

Registration

• 69th ARFTG Conference

Includes conference sessions, abstract book, IMS/ARFTG CD-ROM, breakfast, lunch, exhibition, and ARFTG membership.

IEEE or ARFTG Members: \$200*
Nonmembers: \$310*
Students, Retirees: \$130*

• ARFTG Conference Compendium CD-ROM

ARFTG Members: \$75* Nonmembers: \$100*

• ARFTG Workshop Compendium CD-ROM

ARFTG Members: \$50* Nonmembers: \$75*

Registration information can be found on line at: WWW.IMS2007.org. *Pre-registration rates

Schedule of Events

Joint ARFTG/IMS Workshops •Advances in Active Device Characterization & Modeling for RF & Microwave •High Speed Digital Signal Integrity	Monday, June 4 8 am – 5 pm
NVNA Users' Forum	Thursday, June 7 4:30 – 6:30 pm
ARFTG Microwave Measurement Conference •Breakfast •Conference AM Sessions •Conference PM Sessions •Luncheon •Exhibition and Interactive Forum	Friday, June 8 7 am – 8 am 8 am – 12 noon 1 pm – 5 pm 12 noon - 1 pm 7 am – 4 pm

Conference Chair

Dominique Schreurs
K.U.Leuven, Belgium
++32-16-321821
Dominique.Schreurs@ieee.org

Technical Program Chair

Uwe Arz
PTB, Germany
++49-531-592-2297
uwe.arz@ptb.de

Local Host

Bela Szendrenyi
Verigy Inc., USA
++1-707-577-4491
bela.szendrenyi@verigy.com

Exhibits Chair

Joe Tauritz
Universiteit Twente, The Netherlands
++31-70-517-7398 (Phone)
++31-70-517-1351 (Fax)
exhibits@arftg.org

To register:

www.ims2007.org



IEEE



69th ARFTG Microwave Measurement Conference

*Addressing Metrology
Needs for Future High-
Speed Information and
Communication
Systems*

June 8, 2007

**Hilton Hawaiian
Village**

Honolulu, HI

Invitation to Attend

The 69th Automatic RF Techniques Group (ARFTG) Microwave Measurement Conference will be held at the Hilton Hawaiian Village, Honolulu, on Friday, June 8, 2007. The conference theme is “**Addressing Metrology Needs for Future High-Speed Information and Communication Systems**”.

Dr. Wolfgang Heinrich from FBH Berlin will kick off the Conference with a keynote speech on the emerging topic of “**Characterization Challenges for Future Base-Station Power Amplifiers**”.

Regular papers will focus on wideband measurements for high-speed communication systems, complex waveform analysis, linear and nonlinear vector network analysis, multiport and differential measurements, and other areas of microwave and millimeter wave measurements.

The 69th ARFTG conference will be the first ARFTG Spring Conference without a paper digest. Technical papers will be included in the ARFTG section on the IMS CD-ROM, and an abstract book will be provided to the attendees.

There are two other CD-ROMs that can be purchased through the on-line registration or on-site. ARFTG released the brand new **ARFTG Workshop Compendium CD-ROM**, covering all Fall ARFTG Nonlinear Measurements Workshops to date (2001-2006). Secondly, the **ARFTG Conference Compendium CD-ROM** is available as well.

The conference will be preceded by the **NVNA Users' Forum** on Thursday. The NVNA Users' Forum is an informal discussion group devoted to sharing information and issues related to instrumentation utilized in vector large-signal analysis of microwave circuits and systems that contain nonlinear elements. To present or for more information, please contact K. Remley: remley@boulder.nist.gov, J. Wood: John.Wood@freescala.com, or myself: Dominique.Schreurs@ieee.org. All interested are welcome to attend.

Also be sure to check out the joint ARFTG/IMS workshops. ARFTG is co-sponsoring and co-organizing two workshops on Monday: “**Advances in Active Device Characterization & Modeling for RF & Microwave**” and “**High Speed Digital Signal Integrity**”.

An important part of all ARFTG Conferences is the opportunity to interact one-on-one with colleagues, experts and vendors in the RF and microwave test and measurement community. Starting with the continental breakfast in the exhibition area, continuing through the two exhibition/interactive forum sessions and the luncheon, there will be ample opportunity for discussion with others facing similar challenges.

So, come and join us. You'll find that the atmosphere is informal, open and friendly.

Dominique Schreurs
69th ARFTG Microwave Measurement Conference Chair

Technical Agenda

• Oral Papers

Negative Input Resistance and Real-time Active Load-pull Measurements of a 2.5GHz Oscillator Using a LSNA, Inwon Suh(1), Seok Joo Doo(1), Patrick Roblin(1), Xian Cui(1), Young Gi Kim(1), Jeffrey Strahler(2), Marc Vanden Bossche(3), Roberto Rojas(1), and Hyo Dal Park(1), 1 Ohio State University, Columbus, OH, 2 Andrew Corporation, 3 NMDG Engineering

Inter-Laboratory Comparison of CMOS Distortion Measurements, Kate A. Remley (1), Joe Gering (2), Susan Sweeney (3), C. Michael Olsen (4), Cliff Xie(2), Dave Walker (1), Tom McKay (4), Jack Pekarik(5), 1 NIST, Boulder, CO, 2 RF Micro Devices, Greensboro, NC, 3 IBM SRDC, Essex Junction, VT, 4 IBM SRDC Hopewell Junction, NY, 5 RF Micro Devices, Scotts Valley, CA

Optimum Tuning Range Analysis of Load Pull Measurement Systems and Impedance Transforming Networks, Jérôme Sirols and Basim Noori, Freescale Semiconductor, Tempe AZ

True Differential Stimulus Gives Additional Insight into Nonlinear Amplifier Behavior, Jochen Simon, Rohde & Schwarz, Germany

Optimization for Multiport VNA Vector Error Correction, David Blackham, Agilent Technologies

VNA Error Model Conversion for N-Port Calibration Comparison, Leonard Hayden, Cascade Microtech, Inc., Beaverton, OR

A Robust Broadband Calibration Method for Wafer-Level Characterization of Multiport Devices, Andrej Rumiantsev (1), Holger Heuermann (2), and Steffen Schott (1), 1 SUSS MicroTec Test Systems GmbH, Sacka, Germany, 2 University of Applied Sciences Aachen, Germany

Highly Accurate Frequency/Time Domain Characterization of Transmission Lines and Passives for SiP Applications up to 65 GHz, M. Wojnowski (1), M. Engl (1), R. Weigel(2), 1 Infineon Technologies AG, Neubiberg, Germany, 2 University of Erlangen-Nuremberg, Erlangen, Germany

A bilateral comparison of on-wafer S-parameter measurements at millimeter wavelengths, Roland G. Clarke (1) and Nick M. Ridler (2), 1 University of Leeds, UK, 2 National Physical Laboratory, UK

Experimental Analysis of On-Wafer Deembedding Techniques for RF Modeling of Advanced RFCMOS and BiCMOS Technologies, Jing Wang, Robert Groves, Basanth Jagannathan and Lawrence Wagner, IBM Semiconductor Research and Development Center, Hopewell Junction, NY

Design and analysis of inductors for 60 GHz applications in a digital CMOS technology, Karen Scheir (1,3), Piet Wambacq (2,3), Yves Rolain (1), Gerd Vandersteen (1,3), 1 Vrije Universiteit Brussel (VUB), ELEC, Brussels, 2 VUB, ETRO, Brussels, 3 IMEC, Heverlee, Belgium

Evaluation of Wafer-Level LRRM and LRM+ Calibration Techniques, Ralf Doerner, Ferdinand-Braun-Institut fuer Hoehstfrequenztechnik (FBH), Berlin, Germany

Computing Uncertainties of S-Parameters by Means of Monte Carlo Simulation, Johannes Paul Hoffmann, Pascal Leuchtman, Juerg Schaub, and Ruediger Vahldieck, ETH Zurich, IFH, Zurich, Switzerland

Determination of Complex Residual Error Parameters of a Calibrated Vector Network Analyzer, Gerd Wuebbeler (1), Clemens Elster (1), Thomas Reichel (2), and Rolf Judaschke (3), 1 Physikalisch-Technische Bundesanstalt (PTB), Berlin, 2 Rohde & Schwarz, Munich, 3 Physikalisch-Technische Bundesanstalt (PTB), Braunschweig, Germany

LRM: A quantitative look at reference impedance contradictions and other uncertainty impacts, Jon Martens, Anritsu Company, Morgan Hill, CA

Complex Signal Measurement Bench Based on a Special Spectrum Super-Resolution Algorithm, João Paulo Martins (1), Paulo J. S. G. Ferreira (2), and Nuno B. Carvalho(1), 1 Instituto de Telecomunicações, 2 IEETA, Universidade de Aveiro, Portugal

A General Evaluation Criteria For Behavioral Power Amplifier Models, David Wisell (1,2,3), Magnus Isaksson (1,2), Niclas Keskitalo (1,3), 1 University of Gävle, Dept. of Electronics, Gävle, Sweden, 2 Royal Institute of Technology, Signal Processing Lab, Stockholm, Sweden

• Interactive Forum Papers (Selections)

Characterization of Low Dielectric Constant Materials, Dietmar Köther, Uwe Gollor, IMST GmbH, Kamp-Lintfort, Germany

ANN Modeling of Synthetic Cold Loads, Diego Langoni and Mark H. Weatherspoon, Department of Electrical and Computer Engineering Florida A&M University-Florida State University College of Engineering, Tallahassee, FL

A Study of a Variable-Capacitance Drain Network's Influence on Dynamic Behavioral Modeling of an RF PA, Magnus Isaksson (1,2), David Wisell (1,2,3), Anders Eng (4), and Daniel Rönnow (5), 1 University of Gävle, Gävle, Sweden, 2 Royal Institute of Technology, Stockholm, Sweden, 3 Ericsson AB, Stockholm, Sweden, 4 Syntronic AB, Gävle, Sweden, 5 WesternGeco AS Asker, Norway

HiCUM and Bsim3V3.2.4 Nonlinear Behavior Validation in RF BiCMOS SiGeC 0.25µm Process for Bipolar and CMOS Transistors, Raphael Paulin, Hélène Beckrich-Ros, Samuel Boret, Patrick Scheer, Didier Céli, Daniel Gloria, STMicroelectronics, Crolles Cedex, France

Noncontacting measurement of reflection coefficient and power in planar circuits up to 40 GHz, K. Yhland, J. Stenarson, and C. Wingqvist, SP Technical Research Institute of Sweden, Borås, Sweden

Analytical expression of error propagation from OSL calibration standards for RF reflection measurement, Yufeng Han, MKS Instruments, ENI, Rochester, NY

On-Wafer Time Domain Load-Pull Optimization of Transistor Load Cycle with the New Multi-Harmonic MPT Tuner, Fabien De Groot(1), Olivier Jardel(1), Jean-Pierre Teyssier(1), Tony Gasseling(2), Jan Verspecht(3), Vince Mallette(4), Christos Tsironis(4), (1) XLIM CNRS, University of Limoges, France, (2) AMCAD Engineering, Limoges, France, (3) Jan Verspecht BVBA, Belgium, (4) Focus Microwaves, Canada

A New Multiline TRL Calibration Technique Implemented with a Variable Phase Shifter, J. E. Zúñiga-Juárez, J. A. Reynoso-Hernández, CICESE, Ensenada, México

Characterizing the 2.92 mm-Connector Airline using the Time-domain Gating Methods, Yeou-Song (Brian) Lee, Anritsu Company, Morgan Hill, CA

45 Degrees Loaded-Line Phase Shifter using Switchable Slow Wave Transmission Lines, S. Brebels (1,2), Jan Rottenberg (1,2), P. Ekkels (1,2), R. P. Mertens (1,2), and W. De Raedt 1,1 IMEC Leuven, Belgium, 2 K.U.LEUVEN, ESAT, Leuven, Belgium

Modeling of Multi-Port Inductor Considering Mutual Components, Takeshi Ito, Kenichi Okada, and Kazuya Masu, Integrated Research Institute, Tokyo Institute of Technology, Yokohama, Japan

Optimization of the substrate parameters for EM simulators, F. Korndorfer (1), F. Sischka (2), 1 IHP, Frankfurt(Oder), Germany, 2 Agilent Technologies, Böblingen, Germany

The Modified Ripple Test for On-Wafer S-Parameter Measurements, Holger Heuermann (1) and Andrej Rumiantsev(2), (1) Univ. of Applied Sciences Aachen, Germany, (2) SUSS MicroTec Test Systems, Sacka, Germany

An Automated LNA/PPA Characterization System, Jean-François Nowakowski, STMicroelectronics, Crolles Cedex, France

Dynamic Time-Frequency Waveforms for VSA Characterization of PA Long-term Memory Effects, Jie Hu(1), Kevin G. Gard(1), Nuno Borges Carvalho(2), and Michael B. Steer(1), 1 North Carolina State University, Raleigh, USA, 2 Instituto de Telecomunicações, Aveiro, Portugal

An Innovative Waveguide Interface for Millimeter Wave and Sub-millimeter Wave Applications, Yuenie S. Lau and Anthony Denning, OML Inc., Morgan Hill, CA

Residual error models for the SOLT and SOLR VNA calibration algorithms, J. Stenarson, K. Yhland, SP Technical Research Institute of Sweden, Borås, Sweden

A new assessment method for the residual errors in SOLT and SOLR calibrated VNAs, J. Stenarson, K. Yhland, SP Technical Research Institute of Sweden, Borås, Sweden

De-embedding Tester Loadboard Losses from Multi-Gb/s Digital Signaling Compliance Measurements, Jeff Wagner (1,2), Brian Butka (2), 1 Southern Polytechnic State University, Marietta GA, 2 Embry-Riddle Aeronautical University, Daytona Beach FL

Characterization of MOS varactor with Large Signal Network Analyser (LSNA) in CMOS 65nm bulk and SOI technologies, Y. Morandini(1,2), D. Ducateau(2), J.-F. Larchanche(1), C. Gaquière(2), and Daniel Gloria(1), 1 STMicroelectronics, Crolles Cedex, France, 2 IEMN, Villeneuve d'Ascq Cedex, France