

2022 14th Global Symposium on Millimeter-Waves & Terahertz (GSMM 2022)

**Seoul, South Korea
18 – 20 May 2022**



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Technical Program Details

Wednesday 18 May

<W3A> mmWave Active Devices and ICs 1

Oral Session

Wednesday, 18-May, 13:30-15:20

Room: Grand Ballroom A

Chair: Sanggeun Jeon, Korea University

W3A.1 13:30-13:55 *Invited Talk*

A 45-nm RFSOI CMOS Based Compact Doherty Power Amplifier for mm-Wave 5G Applications...1

Jooseok Lee, Hyun-Chul Park, Seungjae Baek, Junho Jung, Taewan Kim and Sung-Gi Yang (Samsung Electronics, Korea (South))

W3A.2 13:55-14:20 *Invited Talk*

High-Performance Circuit and System Design for Wideband Applications...N/A

Ickhyun Song (Hanyang University, Korea (South)); Moon-Kyu Cho (Korea National University of Transportation, Korea (South))

W3A.3 14:20-14:40

Integrated Frequency Synthesizer With an Improved LC-Tank Colpitts Voltage-Controlled Oscillator...5

Wen Cheng Lai (National Taiwan University of Science and Technology, Taiwan)

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A 24-30GHz Wideband Power Amplifier With High-Coupling-Coefficient Transmission Line Transformer and Staggered Tuning...12

Gyuha Lee (Korea Advanced Institute of Science and Technology, Korea (South)); Joeeun Lee (University of Colorado Boulder, USA); Jinhyeok Park (Korea Advanced Institute of Science and Technology, Korea (South)); Songcheol Hong (IEEE, USA)

<W3B> Antenna 1

Oral Session

Wednesday, 18-May, 13:30-15:20

Room: Grand Ballroom B

Chairs: Munkyo Seo, Sungkyunkwan University

Moon-Que LEE, University of Seoul

W3B.1 13:30-13:55 *Invited Talk*

High Aperture Efficiency Huygens Antenna Array for 5G Millimetre-Wave Applications...N/A

Wei Lin (University of Technology Sydney, Australia); Richard Ziolkowski (University of Technology Sydney, Australia & University of Arizona, USA)

W3B.2 13:55-14:20 *Invited Talk*

A Review of the D-Band Antennas...16

Amir Altaf (SKKU, Korea (South)); Munkyo Seo (Sungkyunkwan University, Korea (South))

W3B.3 14:20-14:40

Millimeter-Wave Monopulse Filter Array With Directive Dielectric Resonators...N/A

Seung-Jun Park, Jeong-Hun Park and Moon-Que Lee (University of Seoul, Korea (South))

W3B.4 14:40-15:00

High Gain Pattern Reconfigurable Dielectric Resonator Antenna for Wide Scanning in E-Band...N/A

Hyunyoung Cho, Jeong-Wook Kim, Ju-Ik Oh, Chanhee Lee and Jong-Won Yu (KAIST, Korea (South))

W3B.5 15:00-15:20

SIW-Fed Dual-Polarized Magneto-Electric Dipole for 6G...N/A

Hyungcheol Kim and Sangwook Nam (Seoul National University, Korea (South))

<W4A> mmWave Active Devices and ICs 2

Oral Session

Wednesday, 18-May, 16:00-17:45

Room: Grand Ballroom A

Chair: Jong-Ryul Yang, Yeungnam University

W4A.1 16:00-16:25 *Invited Talk*

A 320 GHz Fully Integrated Beam-Steering IC...N/A

Haifeng Zhou, Shangcheng Kong, Kam-Man Shum, Liang Gao and Chi Hou Chan (City University of Hong Kong, Hong Kong)

W4A.2 16:25-16:45

A 39-GHz Up- and Down-Conversion Mixer System in 65-nm CMOS for 5G Communication...29

Yiyang Wang, Haipeng Duan and Xu Wu (Southeast University, China); Long He (Purple Mountain Laboratories, China); Dongming Wang (Southeast University & National Mobile Communications Research Lab., China); Lianming Li (National Mobile Communications Research Lab., China)

W4A.3 16:45-17:05

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W4A.4 17:05-17:25

D-Band Dicke Switch With 2.2-dB Loss and 40-dB Isolation Using 65-nm Bulk CMOS Technology...N/A

Joon-Hyuk Yoon, Ha-Neul Lee, Ui-Gyu Choi and Jong-Ryul Yang (Yeungnam University, Korea (South))

W4A.5 17:25-17:45

High DC-To-RF Efficiency E-Band Frequency Quadrupler Using Phase-Controlled Push-Push Structure in 28-nm FD-SOI CMOS...N/A

Kangseop Lee (POSTECH, Korea (South)); Kyunghwan Kim (Pohang University of Science and Technology (POSTECH), Korea (South)); Ho-Jin Song (POSTECH, Korea (South))

<W4B> Antenna 2

Oral Session

Wednesday, 18-May, 16:00-17:55

Room: Grand Ballroom B

Chairs: Dongho Kim, Sejong University

Jae-Yeong Lee, POSTECH

W4B.1 16:00-16:25 *Invited Talk*

Conical Beam Antennas for Millimeter-Wave Applications...N/A

Duc A. Pham and Sungjoon Lim (Chung-Ang University, Korea (South))

W4B.2 16:25-16:50 *Invited Talk*

A Design Method of Fabry-Perot Cavity Antennas for Beam Scanning and Polarization Reconfiguration...N/A

Yeong-Geun Jeon and Gwang-Ro Yun (Sejong university, Korea (South)); Dongho Kim (Sejong University, Korea (South))

W4B.3 16:50-17:15 *Invited Talk*

mmWave 5G Antenna Array Featuring Dual Band and Dual-Polarization for Mobile Applications...N/A

Dooseok Choi, Youngki Lee and Sanghyun Baek (Samsung Electronics, Korea (South)); Joonhoi Hur (Samsung Electronics, USA); Sangmin Yoo (Samsung Electronics, Korea (South))

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Benjamin Imanilov (Corning Research and Development Corporation, Israel)

Technical Program Details

Thursday 19 May

<T2A> mmWave/ THz Applications 1

Oral Session

Thursday 19-May, 10:00-11:50

Room: Grand Ballroom A

Chairs: Dongha Shim, SeoulTech

Haewook Han, POSTECH

T2A.1 10:00-10:25 Invited Talk

High Efficient and Low Cost Terahertz Components Using Virtual Electrical Walls...N/A

Zhang-Cheng Hao (Southeast University, China)

T2A.2 10:25-10:50 Invited Talk

Beam-Reconfigurable Terahertz Metasurface With Optical Activations...50

Hang Wong and Quan Wei Lin (City University of Hong Kong, Hong Kong)

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Monolayer Terahertz Guided-Mode Resonance Filter Design and Implementation...N/A

Hyeon Sang Bark, In Hyung Baek, Kyu-Ha Jang and Kitae Lee (Korea Atomic Energy Research Institute, Korea (South)); Young Uk

Jeong (KAERI, Korea (South)); Tae-In Jeon (Korea Maritime and Ocean University, Korea (South))

T2A.4 11:10-11:30

Quantitative Terahertz Near-Field Mapping of Molecular Resonances of Lactose Stereo-Isomer Impurities...N/A

Han Eol Lee (Pohang University of Science and Technology (POSTECH) & Electric Engineering, Korea (South)); Ikmo Park (Ajou

University, Korea (South)); Haewook Han (Pohang University of Science and Technology, Korea (South))

T2A.5 11:30-11:50

Slit-Type Probe Based Continuous-Wave THz Imaging for Industrial Applications...N/A

Geun-Ju Kim, Sanghoon Kim, Jeong-Hun Lee and Insoo Kim (Korea Electrotechnology Research Institute, Korea (South)); Yong-Seok

Lee (Pohang Accelerator Laboratory, Korea (South)); Kwang-Ho Jang (Korea Electrotechnology Research Institute (KERI), Korea

(South)); Jung-Il Kim (Korea Electrotechnology Research Institute, Korea (South))

<T2B> Metasurfaces

Oral Session

Thursday 19-May, 10:00-11:50

Room: Grand Ballroom B

Chair: Gangil Byun, UNIST

T2B.1 10:00-10:25 *Invited Talk*

Bi-Anisotropic Metasurface for Spatial Separation of Harmonics...N/A

Thi Hai-Yen Nguyen (Ulsan National Institute of Science and Technology, Korea (South)); Gangil Byun (Ulsan National Institute of Science and Technology (UNIST), Korea (South))

T2B.2 10:25-10:50 *Invited Talk*

O2I Propagation Management Using Metasurface Laminated Glass and Ray Tracing Validation...N/A

Yongwan Kim and Jungsuek Oh (Seoul National University, Korea (South))

T2B.3 10:50-11:10

120-GHz On-Chip Folded Dipole Antenna With Integrated Artificial Magnetic Conductor Structures...63

Ji-In Jung and Jong-Ryul Yang (Yeungnam University, Korea (South))

T2B.4 11:10-11:30

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Euiho Shin and Jungsuek Oh (Seoul National University, Korea (South))

T2B.5 11:30-11:50

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<T3A> mmWave/ THz Applications 2

Oral Session

Thursday 19-May, 13:30-15:20

Room: Grand Ballroom A

Chairs: Haejun Chung, Soongsil University

Petri Piironen, European Space Agency (ESA)

T3A.1 13:30-13:55 *Invited Talk*

Modeling Dispersive Media in Finite-Difference Time-Domain Method for Radiative Cooling...N/A
Applications... *Haejun Chung and Munseong Bae (Soongsil University, Korea (South))*

T3A.2 13:55-14:20 *Invited Talk*

Millimetre-Wave Direct Detection Receivers for Earth Observation Instruments - Trends and Challenges...74
Petri Piironen (European Space Agency (ESA), The Netherlands)

T3A.3 14:20-14:40

Investigating the Property Changes of the Electron Beam Exposed Anti-Adhesion Films Using Terahertz Spectroscopy...N/A
Hyeon Sang Bark (Korea Atomic Energy Research Institute, Korea (South)); Inhee Maeng and Seung Jae Oh (Yonsei University, Korea (South)); Youngbin Ji (Gimhae Biomedical Industry Promotion Agency (GBIA), Korea (South))

T3A.4 14:40-15:00

Study of Skin Cells Response to THz Electromagnetic Waves...N/A

Seung Jae Oh, Inhee Maeng and Hye Young Son (Yonsei University, Korea (South)); Eui Su Lee (Electronics and Telecommunications Research Institute, Korea (South))

T3A.5 15:00-15:20

Enhanced Signal Processing Method for THz Imaging and Stress State Estimation of Composite Materials...N/A

Dae-Hyun Han (Wonkwang University, Korea (South))

<T3B> mmWave Materials

Oral Session

Thursday 19-May, 13:30-15:20

Room: Grand Ballroom B

Chairs: M Arifur Rahman, Hawai'i Pacific University

Hyeng-cheul Choi, Corning Incorporated

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Sangyeop Lee (Tokyo Institute of Technology, Japan); Masao Fujita and Masayuki Toyoda (Maxell, Ltd., Japan); Kyoya Takano (Tokyo University of Science, Japan); Shinsuke Hara (National Institute of Information and Communications Technology, Japan); Issei Watanabe (National Institute of Information and Communications Technology, Japan); Akifumi Kasamatsu (National Institute of Information and Communications Technology, Japan); Hiroyuki Ito (Tokyo Institute of Technology, Japan)

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Analysis of THz Absorption Characteristics of FAPbI₃ Perovskite...N/A

Crystals... Inhee Maeng (Yonsei University, Korea (South))

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Accurate Measurement of Sugar Level With Non-Invasive, 2-Port Resonator Method at Microwave Frequency...N/A

Choyoun Park, Mihyang Kang, Sieon Lim and Junwoo Cha (Hankuk University of Foreign Studies, Korea (South)); Hongsun Yoon (Korea Electronics Technology Institute & Hankuk University of Foreign Studies, Korea (South)); Youngcheol Park (Hankuk University of Foreign Studies, Korea (South))

<T4P> Poster Session

Poster Session

Thursday 19-May, 15:30-16:30

Room: Lobby

Chair: Youngcheol Park, Hankuk University of Foreign Studies

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Tae-In Jeon (Korea Maritime and Ocean University, Korea (South))

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TaeGyu Han (Ulsan National Institute of Science and Technology, Korea (South)); JinHo Lim (Ulsan National Institute of Science and Technology (UNIST), Korea (South)); EunMi Choi (UNIST, Korea (South))

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Alexey Sosunov, Andrey Altyinnikov, Roman Platonov, Tatiana Legkova, Alexey Ivanov and Andrey Komlev (Saint Petersburg Electrotechnical University LETI, Russia)

T4P.10 15:30-16:30

Experiments of Sub-Terahertz Folded Waveguide Traveling Wave Tubes...N/A

Kwang-Ho Jang (Korea Electrotechnology Research Institute (KERI), Korea (South)); Jin-Joo Choi (Kwangwoon University, Korea (South)); Jong-Hyun Kim (Pohang Accelerator Laboratory, Korea (South))

T4P.11 15:30-16:30

Dual-Linear Polarized Holographic Antenna With Compact-Sized Feeding System...N/A

Chan Yeong Park (Yonsei University, Korea (South)); Donghyun Kim and Young Joong Yoon (Yonsei University, Korea (South))

T4P.12 15:30-16:30

Terahertz Conductivity of Silicon Nanowires...N/A

Nan Hee Kim (Pohang University of Science and Technology, Korea (South)); Ikmo Park (Ajou University, Korea (South)); Haewook Han (Pohang University of Science and Technology, Korea (South))

<T4P> Poster Session

Poster Session

Thursday 19-May, 15:30-16:30

Room: Lobby

T4P.13 15:30-16:30

Low Sidelobe Level Millimeter-Wave Multi-Element Angled Dipole Array Antenna...N/A

Heesu Wang and Ikmo Park (Ajou University, Korea (South))

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A New Concept of Antenna and Filter Convertible Platform (AFCP) Using Even-Mode and Odd-Mode for 5G Wireless Communication Systems...N/A

Dongseop Lee (Pohang University of Science and Technology (POSTECH), Korea (South)); Minhyeock Kim (Pohang University of Science and Technology, Korea (South)); Wonbin Hong (Pohang University of Science and Technology (POSTECH), Korea (South))

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Soyeong Lee and Yong Bae Park (Ajou University, Korea (South))

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Simulation Study of Broadband Coaxial Antenna With Radiating Slot...N/A

Geown Yih (SeoulTech, Korea (South)); Jae-Young Chung (Seoul National University of Science and Technology, Korea (South))

T4P.20 15:30-16:30

Multi-Band Phased Array Antenna Based on D-Band...N/A

Jeonghyo Lee (POSTECH, Korea (South)); Wonbin Hong (Pohang University of Science and Technology (POSTECH), Korea (South))

T4P.21 15:30-16:30

A Study on the Improvement of Resolution in 0.18- μm CMOS True Time Delay Circuits Using SP3T Switches...N/A

Junwoo Cha (Hankuk University of Foreign Studies, Korea (South)); Hongsun Yoon (Korea Electronics Technology Institute & Hankuk University of Foreign Studies, Korea (South)); Sieon Lim, Mihyang Kang, Choyoun Park and Youngcheol Park (Hankuk University of Foreign Studies, Korea (South))

T4P.22 15:30-16:30

A Stretched De-Ramping Radar System for High-Quality SAR Image in Ka-Band...N/A

JunSung Park (Korea Advanced Institute of Science and Technology, Korea (South)); Chulki Kim (KAIST, Korea (South)); Seong-Ook Park (Korea Advanced Institute of Science and Technology, Korea (South))

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Design of Aperture Coupled Ka-Band Phased Array Antenna Using Cavity PCB Process...147

Ju-Ik Oh, Hyunyoung Cho, Jeong-Wook Kim, Ji-Hoon Lee and Jong-Won Yu (KAIST, Korea (South))

T4P.24 15:30-16:30

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Hwan Sik Kim and Yeong-Hwan Ahn (Ajou University, Korea (South))

<T4P> Poster Session

Poster Session

Thursday 19-May, 15:30-16:30

Room: Lobby

T4P.25 15:30-16:30

Validation of the Feasibility of Implementing Spotlight SAR Mode in the NEXTSat-2 and Ka-Band Satellite...N/A

Young-Geun Kang and Seong-Ook Park (Korea Advanced Institute of Science and Technology, Korea (South)); Goo-Hwan Shin (Satellite Technology Research Center, Korea (South))

T4P.26 15:30-16:30

Time-Domain Modeling of Metasurfaces in THz Band...N/A

Sangeun Jang and Kyung-Young Jung (Hanyang University, Korea (South))

T4P.27 15:30-16:30

A Novel Phase Detection System Applicable to Calibration Techniques...N/A

Ye-Eun Chi (Korea Advanced Institute of Science and Technology, Korea (South))

T4P.28 15:30-16:30

Vanadium Dioxide Based Multifunctional Tunable Terahertz Filter Using Metasurface...158

Dong-Uk Kwak (Gwangju & Gwangju Institute of Science and Technology (GIST), Korea (South)); Jae-Hyung Jang (Korea Institute of Energy Technology (KENTECH), Korea (South))

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Jong Seon Lee, Oh Heon Kwon and Keum Cheol Hwang (Sungkyunkwan University, Korea (South))

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Jungkuy Park (National Radio Research Agency & CCAC, Korea (South))

T4P.32 15:30-16:30

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Do Young Kim (Postech, Korea (South)); Ikmo Park (Ajou University, Korea (South)); Haewook Han (Pohang University of Science and Technology, Korea (South))

T4P.33 15:30-16:30

Study of Human Articular Cartilage Using High-Precision Terahertz Time Domain Spectroscopy...N/A

Do Young Kim (Postech, Korea (South)); Ikmo Park (Ajou University, Korea (South)); Haewook Han (Pohang University of Science and Technology, Korea (South))

T4P.34 15:30-16:30

Terahertz Time Domain Spectroscopy (THz-TDS) of Alzheimer's Amyloid Fibrils...N/A

Han Eol Lee (Pohang University of Science and Technology (POSTECH) & Electric Engineering, Korea (South)); Ikmo Park (Ajou University, Korea (South)); Haewook Han (Pohang University of Science and Technology, Korea (South))

T4P.35 15:30-16:30

Terahertz Vibration Spectroscopy of Crystalline Lactose Monohydrate...N/A

Kim Tae Gyung (POSTECH, Korea (South)); Ikmo Park (Ajou University, Korea (South)); Haewook Han (Pohang University of Science and Technology, Korea (South))

T4P.36 15:30-16:30

Subsurface THz Near-Field (NFM) Imaging of Embedded Metallic Nano Gratings...N/A

Kim Tae Gyung (POSTECH, Korea (South)); Ikmo Park (Ajou University, Korea (South)); Haewook Han (Pohang University of Science and Technology, Korea (South))

Technical Program Details

Friday 20 May

<F2A> mmWave/ THz Applications 3

Oral Session

Friday, 20-May, 10:00-11:50

Room: Grand Ballroom A

Chair: Sun Hong, Soongsil University

F2A.1 10:00-10:25 *Invited Talk*

Millimeter Waves for Wireless Power Transfer: System and Recent Advancements...N/A

Sun K. Hong (Soongsil University, Korea (South))

F2A.2 10:25-10:50 *Invited Talk*

Development of Metamaterial Biosensors Using Terahertz Time-Domain Spectroscopy...N/A

SaeJune Park (Queen Mary University of London, United Kingdom (Great Britain))

F2A.3 10:50-11:10

Design and Measurement Method of Small Cassegrain Antenna for Long-Distance Transmission...173

Jung-Nam Lee (Electronics and Telecommunications Research Institute, Korea (South)); Kwang-Seon Kim, Heon Kook Kwon and Soek-Bong Hyun (ETRI, Korea (South))

F2A.4 11:10-11:30

Design of mmWave High-Resolution FMCW Radar System With Real-Time Radar State Tracking Method...N/A

Jeong-Wook Kim, Ju-Ik Oh, Hyunyoung Cho, Ikhwan Kim and Jong-Won Yu (KAIST, Korea (South))

F2A.5 11:30-11:50

Design of a mmWave High-Gain Antenna on a Thick Vehicle Window Glass Substrate...N/A

Im Changhyeon, Tae Heung Lim and Hosung Choo (Hongik University, Korea (South))

<F2B> Interconnection and Package

Oral Session

Friday, 20-May, 10:00-11:50

Room: Grand Ballroom B

Chairs: Han Lim Lee, Chung-Ang University
Sangkil Kim, Pusan National University

F2B.1 10:00-10:25 *Invited Talk*

mmWave Flat Panel Antenna Technology Enabling High Performance and Effective Module Integration...N/A

Han Lim Lee (Chung-Ang University, Korea (South))

F2B.2 10:25-10:50 *Invited Talk*

Design and Analysis of Antenna for mmWave AiP Module Using Characteristic Mode Analysis (CMA)...N/A

Dohyun Kim, Gyoungdeuk Kim and Sangkil Kim (Pusan National University, Korea (South)); Chisang You, Jaehyun Choi and Hanpil Ryu (LG Innotek, Korea (South))

F2B.3 10:50-11:10

Ultrawideband Absorption Based on Double-Layer Carbon Metapatterns Including Millimeter Wave Band...N/A

Yongjune Kim and Jeong Hae Lee (Hongik University, Korea (South))

F2B.4 11:10-11:30

Design of RF Interface in QFN Package for Ka-Band 5G Application...N/A

Minjae Ahn (Konkuk University, Korea (South)); Wenjie Wang (Konkuk University, China); Wonshil Kang (RF-Materials Corporation, Korea (South)); Hyunchul Ku (Konkuk University, Korea (South))

F2B.5 11:30-11:50

Millimeter-Wave Antenna With End-Fire Radiation for Vehicular Applications...N/A

Ashwini Kumar Arya, HyunGu Han and Sanghoek Kim (Kyung Hee University, Korea (South))

<F4A> Emerging Communication System

Oral Session

Friday, 20-May, 14:00-15:50

Room: Grand Ballroom A

Chairs: Byung-Wook Min, Yonsei University

Amir Altaf, Sungkyunkwan University

F4A.1 14:00-14:25 *Invited Talk*

Millimeter-Wave Phased Array Front-Ends for In-Band Full Duplex Communications...N/A

Kyutae Park, Jonghoon Myeong and Byung-Wook Min (Yonsei University, Korea (South))

F4A.2 14:25-14:50 *Invited Talk*

D-Band CMOS Transceiver Design for Emerging Joint Radar-Communication Wireless System...N/A

Wei Deng (Tsinghua University, China)

F4A.3 14:50-15:10

Delay Spread Model for Super Proximity Environments at 285GHz Band...188

Jong Ho Kim (ETRI, Korea (South)); Young-Keun Yoon (Electronics and Telecommunications Research Institute, Korea (South))

F4A.4 15:10-15:30

A CMOS Millimeter-Wave Frequency Agile Bandpass Filter...N/A

Sirous Bahrami (Pohang University of Science and Technology, Korea (South)); Ho-Jin Song (POSTECH, Korea (South))

F4A.5 15:30-15:50

Millimeter-Wave Retrodirective Beamformer Based on Waveguide Rotman Lens...193

Ha Young Hong, Changkun Park, Hojin Lee and Sun K. Hong (Soongsil University, Korea (South))

<F4S> mmWave and THz Technologies for Beyond 5G: Latest Developments and the Future

Special Session

Friday, 20-May, 14:00-15:50

Room: Grand Ballroom B

Chairs: Junho Park, KREEMO

Sangjo Choi, University of Ulsan

F4S.1 14:00-14:25 *Invited Talk*

Wideband Dual-Polarized On-Board Antenna for 5G mmWave Mobile Application...195

Chisang You, Jaehyun Choi and Hanpil Ryu (LG Innotek, Korea (South)); Sangkil Kim, Dohyun Kim and Gyoungdeuk Kim (Pusan National University, Korea (South))

F4S.2 14:25-14:50 *Invited Talk*

Antenna Front-End Technologies Featuring Antenna-On-Display and Antenna-In-Package to Enable 360° Beamforming Coverage for Millimeter-Wave Wireless Connectivity...197

Junho Park (KREEMO, Korea (South)); Wonbin Hong (Pohang University of Science and Technology (POSTECH), Korea (South))

F4S.3 14:50-15:10

28.3 THz Nanoantenna-Coupled Tunnel Diode for THz to DC Conversion...N/A

Nasim Al Islam and Sangjo Choi (University of Ulsan, Korea (South))

F4S.4 15:10-15:30

A 45-nm RFSOI CMOS Based Band-Reconfigurable Quadrature Hybrid for mm-Wave 5G Applications...200

Junho Jung, Seungjae Baek, Hyun-Chul Park, Taewan Kim, Sung-Gi Yang and Jooseok Lee (Samsung Electronics, Korea (South))

F4S.5 15:30-15:50

Flexible RF Substrate and Interconnection Technology for > 100 GHz Applications...203

Jung Han Choi and Sebastian Lauck (Fraunhofer Heinrich-Hertz Institute, Germany); Martin Kresse (Fraunhofer Institute for Telecommunications, Heinrich Hertz Institute, HHI, Germany)

<F5A> EM & Measurement

Oral Session

Friday, 20-May, 16:00-17:45

Room: Grand Ballroom A

Chairs: EunMi Choi, UNIST

Jae-Young Chung, SeoulTech

F5A.1 16:00-16:25 *Invited Talk*

Fundamentals of Electromagnetic Wave Orbital Angular Momentum...N/A

EunMi Choi (UNIST, Korea (South))

F5A.2 16:25-16:45

TRL-Calibration Standards With Emphasis on Crosstalk Reduction...207

Marco Cabbia and Sebastien Fregonese (University of Bordeaux, France); Chandan Yadav (National Institute of Technology Calicut, India); Thomas Zimmer (IMS, France)

F5A.3 16:45-17:05

Terahertz Photonic Structure Design with Deep Neural Network...N/A

Nan Hee Kim (Pohang University of Science and Technology, Korea (South)); Ikmo Park (Ajou University, Korea (South)); Haewook Han (Pohang University of Science and Technology, Korea (South))

F5A.4 17:05-17:25

Complex Permittivity Measurement Method Using the TE₀₁ Mode in the Cylindrical Waveguide...N/A

Hong Eun Choi (Ulsan National Institute of Science and Technology, Korea (South)); EunMi Choi (UNIST, Korea (South))

F5A.5 17:25-17:45

Insertion Loss and Dielectric Property Measurement of Flexible PCB at mmWave Frequency...N/A

Md Imtiaz Kamrul, Lihour Nov, Thorn Chrek and Jae-Young Chung (Seoul National University of Science and Technology, Korea (South))

<F5S> Sub-THz circuit and device technologies toward 6G

Special Session

Friday, 20-May, 16:00-18:00

Room: Grand Ballroom B

Chair: Hiroshi Hamada, NTT DOCOMO, INC.

F5S.1 16:00-16:20

5G, 6G and NTT DOCOMO Activity...N/A

Satoshi Nagata (NTT DoCoMo, Inc., Japan)

F5S.2 16:20-16:40

300GHz-Band CMOS Bi-Directional Transceiver for 6G Phased-Array Applications...215

Ibrahim Abdo, Atsushi Shirane and Kenichi Okada (Tokyo Institute of Technology, Japan)

F5S.3 16:40-17:00

Radio-Over-Fiber Technologies for 6G Communications...N/A

Tetsuya Kawanishi (Waseda University & National Institute of Information and Communications Technology, Japan)

F5S.4 17:00-17:20

Sub-THz III-V on Si Technologies for 6G Electronics...219

Nadine Collaert (Imec, Belgium)

F5S.5 17:20-17:40

A 300-GHz Analog-Demodulation CMOS Receiver for IEEE 802.15.3d...N/A

Sangyeop Lee, Shuhei Amakawa, Takeshi Yoshida and Minoru Fujishima (Hiroshima University, Japan)

F5S.6 17:40-18:00

110Gbps 6G/THz Wireless Communication With a Silicon Technology...N/A

Ullrich Pfeiffer (University of Wuppertal, Germany)