AUTOMATIC RF TECHNIQUES GROUP

NEWSLETTER

WINTER 2013 NUMBER 50

Important deadlines:

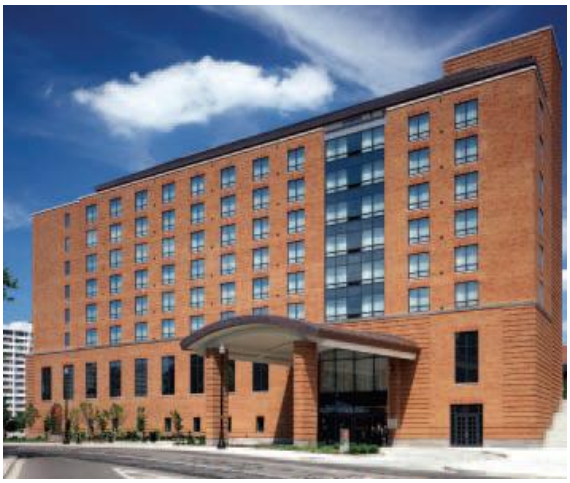
February 14th, 2014: 83rd conference abstracts/summaries due

March 30th, 2014: 83rd conference final papers due

October 1st, 2014: Student fellowship applications due

Fall 2013 ARFTG Microwave Measurement Symposium: Characterization, Modeling and Design of RF and mm-Wave Devices and Circuits

OVERVIEW



The Blackwell Hotel and Conference Center, site for the Fall 2013 ARFTG Symposium

The Fall 2013 ARFTG Microwave Measurement Symposium took place at the Blackwell Hotel and Conference Center in Columbus, Ohio on the campus of the Ohio State University. The event was held over four days from Monday, November 18th to Thursday, November 21st. The Symposium consisted of a 1 ½ day short course on microwave measurements, two workshops, a users' forum meeting and the main conference. The theme of this year's symposium was "Characterization, modeling and design of RF and mm-wave devices and circuits". The symposium 'main event' was the 82nd ARFTG Microwave Measurement Conference, which took place on Wednesday and Thursday. In addition to these technical events, there was an awards banquet on Wednesday evening and a vendor exhibition during the main conference. Taken together, this amounted to four days packed with exciting activities for RF, microwave, and millimeter-wave engineers and technologists.

SHORT COURSE ON MICROWAVE MEASUREMENTS

A tutorial on practical microwave measurements, organized by Patrick Roblin and Meenakshi Rawat, was held on November 18th-19th. About 30 people attended this course with topics covering everything from power, S-parameter, noise, oscilloscope, and spectral measurements to mm-wave and on-wafer techniques, nonlinear characterization, and load pull. Many thanks are due to the twelve instructors who made this short course successful.

WORKSHOPS

Two workshops were held as part of the symposium. The first, "Modeling and linearization of power transistors and power amplifiers," was held on the afternoon of Tuesday, November 19th and was organized by Patrick Roblin and Christophe Quindroit. About 30 people attended and heard lectures from Johannes Benedikt (Cardiff University), Patrick Roblin (The Ohio

State University), Jan Verspecht (Agilent Technologies), and Slim Boumaiza (University of Waterloo).

The second workshop, attended by about 35 people and held on the afternoon of Thursday, November 21st, was entitled "Theory and techniques for on-wafer measurements" and was organized by Patrick Roblin and Roberto Rojas. Attendees at this workshop heard lectures by Dylan Williams (NIST), Jean Marc Rollin (Nuvotronics), Apolinar Reynoso Hernandez (CICESE) and Roberto Rojas (The Ohio State University).

CONFERENCE TECHNICAL SESSIONS

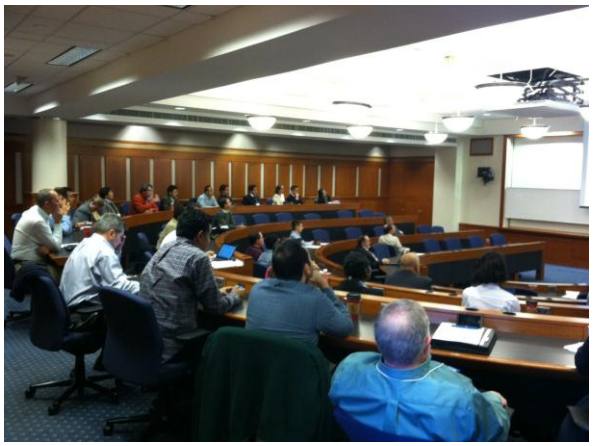
The 82nd ARFTG Microwave Measurement Conference began on Wednesday, November 20th with introductions by ARFTG President Nick Ridler and the conference chair, Patrick Roblin. On this occasion, about 85 people attended the conference. ARFTG is pleased to thank the sponsors of this conference:

Gold sponsors: RFMD, Maury Microwave, Freescale Semiconductor, and Anritsu.

Silver sponsors: Focus Microwaves/Electro Rent Corp., and AWR/National Instruments.

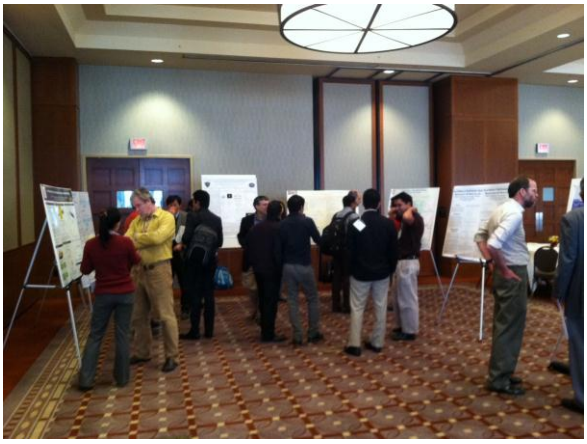
For future sponsorship opportunities, contact the Sponsorship Chair, Joe Gering (sponsorship@arftg.org).

The conference consisted of six general sessions and an interactive forum spread over the two days organized by Technical Program Co-Chairs, Peter Aaen and Roberto Rojas. All papers have been published in the conference digest. Videos of presented papers will be available at www.arftg.org.



Interactive discussions with the audience after each technical session paper contributed to the conference.

The best oral paper, as voted on by conference attendees, was "Investigating connection repeatability of waveguide devices at frequencies from 750 GHz to 1.1 THz" by N. M. Ridler (NPL) and R. G. Clarke (University of Leeds). The best interactive forum paper was selected to be "Concurrent dual-band transmitter behavioral modeling with physically motivated 2-D rational functions," by M. Rawat, N. Naraharisetti, C. Quindroit, and P. Roblin (The Ohio State University). The best exhibitor was voted as Maury Microwave.



The poster session, located near the exhibits, encouraged attendee discussion with the authors

CONFERENCE EXHIBITS

The exhibits area gave conference attendees an excellent opportunity to see the latest range of products available from some of the leading suppliers in the RF and microwave test and measurement industry.

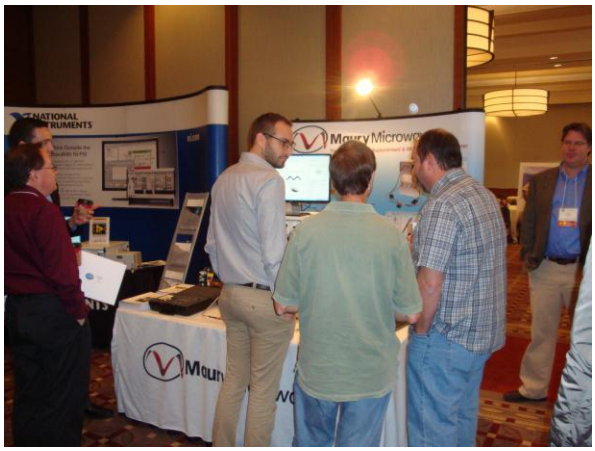
This conference's exhibiting companies were Agilent Technologies, Anritsu, Copper Mountain Technologies, Focus Microwaves, Lake Shore Cryotronics, Maury Microwave, Mesuro, National Instruments, Pickering Interfaces, Inc., Rigol Technologies USA, Tegam, Tektronix, and Teledyne LeCroy.

To exhibit at future conferences, please contact the Exhibits Chair, Rusty Myers, at exhibits@arftg.org.

ANNUAL BUSINESS MEETING

The annual ARFTG Business Meeting was held on November 20th, 2013, during the 82nd conference. A significant part of this meeting consisted of electing five members to the ARFTG Executive Committee (ExCom). Biographies for the candidates were distributed prior to voting. The outcome of the voting

was the re-election of five existing members of ExCom: Dave Blackham, Joe Gering, Leonard Hayden, Mohamed Sayed, and Jean-Pierre Teyssier.



Extended breaks allowed for ample interaction between attendees and exhibitors.

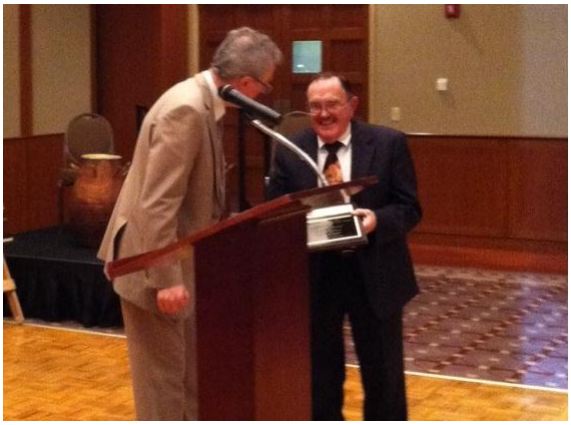
CONFERENCE AWARDS

ARFTG President, Nick Ridler, presided over the conference awards ceremony, which took place during the banquet on Wednesday evening. Certificates of appreciation were presented to the organizers of the conference, namely: Patrick Roblin, Conference Chair; Peter Aaen and Roberto Rojas, Technical Program Co-Chairs; Kubilay Sertel, Conference Host; Rusty Myers, Exhibits Chair; Meenakshi Rawat, Short Course Organizer; Christophe Quindroit and Roberto Rojas, Workshop organizers; and Joe Gering and Jean-Pierre Teyssier, NVNA Users' Forum organizers.

Awards were also given for best papers and exhibitors from the previous (81st) conference held in Seattle. The best oral paper award went to "Edge-related calibration and measurement characteristics in pulsed profile S-parameter analysis," by J. Martens (Anritsu). The best interactive forum paper award went to "Development and traceable measurement of 0.800 mm coaxial airline: broadband standards to 145 GHz" by T. Roberts, B. Lee, and J. Martens (Anritsu). Cascade Microtech and Tektronix shared the best exhibitor award.

A new Lifetime Membership award was introduced at this conference to recognize long-term support and participation in ARFTG activities. At the awards banquet, the first five recipients were recognized: Larry Dunleavy, Ronald Ginley, Leonard Hayden, Dominique Schreurs, and Ken Wong. Qualification information is at http://www.arftg.org/membership/lifemember.html.

A new achievement award also made its debut at this conference, the Jim L. Taylor award, and it was presented to its namesake for many years of selfless, dedicated service to ARFTG. Jim has been Executive Secretary for many years and previously served as President and in a number of other roles.



ARFTG President Nick Ridler presents Jim L. Taylor with the inaugural award bearing Jim's name.

NVNA USERS' FORUM

The fall 2013 meeting of the NVNA Users' Forum, held on Tuesday, November 19th, was moderated by Joe Gering and Jean-Pierre Teyssier, and over 30 people attended. Two Ph.D. updates were presented: "Current challenges in large signal millimeter wave measurement systems," (Luca Galatro, TU Delft) and "The S-matrix method for high-frequency capacitance calibration" (Nosherwan Shoaib, Politecnico di Torino). Michael Janezic (NIST) and Paul Hale (NIST) led discussions on nonlinear standards initiatives. They discussed "Standardization of nonlinear microwave measurements" and "Standardized EVM measurements," respectively. Two research updates were also provided: "Baseband/low frequency load-pull," (Marco Spirito, TU Delft) and "Doherty power amplifier design using a nonlinear vector network analyzer and X-parameters" (Jan Verspecht, Agilent Technologies). More information can be found at http://www.arftg.org/about_nvna.html.

FUTURE EVENTS

Summer 2014 ARFTG activities

Microwave Measurement Conference

The 83rd ARFTG Microwave Measurement Conference will be held on June 6th, 2014, in Tampa, Florida, as part of Microwave Week 2014 (June 1st-6th), which also includes the IEEE MTT-S International Microwave

Symposium (www.ims2014.org), the Radio Frequency Integrated Circuits symposium (www.rfic2014.org) and workshops. The theme for the ARFTG conference is "Microwave measurements for emerging technologies" and the summary submission deadline is February 14th, 2014. For more information, contact the Conference Chair, Mohamed Sayed (mmsayed@sbcglobal.net) or the Technical Program Chair, Jon Martens (jmartens@ieee.org) or visit www.arftg.org. ARFTG will also be co-sponsoring two workshops: "Challenges and advances in wafer-level calibration and characterization of millimetre and sub-millimetre wave frequencies" (organized by Marco Spirito and Andrej Rumiantsev) and "Efficient RF design using practical behavioral models - Bridging the gap between measurement and simulations" (organized by Nuno Borges Carvalho and Marc Vanden Bossche).

This year, the spring conference will be co-located with the WAMICON conference so attendees can take advantage of multiple tracks in nearby rooms. More information on that parallel conference can be found at www.wamicon.org.

The Tampa Marriott Waterside Hotel, site for the 83rd ARFTG Microwave Measurement Conference

NVNA Users' Forum

ARFTG is organizing three NVNA Users' Forums during 2014. This is an excellent opportunity for an informal exchange of ideas related to nonlinear vector measurements and their uses. Please contact the moderators listed below if you wish to present a research update at an NVNA Users' Forum.

- 2014 INMMiC conference: April 2nd-4th, Leuven, Belgium. Moderators: Jean-Pierre Teyssier (j-pierre.teyssier@brive.unilim.fr) and Kristoffer Andersson (kristoffer.anderson@chalmers.se).
- Spring 2014 IMS/ARFTG Conference: June 1st-6th, Tampa Bay, US. Moderators: Joe Gering (jgering@rfmd.com) and Dominique Schreurs (Dominique.Schreurs@esat.kuleuven.be).
- Fall 2014 ARFTG Microwave Measurement Symposium: December 2nd-5th, Boulder, US. Moderators: Jean-Pierre Teyssier (j-pierre.teyssier@brive.unilim.fr) and Patrick Roblin (roblin@ece.osu.edu).

Fall 2014 ARFTG Symposium

The Fall 2014 ARFTG Microwave Measurement Symposium will be held at the St. Julien Hotel in Boulder, Colorado, from Tuesday, December 2nd through Friday, December 5th. It is planned to hold the 84th ARFTG Microwave Measurement Conference, a short course, a workshop and the NVNA Users' Forum during this symposium. The conference theme is "The new frontiers for microwave measurements." For more information, contact the Conference Chair, Ron Ginley (rginley@boulder.nist.gov) or the Technical Program Chair, Mitch Wallis (mwallis@boulder.nist.gov). More information will be available at www.arftg.org.

ARFTG STUDENT PROGRAMS

ARFTG can award one or more graduate fellowships each year to students working in RF/microwave measurement-related topics. This year, a fellowship was awarded to Song Liu (KU Leuven). The application instructions and criteria for the next award cycle are published at www.arftg.org. It should be noted that the new awardee and two recent recipients all gave presentations at the 82nd conference.

At individual conferences, ARFTG can also provide sponsorships to support student attendance. For the Fall 2013 symposium, eight such sponsorships were awarded. For information on sponsorships at future fall conferences, see www.arftg.org or contact the sponsorships chair at sponsorship@arftg.org.

ADDENDUM

Every effort has been made to publish correct information in this newsletter. Significant errors should be reported to the ARFTG Executive Committee Secretary, Dominique Schreurs (Dominique.Schreurs@esat.kuleuven.be), so that corrections can be reported in the next issue.