AUTOMATIC RF TECHNIQUES GROUP

CONFERENCE NEWSLETTER

SUMMER 2005 NUMBER 33

65th ARFTG conference
"Measurements for Millimeter-Wave Applications"

OVERVIEW

The Renaissance Long Beach Hotel – venue for the 65th ARFTG Microwave Measurement Conference

The 65th ARFTG Microwave Measurement Conference took place at the Renaissance Hotel, Long Beach, California, on June 17th, 2005. This was during Microwave Week 2005, which also included the International Microwave Symposium (IMS), the Radio Frequency Integrated Circuits symposium, and many workshops, tutorials and other meetings. As well as its conference, ARFTG also sponsored a meeting of the ARFTG NVNA Users' Forum and two joint ARFTG/IMS Workshops. Taken together, these activities ran from Sunday, June 12th, through to Friday, June 17th.

A CD of the IMS proceedings is available from the IEEE Online Catalog & Store at www.ieee.org. This CD also contains the Digest to the 65th ARFTG conference as well as the earlier 64th conference held in December 2004.

More information on ARFTG and its activities, including details of conferences past, present and future, can be found on the ARFTG website at www.arftg.org.

CONFERENCE TECHNICAL SESSIONS

The 65th ARFTG conference began with introductions from Tom Ruttan, Conference Chair, and Nick Ridler, Technical Program Chair. The overall conference theme was "Measurements for Millimeter-Wave Applications", which further sub-divided into four technical sessions and an interactive session. The technical sessions consisted of papers given as oral presentations. These technical sessions were "VNA Calibration", "Millimeter-Wave Applications", "Active Device Characterization" and "General Measurement and Measures of Quality". The interactive session featured a total of 17 papers presented in open forum as posters during the breaks from the technical sessions.

Selected as the Best Technical Session Paper by the conference attendees, was "On Peculiarities of S-Parameter Measurements" by Yves Rolain and Wendy Van Moer (VUB, Belgium), and, Jeff Jargon and Don DeGroot (NIST, Boulder). Selected as the Best

Interactive Session Paper was "Wide-Bandwidth, Vector-Corrected Measurement with High Spurious-Free Dynamic Range" by Peter Blockley (Macquarie University, Australia), Daniel Gunyan and Jonathan Scott (Agilent Technologies, Santa Rosa). Selected as Best Exhibitor was Rohde & Schwarz.

Interactive Forum papers are presented as posters to promote technical interactions between attendees

As on previous occasions, the ARFTG conference also included an exhibits area and an awards luncheon, both of which are reviewed below.

CONFERENCE EXHIBITS

Attendees are given ample opportunity to discuss technical matters with exhibitors at the conference

The following companies chose to exhibit their latest equipment at this conference: Tektronix; Micro-Coax; Southwest Microwave; Rohde & Schwarz; Maury Microwave; Agilent Technologies; Cascade Microtech and the Anritsu Company. To exhibit at future conferences, please contact the ARFTG Exhibits Chair, Joe Tauritz (j.l.tauritz@el.utwente.nl).

AWARDS LUNCHEON

ARFTG President, Brian Pugh, presided over the awards luncheon. The award for the Best Technical Paper from the previous (64th) conference (held in Orlando, Florida) was presented to Nick Ridler and Martin Salter (NPL) for their paper, "A Generalized Approach to the Propagation of Uncertainty in Complex S-Parameter Measurements". The award for Best Interactive Session Paper was given jointly to two papers: Dan Hui and Robert Weikle II (University of Virginia), for their paper "A Non-Contacting Sampled-Line Reflectometer for Microwave Scattering Parameter Measurements"; and, Haruichi Kanaya, Tetsuya Nakamura and K Yoshida (Kyushu University, Japan), for their paper "Design of on Chip Coplanar Waveguide Matching Circuit for SiGe BiCMOS RF Amplifier". The award for the Best Exhibitor was presented to the Anritsu Company.

ARFTG President, Brian Pugh, presents the Best Interactive Session Paper award to Dan Hui

Certificates of appreciation were also presented to the organizers of the 65th conference: Conference Chair, Tom Ruttan; Conference Host, Greg Maury; Technical Program Chair, Nick Ridler; and, the Technical Session Chairs, Bart Schrijver, Mohamed Sayed, Tom Ruttan and Yeou-Song (Brian) Lee.

NVNA USERS' FORUM

This 'international' meeting of the NVNA Users' Forum was held on Thursday evening, June 16th, at the Hyatt Regency Hotel, Long Beach. A total of 45 people from industry and academia attended the meeting, 17 of which were attending for the first time. The meeting included two interactive discussions, one PhD research topic and three research updates. The meeting also provided opportunity for informal discussions. A summary of this meeting can be found at www.arftg.org.

JOINT ARFTG/IMS WORKSHOPS

Two joint ARFTG/IMS workshops were held during Microwave Week. The first workshop took place on Sunday, June 12th, at the Hyatt Regency Hotel. This workshop, titled "On-Wafer Microwave Measurements: State of the Art and Future Directions" was organized by Uwe Arz (PTB), Dylan Williams (NIST) and Richard Dudley (NPL) and was co-sponsored by MTT-11.[1]

The second workshop took place on Monday, June 13th, at the Long Beach Convention Center. This workshop, titled, "High Frequency Digital Backplane Interconnect Characterization and Design", was organized by Ken Wong (Agilent Technologies) and Tom Ruttan (Intel Corporation) and was co-sponsored by MTT-12.[2]

Other ARFTG news

MICROWAVE MEASUREMENT STUDENT FELLOWSHIP

The ARFTG Microwave Measurement Student Fellowship Program is announcing a ***new call for proposals***. The purpose of this fellowship is to recognize and provide financial assistance to graduate students who show promise and interest in pursuing research related to RF and microwave measurement techniques. One or more awards may be granted each year, of up to $5000, based on available funding and on the number and quality of applications received.

For more information on these awards, including how to apply for an award, please visit www.arftg.org or contact the ARFTG Education Chair, Dave Walker (dwalker@boulder.nist.gov).

NVNA USERS' FORUM EXPANDS TO THREE MEETINGS

The NVNA Users' Forums continue to be very popular and useful meetings, as shown by the continued increase in the number of participants and interactions. ARFTG has taken the lead with providing a home for the new field of nonlinear measurement, and the NVNA Users' Forum is a key component. As such, we now plan to hold three NVNA Users' Forums per year starting in 2005.

[1] MTT-11 is the IEEE MTT's "Microwave Measurements" Technical Committee.

[2] MTT-12 is the IEEE MTT's Technical Committee on "Microwave and Millimeter-Wave Packaging".

The following naming convention will be applied to these meetings:

NVNA Users' Forum – International; for the meeting held in conjunction with IMS and the summer ARFTG activities;

NVNA Users' Forum – Europe; for the meeting held in conjunction with the European Microwave Conference;

NVNA Users' Forum – US; for the meeting held in conjunction with the winter ARFTG activities.

ARFTG will continue to sponsor all three meetings. The Forum organizers are Wendy Van Moer (wendy.vanmoer@vub.ac.be), Dominique Schreurs (dominique.schreurs@esat.kuleuven.ac.be) and Kate Remley (remley@boulder.nist.gov).

FUTURE EVENTS

NVNA Users' Forum – Europe

This meeting will be held during European Microwave Week 2005, which takes place from October 3rd to 7th, 2005, in Paris, France. (Information on European Microwave Week is available at www.eumw2005.com.) The meeting is co-sponsored by the European Network of Excellence TARGET (www.target-net.org). The NVNA Users' Forum meeting is being held at 4:30 pm on Thursday October 6th. The agenda will become available at www.arftg.org in due course. People wishing to be added to the e-mail distribution list should contact the Forum organizers.

Winter 2005 ARFTG activities

The Washington Marriott Hotel, venue for the winter 2005 ARFTG activities

Microwave Measurement Conference

The 66th ARFTG Microwave Measurement Conference will be held on December 1st and 2nd, 2005, at the Washington Marriott Hotel, Washington, DC. The conference theme is "Measurement of High Performance Devices and Applications". As is usual, the conference will offer ample opportunity for participants to interact with leading professionals in fields such as RF telecommunications and microwave techniques. For more information, visit www.arftg.org or contact the Conference Chair, Greg Burns (john.g.burns@ngc.com), of Northrop Grumman, or Mohamed Sayed (mmsayed@sbcglobal.net), the Technical Program Chair.

NIST/ARFTG Microwave Measurement Short Course

ARFTG, in cooperation with NIST, will offer its 12th annual Microwave Measurement Short Course on November 29th and 30th, 2005, in conjunction with the 66th ARFTG conference. This popular one and a half day course provides both grounding in the fundamentals as well as the latest in measurement techniques taught by the experts.

Basic measurement techniques are covered on Day 1, including: VNA error models and calibration methods; on-wafer measurement; RF connectors and transmission lines; noise and power measurement. Related topics are covered on Day 2, for example: phase noise, uncertainty of measurement and large signal network analysis. For more information, visit www.arftg.org or contact the Short Course Director, Dave Walker (dwalker@boulder.nist.gov) of NIST.

Nonlinear Measurement Workshop

The theme for this year's Nonlinear Measurement Workshop is "Broadband Measurements for Wireless Telecommunication Systems". It is being organized by Kate Remley of NIST and will be held on Wednesday afternoon, November 30th, after the NIST/ARFTG Microwave Measurement Short Course. The workshop will be highly interactive and will include a panel session soliciting audience input on issues related to broadband measurements of nonlinear systems. Existing and future measurement requirements will be identified and possible mechanisms for strengthening measurement infrastructure to facilitate innovation will be considered. For more information, visit www.arftg.org or contact Kate Remley (remley@boulder.nist.gov) of NIST.

A second 'workshop' is also likely to be taking place during the winter 2005 ARFTG activities. The provisional title of the workshop is "Future of High-Speed Electrical Waveform Metrology". For more information, contact the organizer, Dylan Williams (dylan@boulder.nist.gov) of NIST.

NVNA Users' Forum – US

This meeting will also take place in Washington on November 30th, 2005, as part of the winter ARFTG 2005 activities.

Summer 2006 ARFTG activities

The 67th ARFTG Microwave Measurement Conference will be held on June 16th, 2006, in San Francisco, California, as part of Microwave Week 2006, in conjunction with IMS 2006 (www.ims2006.org). The main ARFTG conference theme is expected to be "Measurement and Simulation for High Power Devices and Systems". For more information, visit www.arftg.org or contact the Conference Chair, Ken Wong (ken_wong@agilent.com) of Agilent Technologies, or Mohamed Sayed (mmsayed@sbcglobal.net), the Technical Program Chair.

It is also planned to hold a meeting of the NVNA Users' Forum – International, as part of the summer ARFTG 2006 activities.

CD-ROM PROCEEDINGS DIGESTS AND COURSE NOTES

Available for purchase are printed digests and course notes from this and previous conferences. Also the collected ARFTG Digests for 1982-2001 conferences are for sale on CD-ROM. Additional information can be found at www.arftg.org or by contacting Jim Taylor (jtaylor@blitz-it.net), the ARFTG Executive Secretary.

CHECK YOUR MEMBERSHIP STATUS

Check the address label on this mailing. It indicates your membership status - either "Member in Good Standing", "Expiring", or "Non-member". To maintain your membership, you must attend at least one conference per year, or send $25 for membership renewal, to:

ARFTG, PO Box 228, Rome, NY 13442-0228.

CORRECTIONS

Every effort has been made to publish correct information in this newsletter. Any significant errors should be reported to: Nick Ridler (nick.ridler@npl.co.uk) so that corrections can be reported in the next issue of the newsletter.