



# Automatic RF Techniques Group

92<sup>nd</sup> ARFTG Microwave Measurement Symposium

Next Generation Microwave and Millimeter-Wave  
Measurement Techniques and Systems

Rosen Plaza Hotel, Orlando, Florida, USA, January 20-23, 2019

## TECHNICAL AGENDA

### Monday, January 21, 2019

#### Morning

8:30 to 10:00

[NVNA Users' Forum](#)

Chair: Patrick Roblin

10:30 to 12:00

[On-Wafer Measurement Users' Forum](#)

Chair: Andrej Rumiantsev

#### Afternoon

13:00 to 13:10

[Welcome and Introduction](#)

Conference Co-Chairs: Joe Gering and Jon Martens

TPC Co-Chairs: Patrick Roblin and Andrej Rumiantsev

13:10 to 14:35

[Session A: Wireless Communication Test and Measurements](#)

Chair: Patrick Roblin

**“5G: Changing the Way We Work, Live and Play,” Dr. Michael O’Neal, Qorvo, Invited Guest Speaker (40 min)**

A-1 “Novel Calibration Technique for Wideband Transmitters using Constellation Mapping,” Mr. Sidath Madhuwantha, National University of Ireland, Maynooth. **Student Paper**

A-2 “Modulated measurements and time-local signal level control,” Dr. Jon Martens, Anritsu.

14:35 to 15:50

[Break – Interactive Forum and Exhibits](#)

15:50 to 16:55

[Session B: MM – Wave Measurements](#)

Chair: Jon Martens

B-1 “A 3D printed TE<sub>10</sub> rectangular to TE<sub>01</sub> circular waveguide transition for polymer waveguide characterization,” Prof. Marco Spirito, TU Delft.

B-2 “Preliminary Study on WM-380 Waveguide TRL Calibration Line Standards at the UK’s National Physical Laboratory,” Dr. Xiaobang Shang, National Physical Laboratory.

B-3 “Three-Port Vector-Network-Analyzer Calibrations using the NIST Microwave Uncertainty Framework,” Dr. Jeff Jargon, National Institute of Standards and Technology.

18:00 to 19:00

[Joint RWW/ARFTG Reception](#)

## Tuesday, January 22, 2019

08:00 to 09:20

### Session C: Load-Pull and Large-Signal Measurements

Chair: Tony Gasseling and Jean-Pierre Teyssier

**“Wideband Load-Pull Measurement Techniques: Architecture, Accuracy and Applications,” Dr. Mauro Marchetti, Maury Microwave, Invited Guest Speaker (35 min)**

C-1 “Transient and Steady-State Thermal Measurements of GaN-on-SiC HEMT Transistors under Realistic Microwave Drive Conditions,” Mr. Jonas Urbonas, Advanced Technology Institute, University of Surrey. **Student Paper**

C-2 “Load Pull Bias Tee,” Dr. Gerard J. Bouisse, MACOM.

09:20 to 10:45

### Break- Exhibits

10:45 to 11:50

### Session D: On-Wafer Measurements and Calibration

Chair: Leonard Hayden

D-1 “Causal Characteristic Impedance Determination Using Calibration Comparison and Propagation Constant,” Prof. Shuhei Amakawa, Hiroshima University.

D-2 “Low-Temperature Front-Side BEOL Technology with Circuit Level Multiline Thru-Reflect-Line Kit for III–V MOSFETs on Silicon,” Mr. Stefan Andric, Lund University. **Student Paper**

D-3 “Experimental Considerations on Accurate  $f_T$  and  $f_{max}$  Extraction for MOS Transistors Measured up to 110 GHz,” Dr. Johannes Rimmelpacher, University of Erlangen-Nuremberg.

12:00 to 13:30

### ARFTG Awards Lunch

13:30 to 13:50

### ARFTG Business Meeting – ExCom Election, Bylaws Proposal, & Best Student Paper Vote

Past President: Jon Martens

13:50 to 14:50

### Session E: Probing With and Without Contact

Chair: Andrej Rumiantsev

**“Automated Performance of On-wafer Calibration and Characterization Using Non-Contact Probes,” Prof. Kuby Sertel, The Ohio State University, Invited Guest Speak (35 min)**

E-1 “Probe Positioner and Probe Tip Calibration for Traceable On-wafer Measurement,” Dr. Ryo Sakamaki, National Institute of Advanced Industrial Science and Technology.

14:50 to 15:40

### Break – Exhibits

15:40 to 15:50

### ARFTG Business Meeting – Treasurer’s Report, ExCom Election Results, & ARFTG92 Best Student Paper Award

Treasurer: Ron Ginley, Past President: Jon Martens, & President: Dominique Schreurs

15:50 to 16:55

### Session F: Microwave Measurement Needs for 5G: Invited Talk & Panel

Chair & Moderator: Peter Aaen

**“Next Generation Microwave and Millimeter-Wave Measurement Techniques,” Dr. Kate Remley, National Institute of Standards and Technology, Invited Guest Speaker (35 min)**

Dr. Michael O’Neal, Qorvo, **Invited Panel Member**

Prof. Kubi Sertel, The Ohio State University, **Invited Panel Member**

Dr. Mauro Marchetti, Maury Microwave, **Invited Panel Member**

Dr. Kate Remley, NIST, **Invited Panel Member**

16:55 to 17:00

### Next ARFTG Conference & Closing Statement

Conference Chair: Joe Gering

**Interactive Forum Papers**  
**Monday, January 21, 2019**

**14:35 to 15:50**

Chair: Rusty Myers

P-1 “Test of a Magnetic Field Distribution for Magnetrons,” Dr. Yang Jinsheng, Beijing Vacuum Electronics Research Institute.

P-2 “Evaluation of Measurement Resolution for Scanning Microwave Microscopy,” Dr. Masahiro Horibe, National Institute of Advanced Industrial Science and Technology.

P-3 “Iterative Method Based on Resonator-Measurements and Analytical Data Yields Permittivity of Graphene Materials,” Prof. Heinz Schmiedel, Hochschule Darmstadt.

P-4 “3D Reflectometer Design for Embedded RF Vector Measurement,” Ms. Hana Saied Mohamed, École de Technologie Supérieure. **Student Paper**

P-5 “Non-Probe Probing of Printed Circuits,” Dr. JungHo Kang, Samsung Electro-Mechanics.



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