A Sampling of Subjects to be Presented:

- **CubeSat-based Radiometer Systems from Millimeter-wave to Terahertz: Enabling Frequent Global Observations of the Earth's Atmosphere,** S. C. Reising, Colorado State University, Fort Collins, United States (Invited)
- **Comparison of Noise-Parameter Measurement Strategies: Simulation Results for Amplifiers,** J. Randa, NIST, Boulder, United States
- **Novel Flexible Dielectric Waveguide for Millimeter and Sub-Millimeter Frequencies - Design and Characterization,** H. Nickel, Spinner GmbH, Feldkirchen-Westerham, Germany
- **Evaluating the Effect of Using Precision Alignment Dowels on Connection Repeatability of Waveguide Devices at Frequencies from 750 GHz to 1.1 THz,** N. Ridler, National Physical Laboratory, Teddington, United Kingdom & University of Leeds, Leeds, United Kingdom
- **Free-Field Measurements of Integrated Wireless Devices in Reverberation Chambers,** K. Remley, NIST, Boulder, United States (Invited)
- **On high frequency/mm-wave IMD measurements with small tone spacing,** J. Martens, Anritsu, Morgan Hill, United States
- **A test set-up for the analysis of multi-tone intermodulation in microwave devices,** J. Teyssier, XLIM-cnrs, Brive la Gaillarde, France
- **Adaptive Estimation of Complex Calibration Residual Errors of Wafer-Level S-Parameters Measurement System,** A. A. Savin, Tomsk State University of Control Systems and Radioelectronics, Tomsk, Russian Federation
- **Noncontact conductivity and dielectric measurement for high throughput roll-to-roll nanomanufacturing,** N. Orloff, NIST, Boulder, United States (Invited)
- **Study of reflection effect at fixture interfaces on permittivity measurements using the transmission/reflection method,** Y. Kato, National Institute of Advanced Industrial Science and Technology, Tsukuba, Japan
- **Free-space reconstruction of the electrical properties of carbon nanotube composites in the Q-band,** A. M. Hassan, National Institute of Standards and Technology, Gaithersburg, United States
- **A calibration procedure for electronic calibration units,** J. Stenarson, SP Technical Research Institute of Sweden, Boras, Sweden
- **Offset-Shorts Vector-Network-Analyzer Calibration with Simultaneous Modeling of Calibration Standards,** A. Lewandowsk, Warsaw University of Technology, Warsaw, Poland
- **A Near-Field Scanning Microwave Microscope for measurement of the permittivity and loss of high-loss materials,** A. P. Gregory, National Physical Laboratory, Teddington, United Kingdom
  Towards a NIST Microwave Brightness Standard for Remote Sensing, D. Houtz, National Institute of Standards and Technology, Boulder, United States

See www.arftg.org for a complete listing of presentations

84th ARFTG Microwave Measurement Symposium

The New Frontiers for Microwave Measurements

Boulder, Colorado
December 2nd to 5th, 2014

Conference Chair: Ronald Ginley NIST rginley@boulder.nist.gov +1-303-497-3634	Technical Program Chair: Mitch Wallis NIST mwallis@boulder.nist.gov +1-303-497-5089	Exhibits Chair: Rusty Myers Maury Microwave Corp. rmyers@maurymw.com +1-909-987-4715 X-245
Short Course and Workshops Patrick Roblin The Ohio State University roblin@ece.osu.edu +1-614-292-0998	NVNA Users Forum: Joe Gering jgering@rfmd.com +1-336-678-7028	

ARFTG Conference

ARFTG will hold its 84th Microwave Measurement Symposium at the St. Julien Hotel in Boulder, CO. Join us as we explore **The New Frontiers for Microwave Measurements.** The Symposium includes the 84th Microwave Measurement Conference, a short course, an NVNA users' forum and two workshops – "New Techniques and New Applications for Microwave Materials Measurements" and "High-Efficiency Microwave Power Amplifiers: Design and Characterization".

Register Early!

Location

The St. Julien Hotel and Spa - a fabulous way to stay in the **heart of Boulder**, Colorado. Here, world-class accommodations and service balance perfectly with the sensibility that made Boulder famous. Where nature meets nurture and simplicity meets style. The Hotel's central **location** and stunning **views** of the Flatiron Mountains are just the beginning. The St Julien is located within walking distance of more than 200 shops and 80 restaurants, just steps from the historic **Pearl Street Mall**, the beautiful University of Colorado campus, **miles of hiking and biking paths** and numerous entertainment options.

A special rate of $164.00 + taxes\night has been arranged!

Reserve your hotel room at the St. Julien by Nov. 11th to guarantee this never-again rate! Call the St. Julien and mention ARFTG (+1-877-303-0900) or go to www.arftg.org for a link to the hotel's reservation system.

NIST/ARFTG Microwave Measurement Short Course

Join us in a practical microwave measurement tutorial, intended for engineers, graduate students, experienced technicians, or technical managers. Day 1 will start in the morning session with (1) power measurement, (2) network analyzer measurements, (3) oscilloscope measurements and (4) measurement uncertainty theory and will continue in the afternoon session with (5) connectorized, (6) verification and (7) on-wafer S-parameter measurements at millimeter frequencies and (8) noise measurements.

Day 2 (morning only) will focus on (9) large-signal RF measurements with NVNAs, present practical examples of CW & pulsed-RF measurement applications (10 &11) and conclude with (12) spectrum & vector signal analysis.

Measurement uncertainty and the process of measurement verification will be covered in two dedicated lectures. Space is limited; please register early.

Scheduled Instructors: Jon Martens – Anritsu, Dominique Schreurs – K. U. Leuven, Nick Ridler – NPL, Dylan Williams, Paul Hale, Tom Crowley, Ron Ginley – NIST, Ken Wong – KeySight, Ali Boudiaf – Infineon Technologies, Patrick Roblin – OSU, Jean Pierre Teyssier – XLIM,and Tom Kuntz - Tektronix

Workshops

Historically, the development of radio frequency devices and systems has required reliable, quantitative electromagnetic characterization of materials. Today, the demands of new applications are pushing state-of-the-art electromagnetic materials measurements to new frontiers. This workshop brings together speakers from a variety of backgrounds to create a snapshot of the current state-of-the-art in microwave materials measurements.

As wireless communication keeps expanding with the development of spectrum efficient wide bandwidth modulation schemes, new challenges are arising for the development of power-efficiency RF power amplifiers capable of handling high peak to average power ratio. This workshop will review new advanced techniques which have recently emerged for the design, nonlinear characterization and linearization of such power efficient and broadband RF power amplifiers.

Special Awards Banquet Entertainment !!!

Schedule of Events

NIST/ARFTG Measurement Short Course	Tuesday, Dec.2nd 8:00 am – 5:00 pm
	Wednesday, Dec.3rd 8:00 am – noon
Materials Workshops	Wed, Dec. 3rd, 1:20 pm – 5:00 pm
IEEE Standards WGs	Wed. Dec. 3rd 9:3-11:30 am and 2-4 pm
NVNA Users' Forum	Wednesday, Dec. 3rd 5:00 pm – 7:00 pm
ARFTG Microwave Measurement Conference	Thursday, Dec. 4th 8:00 am – 5:00 pm
	Friday, Dec. 5th 8:00 am – noon
Reception and Awards Banquet	Thursday, Dec. 3rd Approx. 6:30 till 10 pm
High-Efficiency PA Workshop	Friday, Dec. 5th 1:20 pm – 5:00 pm

See www.arftg.org for details as changes may happen

Registration

Please see www.arftg.org for **on-line registration**

Registration:	Before Nov. 16th	After Nov. 16th
Symposium Package	$605	$690
Includes conference, awards banquet, workshops and NVNA user's forum		
Complete Package	$850	$940
Symposium package plus short course (all events)		
Short Course only	$450	$540
Workshop only	$150	$240
Conference only	$445	$545
NVNA Users Forum only	Free	Free
Guest Meal (per meal)	$30	$30
Guest Awards Banquet	$65	$65

Student/retiree/Life Member rates – please see www.arftg.org