Murad (Universiti Teknologi Malaysia, Malaysia);

[FrE2\_01]

10:30–10:50

SAR Assessment of a Dual-Band Wearable Antenna for WBAN Applications

Umar Musa, Shaharil Mohd Shah, and Huda A Majid (Universiti Tun Hussein Onn Malaysia, Malaysia); Mohamad Kamal A Rahim (Universiti Teknologi Malaysia, Malaysia); Muhammad Sani Yahya (Universiti Teknologi Petronas, Malaysia); Zuhairiah Zainal Abidin (Universiti Tun Hussein Onn Malaysia, Malaysia)

[FrE2\_02]

10:50–11:10

Influence of Water on Propagation for Future G-Band 6G Communication Systems Using THz Spectroscopy

Nor Mylisa Nor Azhar, Nurul Syafeeqa Ishak, Yee See Khee, Arslan Ahmed Sohoo, Elfarizanis Baharudin, and Fauziahanim Che Seman (Universiti Tun Hussein Onn Malaysia, Malaysia)

[FrE2\_03]

11:10–11:30

Medical Bandages Characterization as Potential Substrate for a Wearable Antenna

Nur Sabrina Shukor, Noor Asmawati Samsuri, Mohamad Kamal A Rahim, and Noor Asniza Murad (Universiti Teknologi Malaysia, Malaysia); Bambang Setia Nugroho and Levy Olivia Nur (Telkom University, Indonesia)

[FrE2\_04]

11:30–11:50

Design and Characterization of a Tri-Band Monopole Antenna for Multiband Applications

Mohd Adzimuhammad Bin Mohd Nor Azami, Mohamad Zoinol Abidin Abd. Aziz, and Abd Shukur Ja'afar (Universiti Teknikal Malaysia Melaka, Malaysia)

[FrE2\_05]

11:50–12:10

Isolation Enhancement of Compact MIMO Transparent Antenna Using Metamaterial

Topik Teguh Estu (Universiti Teknologi Malaysia, Malaysia & National Research and Innovation Agency, Indonesia); Noor Asniza Murad and Mohd Fairus Yusoff (Universiti Teknologi Malaysia, Malaysia); Gandhi Sugandi, Teguh Praludi, and Yusuf Nur Wijayanto (National Research and Innovation Agency, Indonesia)

[FrE2\_06]

12:10–12:30

Passive RFID Tag Antenna on Kapton Substrate

Maryam Md. Isa, Tark Farnana, Intan Hasan, Mohd Nizar Hamidon, and Aduwati Sali (Universiti Putra Malaysia, Malaysia)



## [FrF2] [SS23] Recent Advances in Wireless Power Transfer Technologies

Session Date November 8 (Fri.), 2024

Session Time 10:30–12:30

Session Room Room F

Session Chair Prof. Sanghoek Kim (Kyung Hee University, Republic of Korea)  
Prof. Hang Wang (City University of Hong Kong, Hong Kong, China)

### [FrF2\_01] [Invited Paper]

10:30–10:50

Evaluation of Small Antenna for Wireless Power Transfer Application  
Andrey Porokhnyuk, Henry Diawuo, and Yuji Tanabe (Aeterlink Corp., Japan)

### [FrF2\_02] [Invited Paper]

10:50–11:10

Development of Novel Phase Shifters for Phased Array for Far Field Wireless Power Transfer at 28GHz  
Naoki Shinohara and Bo Yang (Kyoto University, Japan)

### [FrF2\_03]

11:10–11:30

A Quasi–Isotropic and Uniformly Polarized Ultracompact Wireless Power Source for Energizing Battery–Free Internet of Things Devices  
Huacheng Li and Wei Lin (The Hong Kong Polytechnic University, Hong Kong, China)

### [FrF2\_04]

11:30–11:50

Parity–Time Symmetry in Wireless Transfer of Power and Information  
Sanghoek Kim, Taewon Seo, and Taein Kim (Kyung Hee University, Republic of Korea)

### [FrF2\_05]

11:50–12:10

Evaluation of SAR in Wireless Power Transfer Systems for Building Management Applications  
Yuji Tanabe, Henry Diawo, and Ryosuke Kumagai (Aeterlink Corp., Japan)

### [FrF2\_06]

12:10–12:30

A Multi–Stage Matching Rectifier with Wide Input Power Range for Wireless Power Transfer  
Chibin He (Sun Yat–sen University, China); Baihua Zeng (City University of Hong Kong, Hong Kong, China); Shaoyong Zheng (Sun Yat–sen University, China); Hang Wong (City University of Hong Kong, Hong Kong, China); Yunliang Long (Sun Yat–sen University, China)





[FrG2] [SS30] EurAAP Session: Recent Advances in Antennas and Propagation in Europe

Session Date November 8 (Fri.), 2024

Session Time 10:30–12:30

Session Room Room G

Session Chair Prof. Pilar Castillo–Tapia (KTH Royal Institute of Technology, Sweden)  
Prof. Martin Petek (Politecnico di Torino, Italy)

[FrG2\_01] 10:30–10:50

Compact Superdirective Array with Beamforming Capability

A. Touhami, S. Collardey, and A. Sharaiha (IETR–University of Rennes, France)

[FrG2\_02] 10:50–11:10

Transient Far–Field Radiation of Reconfigurable Liquid Crystal Reflectarray Antennas

Robert Guirado, Gerardo Perez–Palomino, and Eduardo Carrasco (Universidad Politécnica de Madrid, Spain)

[FrG2\_03] 11:10–11:30

A Vertically Polarized Gap Waveguide Array Antenna for Joint Communication and Sensing

Reza Gheybi Zarnagh (University of Twente, Netherlands); Abolfazl Haddadi (Gapwaves AB, Sweden); Andrés Alayón Glazunov (Linköping University, Sweden)

[FrG2\_04] 11:30–11:50

Design of a Multilayer Dielectric Lens Using a Ray–Tracing Technique

Pilar Castillo–Tapia and Nuria Flores–Espinosa (KTH Royal Institute of Technology, Sweden); Francisco Mesa (Universidad de Sevilla, Spain); Maria Carolina Viganó (Viasat Antenna Systems S.A., Switzerland); Oskar Zetterstrom and Oscar Quevedo–Teruel (KTH Royal Institute of Technology, Sweden)

[FrG2\_05] 11:50–12:10

Numerical Modelling for the Evaluation of Dispersion Properties for Hexagonal Lattice Structures

Martin Petek and Jorge Alberto Tobón Vásquez (Politecnico di Torino, Italy); Guido Valerio (Sorbonne Université, France); Francisco Mesa (Universidad de Sevilla, Spain); Oscar Quevedo–Teruel (KTH Royal Institute of Technology, Sweden); Francesca Vipiana (Politecnico di Torino, Italy)

[FrG2\_06] 12:10–12:30

Material Parameter Optimization for Raytracing Simulations in a 300 GHz Indoor Scenario

Enes Aksoy, Alper Schultze, Leszek Raschkowski, and Slawomir Stanczak (Fraunhofer Institute for Telecommunications, Heinrich–Hertz–Institut, HHI, Germany)



## [FrH2] [SS09] Metamaterial Applications in WPT Transfer

Session Date November 8 (Fri.), 2024

Session Time 10:30–12:30

Session Room Room H

Session Chair Prof. Tamami Maruyama (National Institute of Technology, Hakodate College, Japan)  
Prof. Tsunayuki Yamamoto (National Institute of Technology, Tsuyama College, Japan)

### [FrH2\_01] [Invited Paper]

10:30–10:50

Pseudo-Scale Model for Air-Freshwater Two-Layer Problem

Nozomu Ishii, Keita Funayama, and Hiroyasu Mimura (Niigata University, Japan)

### [FrH2\_02] [Invited Paper]

10:50–11:10

Research on Metamaterial Technology for Microwave Wireless Power Transfer

Tsunayuki Yamamoto and Takeo Kobashi (National Institute of Technology, Tsuyama College, Japan); Tamami Maruyama (National Institute of Technology, Hakodate College, Japan)

### [FrH2\_03]

11:10–11:30

Reconfigurable Convex-Type Multi-Beam Metasurface Reflector for mmWave Application

Taisei Urakami (Nara Institute of Science and Technology, Japan); Tamami Maruyama (National Institute of Technology, Hakodate College, Japan); Akira Ono (National Institute of Technology, Kagawa College, Japan); Kazutomo Nakamura, Na Chen, and Minoru Okada (Nara Institute of Science and Technology, Japan)

### [FrH2\_04]

11:30–11:50

Multi-Beam Metasurface Reflector for Energy Harvesting to Multi-Devices in Different Directions

Shimpei Nishiyama (National Institute of Technology Kagawa College, Japan); Taisei Urakami (Nara Institute of Science and Technology, Japan); Tamami Maruyama (National Institute of Technology Hakodate College, Japan); Minoru Okada (Nara Institute of Science and Technology, Japan); Akira Ono (National Institute of Technology Kagawa College, Japan)

### [FrH2\_05]

11:50–12:10

Surface Wave Suppression at a Seawater Tank

Muhammad Syamim Fitri Bin Othman, Kamalia binti Kamardin, and Yoshihide Yamada (Universiti Teknologi Malaysia, Malaysia); Naobumi Michishita (National Defense Academy, Japan); Masaharu Takahashi (Chiba University, Japan); Izni Husna Idris (Universiti Pertahanan Nasional Malaysia, Malaysia)

### [FrH2\_06]

12:10–12:30

Analysis and Measurement of a Novel Rectenna Array Crossing a Loop and Dipole Antennas

Olan Heinen (Henallux, Belgium); Tamami Maruyama, Noa Ebita, and Masashi Nakatsugawa (National Institute of Technology, Hakodate College, Japan); Masaya Tamura (Toyohashi University of Technology, Japan); Noriharu Suematsu (Tohoku University, Japan)



## [FrA3] Antenna Theory and Design (2/2)

Session Date	November 8 (Fri.), 2024
Session Time	14:50–17:10
Session Room	Room A
Session Chair	Prof. Tae-Hwan Jang (Hanyang University, Republic of Korea)

[FrA3\_01] 14:50–15:10

MMW End-fire ME Dipole Antenna with a Wide Beam Width  
Junhyun Kim and Tae-Hwan Jang (Hanyang University, Republic of Korea)

[FrA3\_02] 15:10–15:30

Pattern Synthesis of Leaky Wave Antenna including Feeding System  
Kei Hanzawa and Hiroyuki Arai (Yokohama National University, Japan)

[FrA3\_03] 15:30–15:50

Decoupling and Cross-Polarization Suppression for Antenna Using Parasitic Strips  
Mengdi Liu and Hui Li (Dalian University of Technology, China)

[FrA3\_04] 15:50–16:10

Design of a Magneto-Electric Monopole Antenna  
Shunta Nakamura, Makoto Sano, Ryuji Kuse, and Takeshi Fukusako (Kumamoto University, Japan)

[FrA3\_05] 16:10–16:30

Generation of a Long-Nondiffractive-Range Leaky-Wave Bessel Beam through an Open-Stopband Mitigation Technique  
Eduardo Negri (Sapienza University of Rome, Italy); Federico Giusti (University of Siena, Italy); Walter Fuscaldo (Consiglio Nazionale delle Ricerche, Italy); Paolo Burghignoli (Sapienza University of Rome, Italy); Enrica Martini (University of Siena, Italy); Alessandro Galli (Sapienza University of Rome, Italy)

[FrA3\_06] 16:30–16:50

A Dual-Polarized Tapered Slot Antenna for Measuring Probe  
Genki Sato and Hiroyuki Arai (Yokohama Natinal University, Japan)

[FrA3\_07] 16:50–17:10

Wideband Bidirectional Circularly Polarized S-Slot Antenna with Dielectric Superstrate  
Bancha Luadang (Rajamangala University of Technology Rattanakosin, Thailand); Pisit Janpangngern (Suranaree University of Technology, Thailand); Chuwong Phongcharoenpanich (King Mongkut's Institute of Technology Ladkrabang, Thailand)



## [FrB3] Array Antennas (2/2)

Session Date	November 8 (Fri.), 2024
Session Time	14:50–17:10
Session Room	Room B
Session Chair	Dr. Mohammad Ameen (National University of Singapore, Singapore) Prof. Sangjo Choi (Kyungpook National University, Republic of Korea)

[FrB3\_01] 14:50–15:10

Angle of Arrival Antenna Array Design for BLE 5.1 Direction Finding  
Radhika Raina and Suman Kumar (Indian Institute of Technology Ropar, India)

[FrB3\_02] 15:10–15:30

Dielectric Fan Antenna  
Keisuke Sato and Ichiro Oshima (Denki Kogyo Co., Ltd., Japan); Hisamatsu Nakano (Hosei University, Japan)

[FrB3\_03] 15:30–15:50

A Compact Closely–Spaced Dual–Slant–Polarized Decoupled Antenna Array  
Yuenian Chen (Xidian University, China & University of Technology Sydney, Australia); Can Ding (University of Technology Sydney, Australia); Ying Liu (Xidian University, China); Y. Jay Guo (University of Technology Sydney, Australia)

[FrB3\_04] 15:50–16:10

Liquid Crystal–Based Spiral Transmission Line–Fed Beam Steering Antenna Unit  
Hiroki Nakamura and Keizo Cho (Chiba Institute of Technology, Japan); Takuya Okura and Hiroyuki Tsuji (National Institute of Information and Communications Technology, Japan)

[FrB3\_05] 16:10–16:30

Highly Flexible and Foldable Antenna Array Using Corrugated CCPM–Based Patches  
Mohammad Ameen and Koen Mouthaan (National University of Singapore, Singapore)

[FrB3\_06] 16:30–16:50

Integrated Planar Array with Butler Matrix for Beam–Steering Applications  
Zulfi (Institut Teknologi Bandung, Indonesia & Telkom University, Indonesia); Rheyuniarto Sahlendir Asthan (Institut Teknologi Bandung, Indonesia & Institut Teknologi Sumatera, Indonesia); Joko Suryana and Achmad Munir (Institut Teknologi Bandung, Indonesia)

[FrB3\_07] 16:50–17:10

Novel Series–Fed Patch Antenna Array with Continuous 360° Phase Shifter for Wide–Beam Scanning  
Subin Lee and Sangjo Choi (Kyungpook National University, Republic of Korea)



## [FrC3] Millimeter-Wave, THz, and Optical Antennas

Session Date November 8 (Fri.), 2024

Session Time 14:50–17:10

Session Room Room C

Session Chair Prof. Kunio Sakakibara (Nagoya Institute of Technology, Japan)

[FrC3\_01]

14:50–15:10

A THz Reconfigurable Reflectarray Element Design Based on CMOS Technique

You Wu, Yifei Jin, Changhao Liu, Fan Yang, Shenheng Xu, and Maokun Li (Tsinghua University, China)

[FrC3\_02]

15:10–15:30

Traveling Wave Array Design of Comb-Line Antenna Using Thick Elements in 270-GHz Band

Balaakshaya Suresh, Yoshiki Sugimoto, Kunio Sakakibara, and Nobuyoshi Kikuma (Nagoya Institute of Technology, Japan)

[FrC3\_03]

15:30–15:50

Parallel Differential Line Fed Planar Aperture Antenna-in-Package with X-Shaped Patch in Multilayer Substrate at 300-GHz Band

Taisuke Uemura, Atsuya Yamazaki, Yoshiki Sugimoto, Kunio Sakakibara, and Nobuyoshi Kikuma (Nagoya Institute of Technology, Japan)

[FrC3\_04]

15:50–16:10

Design of Endfire Antenna in SIW with Step Structure in Multilayer Substrate at 300GHz Band

Daisuke Sakai, Yoshiki Sugimoto, and Kunio Sakakibara (Nagoya Institute of Technology, Japan); Ken Takahashi (Panasonic System Networks R&D Lab. Co., Ltd. Japan); Nobuyoshi Kikuma (Nagoya Institute of Technology, Japan)

[FrC3\_05]

16:10–16:30

Design of 2x2 Interpolating-Fed 5x5-Element Phased Array Antenna-in-Package in 300-GHz Band

Atsuya Yamazaki, Kunio Sakakibara, Yoshiki Sugimoto, Taisuke Uemura, and Nobuyoshi Kikuma (Nagoya Institute of Technology, Japan)

[FrC3\_06]

16:30–16:50

Shared-Aperture Millimeter-Wave Conical-Beam Antenna with K/Ka/E-band Full Spatial Coverage for 6G Space-Air-Ground Communication

Duc Anh Pham, Minjae Lee, and Sungjoon Lim (Chung-Ang University, Republic of Korea)

[FrC3\_07]

16:50–17:10

Design of the 2x2-Slot Element for a 150 GHzband Corporate-Feed Waveguide Slot Array Antenna

Atsushi Saito, Jiro Hirokawa, and Takashi Tomura (Tokyo Institute of Technology, Japan)





## [FrD3] Scattering, Diffraction, and RCS

Session Date	November 8 (Fri.), 2024
Session Time	14:50–16:50
Session Room	Room D
Session Chair	Prof. Ryoichi Sato (Niigata University, Japan)

[FrD3\_01] 14:50–15:10

Experimental Study on Angular Scattering Characteristics of the Human Body Using Millimeter-wave 2D-MIMO Radar

Hodaka Tsuchiya and Hiroyoshi Yamada (Niigata University, Japan); Hiroyuki Kamo (Taiyo Yuden Co., Ltd., Japan)

[FrD3\_02] 15:10–15:30

Generation of Reflectivity Maps Using a Hybrid Method of Geometrical and Physical Optics

Yunha Jung, Jeongbae Kim, and Min-Ho Ka (Yonsei University, Republic of Korea)

[FrD3\_03] 15:30–15:50

Validation of Vector Radiative Transfer Method for Fast RCS Estimation Using MoM

Jun-Seon Kim, Su Hong Park, and Dong-Wook Seo (Korea Maritime & Ocean University, Republic of Korea)

[FrD3\_04] 15:50–16:10

Fundamental Study on Polarimetric Scattering For Change Detection in Flooded Built-Up Area

Ryoichi Sato, Masaki Watabe, Hiroyoshi Yamada, and Yoshio Yamaguchi (Niigata University, Japan)

[FrD3\_05] 16:10–16:30

Square Loop Antenna Loaded with Mantle Cloak Composed of Strip Conductors

Go Kasahara, Hiroshi Hashiguchi, and Naobumi Michishita (National Defense Academy, Japan); Kiyoshi Sakimoto, Teruki Miyazaki, and Masato Tadokoro (The Yokohama Rubber Co., Ltd., Japan)

[FrD3\_06] 16:30–16:50

Wideband RCS Reduction of Curved Surface Based on High-Frequency Approximation Method

Wei Gan, Jinshuai Chang, Meijun Qu, and Jianxun Su (Communication University of China, China); Guanghong Liu (Information Science Academy of China Electronics Technology Group Corporation, China)



## [FrE3] Radar, DOA, Localization, and Sensing (2/2)

Session Date November 8 (Fri.), 2024

Session Time 14:50–17:10

Session Room Room E

Session Chair Dr. Junichi Honda (Electronic Navigation Research Institute, Japan)

[FrE3\_01]

14:50–15:10

Effect of Backscattering Caused by Two Localizers

Junichi Honda and Hirohisa Tajima (Electronic Navigation Research Institute, Japan)

[FrE3\_02]

15:10–15:30

Basic Study on Near-Field Range Migration for Millimeter-Wave 2D-MIMO Radar

Kosaku Shigeta, Hiroyoshi Yamada, and Rhoichi Sato (Niigata University, Japan); Hiroyuki Kamo (Taiyo Yuden Co., Ltd., Japan)

[FrE3\_03]

15:30–15:50

The Potential of Channel Impulse Response Correlation in Integrated Sensing and Communication : A Wideband Measurement Analysis

Indar Surahmat (RWTH Aachen University, Germany & Muhammadiyah University of Jakarta, Indonesia); Dirk Heberling (RWTH Aachen University, Germany & Fraunhofer FHR, Germany)

[FrE3\_04]

15:50–16:10

Experimental Verification of Human-Body Ranging Using Wi-Fi CSI

Kentaro Kikuta, Takumi Shimofusa, Naoki Honma, and Kentaro Murata (Iwate University, Japan); Takeshi Nakayama, Shoichi Iizuka, and Nobuyuki Shiraki (Panasonic Corporation, Japan)

[FrE3\_05]

16:10–16:30

FMCW Monopulse Radar with an Orthogonally Polarized Dual-Beam Dielectric Resonator Antenna

Chanhee Lee, Kyeong-Han Shin, Ji-Hoon Lee, and Hyo-Won Lee (Korea Advanced Institute of Science and Technology, Republic of Korea); Jeong-Wook Kim (Ajou University, Republic of Korea); Jong-Won Yu (Korea Advanced Institute of Science and Technology, Republic of Korea)

[FrE3\_06]

16:30–16:50

Reconstruction of Ground Scattering Environments for Synthetic Aperture Radar Simulations

Jeongbae Kim, Jaebaek Jang, and Min-Ho Ka (Yonsei University, Republic of Korea)

[FrE3\_07]

16:50–17:10

Design of a Multi-Channel Full-Polarimetric SFCW GPR Experimental System

Thoetphan Kingsuwanphong, Christian Bräu, Fernando Israel Rial, and Stefan Rüemmler (Fraunhofer FHR, Germany)



[FrF3] RFID, Sensor, EMI/EMC, Wearable Device Networks, Medical Applications

Session Date	November 8 (Fri.), 2024
Session Time	14:50–16:30
Session Room	Room F
Session Chair	TBA

[FrF3\_01] 14:50–15:10

A Batteryless Implantable Device Transferring Multi-Channel Biosignals by Encircling an Exceptional Point

Taein Kim and Sanghoek Kim (Kyung Hee University, Republic of Korea)

[FrF3\_02] 15:10–15:30

A Rate-Enhanced Square-Wave LoRa Backscatter Communication Scheme

Wenxin Shi, Ming Su, Rui Xu, and Yuanan Liu (Beijing University of Posts and Telecommunications, China)

[FrF3\_03] 15:30–15:50

Low-Cost Real Time Anti-Drone RF Scanner Using Switched Array Beamformer

Sumin Han, Uichan Kim, and Byung Jun Jang (Kookmin University, Republic of Korea)

[FrF3\_04] 15:50–16:10

Compact Frequency-Tunable Harmonic Tag with Asymmetric Spiral Loop Topology

Arjun Kumar, Andrei Mogilnikov, and Anastasia Lavrenko (University of Twente, Netherlands)

[FrF3\_05] 16:10–16:30

Aircraft Radio Altimeter Interference Path Loss Evaluations of Small-Sized Fixed-Wing Aircraft During Flight

Shunichi Futatsumori and Noriaki Hiraga (Electronic Navigation Research Institute, Japan); Shuhei Waki, Kohsuke Ushimaru, and Takashi Hikage (Hokkaido University, Japan)



## [FrG3] Metamaterials, Metasurfaces, and Artificial Materials

Session Date	November 8 (Fri.), 2024
Session Time	14:50–17:10
Session Room	Room G
Session Chair	Prof. Do Hoon Kwon (University of Massachusetts Amherst, USA) Prof. Yongjune Kim (University of Suwon, Republic of Korea)

### [FrG3\_01] [Invited Paper] 14:50–15:10

Physically Unclonable Functions Based on Scattering of Core–Shell Nanoparticles  
Nga Vu and Trung D Ha (University of Illinois at Chicago, USA); Chien–Hao Liu (National Taiwan University, Taiwan);  
Pai–Yen Chen (University of Illinois at Chicago, USA)

### [FrG3\_02] 15:10–15:30

Optically Transparent, Flexible, and Broadband Metamaterial Absorber Using High–Low Resistive Inks  
Junghyeon Kim, Prabhakar Jepiti and Sungjoon Lim (Chung–Ang University, Republic of Korea)

### [FrG3\_03] 15:30–15:50

Planar and Conformal Microwave Metasurfaces Based on the Field Synthesis Methodology  
Hakjune Lee and Do–Hoon Kwon (University of Massachusetts Amherst, USA)

### [FrG3\_04] 15:50–16:10

A Small Single–Layer Phase Gradient Metasurface for Gain Enhancement  
Jialiang Han and Hui Li (Dalian University of Technology, China)

### [FrG3\_05] 16:10–16:30

Multi–Band Metamaterial Absorber Using a Slotted Octagonal Unit Cell  
Mohamed Elhefnawy (Gyeongsang National University, Republic of Korea & October 6 University, Egypt); Kyoung–  
Hun Kim, Tae–Hyeon Kim, and Wang–Sang Lee (Gyeongsang National University, Republic of Korea)

### [FrG3\_06] 16:30–16:50

Mosaic Frequency Selective Surface Absorber for Low Profile Directive Antenna Application  
Nur Biha Mohamed Nafis (Universiti Putra Malaysia, Malaysia), Mohamed Himdi (IETR–University of Rennes, France),  
Mohamad Kamal A Rahim (Universiti Teknologi Malaysia, Malaysia); Nizam Tamchek, Nurul Huda Osman, and Mohd  
Amiruddin Abd Rahman (Universiti Putra Malaysia, Malaysia)

### [FrG3\_07] 16:50–17:10

Dual–Band Printed Coded Metasurface for Split Beam Generation in Arbitrary Direction  
Maira I. Nabeel, Khushboo Singh, Muhammad U. Afzal, Dushmantha N. Thalakituna, and Karu P. Esselle (University  
of Technology Sydney, Australia)



## [FrH3] Antennas with Periodic Structures, Machine Learning and Artificial Intelligence

Session Date November 8 (Fri.), 2024

Session Time 14:50–17:10

Session Room Room H

Session Chair Dr. Wei-Chung Weng (National Chi Nan University, Taiwan)  
Prof. Ick-Jae Yoon (Chungnam National University, Republic of Korea)

[FrH3\_01] 14:50–15:10

Additive Manufacturing of Ceramics for Permittivity Optimization in Dielectric Resonator Antennas.  
Thomas Lavie, Matthew Julian, Ala Sharaiha, Ratiba Benzerga, Laurent Le Gendre, François Chevire, and Claire Le Paven (IETR–University of Rennes, France)

[FrH3\_02] 15:10–15:30

Characterization of  $M \times N$  Metasurface for Bandwidth Extension of Patch Antennas  
Naoto Tomiyama and Hiroyuki Arai (Yokohama National Univ, Japan)

[FrH3\_03] 15:30–15:50

A Novel Analysis of Asymmetric Partially Reflective Surfaces Based on the BCITL Model  
Kittima Lertsakwimarn, Danai Torrungrueng, Asawin Nunchbang, and Titipong Lertwiriayaprapa (King Mongkut's University of Technology North Bangkok, Thailand); Hsi-Tseng Chou (National Taiwan University, Taiwan)

[FrH3\_04] 15:50–16:10

Design of Miniaturized Holographic Antenna with Enhancement in Sidelobe Level  
Mee-Su Lee and Wonkyo Kim (Chungnam National University, Republic of Korea); Chan Yeong Park and Young Joong Yoon (Yonsei University, Republic of Korea); Ick-Jae Yoon (Chungnam National University, Republic of Korea)

[FrH3\_05] 16:10–16:30

Optimal Radiating Element Design for Reflectarray Antennas Using Artificial Neural Network and Taguchi's Method  
Wei-Chung Weng and Chi-Keong Wong (National Chi Nan University, Taiwan)

[FrH3\_06] 16:30–16:50

CNN-Based Radar Image Enhancement for Estimating Human-Body's Silhouette  
Koki Kato, Naoki Honma, and Kentaro Murata (Iwate University, Japan)

[FrH3\_07] 16:50–17:10

Hand Gesture Recognition with the Fusion of ToF and UWB Radar Sensors  
Yuning Shang, Shengchang Lan, and Changhao Yang (Harbin Institute of Technology, China)