The Valley Megaphone

Newsletter of the
Institute of Electrical and Electronics Engineers, Inc.
Phoenix Section
September 2007, Volume XXI, Number 9

This Issue of The Valley Megaphone Features:

Contacts:

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IEEE Phoenix Section Executive Committee meeting minutes can be found at: http://www.ieee.org/phoenix

Please send announcements for Valley Megaphone to Eric Palmer: ecpalmer@ieee.org.

The Valley Megaphone is the newsletter of the Phoenix Section of the Institute of Electrical and Electronics Engineers. It is published monthly and reaches about 4000 members. Submit articles, advertisements, and announcements to Eric Palmer at the above email address. Deadline for announcements and advertisements is the third Friday of the month prior to publication.
Advertising Rates: Full page: $200, 3/4page: $125, ½ page: $75, 1/3 page: $50, 1/4 page: $25.
Change of address/email? Call toll free 1-800-678-IEEE. Please allow 6-8 weeks. Section Web Page is: http://www.ieee.org/phoenix

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Chair:

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Chair:
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Embry-Riddle, Prescott
Chair:
Advisor: Chuck Cone
conec@erau.edu

Phoenix Section Executive Committee Meeting – First Tuesday of the month.

Time: 6:00 pm to 8:30 pm

Place: Phoenix Airport Hilton, 2435 South 47th Street
Phoenix, AZ, 85034
Phone: 480-804-6017

Directions: From 143, exit University Ave, go west, turn right on 47th street.

More Info: Meetings held first Tuesday of month. No meetings in July and August. All interested IEEE members are welcome to attend.

Contact: Rao Thallam, Phoenix Section Chairman, ph: (602) 236-5481 or e-mail: thallam@ieee.org

Institute of Electrical and Electronics Engineers, Inc.

Phoenix Section

Components, Packaging and Manufacturing Technology Society Chapter

&

Waves and Devices Chapter

PRESENT AN ALL-DAY WORKSHOP ON

Emerging Device and Packaging Technologies

Date: Tuesday, December 11th, 2007 **Time: 7:00 A.M. – 5:00 P.M.**
Location: Arizona State University, Tempe, Arizona – ASU Memorial Union (Arizona Room)

Abstract

The semiconductor industry is entering an era with tremendous opportunities to exploit emerging technologies for the benefit of widely diverse markets. Moore's Law requires increasingly intensive materials innovations to maintain its momentum. Meanwhile, new markets in the areas of bioelectronics, sensors, etc., are leveraging the existing manufacturing infrastructure while incorporating new materials and techniques. This one-day workshop will bring together experts from industry, academia, research labs, and consortia to share their technology roadmaps and visions, novel materials and methods, and discuss technical opportunities. The status and challenges facing device, interconnect, and packaging technologies will be discussed in depth. An expert panel discussion will bring a closure to the day's workshop. Vendors will be on hand to exhibit products and services in all aspects of the supply chain for IC, packaging, and module design and manufacturing.

Topics

- **Nanotechnology and Continuum Model Limits**
- **ITRS Roadmap Challenges**
- **SiP: 3D, Modules, Discrete Passives Integration**
- **Flexible Electronics**
- **Green Materials and Packaging**
- **Bioelectronics and Sensors Technologies**
- **General Industry and Technology Visions**
- **Panel Discussion on Future Challenges and Opportunities for Emerging Technologies**

Workshop Chair: Vasu Atluri (480) 554-0360 **Workshop Co-Chair: Chuck Weitzel (480) 413-5906**

Technical Committee

Henning Braunisch	(480) 552-0844	Debendra Mallik (Co-Chair)	(480) 554-5328
Shahin Farahani	(480) 413-6010	Mel Miller (Chair)	(480) 413-6111
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Sunit Mahajan	(480) 552-5317	Dragan Zupac	(480) 413-3964

For General Information: http://www.ieee.org/phoenix
For Workshop Registration Forms: Sergio Pacheco (480) 413-3737
For Vendor Registration Forms: Vladimir Noveski (480) 554-2375

IEEE ANNOUNCEMENTS

INSTITUTE OF ELECTRICAL AND ELECTRONIC ENGINEERS

COMPONENTS, PACKAGING AND MANUFACTURING TECHNOLOGY SOCIETY

ECTC Components & RF Program Committee

CPMT RF & Wireless Technical Committee

58th ECTC May 27 – May 30, 2008
Orlando, Florida USA

The CPMT RF & Wireless Technical Committee and the ECTC Electronic Components & RF Program Committee encourage you to submit an abstract to ECTC 2008 in the area of passive components & networks, RF and Microwave components and modules and subsystems. ECTC is the premier Electronic Components and Packaging conference held annually and attended by about 1000 delegates with equal participation from companies and academia. As in the past, Components, RF & Microwave related papers are solicited for focus sessions during this prestigious conference.

Discrete Passive Components

Design, materials, processes and manufacturing considerations for discrete passive components- resistors, capacitors, inductors and passive networks.

Integrated and Embedded Passive Components

Design, materials, processing, modeling, manufacturing, and characterization of integrated and embedded passive components on silicon, organic, ceramic and glass type substrates for digital, mixed signal, & RF applications

Materials, Processing, Reliability, and Manufacturing of Electronic Components

Design, Materials , Processing, yield and reliability aspects of electronic components

New Technology Development for Electronic Components

Technologies for on chip integration of passive components – silicon through vias, wafer level RDL, nano materials and processes
Technologies for substrate level integration – embedded passive and active components, component integration on ultra thin substrates

RF and Microwave Components

Integrated antennas, filters, baluns, RFID/sensors, RF MEMS, tunable devices and switches, high power and high efficiency RF/Microwave power amplifiers- design, technology and high frequency characterization

RF and Microwave Modules

Module Integration technologies in semiconductor, organic and glass substrates – System in Package, System on Chip, Package on Package, 3D integration

SUBMISSIONS:
Please submit abstracts using the ECTC web site: **www.ectc.net** by October 15, 2007. Abstracts must comply with the guidelines outlined at the website. To have your paper considered for inclusion in the "Components & RF" focused sessions YOU MUST SELECT "**Electronic Components & RF" committee as your PRIMARY subcommittee preference** when you submit your abstract at the ECTC web site. Again, to have your paper considered for the RF & microwave components sessions, please do the following:

STEP #1: Submit abstract through the ECTC web site (www.ectc.net) and select **"Electronic Components & RF" as PRIMARY subcommittee** preference

STEP #2: Email abstract copy and author's email & contact information to: Craig Gaw at c.a.gaw@ieee.org & Mahadevan Iyer at mahadevan.iyer@ece.gatech.edu

Craig Gaw, Chair - CPMT RF & Wireless TC
Freescale Semiconductor Inc.
c.a.gaw@ieee.org

Mahadevan K Iyer, Chair - ECTC RF & Components TC
Georgia Institute of Technology
mahadevan.iyer@ece.gatech.edu

ARFTG 70th Microwave Measurement Symposium

High Power RF Measurement Techniques

Tempe Mission Palms Hotel, Tempe, AZ

Nov 27th – 30th, 2007

www.arftg.org

ARFTG CONFERENCE

Keynote presentation: "Characterization Challenges for Cellular Base-Stations", Jaime Plá, Freescale Semiconductor

Technical papers describing original work in the areas of microwave and millimeter wave measurements for high power technologies will be presented on the following topics:

- Load-pull techniques: active and passive, fundamental and harmonic
- RF system measurement addressing linearity, efficiency, pre-distortion
- Linear and nonlinear device and behavioral modeling
- Calibration methods and techniques (1-port, 2-port, multi-port, high-power)
- Other areas of RF, microwave, and millimeter wave measurement theory and practice

Accepted papers for the technical program will be posted on www.arftg.org after September 24, 2007.

RF PA DESIGN SHORT COURSE

Join us in a practical tutorial describing modern RF power amplifier design techniques that will be presented by Dr. Steve Cripps, of *Hywave Associates*.

Day 1: A review of classical reduced conduction angle amplifier modes: Class A, AB, B, C; high efficiency amplifier modes: Class E, F, J; Doherty amplifier design; waveform measurement and verification techniques; RF PA nonlinearities.

Day 2: Linearization techniques: feedback and feedforward basics; pre-distortion basics and digital pre-distortion (DPD) techniques.

Conference Chair Mohamed Sayed mmsayed@sbcglobal.net +1-707-318-5255	Technical Program Chair John Wood John.Wood@freescale.com +1-480-413-5732	Local Organization Gayle Collins gcollins@rfmd.com +1-480-763-4686	Local Organization Mike Majerus Michael.Majerus@freescale.com +1-480-413-3461
Exhibits Chair Joe Tauritz jltauritz@ieee.org +31-53-4894330	Short Course Chair Basim Noori Basim.Noori@freescale.com +1-480-413-3360	Nonlinear Workshop Peter Aaen Peter.Aaen@freescale.com +1-480-413-6505	Signal Integrity W/shop Tom Ruttan Thomas.g.ruttan@intel.com +1-503-456-1245

SCHEDULE OF EVENTS

Tuesday, November 27 8.00am – 5.00pm Wednesday, November 28 8.00am – 12.00pm	RF PA Design Short Course
Tuesday evening	Short Course Dinner
Wednesday, November 28 1.15pm – 5.00pm	Nonlinear Measurement Workshop
Wednesday, November 28 5.00pm – 7.00pm	NVNA Users' Forum
Thursday, November 29 8.00am – 5.00pm Friday, November 30 8.00am – 12.00pm	ARFTG 70th Measurement Conference
Thursday evening	Reception & Award Banquet
Friday, November 30 1.15pm – 5.00pm	Signal Integrity Workshop

NONLINEAR MEASUREMENT WORKSHOP

In this workshop we shall focus on the challenges of measurement of high power microwave transistors and amplifiers, and describe some of the techniques used to overcome thermal problems, memory effects, and the characterization of the impedance environment presented to the device. Talks include:

Pulse Measurement Techniques
Jean-Pierre Teyssier, University of Limoges

LSNA Measurements for PA Characterization
Marc Vanden Bossche, NMDG

Characterization of High-Power Transistors: Waveform Measurement and Engineering
Paul Tasker, University of Cardiff

Active, closed-loop, harmonic load-pull systems
Andreo Ferrero, Politecnico di Torino

Digital Pre-Distortion Characterization of RFPAs

SIGNAL INTEGRITY WORKSHOP

Paul Draxler, UC San Diego

High speed signal integrity is a topic of great interest in the industry today. There is large demand for higher speed data transfer rates from computer and communications systems for fast internet downloads, streaming video, CAD applications, etc. This workshop presents microwave modeling and measurement techniques applied to these problems.

Building Bridges between Digital & Microwave
M. Resso, Agilent Technologies

Measurement-based Modeling for High Speed Semiconductor Test Interface Boards
Heidi Barnes, Verigy

Measuring Multiple Aggressor Differential Crosstalk
Bob Schaefer, Agilent Technologies

A Supercomputer in a PCI-express Form Factor
Greg Edlund, IBM

Why do we need Multiport VNAs for Signal Integrity?
Brett Grossman, Intel Corp.

IEEE

MTT-S

LOCATION

The Tempe Mission Palms hotel is centrally located in downtown Tempe. A shuttle is available from the Phoenix Sky Harbor airport. All sessions will be held in the hotel.

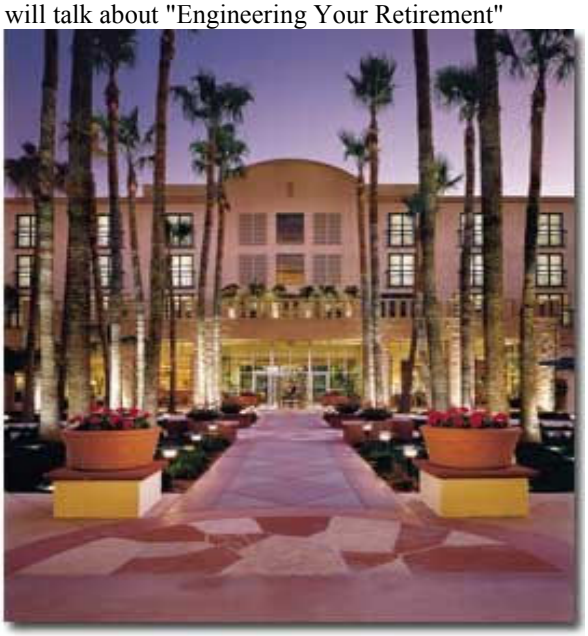
Tempe Mission Palms Hotel,
60 East 5th St.,
Tempe, AZ 85281
Tel: +1-480-894-1400
www.missionpalms.com

ARFTG Room Rate is $159.00 per night, plus local taxes and amenities.

Reserve your hotel room before November 2, 2007, to get the special ARFTG Conference rate; this rate is also available for accommodations three days before and after the conference dates. The Group Code for the ARFTG special rate is **2T9478**. Reservations can be made online, or by telephone: 1-800-547-8705.

Special Awards Banquet Presentation:

Guest speaker Mike Golio (Microwave magazine) will talk about "Engineering Your Retirement"



REGISTRATION FORM

Last Name _____
First Name _____
Company _____
Mail Stop _____
Address 1 _____
Address 2 _____
City _____ State ____ Zip _____
Country _____
Phone _____
Fax _____
Email _____

RF PA Short Course, inc. NLM W/S	$450	$_____
ARFTG Conference, inc. NLM W/S	$495	$_____
ARFTG Conference, inc. SI W/S	$495	$_____
ARFTG Conference, + both W/S	$595	$_____
Nonlinear Workshop only	$150	$_____
Signal Integrity Workshop only	$150	$_____
RF PA + ARFTG Conf + NLM W/S	$745	$_____
RF PA + ARFTG Conf, both W/S	$850	$_____

- Check (payable to "ARFTG", in $US on US bank)
- Credit card: ____ Visa ____ MC ____ AmEx

Name on Card _____
CC # _____
Expiration Date _____
Signature _____

Mail, Fax or email this form and payment to:

Ray Tucker,
ARFTG Member Services
PO Box 228
Rome, NY 13442-0228
Phone: 315-337-6938 Fax: 315-338-0531
Email: tuckerr@twcny.rr.com

Registration forms are also available online at:
www.arftg.org

IEEE

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50th Annual IEEE-PES Golf Outing

Date:	**Sept. 29, 2007**
Time:	**8:00 AM**
Place:	**Antelope Hills Golf Course** **One Perkins Drive** **Prescott, AZ, 86301**
Fee per Player:	**$85.00 - Includes Greens Fees Golf, Range Balls, Dinner**
Prizes:	**Prizes for top three teams plus individual skills will be awarded. A Raffle will be held.**
Dinner:	**Will be held back at the course at 7:00 PM and is included. To add a guest for dinner is $25.00. No host bar opens at 6:00 PM.**
Reservations:	**mail form with check Payable to:** **IEEE-PES** **C/O AZ Sun Sales** **120 N. 44th St #420** **Phoenix, AZ, 85034**

Team:	**Handicap or Average Score**
Player _____	**__**
Player_____	**__**
Player_____	**__**
Player_____	**__**

AZ Sun sales
Attn: IEEE Golf
120 N. 44th St #420
Phoenix, AZ, 85034

IEEE Power Engineering Society

Lunch Meeting

Date: September 20th

Location: SRP Pera Club, 1 E. Continental, Scottsdale

Speakers: Peter Krzykos of APS and Chuck Russell of SRP

Topic: Present and Future Arizona Transmission Projects

IEEE Phoenix Area Consultants Network September Meeting:

The World's First Solar-Powered Air Conditioning System

Date: Thursday, September 13, 2007
Time: Networking begins at 6:30 p.m.
Dinner begins at 7:00 p.m.
Program starts at 8:00 p.m.
Place: Denny's Restaurant
3315 N. Scottsdale Rd. (at Osborn)
Scottsdale, Arizona 85251
Abstract: Shields Fair, President / CEO of Alter-Air Corporation, (www.alter-air.com), will speak about his company's new, environmentally friendly and energy efficient cooling system, which utilizes a unique and proprietary heat exchange system. This system, which uses less electricity than most hand held hair dryers, is also capable of running on solar power, while conventional Air Conditioning cannot.

Alter-Air system is now in production for new commercial only.

For more information, contact Vaughn Treude, vaughn@nakota-software.com, or see the IEEE PACN website, ieeepacn.com.

IEEE Mentoring Connection

IEEE is offering its members the opportunity to participate in an online program which will facilitate the matching of IEEE members for the purpose of establishing a mentoring partnership. By volunteering as a mentor, individuals use their career and life experiences to help other IEEE members in their professional development. I believe this program can be a great tool to provide our newest members of our profession guidance in their careers and provide experienced members a chance to hear first hand from the newly graduated about the latest training the next generation is receiving. This is a program for higher level members and is provided to help ease the transition out of school and into a career.

As a mentee, you lead your partnership by selecting your mentoring partner from among those who have volunteered to serve in this capacity. I ask that you review the time and effort commitment to the program to ensure a successful mentoring partnership. Participation in the program is voluntary and open to all IEEE members above the grade of Student Member.

If you are interested, please go to http://www.ieee.org/mentoring for information on the roles and responsibilities of each mentoring partner. I encourage you to take advantage of the IEEE network of technical professionals or offer your expertise and sign up for the online mentoring program today.

Who can be an IEEE Mentor?

IEEE higher-grade members (above Student Member grade) who are, but not limited to:

- Willing to give time and effort to the mentoring partnership (we suggest minimum of two hours per month)
- Able to communicate effectively with others
- Willing to share some career successes and failures
- Individuals who may be or have been executives, consultants, or in middle or upper management, or in research
- Individuals who may be or have been educators, entrepreneurs, or self-employed
- Individuals who may be or have been proven leaders offering inspiration and insight
- Individuals who may be or have been IEEE officers or volunteers
- Willing to review an orientation session to learn guidelines, tools of program and the mentee and mentor's role and responsibilities

Who can be an IEEE Mentee?

IEEE higher-grade members (above Student Member grade) who are, but not limited to:

- New professionals in their first or second job, or considering entering graduate programs
- Recent graduates entering the professional workforce for the first time
- Professional making a career move or career change
- Passionate for learning
- Willing to give time and effort to the mentoring partnership (we suggest minimum of two hours per month)
- Willing to identify and clarify their developmental goals
- Interested in learning from another professional "who has been there"
- Willing to participate in mentee orientation session to learn guidelines, and tools of program and their role and responsibilities as a mentee

This program deserves your consideration and doesn't require a large amount of time on your part. It can provide of great assistance to the next generation of engineers.

Russ Kinner
Membership Chair, Phoenix Section

RE-SEED

Retirees Enhancing Science Education through Experiments & Demonstrations

Overview

RE-SEED (Retirees Enhancing Science Education through Experiments and Demonstrations) is a Northeastern University program that prepares engineers, scientists, and other individuals with science backgrounds to work as volunteers, providing in-classroom support to upper elementary and middle school science teachers with teaching the physical sciences.

After completing a comprehensive free training program, participants volunteer in middle school classrooms on the average once a week for at least one year. RE-SEED began in 1991 with six volunteers. To date close to 500 RE-SEED volunteers have worked in schools in about 100 communities throughout the country offering about 500,000 hours of their time.

Nationally, 75 percent of 7th and 8th grade students are taught physical science by teachers who do not have a major or a minor in the subject (The National Science Board, Science and Engineering Indicators 2000). RE-SEED volunteers possess talent and expertise that complement those of science teachers. They bring with them a wealth of knowledge and experience that allows them to make science interesting and relevant to everyday situations.

RE-SEED volunteers work closely with the host science teachers to help them enrich and implement their school curriculum. Overall the volunteers become involved members of their schools' and even their districts' teaching team, sometimes taking part in curriculum adoption decisions.

Please contact us by email at reseed@neu.edu or phone 888-742-2424; Shelia Kirsch at Sheila.Kirsch@asu.edu and / or Deirdre Weedon, d.weedon@neu.edu. if you are interested in learning more about these training programs.