Advance Program

2014 Korea-Japan Microwave Workshop
(KJMW-2014)

http://www.kiees.or.kr/kjmw2014

December 4-5, 2014
Gyeonggi Small Business Center (GSBC), Suwon, Korea

Organized by
◆ The Korean Institute of Electromagnetic Engineering and Science (KIEES)

Sponsored by
◆ IEEE MTT-S Korea Chapter / Japan Chapter / Kansai Chapter / Nagoya Chapter
◆ Electronics Society, IEICE of Japan
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2014 Korea-Japan Microwave Workshop Committee

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Jongsuck Bae, Nagoya Institute of Technology, Japan
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Toshio Ishizaki, Ryukoku University, Japan
Kazukiyo Joshin, Fujitsu Laboratories, Japan
Futoshi Kuroki, Kure National College of Technology, Japan
Iwata Sakagami, University of Toyama, Japan
# Program Summary

## December 4 (Thursday)

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<thead>
<tr>
<th>Time</th>
<th>Room A (3F Hyuckshin Room)</th>
<th>Room B (3F Heemang Room)</th>
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<tbody>
<tr>
<td>08:00~</td>
<td>Registration (3F Hyuckshin Room Lobby)</td>
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<tr>
<td>09:00~10:30</td>
<td>TH_1A Oscillators</td>
<td>TH_1B Metamaterials</td>
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<tr>
<td>10:30~10:50</td>
<td>Coffee Break</td>
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<tr>
<td>10:50~11:10</td>
<td>Opening Ceremony (Room C: 1F Gwanggyo Hall)</td>
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<tr>
<td>11:10~12:00</td>
<td>TH_2AB Plenary Session (Room C: 1F Gwanggyo Hall)</td>
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<tr>
<td>12:00~13:10</td>
<td>Lunch (15F T-won and 16F Sky Lounge)</td>
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<tr>
<td>13:10~14:40</td>
<td>TH_3A Microwave and Millimeter-wave active circuits</td>
<td>TH_3B Antennas 1</td>
</tr>
<tr>
<td>14:40~15:00</td>
<td>Coffee Break</td>
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<tr>
<td>15:00~16:15</td>
<td>TH_4A THz and Microwave Photonics</td>
<td>TH_4B Antennas 2</td>
</tr>
<tr>
<td>16:15~17:05</td>
<td>Coffee Break</td>
<td></td>
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<tr>
<td>17:05~18:20</td>
<td>TH_5A Various Microwave Topics</td>
<td>TH_5B Characterization Techniques</td>
</tr>
<tr>
<td>18:30~20:30</td>
<td>Banquet (16F Sky Lounge)</td>
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## December 5 (Friday)

<table>
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<tr>
<th>Time</th>
<th>Room A (3F Hyuckshin Room)</th>
<th>Room B (3F Heemang Room)</th>
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<tbody>
<tr>
<td>09:00~10:30</td>
<td>FR_1A Power Amplifiers</td>
<td>FR_1B Filters and Transmission Lines</td>
</tr>
<tr>
<td>10:30~10:50</td>
<td></td>
<td>Coffee Break</td>
</tr>
<tr>
<td>10:50~12:20</td>
<td>FR_2A Circuits and Systems for Communication</td>
<td>FR_2B Electromagnetic Analysis</td>
</tr>
<tr>
<td>12:20~13:30</td>
<td>Lunch (15F T-won and 16F Sky Lounge)</td>
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</tr>
<tr>
<td>13:30~15:00</td>
<td>FR_3A Power Dividers, Combiners, and Absorbers</td>
<td>FR_3B Microwave Applications</td>
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<tr>
<td>15:10~17:00</td>
<td>Social Event: Tour of Hwaseong Fortress</td>
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Technical Sessions

December 4, 2014 (Thursday)

Session TH_1A (90 min): Oscillators
Session Chair: Prof. Moon-Que Lee (The University of Seoul, Korea)

Session Chair: Prof. Ramesh K. Pokharel (Kyushu University, Japan)

TH_1A_1 Design of High Performance of Oscillator using Film Bulk Acoustic Resonator (Invited)
09:00 – 09:30
Ramesh K. Pokharel¹, S. A. Enche Ab Rahim¹, Guoqiang Zhang¹, Kousuke Hikichi², Shuji Tanaka², Masayoshi Esashi³, Ken-ya Hashimoto³, and Shinji Taniguchi⁴
¹Kyushu University, Japan, ²Tohoku University, Japan, ³Chiba University, Japan, ⁴TAIYO YUDEN CO. LTD., Japan

TH_1A_2 A Low Phase Noise 30-GHz Linear Transconductance VCO with Automatic Amplitude Calibration Circuit
09:30 – 09:45
Dong-Soo Lee and Kang-Yoon Lee (Sungkyunkwan University, Korea)

TH_1A_3 Wideband Injection Locked CMOS Quadrature Ring Oscillator with Small Phase Errors
09:45 – 10:00
Nusrat Jahan¹, Awinash Anand¹, Takana Kaho², Khalil Yousef³, and Ramesh K. Pokharel¹
¹Kyushu University, Japan, ²NTT Network Innovation Laboratories, Japan, ³Egypt-Japan University of Science and Technology, Egypt

TH_1A_4 A Practical Design of a 5 GHz Low Phase Noise Voltage Tuned Dielectric Resonator Oscillator
10:00 – 10:15
Beom-Ik Son¹, Hae-Chang Jeong², and Kyung-Whan Yeom³
¹Samsung Thales, Korea, ²ADD, Korea, ³Chungnam University, Korea

Session TH_1B (90 min): Metamaterials
Session Chair: Prof. Bumki Min (KAIST, Korea)

Session Chair: Prof. Atsushi Sanada (Yamaguchi University, Japan)
TH_1B _1  Nondispersive Optical Activity of Meshed Helical Metamaterials (Invited)
09:00 – 09:30  Bumki Min, Hyun Sung Park, Teun-Teun Kim, Hyeon-Don Kim, and Kyungjin Kim
(Korea Advanced Institute of Science and Technology (KAIST), Korea)

TH_1B _2  Transmission Line Metamaterials for Invisibility Cloaks Based on
Transformation Electromagnetics (Invited)
09:30 – 10:00  Atsushi Sanada and Tsutomu Nagayama (Yamaguchi University, Japan)

TH_1B _3  Metamaterial CRLH Common-Mode Current Detector for Differential-
Mode Feeding in Printed Circuits
10:00 – 10:15  S. Kahng¹, M. K. Khattak¹, J. -S. Jeon¹, K. -N. Jang¹, H. -S. Kim¹, K. -H. Koo¹, and
H. -S. Oh² (¹Incheon National University, Korea, ²Innertron Co. Ltd., Korea)

TH_1B _4  Enhanced Phase Nonreciprocity in CRLH Transmission Lines
10:15 – 10:30  Kohei Enomoto¹, Tetsuya Ueda¹, and Tatuso Itoh² (¹Kyoto Institute of
Technology, Japan, ²University of California, USA)

Coffee Break  10:30 – 10:50

Opening Ceremony
Presider: Prof. Jae-Sung Rieh (Korea University, Korea)
10:50 – 11:10  Welcome Speech
Prof. Kyung Heon Koo (Conference Chair, Incheon National University, Korea)
Greetings from Organizing Committee Co-chairs
Prof. Noriharu Suematsu (Organizing Committee Co-Chair, Tohoku University,
Japan)
Prof. Bomson Lee (Organizing Committee Co-chairs, Kyung Hee University,
Korea)
Encouraging Remarks
Prof. Taek Kyung Lee (President of KIEES, Korea Aerospace University, Korea)
Session TH_2AB_1 (60 min): Plenary Session
Session Chair: Prof. Youngcheol Park (Hankuk University of Foreign Studies, Korea)
11:10 – 12:00  Keynote Address: 5G Mobile Communications and Recent R&D Results
Dr. Kyungwhoon Cheun (Senior Vice President Head, Communication Research Team Samsung Electronics Samsung, Korea)

Lunch  12:00 – 13:10

Session TH_3A (90 min): Microwave and Millimeter-wave Active Circuits
Session Chair: Prof. Sanggeun Jeon (Korea University, Korea)
Prof. Futoshi Kuroki (National Institute of Tech., Kure College, Japan)

TH_3A_1  A 2-18 GHz True Time Delay T/R Circuit in 0.13 μm CMOS Technology
13:10 – 13:40  (Invited)
Jang-Hoon Han¹, Jin-Hyun Kim¹, Jinwoo Shin², Joonho So², and Jeong-Geun Kim¹ ¹Kwangwoon University, Korea, ²Agency for Defense Development, Korea

TH_3A_2  260-GHz Differential Variable Gain Amplifier based on SiGe HBT Technology
13:40 – 13:55  Daekeun Yoon¹, Mehmet Kaynak², Bernd Tillack², and Jae-Sung Rieh¹ ¹Korea University, Korea, ²IHP GmbH, Germany

TH_3A_3  A Three-Dimensional CMOS RF Power Amplifier Using an Integrated Passive Device
13:55 – 14:10  Sungho Lee, Jong Min Yook, and Kyuho Park (Korea Electronics Technology Institute (KETI), Korea)

TH_3A_4  A High-Power Ku-band T/R SPDT Switch in SOI CMOS
14:10 – 14:25  D. J. Kim and B. -W. Min (Yonsei University, Korea)
TH_3A_5  K-Band Reflection-type Attenuator using pHEMT with Low Phase Variation
14:25 – 14:40  Seung-Pyo Park¹, Dong-Hoon Park², and Moon-Que Lee¹  (¹University of Seoul, Korea, ²U-tel, Korea)

Session TH_3B (90 min): Antennas 1
Session Chair: Prof. Sungjoon Lim (Chung-Ang University, Korea)  
Prof. Tetsuya Ueda (Kyoto Institute of Technology, Japan)

TH_3B_1  High Gain mm-Wave Microstrip Patch Antenna with Metamaterial
13:10 – 13:25  Hyoungjun Kim and Chulhun Seo (Soongsil University, Korea)

TH_3B_2  Design of a UHF RFID Tag Antenna using a Novel Meander Open Complementary Split Ring Resonator (MOCSRR) Structure
13:25 – 13:40  Nam Ha-Van and Chulhun Seo (Soongsil University, Korea)

TH_3B_3  Equivalent Circuit Modeling of Dual Band PIFA Using Rational Approximation
13:40 – 13:55  J. Yousaf¹, H. Jung², and W. Nah³  (¹,³Sungkyunkwan University, Korea, ²Samsung Electronics, Korea)

TH_3B_4  Design of Electronically Scanned TACAN Using Parasitic Elements and PIN Diode Switches
13:55 – 14:10  Sang Jin Park¹,², Kyung Heon Koo²  (¹Korea Airports Corporation, Korea, ²Incheon National University, Korea)

TH_3B_5  SIW Slot Array Antenna Having Bent Ends for Bandwidth Improvement
14:10 – 14:25  Taewoong Kim, Jindo Byun, and Hai-Young Lee (Ajou University, Korea)

TH_3B_6  Effect of an Air Gap in a Leaky-wave Slit Antenna on a Semi-infinite Silicon Substrate
14:25 – 14:40  Truong Khang Nguyen, Anayat Ullah Khan, and Ikmo Park (Ajou University, Korea)

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Coffee Break 14:40 – 15:00

Session TH_4A (75 min): THz and Microwave Photonics
Session Chair: Prof. Byung-Wook Min (Yonsei University, Korea)
Prof. Seiichiro Ariyoshi (Nagoya Institute of Technology, Japan)

TH_4A_1 Two-dimensional Microwave Kinetic Inductance Detector Array for an Imaging Terahertz Spectrometer (Invited)
15:00 – 15:30
S. Ariyoshi¹, K. Nakajima², A. Saito³, T. Taino³, C. Otani⁴, X. Yu¹, K. Tsukada¹, K. Nakajima¹, K. Motoshita¹, Y. Ogawa³, H. Yamada², S. Ohshima³, and J. Bae¹
(¹Nagoya Institute of Technology, Japan, ²Yamagata University, Japan, ³Saitama University, Japan, ⁴RIKEN, Wako, Japan)

TH_4A_2 Spectroscopic Characterization of the Annealed Zn₅Cd₁₋₅S Thin Films
15:30 – 15:45
K. Y. Kang¹, S. H. Lee¹, N. K. Lee¹, P. S. Shewale¹, Y. S. Yu¹, J. J. Lee³, and Jin S. Kang³ (¹Dong-Eui University, Korea, ²GNU, Korea, ³KRISS, Korea)

TH_4A_3 Microwave Propagation Characteristics in a Coplanar Stripline with a Photo-excited Silicon Substrate
15:45 – 16:00
Yuichi Sugimura, Seiichiro Ariyoshi, and Jongsuck Bae (Nagoya Ins. Tech., Japan)

TH_4A_4 Terahertz Frozen Wave Generator Using a Photo-excited Moving Plasma Boundary on aGaAs Coplanar Stripline
16:00 – 16:15
Mitsuhiro Sato, Megumi Tsuchiya, Seiichiro Ariyoshi, and Jongsuck Bae (Nagoya Ins. Tech., Japan)

Session TH_4B (75 min): Antennas 2
Session Chair: Prof. Jae-Young Chung (Seoul Nat'l University of Science and Technology, Korea)
Prof. Tomohiko Mitani (Kyoto University, Japan)
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<tr>
<td>TH_4B_1</td>
<td>Development of High Power Rectenna with GaN Schottky Diode</td>
<td>15:00 – 15:15</td>
<td>Takaki Nishimura, Naoki Shinohara, and Tomohiko Mitani (Kyoto University, Japan)</td>
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<tr>
<td>TH_4B_2</td>
<td>Frequency Reconfigurable Quarter-Mode Substrate Integrated Waveguide Antenna</td>
<td>15:15 – 15:30</td>
<td>Muhammad Usman Memon and Sungjoon Lim (Chung-Ang University, Korea)</td>
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<tr>
<td>TH_4B_3</td>
<td>Design of 700MHz Broadband Dipole With Novel Feeder For Base Station Antenna</td>
<td>15:30 – 15:45</td>
<td>Chul-Keun Park and Seung-Won Lee (Sunwavetec Co. Ltd., Korea)</td>
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<tr>
<td>TH_4B_4</td>
<td>Broad E-plane HPBW using Mode Matching Technique for Automotive Radar Application</td>
<td>15:45 – 16:00</td>
<td>Ramesh Patel and Ki Jin Han (Ulsan National Institute of Science and Technology (UNIST), Korea)</td>
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<tr>
<td>TH_4B_5</td>
<td>Design of Beam-steering Metal Reflect Array Antennas for Millimeter-wave Applications</td>
<td>16:00 – 16:15</td>
<td>Minwoo Yi, Yongjun Hong, Woosang Lee, and Joonho So (Agency for Defense Development, Korea)</td>
</tr>
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Coffee Break 16:15 – 17:05

Session TH_5A (75 min): Various Microwave Topics
Session Chair: Prof. Minseok Han (KAIST, Korea)

TH_5A_1 Two Year Experience in Korea (Invited) | 17:05 – 17:35 | Osami Ishida (9-102 Komayose, 5683-2 Oba, Fujisawa, 251-0861, Japan)
TH_5A_2  A Compact Mixer Type Retrodirective Hybrid Integrated Circuit
17:35 – 17:50  HyeonjaeJul, Shigeo Kawasaki², Yoshihiro Kawahara¹, and TohruAsami¹ (¹The University of Tokyo, Japan, ²Institute of Space and Astronautical Science, Japan)

TH_5A_3  Power-Supply Rejection Models for Design Optimization of CMOS Low Drop-Out Regulators
17:50 – 18:05  Soyoen Joo¹, Jintae Kim², SoYoung Kim¹ (¹Sungkyunkwan University, Korea, ²Konkuk University, Korea)

TH_5A_4  Distinction of Viable and Dead Cells using RF-MEMS
18:05 – 18:20  Heung Bo Sim, Jun Mu Kim, Jae Hoon Ji, Hyung Seo Yoon, Hyoil Jung, and Seong Chan Jun (Yonsei University, Korea)

Session TH_5B (60 min): Characterization Techniques
Session Chair: Prof. Haeng-Seon Lee (Sogang University, Korea)

TH_5B_1  Antenna Substrate Property Characterization Based on Antenna’s Resistance and Bandwidth (Invited)
17:05 – 17:20  P. M. Nguyen and J. -Y. Chung (Seoul Nat’l Univ. Sci. & Tech., Korea)

TH_5B_2  An Estimation Method for 2-port S-parameters using Jig with Leakage Couplings
17:20 – 17:35  Shinji Ohno, Toshikazu Sekine, and Yasuhiro Takahashi (Gifu University, Japan)

TH_5B_3  Dipole Antenna and Flat Phantom Development for SAR Validation at 150 MHz
17:35 – 17:50  Dong Geun Choi¹, Ki Hwea Kim¹, Sam Young Chung¹, and Yoon-Myoung Gimm² (¹National Radio Research Agency, Korea, ²Dankook University, Korea)

TH_5B_4  Time Aligned Measurement Technique using a Trick Source for an Envelope Elimination and Restoration Structure
Banquet  
18:30 – 20:30  
Presider: Prof. Sungtek Kahng (Incheon National University, Korea)

December 5, 2014 (Friday)

Session FR_1A (90 min): Power Amplifiers
Session Chair: Prof. Jae-Sung Rieh (Korea University, Korea)  
Prof. Toshio Ishizaki (Ryukoku University, Japan)

FR_1A_1  Multiple Mode RF CMOS Power Amplifiers with Reconfigurable Output  
09:00 – 09:30  
Matching Networks (Invited)  
Seunghoon Kang, Bonhoon Koo, Yumi Lee, and Songcheol Hong (KAIST, Korea)

FR_1A_2  A Harmonic-Tuned CMOS Power Amplifier at X-band  
09:30 – 09:45  
Seungwon Park and Sanggeun Jeon (Korea University, Korea)

FR_1A_3  Design of a Tunable CMOS PA for TV White Space Application  
09:45 – 10:00  
Y. Esaki¹, A. Anand¹, S. Tanaka², M. Esashi², K. Kanaya¹, and R. K. Pokharel¹  
¹Kyushu University, Japan, ²Tohoku University, Japan

FR_1A_4  High-Efficiency Class-E Power Amplifier for Wireless Power Transfer System  
10:00 – 10:15  
Wooseok Lee, Hwiseob Lee, Jinhee Kwon, Mincheol Seo, Hyunuk Kang, and Youngoo Yang (Sungkyunkwan University, Korea)

FR_1A_5  2.4GHz-Band 100W GaN-HEMT High-Efficiency Power Amplifier for  
10:15 – 10:30  
Microwave Heating  
Keigo Nakatani and Toshio Ishizaki (Ryukoku University, Japan)
Session FR_1B (90 min): Filters and transmission lines
Session Chair: Prof. Jeong-Hae Lee (Hongik University, Korea)
Prof. Toshikazu Sekine (Gifu University, Japan)

FR_1B_1
09:00 – 09:30
Recent Advances in the Design of Multiband Bandpass Filters (Invited)
Sang won Yun (Sogang University, Korea)

FR_1B_2
09:30 – 09:45
60GHz-Band Low Loss On-Chip Mixed Coupled Band Pass Filter With Patterned Ground Shields for Millimeter Wave CMOS SoC
S. Muhammad Hanif¹, Adel Barakat², and Ramesh K. Pokharel¹ (¹Kyushu University, Japan, ²Egypt-Japan University of Science and Technology, Egypt)

FR_1B_3
09:45 – 10:00
Design and Implementation of Error Checking Structure of Bandpass Filter using LTCC
Manwoo Kim and Yong-hoon Kim (Gwangju Institute of Science and Technology (GIST), Korea)

FR_1B_4
10:00 – 10:15
Transmission Characteristics of Embedded Type of Flexible High Permittivity Transmission Line in Millimeter-wave Bands
Satoshi Kitabayashi, Futoshi Kuroki (National Institute of Tech., Kure College, Japan)

FR_1B_5
10:15 – 10:30
Transmission Line Negative Group Delay Circuit With Multiple-poles Characteristics
Girdhari Chaudhary, Junhyung Jeong, Phirun Kim, and Yongchae Jeong (Chonbuk National University, Korea)

Coffee Break
10:30 – 10:50
Session FR_2A (90 min): Circuits and Systems for Communication
Session Chair: Prof. Byung-Sung Kim (Sungkyunkwan University, Korea)
             Prof. Tetsuya Ueda (Kyoto Institute of Technology, Japan)

FR_2A_1          Current Status of Japan's Telecommunication Service and Future
10:50 – 11:20    Prospective of ICT Networks Service (Invited)
                 Masao Aihara (NTT, Japan)

FR_2A_2          A 60-GHz Low-power OOK Transmitter for 3-Gbps Communication
11:20 – 11:35    Hui Dong Lee¹, Tae Young Kang¹, Ki Chan Eun², Moon-Sik Lee¹, and Bonghyuk
                 Park¹ (¹Electronics and Telecommunications Research Institute, Korea, ²KORF
                 Incorporated, Korea)

FR_2A_3          Single to Differential Low Noise Amplifier with Automatic Mismatch
11:35 – 11:50    Calibration Circuits
                 In-Seong Kim and Kang-Yoon Lee (Sungkyunkwan University, Korea)

FR_2A_4          An Envelope-tracking Supply Modulator in a 180 nm SOI CMOS
11:50 – 12:05    Technology for Multi-band LTE Power Amplifiers
                 Seunghyun Jang, Jaeho Jung, Kwangchun Lee, and Bonghyuk Park (ETRI, Korea)

FR_2A_5          Design of a High-Speed Delta-Sigma Modulator for an Envelope-
12:05 – 12:20    Digitized RF Transmitter
                 Seunghyun Jang, Jaeho Jung, Kwangchun Lee, and Bonghyuk Park (ETRI, Korea)

Session FR_2B (90 min): Electromagnetic Analysis
Session Chair: Prof. SoYoung Kim (Sungkyunkwan University, Korea)
             Prof. Osami Ishida (9-102 Komayose, 5683-2 Oba, Fujisawa, 251-0861, Japan)
FR_2B_1  Electromagnetic Analysis of a Tangent-Ogive FSS Radome
10:50 – 11:05  JiHyung Kim¹, Yong Bae Park¹, Heoung-Jae Chun², Ic-Pyo Hong³, and Yoon Jae Kim⁴ (¹Ajou University, Korea, ²Yonsei University, Korea, ³Kongju University, Korea, ⁴Agency for Defense Development, Korea)

FR_2B_2  Prediction of Near Field Distribution of Switching ICs
11:05 – 11:20  Hyun Ho Kim, Reem Song, and Byung-Sung Kim (Sungkyunkwan University, Suwon, Korea)

FR_2B_3  Model Based Estimation of Real Injected Power of DPI Test
11:20 – 11:35  Huynh Hai Au, Wansoo Nah, and SoYoung Kim (Sungkyunkwan University, Korea)

FR_2B_4  SAR in Child and Adult Head Models Exposed to Radiation from a Bar-Type Mobile Phone
11:35 – 11:50  A-K. Lee, S-E. Hong, and J-H. Kwon (ETRI, Korea)

FR_2B_5  Pattern Synthesis of Conformal Array Antenna using Improved Genetic Algorithm
11:50 – 12:05  Cheol-Min Seong and Dong-Chul Park (Chungnam National University, Korea)

12:05 – 12:20  H. Y. Kim and H. S. Lee (Sogang University, Korea)

Lunch  12:20 – 13:30

Session FR_3A (75 min): Power Dividers, Combiners, and Absorbers
Session Chair: Prof. Jong-Chul Lee (Kwangwoon University, Korea)

Prof. Osami Ishida (9-102 Komayose, 5683-2 Oba, Fujisawa, 251-0861, Japan)
FR_3A_1  Power Divider for Ultra-Wide Band Application  
13:30 – 13:45  Dong-Kwan Han, Ngoc-Duy-Hien Lai, Trung-Sinh Dang, and Sang-Woong Yoon (Kyung Hee University, Korea)

FR_3A_2  Double Stapled Four-way Power Divider with T-shaped Junction at W-Band  
13:45 – 14:00  Sangjin Lim¹, Taehong Kim¹, Joonho So², Junho Choi², and Yonghoon Kim³  
(¹Gwangju Institute of Science and Technology, Korea, ²Agency for Defense Development, Korea)

FR_3A_3  Four-way Spatial Power Combiner Using Symmetrical Structure at W-band  
14:00 – 14:15  Sangjin Lim¹, Taehong Kim¹, Joonho So², Junho Choi², and Yonghoon Kim³  
(¹Gwangju Institute of Science and Technology, Korea, ²Agency for Defense Development, Korea)

FR_3A_4  A Compact High-Q Split Ring Resonator with Inset Structure Using Patch-type Feeding line for Bio-sensor Application  
(Kwangwoon University, Korea)

FR_3A_5  Design of Radar Absorbers with Wide Bandwidth Using Reactive Screens  
14:30 – 14:45  Gunyoung Kim and Bomson Lee (Kyung Hee University, Korea)

Session FR_3B (75 min): Microwave Applications  
Session Chair: Prof. Kang-Yoon Lee (Sungkyunkwan University, Korea)  
Prof. Jongsuck Bae (Nagoya Ins. Tech., Japan)

FR_3B_1  Microwave Active Integrated Heat Applicators for Cancer Ablation (Invited)  
13:30 – 14:00  Kihyun Kim, Sung-Hyn Hwang, Taeyoon Seo, Yong-Kweon Kim, and Youngwoo Kwon (Seoul National University, Korea)

FR_3B_2  Visualization of the Reconstructed 3D Dataset in Microwave Breast Tomography  
14:00 – 14:15  Bo-Ra Kim, Seong-Ho Son, Nikolai Simonov, and Soon-Ik Jeon (ETRI, Korea)
FR_3B_3  Analysis of the Finite PEC plate Effect on Wireless Power Transfer using Characteristic Mode Method
14:15 – 14:30  Jongmin Park¹ and Sangwook Nam² (¹LIGNex1 Co. Ltd., Korea, ²Seoul National University, Korea)

FR_3B_4  Optimization of Magnetic Resonance Wireless Power Transfer System in Concrete Structures
14:30 – 14:45  Minseok Han, Ji-Min Kim, and Hoon Sohn (KAIST, Korea)

FR_3B_5  Oscillation Characteristics on Reflection Type of Self-injection Locked NRD Guide Gunn Oscillator Loading TEM Type Metal Rod Resonator at 60 GHz
14:45 – 15:00  Makoto Teramoto and Futoshi Kuroki (National Institute of Tech., Kure College, Japan)

Social Event:  Tour of Hwaseong Fortress
15:10 – 17:00  (Shuttle bus service provided including entrance fees)
Hotel Accommodations

● Ibis Ambassador Suwon (*Recommended)
  Tel: 031-230-5000
  Location: 4.23 km from Venue
  Transportation:
  - From Incheon International Airport
    Airport Limousine Bus (bound for Yeongtong)
    Board at Exit 7B on the first floor. Get off at Ibis Ambassador Suwon.
  - From Gimpo International Airport
    Airport Limousine Bus (bound for Dong-Suwon)
    Board at Exit #1 at international terminal, exit #7 at domestic terminal.
    Get off at Dong-Suwon Terminal. Take a taxi.
  Website: https://ibis.ambatelen.com/suwon/main.amb

● Hotel Ilmare (*Recommended)
  Tel: 031-233-1123
  Location: 4.43 km from Venue, Close to Ibis Ambassador Suwon
  Website: http://www.hotelilmare.co.kr

● Ramada Plaza Suwon
  Tel: 031-230-0001
  Location: 2.59 km from Venue
  Transportation:
  - From Incheon International Airport
    Airport Limousine Bus (bound for Dong-Suwon)
    Board at Exit 7A on the first floor. Get off at Ramada Plaza Suwon.
  - From Gimpo International Airport
    Airport Limousine Bus (bound for Dong-Suwon)
    Board at Exit #1 at international terminal, exit #7 at domestic terminal.
    Get off at Dong-Suwon Terminal. Take a taxi.
  Website: http://www.ramadaplazasuwon.com/eng/index.asp

● Hotel Castle
  Tel: 031-211-6666
  Location: 2.29 km from Venue
Transportation:
- From Incheon International Airport
  Airport Limousine Bus (bound for Dong-Suwon)
  Board at Exit 7A on the first floor. Get off at Dong-Suwon Terminal (near Hotel Castle).
- From Gimpo International Airport
  Airport Limousine Bus (bound for Dong-Suwon)
  Board at Exit #1 at international terminal, exit #7 at domestic terminal.
  Get off at Dong-Suwon Terminal (near Hotel Castle).
Website: http://hcastle.co.kr/eng/

● Hotel Ritz
Tel: 031-225-4766
Location: 4.53 km from Venue, Close to Ibis Ambassador Suwon
Website: http://www.hotelritz.co.kr/english/main.html
Venue

The conference will be held at The Gyeonggi Small Business Center (GSBC), Suwon, Korea. Gyeonggi Province established the GSBC to support its small & medium-sized enterprises. It has several convention halls and banquet halls well suited for international conventions. For the details on the venue, you can visit: http://en.gsbc.or.kr/.

Transportation

● From Incheon International Airport
  - Airport Limousine Bus (bound for Dong-Suwon)
    Board at Exit 7A on the first floor. Get off at Dong-Suwon Terminal (near Hotel Castle). Take a taxi (~3,500 KRW to GSBC)
  - By Taxi
    Estimated Fare: 50,000–60,000 KRW

● From Gimpo International Airport
  - Airport Limousine Bus (bound for Dong-Suwon)
    Board at Exit #1 at international terminal, exit #7 at domestic terminal. Get off at Dong-Suwon Terminal (near Hotel Castle).
    Take a taxi (~3,500KRW to GSBC)
  - By Taxi
    Estimated Fare: 40,000–50,000 KRW

Public Bus Information (GSBC Bus Stop)
3002 (from Gangnam Station), 7002 (from Sadang Station), 720-2 (from Suwon Station), 52, 13-4, 9-2, 999, 5-4, 7, 32, 88-1