

Program at a Glance

June 28, Wednesday

11:30 - 16:00	Registration	Foyer (2F)
14:00 - 15:15	Poster Session I	Foyer (2F)
15:15 - 15:30	Coffee Break	
15:30 - 16:45	Poster Session II	Foyer (2F)
18:00 - 20:00	Student Exchange Dinner Event	Faculty House Trillium (ENREI) "Restaurant Elm"
18:30 - 20:30	Welcome Reception	

June 29, Thursday

8:15 - 17:00	Registration	Foyer (2F)
8:30 - 8:50	Opening Ceremony	Lecture Hall (2F)
8:50 - 9:20	Plenary Talk	Lecture Hall (2F)
9:20 - 10:00	Invited Session I	Lecture Hall (2F)
10:00 - 10:15	Coffee Break	
10:15 - 11:35	Invited Session II	Lecture Hall (2F)
11:35 - 12:45	Lunch Break	
11:40 - 12:40	(Steering Committee Meeting)	Seminar Room 2 (2F)
12:45 - 14:05	Invited Session III	Lecture Hall (2F)
14:05 - 14:20	Coffee Break	
14:20 - 15:40	Invited Session IV	Lecture Hall (2F)
15:40 - 15:55	Coffee Break	
15:55 - 17:15	Invited Session V	Lecture Hall (2F)
17:15 - 17:20	Break	
17:20 - 17:40	Young Scientist Award and Closing Ceremony	Lecture Hall (2F)
17:40 - 17:55	Group photos	Lecture Hall (2F)
19:00 - 21:00	Banquet	

June 30, Friday

9:00 - 12:30	Technical Discussion	
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Technical Program

June 28, Wednesday

Poster Session I, 14:00 - 15:15

Chairs: Jaehoon CHOI(Hanyang Univ.) and Qiang CHEN (Tohoku Univ.)

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| P1-1 | Prediction of 2.4 GHz Band Indoor-to-Outdoor Propagation Using Multiple Numerical Models of Office Environment
<i>Yuko SUZUKI and Manabu OMIYA (Hokkaido Univ.)</i> |
| P1-2 | Radio Propagation Estimation Accuracy and Time by Vertical Plane Launch Approximation
<i>Takahiro HASHIMOTO, Takayuki NAKANISHI, Yoshio INASAWA, Naofumi YONEDA, and Hiroaki MIYASHITA (Mitsubishi Electric Corp.)</i> |
| P1-3 | Parameters of propagating-path identification using FDTD method and compressive sensing
<i>Tomohiro KOMATSU and Naoki HONMA (Iwate Univ.)</i> |
| P1-4 | Millimeter wave-based virtual reality video transmission for onsite audiences
<i>Yuanfeng SHE (AIST) and Zhi LIU (Shizuoka Univ.)</i> |
| P1-5 | Identification of Periodic Structure Target by Broadband Polarimetry Using Terahertz Radiation
<i>Yuki KAMAGATA, Hiroaki NAKABAYASHI, Koji SUIZU, and Keizo CHO (CIT)</i> |
| P1-6 | Proposal of New Propagation Based on Measured Parameters in Massive MIMO
<i>Ryotaro TANIGUCHI, Kentaro NISHIMORI (Niigata Univ.), Ngochao TRAN, Koshoro KITAO, and Tetsuro IMAI (NTT DOCOMO)</i> |
| P1-7 | Direction of arrival estimation on MIMO sensor using variation of correlation
<i>Kento SATO, Kentaro NISHIMORI (Niigata Univ.), Naoki HONMA (Iwate Univ.), and Hideo MAKINO (Niigata Univ.)</i> |
| P1-8 | Experimental Study of Antenna Selection Methods in Distributed Uplink MU-MIMO
<i>Soichi ITO, Sho YOSHIDA, Kentaro NISHIMORI (Niigata Univ.), Tomoki MURAKAMI, Koichi ISHIIHARA, and Yasushi TAKATORI (NTT)</i> |
| P1-9 | Design of a Wideband 6-Port MIMO Antenna Array Consisting of Leaf-Shaped Radiating Elements
<i>Jumpei MOTOHASHI, Takashi HIKAGE, and Manabu YAMAMOTO (Hokkaido Univ.)</i> |
| P1-10 | Not aligned Multiple-Region/Dual-Grid Finite-Difference Time-Domain Method
<i>Masakazu YAMAJI, Toru UNO, and Takuji ARIMA (Tokyo Univ. of Agr. and Tech.)</i> |
| P1-11 | Fundamental Study on Small Handset Antenna using Characteristic Mode Analysis
<i>Naoki AKIYAMA, Naobumi MICHISHITA (NDA), Hiroshi SATOH, Yoshio KOYANAGI (Panasonic), and Hisashi MORISHITA (NDA)</i> |
| P1-12 | Complex Resonant Frequency Analysis of Wire Antennas
<i>Yu NISHIKAWA and Hiroyuki ARAI (Yokohama Natl. Univ.)</i> |
| P1-13 | Feasibility of Antenna System for Rectangular-coordinate Orthogonality Multiplexing by using Corporate-feed Waveguide Slot Array Antenna and Monopulse Circuit
<i>Ryotaro OHASHI, Takashi TOMURA, and Jiro HIROKAWA (Tokyo Tech.)</i> |
| P1-14 | Elimination of Low Sensitivity Area of a Planar Waveguide Sheet by Using Slits and Switching Diversity
<i>Yusuke OZAWA, Kuanhua CHEN, Qiang CHEN, Kunio SAWAYA (Tohoku Univ.), Machiko OOUCHIDA, and Masatomo TOKIEDA (Teijin)</i> |
| P1-15 | Virtual Synthetic Array System for Directional Channel Characterization
<i>Takuto KUROSE and Minseok KIM (Niigata Univ.)</i> |
| P1-16 | 60 GHz-Band Antenna Beam Forming by Radio-over-Fiber with Variable Delay Line
<i>Tatsuya NAGAYAMA, Shigeyuki AKIBA, and Jiro HIROKAWA (Tokyo Tech.)</i> |
| P1-17 | 6 to 14 GHz Frequency Band Local Exposure Antenna for Animal Experiments
<i>Yasutaka MURAKAMI, Momoka UMEGATE, Toru UNO, and Takuji ARIMA (Tokyo Univ. of Agr. and Tech.)</i> |

P1-18	Design of the Feeding Layer in a Waveguide Reflection-canceling Slot Array Antenna to improve the Bandwidth in the 60GHz Band <i>Mikihiro ARUGA, Takashi TOMURA, and Jiro HIROKAWA (Tokyo Tech.)</i>
P1-19	Air Wire Antenna Suspended from Drone <i>Kohein KAWABATA, Hiroyuki ARAI (Yokohama Natl. Univ.)</i>
P1-20	A-Low-Profile unidirectional beam antenna using dogbone structure <i>Tohko NISHIYAMA and Takeshi FUKUSAKO (Kumamoto Univ.)</i>
P1-21	3.5/2GHz Dual-band Horizontally Polarized Sector Antenna Equipping Alternately Placed FSR <i>Masato HASEGAWA, Keizo CHO (CIT), Atsuya ANDO (NTT)</i>
P1-22	Reducing Technique of Surface Waves for Antennas on the Window Glass <i>Tetsuya OGAWA, Toru UNO, Takuji ARIMA, Wataru TANAKA (Tokyo Univ. of Agr. and Tech.), Osamu KAGAYA (Asahi Glass), and Mitaro NAMIKI (Tokyo Univ. of Agr. and Tech.)</i>
P1-23	An experimental study of varactor-loaded frequency-tunable single-layer ring microstrip antennas fed by an L-probe with reduced bias circuits <i>Toru IKEDA, Sakuyoshi SAITO, and Yuichi KIKUMA (Saitama Univ.)</i>
P1-24	An experimental study of a 15 GHz beam adjustable microstrip antenna array <i>Shunsuke KAMIMURA, Sakuyoshi SAITO, and Yuichi KIMURA (Saitama Univ.)</i>
P1-25	A fundamental study of a microstrip antenna array on a narrow wall of a rectangular waveguide for linear polarization perpendicular to the axis with a dual-ring microstrip antenna <i>Shintaro SHIMAMORI, Sakuyoshi SAITO, and Yuichi KIMURA (Saitama Univ.)</i>
P1-26	Development of Multi-Band Compact Antipodal Tapered Slot Antenna for Cellular Base Stations <i>Toshinori KUDO, Hiroyasu SATO, Qiang CHEN (Tohoku Univ.), and Shingo INOUE (Hitachi Kokusai Yagi Solutions)</i>
P1-27	Dependence on Antenna Height of Human Body Shadowing Loss in an Indoor Environment <i>Yuki ITOH, Hisato IWAI, and Hideichi SASAOKA (Doshisha Univ.)</i>
P1-28	Design of a Conical/Pencil Dual-Beam Array Antenna Using Planar Magic-Ts <i>Thet Paing PHYOE, Eisuke NISHIYAMA, and Ichihiko TOYODA (Saga Univ.)</i>

Poster Session II, 15:30 - 16:45

Chairs: Yong Bae PARK (Ajou Univ.) and Akkarat Boonpoong (KMUTNB)

P2-1	Planar Printed Hybrid Loop/Open-Slot Antenna with Capacitive Coupling Feed Strips for Hepta-band Mobile Applications <i>Kyoseung KEUM, Haiyan PIAO, and Jaehoon CHOI (Hangyang Univ.)</i>
P2-2	FDTD Analysis of Cross Polarization Characteristics for 4.4 GHz-band Radio Propagation Inside Aircraft Cabin <i>Tetsuya SEKIGUCHI, Takashi HIKAGE, Manabu YAMAMOTO, Toshio NIJIMA (Hokkaido Univ.), Syunichi FUTATSUMORI, Akiko KOHMURA, and Naruto YONEMOTO (ENRI)</i>
P2-3	An Empirical Study on Scattering Characteristics of Radio Wave by a Human Body in Millimeter Waves <i>Ngochao TRAN, Tetsuro IMAI, Koshiro KITAO, Yukihiko OKUMURA and Takehiro NAKAMURA (NTT DOCOMO), Hiroshi TOKUDA, Takao MIYAKE, Robin WANG, Zhu WEN, Hajime KITANO, and Roger NICHOLS (Keysight Technologies, Inc.)</i>
P2-4	Development of FDTD Modeling of High-Resolution Human Phantom <i>Jae-Woo BAEK, Jaehoon CHO, Sang-Gyu HA, Yong Bae PARK, and Kyung-Young JUNG (Hanyang Univ.)</i>
P2-5	A Study on Radar Absorbent Material Using Dielectric Materials <i>Yuka ISHII, Naobumi MICHISHITA, and Hisashi MORISHITA (NDA)</i>
P2-6	Ground-Penetrating Radar Experiment for a Target Detection under Multiple Layers Using Impulse-Radiating Antenna <i>Kyoungyi PARK and Kangwook KIM (GIST)</i>
P2-7	8-Branch MIMO Base Station Antenna using 4 Orthogonal Angles and 2 Polarizations <i>Masayuki NAKANO (KDDI Research)</i>

P2-8	Precise Drone Positioning System Using Real Time Kinematic GPS <i>Jae-Yeon SHIM and Jae-Young CHUNG (Seoul Tech.)</i>
P2-9	Simple Beamforming Method with Terminal Station on Downlink Multi-Beam Massive MIMO <i>Shota OGAWA, Kentaro NISHIMORI, Ryotaro TANIGUCHI (Niigata Univ.), and Takefumi HIRAGURI (NIT)</i>
P2-10	Performance Evaluation of Multi-Beam Massive MIMO Using Beam Selection Method <i>Fumiya MURAMATSU, Kentaro NISHIMORI, Ryotaro TANIGUCHI, Kazuma ANDO (Niigata Univ.), and Takefumi HIRAGURI (NIT)</i>
P2-11	Improvement of MUSIC Direction Finding Technique by Considering Antenna Coupling Effect <i>Seung-gyu YANG and Kangwook KIM (GIST)</i>
P2-12	Hybrid analysis of Mode Matching/FEM for a Waveguide Short-slot 2-plane Coupler Considering the Three-dimensional Structural Symmetry <i>Masahiyo WAKASA, Dong-Hun KIM, Takashi TOMURA, and Jiro HIROKAWA (Tokyo Tech.)</i>
P2-13	Non-Foster Matching for GNSS Applications <i>Myeung-Hoon KIM, Sang-Gyu HA, Jaehoon CHO, and Kyung-Young JUNG (Hanyang Univ.)</i>
P2-14	Analysis of Shadowing Loss in Inter-Vehicle Communication Environment with Slope Diffraction with slope diffraction <i>Shohei KAWASAKI, Hisato IWAI, and Hideichi SASAOKA (Doshisha Univ.)</i>
P2-15	Design of A Small Dual-band Array Antenna with Superstrate Loading for Tuning the Dual-frequency-band Ratio <i>Tae Heung LIM, Gangil BYUN, and Hosung CHOO (Hongik Univ.)</i>
P2-16	Enlarging Operating Frequency Band of Dual Polarized Reflector Backed Dipole Antenna Using Folded Meander Loop Parasitic Elements <i>Mamoru YAMAGUCHI, Keizo CHO (Chiba Institute of Technology), Tatsuhiko YOSHIHARA, and Taisuke IHARA (NTT DOCOMO)</i>
P2-17	Modified Range Doppler Algorithm for FMCW Auto SAR <i>Dae-Hwan JUNG, Jang-Soo CHAE, and and Seong-Ook PARK (KAIST)</i>
P2-18	A Fundamental Study of A Microstrip Antenna Array on A Broad Wall of A Rectangular waveguide for 45-degree inclined linear polarization <i>Issei YAMASAKI, Sakuyoshi SAITO, and Yuichi KIMURA (Saitama Univ.)</i>
P2-19	Sleeve Antenna Composed of Two Kinds of Composite Right/left-handed Transmission Lines <i>Takatsugu FUKUSHIMA, Naobumi MICHISHITA, Hisashi MORISHITA (NDA), and Naoya FUJIMOTO (Hitachi Kokusai Electric)</i>
P2-20	Design of an Antipodal Vivaldi Antenna with Asymmetric Parasitic Patch <i>Jihoon BANG, Juneseok LEE, and Jaehoon CHOI (Hangyang Univ.)</i>
P2-21	Numerical Estimation of Radio Propagation Characteristics for 26GHz Band communication System using Large Scale FDTD Analysis and 3D Laser Scanner <i>Masakazu YAMAGUCHI, Takashi HIKAGE (Hokkaido Univ.) , Minoru INOMATA, Motoharu SASAKI, Mitsuki NAKAMURA, and Yasushi TAKATORI (NTT)</i>
P2-22	Reduction of Envelope Correlation Coefficient in MIMO Antenna Using Suspended Line <i>Seung-Ho KIM and Jae-Young CHUNG (Seoul Tech.)</i>
P2-23	Performance Evaluation on NOMA and Transmit BF with User Selection by the Number of Beams <i>Yoshiki SHIRASAWA, Kentaro NISHIMORI, and Hideo MAKINO (Niigata Univ.)</i>
P2-24	Design of A Dual-band GPS Antenna with A Microstrip Grid <i>SeungSeok KANG, Gangil BYUN, and Hosung CHOO (Hongik Univ.)</i>
P2-25	Gain Enhancement of Optical Leaky Waveguide Antenna by Aperture Distribution Control <i>Reiji TODA, Hiroshi HASHIGUCHI, and Hiroyuki ARAI (Yokohama Natl. Univ.)</i>
P2-26	Design of Transmitarray Lens Antenna for Improving Treatment Effects in Superficial Hyperthermia <i>Woo Cheol CHOI, Seonho LIM, and Young Joong YOON (Yonsei Univ.)</i>
P2-27	A fundamental Study of A Frequency-tunable Circularly Polarized Ring Microstrip Antenna Fed by An L-probe with Varactor Diodes <i>Yuma IKEDA, Sakuyoshi SAITO, and Yuichi KIMURA (Saitama Univ.)</i>

June 29, Thursday

8:15 - 17:00 Registration

8:30 - 8:50 Opening Ceremony

Plenary Talk

Chairs: Young Joong YOON (Yonsei Univ.) and Eisuke NISHIYAMA (Saga Univ.)

8:50 - 9:20 Dual-band Beam-Scanning Reflectometer
Chainarong Kittiyapunya and Monai Krairiksh (KMITL)

Invited Session I

Chairs: Young Joong YOON (Yonsei Univ.) and Eisuke NISHIYAMA (Saga Univ.)

I-1 9:20 - 9:40 Cellular Base Station Antenna by Tri-plate Waveguide
Hiroyuki ARAI (Yokohama Natl. Univ.)

I-2 9:40 - 10:00 Dual-band Square Planar Dipole Arrays for Base Stations
Pongsathorn CHOMTONG and Prayoot AKKARAEKTHALIN(KMUTNB)

Invited Session II

Chairs: Kyung-Young JUNG (Hanyang Univ.) and Naoki HONMA (Iwate Univ.)

I-3 10:15 - 10:35 De-embedding of Antennas from Propagation Channel in Wireless Communications (II)
Comparison between Plane Wave Modeling and Spherical Wave Modeling
Jun-ichi TAKADA (Tokyo Tech.)

I-4 10:35 - 10:55 Heuristic UTD Diffractions for Antenna Problem
Awika PIMPATANG, Titipong LERTWIRIYAPRAPA, and Chuwong PONGCHAROENPANICH (KMUTNB)

I-5 10:55 - 11:15 Proposal of Rectangular Coordinate Orthogonal Multiplexing Antenna System
Jiro HIROKAWA (Tokyo Tech.)

I-6 11:15 - 11:35 Analytic Solution of Axial Ratio Based on Perturbation Theory
Nu PHAM and Jae-Young CHUNG (Seoul Tech.)

Invited Session III

Chairs: Hosung CHOO (Hongik Univ.) and Takuji ARIMA (Tokyo Univ. of Agr. and Tech.)

I-7 12:45 - 13:05 Determination of Impedance Parameters of Multiple Antennas in Half Dielectric Space
Using Equivalent Currents
Yoon Goo KIM (Hanwha Thales) and Sangwook NAM (Seoul Natl. Univ.)

I-8 13:05 - 13:25 Automatic Detection and Classification of Buried Objects using Ground Penetrating Radar
for Counter-Improvised Explosive Devices
Nattawat CHANTASEN and Akkarat BOONPOONGA (KMUTNB)

I-9 13:25 - 13:45 Wideband-Switchable Metamaterial Absorber Using Injected Liquid Metal
Heijun JEONG, Hyung Ki KIM, Dongju LEE, and Sungjoon LIM (Chung-Ang Univ.)

I-10 13:45 - 14:05 Bifunctional Anisotropic Metasurfaces for Contrary Beam Antennas
Sarawuth CHAIMOOL, Tanan HONGNARA, and Prayoot AKKAEKTHALIN(KMUTNB)

Invited Session IV

Chairs: Jae-Young CHUNG (Seoul Tech) and Takashi HIKAGE (Hokkaido Univ.)

I-11	14:20 - 14:40	Frequency-Tunable Multiband Microstrip Antennas Fed by an L-probe with Varactor Diodes <i>Yuichi KIMURA (Saitama Univ.)</i>
I-12	14:40 - 15:00	A Compact Crossed-Dipole Antenna Backed by a Near-Field Resonant Parasitic Element for Directive Radiation Pattern <i>Ikmo PARK (Ajou Univ.) and Son Xuat TA (National Center for Research and Development of Open Technologies)</i>
I-13	15:00 - 15:20	3D Printed, Low-Profile Magnetic Dipole Wire Antenna <i>Myeongjun KONG, Geonyeong SHIN, Su-Hyeon LEE, and Ick-Jae YOON (Chungnam Natl. Univ.)</i>
I-14	15:20 - 15:40	Current Reduction Effects of Baluns for Measurement of Small Antennas <i>Toru FUKASAWA, Naofumi YONEDA, and Hiroaki MIYASHITA (Mitsubishi Electric Co.)</i>

Invited Session V

Chairs: Ikmo PARK (Ajou Univ.) and Titipong LERTWIRIYAPRAPA (KMUTNB)

I-15	15:55 - 16:15	Miniaturization of Reflectarray Antennas <i>Dongho KIM (Sejong Univ.)</i>
I-16	16:15 - 16:35	Transmission and Absorption Resonance Through Cavity-backed Small Apertures <i>Young-Ki CHO (Kyungbook Natl. Univ.)</i>
I-17	16:35 - 16:55	Completion of Release-14 LTE V2X and Further Evolution <i>Shinpei YASUKAWA, Riichi KUDO, Satoshi NAGATA, and Takehiro NAKAMURA (NTT DOCOMO)</i>
I-18	16:55 - 17:15	Characteristics of Rapid Change in Cross-Polarization Discrimination of Ka-band Satellite Communication Signals due to Lightning Discharges <i>Yasuyuki MAEKAWA (Osaka Electro-Commun. Univ.)</i>
