

## GSMM 2018 – Technical Program

Tuesday, May 22, 2018		
8:30 – 9:00	Opening	
9:00 – 9:45	Keynote 1: <b>Advanced 5G Phased-Arrays and Transceivers Using Silicon Technologies:                      THE END OF THE MARCONI ERA IS NEAR</b> Gabriel Rebeiz (UCSD)	
9:45-10:30	Keynote 2: <b>Past Evolution and Future Prospects of Silicon mm-Wave ICs for                      Autonomous Navigation and 5G Applications</b> Sorin Voinigescu (Univ. Toronto)	
10:30 – 11:00	Coffee Break, Exhibition	
11:00 – 12:00	THz Devices and Applications	5G Summit
11:00	<b>Uncompressed HD and Ultra-HD Video Streaming Using Terahertz Wireless Communications</b> Kathirvel Nallappan, Hichem Guerboukha, Chahe Nerguizian and Maksim Skorobogatiy (Ecole Polytechnique de Montreal, Canada)	<b>Synergy Between 5G and DoD</b> Dev Palmer (Lockheed Martin)
11:30	<b>Comparison of Micromachined Dielectric and Metallic Waveguides for THz applications</b> Pekka Pursula, Matteo Cherchi, Antti E. I. Lamminen, Mikko Kantanen, Jaakko Saarilahti and Vladimir Ermolov (VTT Technical Research Centre of Finland, Finland)	<b>Phased Array Industrialization</b> Pete Moosbrugger (Ball Aerospace)
12:00 – 13:30	<b>Lunch and Learn: Test Tools to Assess 5G Solutions</b> Jan McKinnis, Ball Aerospace and John Meister, Keysight	
13:30 – 15:30	Active Devices for 5G and IoT Applications	5G Summit
13:30	<b>57 GHz 130uW CMOS Millimeter-wave oscillator for ultra low power sensor node</b> Mizuki Motoyoshi, Noriharu Suematsu and Suguru Kameda (Tohoku University, Japan)	<b>Millimeter-wave Antennas for 5G</b> Antti Räisänen, et al. (Aalto)
14:00	<b>A 24-44 GHz UWB LNA for 5G Cellular Frequency Bands</b> Vikas Chauhan and Brian Floyd (North Carolina State University, USA)	<b>Hardware Challenges for 5G</b> Farshid Aryanfar (Compound Waves)
14:30	<b>26 GHz-Band Direct Digital Signal Generation by a Manchester Coding 1-Bit Band-Pass <math>\Delta</math>-<math>\Sigma</math> Modulator using Its 7th Nyquist Zone</b> Masafumi Kazuno, Mizuki Motoyoshi, Suguru Kameda and Noriharu Suematsu (Tohoku University, Japan)	<b>mmWave Filters and Front-End Modules</b> Dimitrios Peroulis (Purdue)
15:00	TBD	<b>Power Amplifiers for 5G: Efficiency and Heterogeneous Integration</b> Peter Asbeck (UCSD)

<b>Tuesday, May 22, 2018 (continued)</b>		
<b>15:30 – 16:00</b>	<b>Coffee Break, Exhibition and Poster Session</b>	
<b>16:00 – 17:00</b>	<b>GSMN Poster Session</b>	<b>5G Summit</b>
	<b>Investigation of ethanol sensing capability of graphitic carbon nitride resonator at terahertz</b> Uzma Memon, Arif Ibrahim and S Duttagupta (Indian Institute of Technology Bombay, India)	<b>Open-access Cloud-Based 5G Testbeds</b> Ivan Seskar (Rutgers)
	<b>3D Printed V-band Rod Antenna With Constant Gain Based on Spoof Surface Plasmon Polaritons</b> Qingle Zhang, Baojie Chen and Chi Hou Chan (City University of Hong Kong, Hong Kong)	
	<b>Self-Organizing mmWave Networks: A Power Allocation Scheme Based on Machine Learning</b> Roohollah Amiri and Hani Mehrpouyan (Boise State University, USA)	<b>Strategies and Equipment for mmWave 5G</b> Roger Nichols (Keysight)
<b>A Novel Physics-Oriented Statistical Channel Model for Communication in Diffuse Multipath Environments</b> Shen Lin, Evelyn Dohme and Zhen Peng (University of New Mexico, USA)		
<b>17:00 – 18:00</b>	<b>Panel Session:</b> <b>What do we need to build 5G mmWave mobile handsets? (bandwidth, efficiency, battery life, complexity, cost)</b> Dylan Williams, NIST (moderator)	
<b>18:00</b>	<b>Welcome Reception</b>	

**Wednesday, May 23, 2018**

<p align="center"><b>8:30 – 9:15</b></p>	<p align="center">Keynote 1:  <b>Direct Digital RF/MMW technologies - Challenges for Beyond Nyquist Frequency Range</b>                  Noriharu Suematsu (Tohoku Univ.)</p>	
<p align="center"><b>9:15 – 10:00</b></p>	<p align="center">Keynote 2:  <b>The QUEST for Fundamentally New SI-Traceable Electric Field and Power Measurement Techniques</b>                  Christopher L. Holloway (NIST)</p>	
<p align="center"><b>10:00 – 10:30</b></p>	<p align="center"><b>Coffee Break, Exhibition</b></p>	
<p align="center"><b>10:30 – 11:20</b></p>	<p align="center"><b>Electric-Field Measurements with Rydberg Atoms</b></p>	<p align="center"><b>mmWave Wireless System Implementation - I</b></p>
<p align="center">10:30</p>	<p><b>Measurements of high-intensity radio-frequency electric fields with Rydberg vapors</b>                  Georg Raithel (University of Michigan and Rydberg Technologies, USA); David Anderson (Rydberg Technologies, USA)</p>	<p><b>Modular Wideband 1-15 GHz Transmitter Channelizer for High Data Rate Communication</b>                  Mohamed Hussein Eissa (IHP Microelectronics Institute, Egypt); Andrea Malignaggi (TU Berlin, Germany); Goran Panic (IHP GmbH, Germany); Lukasz Lopacinski (BTU Cottbus, Germany); Rolf Kraemer (IHP Microelectronics, Frankfurt/Oder and; BTU-Cottbus, Germany); Dietmar Kissinger (IHP, Germany)</p>
<p align="center">10:55</p>	<p><b>High-resolution antenna near-field imaging and sub-THz measurements with a small atomic vapor-cell sensing element</b>                  David Anderson (Rydberg Technologies, USA); Georg Raithel (University of Michigan and Rydberg Technologies, USA); Christopher Holloway (NIST, USA); Eric Paradis (Eastern Michigan University, USA); Rachel Sapiro (Rydberg Technologies, USA)</p>	<p><b>I-Q Mismatch Estimation and Compensation in Millimeter-Wave Wireless Systems</b>                  Yifan Zhu, Christopher Hall, Akbar Sayeed (University of Wisconsin-Madison, USA)</p>
<p align="center"><b>11:20 – 12:10</b></p>	<p align="center"><b>Environmental Sensing at 183 GHz</b></p>	<p align="center"><b>mmWave Wireless System Implementation - II</b></p>
<p align="center">11:20</p>	<p><b>G-band FMCW Radar for Humidity Profiling Inside Boundary Layer Clouds</b>                  Richard Roy (Jet Propulsion Laboratory, California Institute of Technology, USA); Ken Cooper (California Institute of Technology, USA); Matt Lebsock, Luis Millan, Jose V Siles, and Raquel Monje (Jet Propulsion Laboratory, California Institute of Technology)</p>	<p><b>Reality Check on 5G New Radio conformance testing for mmWave frequencies - A Test and Measurement perspective (Invited)</b>  <b>Andreas Roessler (Rohde &amp; Schwarz)</b></p>
<p align="center">11:45</p>	<p><b>A Pseudo-Correlation MMIC-based 183 GHz Water Vapor Radiometer</b>                  Katherine Cortés, Rodrigo A. Reeves and Miguel Figueroa (Universidad de Concepcion, Chile); Pekka Kangaslahti (Jet Propulsion Laboratory, California Institute of Technology, USA); Wagner Ramirez, Lilian Mora, Pablo Cartes, David Arroyo, Gonzalo Burgos and Brian Molina (Universidad de Concepcion, Chile)</p>	<p><b>An Efficient Hybrid Diagonalization for Multiuser mmWave Massive MIMO Systems</b>                  Qineng Zhang, Yuanan Liu, Gang Xie, Jinchun Gao and Kaiming Liu (Beijing University of Posts and Telecommunications, P.R. China)</p>

<b>Wednesday, May 23, 2018 (continued)</b>		
<b>12:10 – 13:30</b>	<b>Lunch and Learn: 5G Performance Measurements ETS-Lindgren</b>	
<b>13:30 – 14:45</b>	<b>Hardware to Enable mmWave Sensing</b>	<b>Measurements and Simulations for Channel Modeling - I</b>
13:30	<b>Millimeter-Wave Polarization-Inclusive Remote Sensing System Based on Dually-Polarized Six-Port Junction</b> Walid Dyab and Ahmed Sakr (Polytechnique Montreal, Canada); Ke Wu (Ecole Polytechnique Montreal and Center for Radiofrequency Electronics Research of Quebec)	<b>Empirical Investigation of Antenna Beamwidth Effects on the ITU-R Building Entry Loss (BEL) Model Based on 32 GHz Measurements</b> Juyul Lee, Kyung-Won Kim, Myung-Don Kim, Jae-Joon Park and Hyun Kyu Chung (ETRI, Korea)
13:55	<b>W-band Amplitude-only Direction Finding with Curved-Aperture Horn Antennas</b> Jake Cazden, Muhannad Altarifi, Ljubodrag Boskovic and Dejan Filipovic (University of Colorado at Boulder, USA)	<b>Vegetation Attenuation for Several Evergreen Shrubs at 31 and 5 GHz</b> Mohanad Mohsen and David W Matolak (University of South Carolina, USA)
14:25	<b>Enabling Passive Components for High-Power Wideband Millimeter Wave Repeater Applications</b> Sara Manafi, Mauricio Pinto, Dejan Filipovic, Zoya Popović and Gregor Lasser (University of Colorado at Boulder, USA)	<b>Temporal and Spatial Characteristics of mmWave Propagation Channels for UAVs</b> Wahab Gulzar (Mirpur University of Science & Technology, Pakistan); Özgür Özdemir and Ismail Güvenç (North Carolina State University, USA)
<b>14:45 – 15:30</b>	<b>Coffee Break, Exhibition</b>	
<b>15:30 – 17:10</b>	<b>Implementation of Antenna Arrays</b>	<b>Measurements and Simulations for Channel Modeling - II</b>
15:30	<b>Implementation of Millimeter Wave Antenna Arrays by Diffusion Bonding</b> Eduardo Garcia-Marin, Jose Luis Masa-Campos and Pablo Sanchez-Olivares (Universidad Autonoma de Madrid, Spain)	<b>A Stochastic Framework of Millimeter Wave Signal for Mobile Users: Experiment, Modeling and Application in Beam Tracking</b> Yawen Fan and Husheng Li (University of Tennessee, USA); Chao Tian (Texas A&M University, USA); Jingchao Bao (The University of Tennessee, USA)
15:55	<b>A 60 GHz 8x8 Planar Array Antenna with Corporate Feed Network using Meandered Probe Fed Patch in LTCC Technology</b> Tyler Reid (San Diego State University and Kyocera International Inc., USA); Satish K. Sharma (San Diego State University, USA)	<b>Worst Month Tropospheric Attenuation Variability Analysis: ITU Model vs. Rain Gauge Data for Air-Satellite Links</b> Jinwen Liu and David W. Matolak (University of South Carolina, USA)
16:20	<b>New Manufacturing Technologies For 5G Millimeter Wave Antennas</b> Xiaoliang Sun, Adrián Tamayo-Domínguez and José-Manuel Fernández-González (Universidad Politécnica de Madrid, Spain)	<b>Coverage Enhancement for mmWave Communications using Passive Reflectors</b> Wahab Gulzar (Mirpur University of Science & Technology, Pakistan); Ismail Güvenç, Özgür Özdemir and Yavuz Yapıcı (North Carolina State University, USA); Yuichi Kakishima (DOCOMO Innovations, Inc., USA)
16:45	<b>A Bi-material Fully Aerosol Jet printed W-band Quasi-Yagi-Uda Antenna</b> Yuxiao He, Michael Thomas Craton, Prem Chahal and John Papapolymerou (Michigan State University, USA)	<b>Measurement of On-Body Propagation Loss for Directional Millimeter-Wave WBAN</b> Kohei Akimoto, Mizuki Motoyoshi, Suguru Kameda and Noriharu Suematsu (Tohoku University, Japan)
<b>18:00</b>	<b>Banquet</b>	

Thursday, May 24, 2018		
8:30 – 9:15	Keynote 1: <b>Advanced Channel Measurements for THz Communications</b> Thomas Kürner (TU Braunschweig)	
9:15 – 10:00	Keynote 2: <b>Miniaturized Spaceborne and Terrestrial Antennas for Satellite Communication and Navigation</b> Quan Xue (S. China Univ. Tech.)	
10:00 – 10:30	Coffee Break	
10:30 – 12:10	<b>Design and Measurement of Antennas for 5G</b>	<b>Millimeter-Wave and THz Communications</b>
10:30	<b>64 Element 28GHz Phased Array 5G Prototyping Platform</b> Gary Raney (Ball Aerospace and Technologies Corp, USA); Bryce Unruh, Ray Lovestead and Bryan Winther (Ball Aerospace, USA)	<b>Design and prototyping of 60 GHz Mesh Networks</b> Jianhua Mo (Samsung, USA); Hao Chen and Wenxun Qiu (Samsung Research America, USA); Prasad Netalkar (NYU Tandon School of Engineering, USA); Boon Loong Ng (Samsung Telecommunications America, USA); Gary Xu (Samsung Research America, USA); Jianzhong Zhang (Samsung, USA)
10:55	<b>mm-Wave Homogeneous Flat Lens Antenna System Exploiting Mainstream PCB Process for 5G Access Point</b> Wenyao Zhai (Huawei Technologies Canada Research Center, Canada)	<b>Vehicle Antenna Position Dependent Path Loss for Millimeter-Wave V2V Communication</b> Jae-Joon Park, Juyul Lee, Kyung-Won Kim, Lee Kwang Chun and Myung-Don Kim (ETRI, Korea)
11:20	<b>Antenna Decoupling with a 3D Printed Tapered Ribbed Structure</b> Bradley Allen, Ljubodrag Boskovic and Dejan Filipovic (University of Colorado at Boulder, USA)	<b>Compact Upconverters and Downconverters for Millimeter-Wave Communication Links</b> Eric Bryerton (Virginia Diodes, Inc., USA)
11:45	<b>Accurate Measurement for Millimeter-wave Antenna Based on the Extrapolation Range</b> Xiao Liu and Meng Donglin (National Institute of Metrology, P.R. China)	<b>Figures of Merit for Active Antenna Enabled 5G Communication Networks</b> Jan McKinnis (Ball Aerospace, USA); Ian Gresham (Anokiwave Inc., USA); Randy Becker (Keysight, USA)
12:10 – 13:30	Boxed Lunch/Awards Presentation	
14:00 – 16:30	NIST Lab Tours	