104th ARFTG Microwave Measurement Symposium

Advanced Nonlinear and Linear Microwave Measurements

January 19-22, 2025 | San Juan, Puerto Rico

Monday, January 20th | Afternoon Session

SESSION A: Loadpull and Nonlinear Measurements

13:10-13:35
A-1

KEYNOTE Advancements in Transistor and Circuit Modeling for Next-Generation RF Circuit Design Techniques

Tony Gasseling (AMCAD)

13:35-14:00
A-2

INVITED Characterization of GaN Transistors and PAs with Modulated Signals

Zoya Popovic (University of Colorado at Boulder)*; Marc Vanden Bossche (Consultant); Reyes Lucero (University of Colorado at Boulder)

14:00-14:20
A-3 Student

Rapid Characterization of the Impact of Dynamic Trapping on GaN HEMT IVs Using a Real-Time NVNA

Miles Lindquist (Ohio State University)*; Patrick Roblin (Ohio State University); Matthew Nichols (The Ohio State University)

14:20-14:40
A-4 Student

Anomalous Behavior of Continuous Class-F Mode Power Amplifier

Daniel Alonso-Tejera (CICESE); J. Apolinar Reynoso-Hernandez (CICESE)*; Manuel Alejandro Pulido-Gaytan (CICESE); Maria del Carmen Maya-Sánchez (CICESE); Jaime Sanchez-Garcia (CICESE); Eduardo Antonio Murillo-Bracamontes (CNyN-UNAM); Jose Raul Loo-Yau (CINVESTAV-GDL)

Interactive Forum Session

P-1

Application of Dual-Mode Ruby Dielectric Resonator for Characterization of Copper Foils in High-Frequency Circuits

Lukasz Nowicki (QWED Sp. z o. o.)*; Tomasz Nalecz (QWED Sp. z o. o.); Malgorzata Celuch (QWED Sp. z o. o.); Thomas Devahif (Circuit Foil); Janusz Rudnicki (QWED Sp. z o. o.)

P-2 Student

Impact of Deep Memory in Identification of Quasi-Identical RF Power Amplifiers using Digital Post Distortion

Nicholas Ellis (Ohio State University)*; Patrick Roblin (Ohio State University); James Gaudreau (Ohio State University); Joel Johnson (Ohio State University); Justin Kuric (Ohio State University); Christopher Ball (Ohio State University); Richard Ridgway (Ohio State University)

P-3

Broadband RF Characterization Test Setup for Millimeter Wave Applications

David Sardin (Qorvo)*; Jason Zhang (Qorvo)

P-4 Student

Techniques for Characterizing Dual-Input Outphasing Power Amplifiers

Dominic Mikrut (Ohio State University)*; Yuhan Zheng (Ohio State University); Patrick Roblin (Ohio State University); Shane Smith (SenseICs); Josh Coffey (SenseICs); Ramy Tantawy (SenseICs)

P-5 Student

Ultra-wideband Multi-line Calibration by Microstrip and Coplanar Impedance Standards on the Same GaAs Chip

Tianze Li (Cornell University)*; Lei Li (Cornell University); James Hwang (Cornell University)

P-6 Student

Optimization of a Near-Field Measurement System Based on Mechanically Modulated Scattering

Yu Huang (University of Wisconsin-Madison)*; Alan Bettermann (University of Wisconsin-Madison); Daniel van der Weide (University of Wisconsin)

P-7

Human Free Automated Recalibration for Drift Compensation and Over Multiple Temperatures On-Wafer Autonomous RF Measurements

Pranav Shrivastava (FormFactor GmbH)*

SESSION B: Broadband Measurements and Linearization

15:35-16:00 B-1	**INVITED** Trends in DUT Characterizations with Wideband Test Signals Jean-Pierre Teyssier (Keysight Technologies, Inc.)*, Johan Ericsson (Keysight Technologies, Inc.)
16:00-16:20 B-2	Characterization and Correction of Homodyne Systems Enabling Single-Carrier 40 Gb/s in E-band Talley Amir (Keysight Technologies, Inc.)*; Jan Verspecht (Keysight Technologies, Inc.); Sam Kusano (Keysight Technologies, Inc.)
16:20-16:40 B-3 Student	A Piecewise Interpolation based Digital Predistortion of Power Amplifiers Across Wide Power Ranges Nizar Messaoudi (Keysight Technologies, University of Waterloo)*; Ahmed Ben Ayed (University of Waterloo); Slim Boumaiza (University of Waterloo)
16:40-17:00 B-4 Student	Comparative Study of Two Architectures Suitable for the Generation of Wideband Signals at Sub-THz Zi Jun Su (University of Waterloo)*; Ahmed Ben Ayed (University of Waterloo); Slim Boumaiza (University of Waterloo,Canada); Patrick Mitran (University of Waterloo)
17:00	End of the ARFTG-104 First Day

SESSION C: Millimeter-Wave Measurements

8:00-8:25
C-1

INVITED Paving the Way to Accurate mm-Wave NVNA Measurements

Roberto Quaglia (Cardiff University)*

8:25-8:45
C-2

Single-sweep Probed Measurement of an 18-40 GHz, 4-way Wilkinson Power Combiner

Bradley Thrasher (Nuvotronics)*

8:45-9:05
C-3

Probeable Microstrip Adapter Substrates Enabling Chip Testing Into D-Band

Hugo Morales (Modelithics Inc.); Larry Dunleavy (Modelithics Inc.)*; Chris DeMartino (Modelithics Inc.)

9:05-9:25
C-4 Student

Affordable Frequency Extension for Wide Bandwidth mm-Wave Spectrum Analysis with a Lower Frequency VNA

Matthew Nichols (The Ohio State University)*; Patrick Roblin (The Ohio State University); Nicholas Ellis (The Ohio State University)

9:25-9:45
C-5 Student

Millimeter-Wave Implementation of Phased Array Emulation from Wide-band Load-Pull Envelope Measurements

Mattia Mengozzi (University of Bologna); Alberto Maria Angelotti (University of Bologna); Alberto Santarelli (University of Bologna); Paolo Mezzanotte (University of Perugia); Gian Piero Gibiino (University of Bologna)*

RWW/ARFTG Joint Plenary Session

10:10-10:50

ARFTG The convergence of Advanced Models and Measurements for Virtual Prototyping Success

Larry Dunleavy (Modelithics, Inc.)

RWW The Final Frontier – Using Si/SiGe Technology in Space Systems

John D. Cressler (Georgia Tech)

RWW From Niche to Dominance - Si/SiGe in Integrated Microwave Electronics

Hermann Schumacher (Ulm University)

SESSION D: On-Wafer Measurements and Calibration

13:30-13:55
D-1

INVITED Impact of Uncertainty and Non-Idealities in On-Wafer Multiline TRL Calibration on Broadband GaN HEMT Modeling

Jason Shell (Michigan State University); Jerome Cheron (NIST); Edward Gebara (Michigan State University); Matthew Hodek (Michigan State University); Nicholas Miller (Michigan State University)*

13:55-14:15
D-2

Modal TRL De-Embedding of Symmetric Differential Transmission Lines with Proper Reference Impedance Matrix Transformations

Shuhei Amakawa (Hiroshima University)*; Takeshi Yoshida (Hiroshima University); Michael Gadringer (Graz University of Technology); Wolfgnag Bösch (Graz University of Technology)

14:15-14:35
D-3

Investigation of Probe Pitch Influence on On-Wafer Multiline TRL Calibrations up to 110 GHz

Gia Ngoc Phung (Physikalisch-Technische Bundesanstalt (PTB))*; Uwe Arz (Physikalisch-Technische Bundesanstalt (PTB))

14:35-14:55
D-4

Method of Estimating RF Probe-Tip Calibration Reproducibility Budget on Commercial Calibration Substrates

Andrej Rumiantsev (mpi) (MPI Corporation)*; Ralf Doerner (Ferdinand-Braun-Institut (FBH))

SESSION E: Materials and Noise Measurements

15:35-15:55
E-1 Student

Evaluation of On-Wafer Noise Parameter Measurement Techniques at Cryogenic Temperatures

James Kelly (University of Glasgow)*; Jing Wang (University of Glasgow); Afesomeh Ofiare (University of Glasgow); Chong Li (University of Glasgow); Nick Ridler (National Physical Laboratory)

15:55-16:15
E-2 Student

Time-Domain Noise Characterization of LNAs: Validation, Trade-offs, and Analytical Insights

Yin Zeng (Chalmers University of Technology)*, Jörgen Stenarson (Chalmers University of Technology), Peter Sobis (Chalmers University of Technology), Jan Grahn(Chalmers University of Technology)

16:15-16:35
E-3 Student

Characterization of In-plane Polarization Domains in 2D SnSe by Scanning Microwave Microscopy

Yawei Zhang (Cornell University)*; Xiaopeng Wang (Cornell University); James Hwang (Cornell University); Nannan Mao (Massachusetts Institute of Technology); Peng Wu (Massachusetts Institute of Technology); Jing Kong (Massachusetts Institute of Technology)

16:35-16:55
E-4

Broadband Characterization of Flexible Conductor-Dielectric Composites

Luckshitha Suriyasena Liyanage (University of Colombo); Nathan Orloff (NIST); Nicholas Jungwirth (NIST); Sarah Evans (Colorado School of Mines); Christian Long (NIST); Angela Stelson (NIST); Jacob Pawlik (NIST); James Booth (NIST)*

16:55-17:00

ARFTG-104th Closing Notes

Patrick Roblin (ARFTG-104 General Chair)

17:00

End of the ARFTG-104 Conference