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D2 Technical Program

T1A: Microwave/mm-Wave Frequency Synthesis

09:00 – 10:20, Tuesday 30-Aug, Room: Forum 1

Chairs: Jong-Ryul Yang, Yeungnam University
Heein Yoon, UNIST

T1A.1 *Invited* **Reference Oversampling Phase-Locked Loops for Achieving Low Jitter, Spur, and Power Consumption...N/A**
09:00 – 09:20
Taekwang Jang (ETH Zürich, Switzerland)

T1A.2 *Invited* **An Ultra-Low Integrated-Phase-Noise 28-GHz LO Generator for 5G Transceivers Supporting Multiple Frequency Bands...2**
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T1A.3 *Invited* **An 84-GHz CMOS Injection-Locked Frequency Multiplier With Phase Tuning Control...N/A**
09:40 – 10:00
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D2 Technical Program

T1B: Power Amplifiers for 5G Applications

09:00 – 10:20, Tuesday, 30-Aug, Room: Vernazza

Chairs: Hyunchul Park, Samsung Electronics

Jusung Kim, Hanbat National University

- T1B.1** *Invited* **23-28 GHz Doherty Power Amplifier Using 28 nm CMOS for 5G Applications...6**
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D2 Technical Program

T3A: mm-Wave/THz Building Blocks

13:30 – 15:10, Tuesday 30-Aug, Room: Forum 1

Chairs: Munkyo Seo, Sungkyunkwan University

Donggu Im, Jeonbuk National University

- T3A.1** *Invited* **Multiplexing Schemes for Sub-THz/THz Interconnects...18**
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- T3A.2** *Invited* **Design of Frequency-Reconfigurable Filtering Phase Shifter Based on Controllable Mixed Electric-Magnetic Coupling...21**
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- T3A.5** **An E-Band Built-In Self-Tester Detectable Active Reflection Coefficient for Millimeter-Wave Beamforming Transmitters...N/A**
14:50 – 15:10 *Seung-Uk Choi (Pohang University of Science and Technology, Korea (South)); Kyunghwan Kim (Pohang University of Science and Technology (POSTECH), Korea (South)); Kangseop Lee, Seunghoon Lee and Ho-Jin Song (POSTECH, Korea (South))*



D2 Technical Program

T3B: Advanced Circuit and System Designs

13:30 – 15:10, Tuesday, 30-Aug, Room: Vernazza

Chairs: Sang-Gyu Park, Hanyang University

Young-Ha Hwang, Soongsil University

- T3B.1** *Invited* **An Energy-Efficient Supply- and Temperature-Independent $\Delta\Sigma$ Capacitance-To-Digital Converter...32**
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D2 Technical Program

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D2 Technical Program

T4F: Interactive Forum

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- T4F.10** **An E-Band Direct Conversion Transmitter With I/Q Calibration...N/A**
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D2 Technical Program

T4F: Interactive Forum

15:10 - 16:20, Tuesday, 30-Aug, Room: Forum 2

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D2 Technical Program

T4F: Interactive Forum

15:10 - 16:20, Tuesday, 30-Aug, Room: Forum 2

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D2 Technical Program

T5A: Technologies for mm-wave/THz Circuits and Systems

16:20 – 18:00, Tuesday, 30-Aug, Room: Forum 1

Chairs: Myounggon Kang, Korea National University of Transportation

Byung-Wook Min, Yonsei University

- T5A.1** *Invited* **SiGe BiCMOS Technology With Advanced Integration Solutions for mm-Wave and THz Applications...N/A**
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16:40 – 17:00
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D2 Technical Program

T5B: Wireless Power Transfer and Power Management

16:20 – 18:00, Tuesday 30-Aug, Room: Vernazza

Chairs: Franklin Bien, UNIST

Hyungho Ko, Chung Nam University

- T5B.1** *Invited* **Wireless Powering and Communication With Miniaturized Implantable Devices...N/A**
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- T5B.2** *Invited* **Duty-Cycled Wireless Power Transfer for Biomedical Implants...N/A**
16:40 – 17:00 *Muhammad Abrar Akram (New York University Abu Dhabi, Abu Dhabi, UAE, United Arab Emirates); Kai-Wen Yang (Johns Hopkins University, USA); Sohmyung Ha (New York University Abu Dhabi, United Arab Emirates)*
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17:40 – 18:00 *Kousuke Miyaji (Shinshu University, Japan); Makoto Sonehara (Shinshu University & Faculty of Engineering, Japan); Toshiro Sato (Shinshu University, Japan)*



D3 Technical Program

W1A: mm-Wave/THz Signal Generation

09:00 – 10:20, Wednesday, 31-Aug, Room: Forum 1

Chairs: Woo-Seok Choi, Seoul National University

Jong-Ryul Yang, Yeungnam University

- W1A.1** *Invited* **Progress in Silicon Based Millimeter-Wave and THz Signal Sources...N/A**
09:00 – 09:20 *Zhe Chen (Southeast University, China); Peigen Zhou (Southeast University & State Key Laboratory of Millimeter Wave, China); Rui Zhang, Jixin Chen, Pinpin Yan, Debin Hou and Wei Hong (Southeast University, China)*
- W1A.2** **Triple-Push VCO With Robust Start-Up Using Tri-Core in CMOS for 6G Communication...N/A**
09:20 – 09:40 *Seongwoog Oh (Seoul National University & Institute New Media and Communications (INMC), Korea (South)); Jungsuek Oh (Seoul National University, Korea (South))*
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D3 Technical Program

W1B: Antennas and Metasurfaces

09:00 – 10:20, Wednesday, 31-Aug, Room: Vernazza

Chairs: Wonbin Hong, POSTECH

Gangil Byun, UNIST

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D3 Technical Program

W2A: Advanced Power Amplifier Designs

10:40 – 12:00, Wednesday, 31-Aug, Room: Forum 1

Chairs: Ockgoo Lee, Pusan National University

Sanggeun Jeon, Korea University

W2A.1 *Invited* **A 38 GHz Ultra-Compact High Power Density CMOS Power Amplifier...172**
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11:00 – 11:20 *Kaushik Sengupta, Zheng Liu and Emir Karahan (Princeton University, USA)*

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D3 Technical Program

W2B: Passive Components

10:40 – 12:00, Wednesday, 31-Aug, Room: Vernazza

Chairs: Minkyu Je, KAIST

Sangkil Kim, Pusan National University

- W2B.1** *Invited* **Spatial Separations of Multiple Harmonics...N/A**
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D3 Technical Program

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13:30 – 15:10, Wednesday, 31-Aug, Room: Forum 1

Chairs: Ho-Jin Song, POSTECH

Byung-Wook Min, Yonsei University

- W3A.1** *Invited* **RF Front-Ends for 6G Wireless Communication: Challenges and Opportunities...N/A**
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D3 Technical Program

W3B: Emerging Technologies, Circuits, Systems, and Applications

13:30 – 15:10, Wednesday, 31-Aug, Room: Vernazza

Chairs: Tae Wook Kim, Yonsei University

Jaeduk Han, Hanyang University

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- W3B.2** *Invited* **Planar Microwave Sensors for Measuring Materials Composition and Mechanical Parameters...N/A**
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14:10 – 14:30 *Noriyuki Miura (Osaka University, Japan)*
- W3B.4** *Invited* **140 GHz Silicon I/O Interconnect Exploiting Metadevices for Short-Range OOK Communications...214**
14:30 – 14:50 *Hao Yu (SUSTech, China); Yuan Liang (Nanyang Technological University, Singapore); Hao Chi Zhang and Tie Jun Cui (Southeast University, China)*
- W3B.5** *Invited* **RF Front-End Transmitting System for Agricultural Applications...216**
14:50 – 15:10 *Phanam Pech, Samdy Saron, Girdhari Chaudhary, Yu Kyeong Shin and Jun Gu Lee (Jeonbuk National University, Korea (South)); Yongchae Jeong (Chonbuk National University, Korea (South))*



D3 Technical Program

W4A: mm-Wave/THz Systems and Applications

15:30 – 17:10, Wednesday, 31-Aug, Room: Forum 1

Chairs: Ho-Jin Song, POSTECH

Ockgoo Lee, Pusan National University

- W4A.1** *Invited* **Millimeter-Wave/THz CMOS Phased-Array Transceiver for 5G and Beyond...219**
15:30 – 15:50 *Kenichi Okada (Tokyo Institute of Technology, Japan)*
- W4A.2** *Invited* **Recent Researches of Microwave and Millimeter-Wave System Applications at National Taiwan University...N/A**
15:50 – 16:10 *Huei Wang (National Taiwan University, Taiwan)*
- W4A.3** *Invited* **Potential of Terahertz Communication Not Limited to Short Range...223**
16:10 – 16:30 *Minoru Fujishima (Hiroshima University, Japan)*
- W4A.4** *Invited* **A 260GHz Wireless Transmission Over 100m for Beyond 5G Xhaul Networks...225**
16:30 – 16:50 *Soek-Bong Hyun (ETRI, Korea (South))*
- W4A.5** *Invited* **300-GHz Self-Heterodyne-Mixing-Receiver-Based Wireless Data Transmission...N/A**
16:50 – 17:10 *Sangyeop Lee (Hiroshima University); Yohei Morishita (Panasonic Industry Co., Ltd.); Shuhei Amakawa, Takeshi Yoshida and Minoru Fujishima (Hiroshima University, Japan)*



D3 Technical Program

W4B: Radar and Imaging

15:30 – 17:10, Wednesday, 31-Aug, Room: Vernazza

Chairs: Minkyu Je, KAIST

Wonbin Hong, POSTECH

- W4B.1** *Invited* **Multiple-Input Multiple-Output-Beam Mixing Radar for Fast Sweeping Applications...228**
15:30 – 15:50
Tsai Zuo-Min (National Yang Ming Chiao Tung University & Institute of Communication Engineering, Taiwan)
- W4B.2** *Invited* **Feature Extraction for Target Classification Using an FMCW Radar Sensor...231**
15:50 – 16:10
Sungho Lee (Korea Electronics Technology Institute, Korea (South))
- W4B.3** **Compact Concentric Antenna Module Integrated With Coplanar T/Rx Array and Multi-Channel CMOS Radar IC...N/A**
16:10 – 16:30
JiHo Lee, Hyun-Jun Dong, Hakmin Lee and Woo Hee Lim (Chung-Ang University, Korea (South)); Donghyun Baek (Chung-ang University, Korea (South)); Han Lim Lee (Chung-Ang University, Korea (South))
- W4B.4** **Frequency Discrimination Based on the Different Number of Peaks in Envelope Detection of Two-Tone CW Radar...236**
16:30 – 16:50
Jae Young Sim and Jong-Ryul Yang (Yeungnam University, Korea (South))
- W4B.5** **Terahertz 3D Imaging With a 300-GHz CMOS Multi-Chip Array Detector...239**
16:50 – 17:10
Kiryong Song (Samsung Electronics, Korea (South)); Doyoon Kim (Korea University, Korea (South)); Jungsoo Kim (ETRI, Korea (South)); Jai Heon Cho (Samsung Electronics, Korea (South)); Jae-Sung Rieh (Korea University, Korea (South))