



Free to Attend in the MicroApps Theatre

Located in the exhibition hall, MicroApps are free to attend for all exhibition visitors and conference attendees.

TUESDAY | OCTOBER 1

10:00	KEYNOTE: Facts and Fallacies in RFPA Waveform Engineering – <i>Dr. Steve C. Cripps, Cardiff University</i>
11:00	Industry Workshop: Design, Optimization, and Integration of Antenna Arrays for Next-Gen Communication Systems – <i>Giorgia Zucchelli, The MathWorks</i>
12:00	Industry Workshop: Best Practices for Wafer Test Throughout the Spectrum – <i>Gavin Fisher, Formfactor</i>
13:00	3GPP 5G NR gNB Multi-Channel Test Techniques – <i>Randall Becker, Keysight</i>
13:20	First Field Instrument Providing 3D Indoor and Outdoor Coverage Mapping for 5G NR – <i>Ferdinand Gerhardes, Anritsu</i>
13:40	5G NR gNB OTA Conformance Testing – <i>Matthias Weilhammer, Rohde & Schwarz</i>
14:00	OTA Test Challenges – <i>Alejandro Buritica, NI</i>
14:20	From Prototyping to Mass Production: How to Cut Your Lead Time by Months – <i>Outi Härkki, Premix</i>
14:40	The Impact of Glass-Weave Effects on Millimeter-Wave PCBs – <i>John Coonrod, Rogers Corporation</i>
15:00	Industry Workshop: Design of Antenna Matching-Circuit for IoT Devices – <i>Jaume Anguera, Fractus Antennas</i>
16:00	Approaching mmWave Filters: Options and Recommendations – <i>Tim Brauner, Knowles</i>
16:20	Forms of Printed Reflection and Reflectionless Thin Film Lumped-Elements (TFLEs) for Various Types of Filters – <i>Rafi Hershtig, K&L Microwave</i>
16:40	A Waveform Alignment Technique Enabling Broadband GaN Power Amplifier Design – <i>Jarod Geng, Ampleon</i>
17:00	A 10-40 GHz Chipset for mmWave Imaging and Other Wideband Receive Applications – <i>Eamon Nash, Analog Devices</i>

TUESDAY KEYNOTE

Facts and Fallacies in RFPA Waveform Engineering

Waveform engineering has been an important concept in RF power amplifier (RFPA) design, resulting in the definition of important new PA modes. The concept can, however, be taken too far. A set of voltage and current waveforms can be used to define an impedance environment, but that environment will not guarantee that the same waveforms can be reproduced in a practical implementation. The impedance environment is a necessary, but not a sufficient, condition for a specific waveform realization. Widely-touted switch modes are one example of this frequently misunderstood principle. This talk will illustrate this using various design examples, including both switched and analog cases.

Presented by Dr. Steve C. Cripps, Cardiff University



TUESDAY WORKSHOPS

Design, Optimization, and Integration of Antenna Arrays for Next-Generation Communication Systems

This workshop introduces the MATLAB Antenna Toolbox for the design of massive MIMO (mMIMO) antenna systems, which uses a parametrized library of elements and full-wave MoM technology. This workshop will show how multi-carrier circuit envelope simulation can be used to develop phased-array algorithms for applications such as hybrid beamforming by trading off algorithmic complexity and impairments.

Presented by Giorgia Zucchelli, The MathWorks

Best Practices for Wafer Test Throughout the Spectrum

This workshop will highlight the best methods for setting up, calibrating, and evaluating measurement performance in coaxial up to 145 GHz and in waveguide bands spanning WR15 (75 GHz) to WR1 (1100 GHz). The relative merits of both manual and semi-automated probe stations, with both manual and programmable motorized positioners, will be discussed and compromises will be presented involving performance. A novel means will be presented in which a directly-connected waveguide probe can still be used for reliable over-temperature testing on a semi-automated wafer prober.

Presented by Gavin Fisher, Formfactor

Design of Antenna Matching-Circuit for IoT Devices

Designing a multiband antenna system is now as simple as building a matching network. Join this workshop and experience how to design an antenna for your IoT device using a new generation of miniature, off-the-shelf chip components called ground-plane boosters. These miniature boosters are multi-band, so they work easily with any standard or frequency (NB-IoT, LoRa, Sigfox, WiFi, GPS, 5G, 4G, 3G...) and even work simultaneously with multiple standards. Attendees will learn how to design IoT devices from scratch more simply, quickly, and cost-effectively using Microwave Office circuit design software, part of the NI AWR Design Environment portfolio.

Presented by Dr. Jaume Anguera, Fractus Antennas

THANK YOU SPONSORS



Free to Attend in the MicroApps Theatre

All attendees will receive a link to download the presentations, a pen/notepad, and water.

WEDNESDAY | OCTOBER 2

10:00	Industry Workshop: BiCMOS Technology for 5G Applications – <i>Andrzej Gajda, Jesus Gutierrez Teran, Nebojsa Maletic, IHP Solutions and Erik Öjefors, Sivers IMA</i>
11:00	Industry Workshop: Accurate EM-Circuit Co-Design of Antenna Systems – <i>Joni Lappalainen, Optenni</i>
12:00	A New Wave of Simulation for Electromagnetism and Design Optimization – <i>Katsuhiko Kosenda, Murata Software</i>
12:20	Phased-Array System Design That Incorporates Component-Level Performance – <i>Eamon Nash, Analog Devices</i>
12:40	S Band RADAR Power Amplifier – <i>Markus Mayer, Arelis</i>
13:00	Scalable Planar Array (SPAR) Tile Innovations for AESA Radar – <i>Alan Noll, MACOM Technology Solutions</i>
13:20	Tackling Emerging Millimeter-Wave Applications Beyond 50 GHz (802.11ay, 5G NR) – <i>Greg Jue, Keysight</i>
13:40	Wi-Fi 6 Extended Frequency Coverage and Test Challenges – <i>Alejandro Buritica, NI</i>
14:00	Benefits of Noise Sources for Over the Air Testing With Enclosures – <i>Matthew Diessner, Noisecom</i>
14:20	Benefits of Reduced Insertion Loss for mmWave Over Temperature Wafer Test – <i>Gavin Fisher, Formfactor</i>
14:40	Why Are Peak Power Meters Essential for Characterizing Pulsed Power Amplifiers? – <i>Walt Strickler, Boonton</i>
15:00	Power Distribution Network Testing Through Impedance Analysis – <i>Andrea D'Aquino, Rohde & Schwarz</i>
15:20	Enabling High Performance Power Amplifier Analysis With Visual Electromagnetic Optimization of Encoded Model – <i>Nicolas Labrousse, NXP</i>
15:40	Assessing the Accuracy of Keysight Sys-Parameters and NI AWR Software VSS AMP_F Models – <i>Eamon Nash, Analog Devices</i>
16:00	Designing a Narrowband Bandpass Filter for 5G Applications – <i>David Vye, AWR Group, NI</i>
16:20	Spanning 70 KHz to 220 GHz for Single Sweep VNA Measurements Utilizing Nonlinear Transmission Line Technology – <i>Steve Reyes, Anritsu</i>
16:40	Tunable and Fixed Filtering Solutions Enhance Dynamic Range Solutions for 4G-5G RF Test Measurements – <i>Rafi Hershtig, K&L Microwave</i>
17:00	Latest Digital-to-Analog Converter Development: 12-bit 8 GSps DAC Enabling Signal Generation up to the K-Band – <i>Romain Pilard, Teledyne e2v</i>

WEDNESDAY WORKSHOP

BiCMOS Technology for 5G Applications

This workshop consists of two parts, the first of which will highlight a high-performance 130 nm SiGe BiCMOS technology with hetero-bipolar transistors up to 500 GHz maximum oscillation frequency. The second part of the workshop will demonstrate a series of planned lab and field trials that utilize IHP BiCMOS technology, as well as the Sivers IMA 5G 16+16 beamforming transceiver that is designed within IHP SG13S technology.

Presented by Dr. Andrzej Gajda, Dr. Jesus Gutierrez Teran, and Nebojsa Maletic, IHP Solutions and Dr. Erik Öjefors, Sivers IMA

Accurate EM-Circuit Co-Design of Antenna Systems

This workshop presents a design process in which multi-antenna EM simulation is coupled with matching-circuit synthesis, including layout effects, enabling accurate system radiation efficiency calculation and total efficiency optimization. The loss contributors in the antenna system are identified and quantified, including return loss, component losses, coupling losses, and radiator losses. The active reflection coefficients, radiation pattern, and total efficiency of small and medium-sized antenna arrays are analyzed through matching circuits for any port excitation vector.

Presented by Joni Lappalainen, Optenni

THURSDAY | OCTOBER 3

10:00	Industry Workshop: Automated 3D PEEC Solution for EMC Analysis of Physical Layout Effects – <i>Alexander Demurov and Ilona Danelyan, EMCoS</i>
11:00	SMD Component Test System – <i>Yuliya Patlashenko, Copper Mountain Technologies</i>
11:20	MACOM P-I-N Diode Modules and MMICs Enable 5G Implementation – <i>James J. Brogle, MACOM Technology Solutions</i>
11:40	Critical Material Properties for 5G PCB Applications – <i>John Coonrod, Rogers Corporation</i>
12:00	Transition Time Converters - New Filter Approach Solution for Control of Rise-Time and Reducing the Ringing Levels of TD Signals – <i>Rafi Hershtig, K&L Microwave</i>
12:20	Wideband High Resolution Phase-Amplitude Controlled Modules/Networks and Their Applications in 5G – <i>Wei Liu, Mitron</i>
12:40	Improvements to Heterolithic Microwave Integrated Circuits – <i>Timothy Boles, MACOM Technology Solutions</i>
13:00	Thanks to Spuma RS FR, No More Challenging Installations of Low-Loss RF Cables in Restricted Environments – <i>Mathias Vetter, HUBER+SUHNER</i>
13:20	How Distributed Software Systems Boost Solid-State Microwave Technology – <i>Marco Fiore, LEANFA</i>
13:40	Optical Oscillator for RADAR Applications Which Solves Century Old Stability Problems – <i>Paulius Naujalis, FYLA LASER</i>

THURSDAY WORKSHOP

Automated 3D PEEC Solution for EMC Analysis of Physical Layout Effects in Electronic Circuit Design Process

This workshop will present an innovative 3D PEEC solution for the analysis of EMC problems and PCB design optimization. The new formulation focuses on performance by employing the idea of clusters of triangles on a discretized surface, each of which represents a single partial element. The main aspects and advantages of 3D PEEC solutions will be discussed, and an interactive demonstration of the EMCoS 3D PEEC solution will be presented. An EMC analysis of an LED tail-light circuit board developed in accordance with CISPR25 standard will be shown.

Presented by Alexander Demurov and Ilona Danelyan, EMCoS