

The Valley Megaphone

Newsletter of the Institute of Electrical and Electronics Engineers, Inc., Phoenix Section

January 2011,
Volume XXV, Number 1



Executive Committee - 2010

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IEEE Phoenix Section on-line updates can be found at:
<http://www.ieee.org/phoenix> and on LinkedIn at:
<http://www.linkedin.com/groups?gid=2765918>
Please send announcements for the *Valley Megaphone*
to Satish Ayer at satish.ayer@ieee.org and to Russ
Kinner at r.kinner@ieee.org for inclusion in the Section
Calendar.

Chapters

Signal Processing & Communications

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Computer Society

Jerry Crow
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Consultants Network (PACN)

Ronald L. Sprague, 602-828-7374
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CPMT Society

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Education Chapter

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EMBS Chapter

TBD

EMC Society

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GOLD

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Power & Energy Society

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Solid State Circuits

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Teacher-In-Service

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Waves & Devices Society

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Life Members

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U – News

(for Student Members)

December 2010 Graduates - Best Wishes from IEEE

Congratulations to the many December 2010 Graduates, as the Executive Committee wishes you well as you begin your careers. The IEEE Organization looks forward to your continued membership, involvement and event participation in the many global activities.

Scholarship Applications Deadline is January 9, 2011

Applications due: January 9, 2011 with the Awardees announced by January 16, 2011. Awards apply to full-time graduate and undergraduate students who are IEEE members in EE, CSE, EET, CET, CS majors. <http://ewh.ieee.org/r6/phoenix/Scholarships.htm>

Submissions Due Feb 11th for Student Paper Contest 2011

Schedule for the 2011 Student Paper Contest are as follows, with Submissions due by Friday, February 11th, and the Oral Presentations scheduled for Saturday, February 26th. See <http://ewh.ieee.org/r6/phoenix/StudentPaper.htm> for details.

Updates of Student Advisors and Committee Members

Each Student Branch noted on the right side of this page should review current information on Advisors and Student Committee Members and forward to my attention within this week, as we are reviewing contacts for reporting and activities including Student Monthly Meetings.

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Student Activities Chair

Student Branches

ASU Main, Engineering
Chair: Saurabh Naik,
480-252-0504, svnaik@asu.edu
Advisor: Cihan Tepedelenlioglu,
480-965-6623, cihan@asu.edu

ASU Main, Computer Society
Chair: Nicholas Vaidyanathan
nvaidyan@asu.edu
Advisor: Guoliang Xue
480-965-6218, xue@asu.edu

ASU Polytechnic
Chair: TBD
Advisor: TBD

DeVry, Phoenix
Chair: TBD
Advisor: Diane Smith
dsmith2@devry.edu

DeVry, Computer Society
Chair: TBD
Advisor: Diane Smith
dsmith2@devry.edu

NAU, Engineering
Chair: Kenji R. Yamamoto
kry3@nau.edu
Advisor: Niranjana Venkatraman
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Embry-Riddle, Prescott
Chair: Tim Lemm
timothy.lemm@erau.edu
Advisor: John E. Post
postj@erau.edu

U – Newsbytes

CONGRATULATIONS to the 2010 Graduating Classes for all schools with best wishes for continued participation as industry professionals!

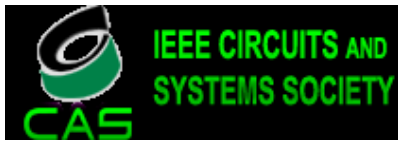
- ASU Polytechnic is currently seeking Advisor for the Student Branch. Please email Nick (at email address above) with Recommendations.

Start your own MicroMouse and compete for cash prizes!

- The Section has a full tournament sized MicroMouse maze. Funding for your project may be available. For details contact the Section Student Activities Chair, Nick Leonardi at nleonardi@ieee.org.
- View pictures from the MicroMouse contest at the Southwest Area Spring 2010 meeting at <http://picasaweb.google.com/ieeegoldphx/2010IEEESWASpringMeeting> (photography by David Huerta, GOLD Affinity Group Chair)



Solid States Circuits/Circuits & Systems Chapter Seminar



Solid State Circuits Society - Phoenix Chapter And Circuits and Systems Society - Dallas Chapter *CASS Distinguished Lecturer Program*

Meeting Free & Open to Non-IEEE Members
10:30am to noon, Tuesday, January 25th, 2011

Arizona State University- GWC 487 ([map](#))

Reliability and Yield of MOS Devices and Circuits

Prof. Gilson Wirth (wirth@inf.ufrgs.br) Electrical Engineering Department at the Universidade Federal do Rio Grande do Sul - UFRGS

Abstract:

With the device sizes shrinking well below 100 nm and introduction of novel materials in the fabrication technology, new phenomena started playing a role on the reliability of MOS devices. As a consequence, performance and reliability become influenced also by factors other than physical dimensions. We need to understand the underlying physical mechanisms, and develop analysis and modeling techniques to support IC designers. Furthermore, the variations of parameters over time (aging and transient effects such as noise and soft errors) may lead to dramatically increased overhead in the timing budget, as well as on test procedures. Effects that play a major role on the reliability of today digital and analog designs are discussed, as well as effects that are expected to become relevant in future technologies. Modeling techniques to abstract the physical level effects into the design flow are studied. Among the effects discussed, the major ones are:

- Parametric variability due to effects such as random dopant fluctuations and line edge roughness.
- Aging effects such as Bias Temperature Instability (BTI), Hot Carrier Injection (HCI), Electromigration and Time Dependent Dielectric Breakdown (TDDB).
- Radiation Effects as Single Event Transients (SET) and Single Event Upsets (SEU).
- Device intrinsic noise, with focus on the Random Telegraph Signal (RTS). Besides its importance for analog design, as a source of low-frequency noise, RTS is also becoming a concern in digital circuits, as for instance in SRAM and flash memories. RTS may be modeled as momentary changes in threshold voltage, meaning that circuit behavior may change between two logic operations of a digital circuit. Different modeling approaches are discussed, focusing on operation conditions relevant for digital and analog design, including large signal AC operation.

Design techniques to improve yield and reliability are also addressed. Mutual relation between the different reliability phenomena is also studied. For instance, charge trapping and de-trapping plays a role in both bias temperature instability and low-frequency noise, and random dopant fluctuations may exacerbate the impact of BTI and noise on circuit performance.

Speaker's biography: Gilson I. Wirth received the B.S.E.E and M.Sc. degrees from UFRGS, Brazil, in 1990 and 1994, respectively. In 1999 he received the Dr.-Ing. degree in Electrical Engineering from the University of Dortmund, Dortmund, Germany. He is currently a full professor at the Electrical Engineering Department at the Universidade Federal do Rio Grande do Sul - UFRGS. From July 2002 to December 2006 he was professor and head of the Computer Engineering Department, Universidade Estadual do Rio Grande do Sul (UERGS). In July, August and December 2001 he was at Motorola, Austin, Texas, leading the team working in CMOS process technology transfer to CEITEC, Porto Alegre, Brazil. In February and March 2002 he was at the Corporate Research Department of Infineon Technologies, Munich, Germany, working as guest researcher on low-frequency noise in deep submicron MOS devices. His research interests include low-frequency noise, ionizing radiation effects, bias temperature instability (BTI), reliability and design for yield of digital, analog and mixed-signal circuits. An updated list of publication may be found at <http://lattes.cnpq.br/1745194055679908>.

CASS Dallas Chapter Website: <http://www.ewh.ieee.org/soc/cas/dallas/>

SSCS-PHX Chapter Website: http://webinabox.vtools.ieee.org/wilp_home/index/CH06227



Phoenix Chapter of IEEE Signal Processing Society and Communications Society



Thanks to the attendees who made the November technical meetings successful.

Please contact David Frakes (dfrakes@asu.edu) to volunteer or propose a speaker for upcoming meetings.

DON'T FORGET TO REGISTER FOR THE SEDONA DSP WORKSHOP,
January 4-7, 2011!

<http://enpub.fulton.asu.edu/ivu/Workshops/DSPE2011/>

FOR IMMEDIATE RELEASE

September 29, 2010

Contact: Michael Book
Gunn Communications
623-258-3128
or
Michael Andrews
(602) 368-6013
michael@andrews-associates.com



Future City Competition

Phoenix, AZ – The Arizona Region Future City Committee is seeking volunteers to share their engineering knowledge with students participating in this year's Future City competition. Both engineering mentors and judges are needed.

Engineering mentors will provide guidance and support to teams of students throughout the state as they prepare all competition deliverables. The time commitment is approximately 4-6 hours per month during November through January. For additional information, prospective mentors may contact Jennifer Bohac at jbohac@scottsdaleaz.gov or Charles Griffith at cgriffith@ritochpowell.com.

Competition judges work in teams to score all competition deliverables at the Arizona Future City Competition Region Finals, to be held January 22, 2010. Prospective judges may contact Jason Fort at Jason.fort@dibblecorp.com or Jeff Van Skike at jkvanskike@cox.net.

A national education program sponsored by the engineering community, Future City Competition promotes technological literacy and engineering to middle school (6–8th grade) students. Student teams, supported by teachers and volunteer engineers, design and build their vision of a future city. They use computer simulations, research essays, scale models and team presentations to communicate their vision.

"Mentoring re-energized my focus on how engineers truly make a difference in the lives of everyday people. I would encourage everyone to take the time to work with students because it is such a gratifying experience," says Charles Griffith, PE, CFM, Ritoch-Powell & Associates.

The winning team at Arizona Future City Competition Region Finals will compete in national finals in Washington, DC. For complete Arizona Region Future City information, please visit www.futurecity-arizona.org.

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36th Annual IEEE Industrial Electronics Conference (IECON 2010)



The IECON 2010 is history and a great success. Over 600 engineers attended the conference and almost 100 took one or more tours that the Phoenix Section helped to arrange. That included the University of Phoenix Stadium as well as the Grand Canyon.

Major Topics of the conference included:

Control Systems and Applications

Power Electronics and Renewable Energy

Electrical Machines and Drives

Signal and Image Processing and Computational Intelligence

Sensors, Actuators, and Systems Integration

Factory Automation and Industrial Informatics

Mechatronics and Robotics

Our own Dr. George Karady presented at one of the luncheons on developments concerning the [FREEDM System – The Energy Internet](#). Its mission is to develop the fundamental and enabling technologies necessary for a new and paradigm shifting future power grid infrastructure, the FREEDM System. George filled in for the author who could not attend and did a fine job.

Next year for the first time IECON (the 37th annual) will be held in the southern hemisphere, namely Melbourne, Australia on November 7-10, 2011.

Note that this was the first of several conferences being held in the Phoenix area. The listing later in this issue of the Megaphone provides links to each conference's web site to obtain more information. The biggest one of the bunch is the PSCE in March. Take advantage of the local nature of the venue and attend any of the conferences that may be of interest.



INSTITUTE OF ELECTRICAL AND ELECTRONIC ENGINEERS

COMPONENTS, PACKAGING AND
MANUFACTURING TECHNOLOGY SOCIETY
ECTC Electronic Components & RF Program Committee
CPMT RF & Wireless Technical Committee



61st ECTC May 31 – June 3, 2011
Walt Disney World Swan & Dolphin Resort
Lake Buena Vista, Florida USA

The ECTC Electronic Components & RF Program Committee and the CPMT RF & Wireless Technical Committee encourage you to submit an abstract to ECTC 2011 in the areas of passive components & networks, RF & Microwave components & 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, Electronic Components, RF & Microwave, and MEMS related papers are solicited for focus sessions during this prestigious conference.

RF, Microwave, Terahertz Components & Modules

Integrated antennas, filters, baluns, tunable devices & switches; high power & high efficiency RF/Microwave power amplifiers – design, technology & high frequency characterization; module integration in semiconductor, organic, & glass substrates – System in Package, System on Chip, Package on Package, & 3D integration; shielding, isolation, nanoscale structures for enhancing performance

RFID

Design & development of miniature interconnects for HF, UHF & WiFi RFIDs; assembly & matching with antennas & passives; universal RFID modules; RFID enabled wireless sensor nodes; power scavengers & nanomaterials for autonomous RFID's; flexible/conformal materials & printing technologies; reliability & environmental issues; metal-mounted RFID assembly & integration; multiband RFID's; integration of RFID's & batteries; RFID reader packaging; "rugged" RFID packages for space & extreme environments

RF MEMS & Sensors

RFID, RF MEMS, MEMS, MEMS packaging; MEMS/NEMS-enabled sensors, nanotechnology-based sensors, MEMS-based power scavenging; low-cost "Smart House" & "Smart Skin" sensor integration & packaging

Medical Devices for Monitoring, Imaging, WPAN/WBAN & Biomedical Applications

Design, materials, processing, manufacture, modeling & characterization; UWB & THz imaging & monitoring devices; technology for integrated wireless implantable/wearable electronics, including energy harvesting, ultra-low power electronics & batteries; 3D packages for ultra-miniaturization; biocompatibility, BioMEMS & microfluidic packaging

Flexible & Printed Electronics

Printing electronics technologies up to mmW frequencies; 3D printed RF electronics modules; low cost substrates; flexible RF modules, interconnects & adhesives; integration with wearable/implantable wireless personal networks, smart fabrics; inkjet- & gravure-printed RF components; environmentally-friendly RF substrates, antennas & passives

Discrete and Embedded Electronic Components, Materials, Processing, Reliability, & Manufacturing

Design, materials, processes, & reliability considerations for discrete passive components: resistors, capacitors, inductors, & passive networks, including through silicon vias (TSV), wafer level RDL, nano materials & processes

SUBMISSIONS:

Please submit abstracts using the ECTC web site: www.ectc.net by October 15, 2010. Abstracts must comply with the guidelines outlined at the website. To have your paper considered for inclusion in the "Electronic 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, 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 & Rockwell Hsu at r.hsu@wilinx.com



2011 IEEE Radio Wireless Week

Hotel Registration Deadline: Dec. 15, 2010 Conference Registration Deadline:

Dec 30, 2010 Visit us at <http://www.radiowirelessweek.org/>

Dear Colleague,

We would like to invite you to join us for an excellent program in wireless technologies featuring:

- The Radio and Wireless Symposium (RWS)
- The IEEE Topical Meeting on Silicon Monolithic Integrated Circuits in RF Systems (SiRF)

The Radio Wireless Week is premiering this year three new topical conferences:

- The IEEE Topical Conference on RF/Microwave Power Amplifiers (PAWR): The first archival digest dedicated to the topic of power amplifiers.
- The IEEE Topical Conference on Biomedical Wireless Technologies, Networks & Sensing Systems (BioWireleSS): targeting one of the most exciting and rapidly growing areas of wireless medical devices.
- The IEEE Topical conference on Wireless Sensors and Sensor Networks (WiSNet): utilizing technologies from the RWS, PAWR, and SiRF to develop new applications related to BioWireleSS, consumer, commercial, and military sensor markets.

This exciting week also features workshops on:

- Inter- and Intra-vehicle Wireless Communications & Networking
- Wireless Communications for Smart Grid
- Wireless Biomedical Applications
- Zigbee Applications It hosts panel sessions on
- Ultra-Wideband (UWB) Technology: Past, Present, and Future
- Cell Phone Tower Myths and Misconceptions

And distinguished lecture talks on:

- Inkjet-Printed Paper/Polymer-Based "Green" RFID and Wireless Sensor Nodes: The Final Step to Bridge Cognitive Intelligence, Nanotechnology and RF? by Dr. Manos Tentzeris
- Relay Node Placement in Wireless Sensor Networks by Prof. Guoliang (Larry) Xue
- Let Swarm of Bees Optimize Your Future Communication Antennas by Prof. Y. Rahmat-Samii

Visit us at: <http://www.radiowireless.org/>

Hotel Registration Deadline: Dec. 15, 2010

Conference Registration Deadline: Dec. 30, 2010

Start the new year with a week of Wireless technologies catering to every taste.

See you in Phoenix!

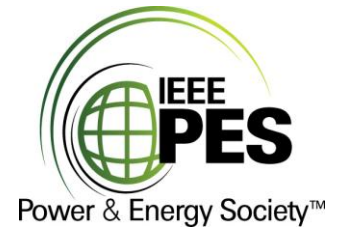
Best regards,

George E. Ponchak, NASA Glenn Research Center, General Chair, RWS 2011



2011 IEEE PES Power Systems Conference & Exhibition

<http://www.psceexpo.com/>



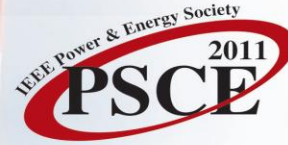
2011 IEEE PES

Power Systems Conference & Exposition

Focused on Power Systems Operations, Planning, Policy, Markets, Analysis, and Control

THE NEXT GENERATION GRID...PUTTING IT ALL TOGETHER

March 20-23, 2011
Phoenix, Arizona, USA



A comprehensive program that offers attendees in-depth information on the following topics:

- Smart sensing, communication and control in energy systems
- Smart grid for distributed energy resources
- Smart grid for cyber and physical security systems
- Emerging software needs for the restructured grid
- System-wide events and analysis methods
- Intelligent monitoring and outage management
- Integrating wind and solar energy into the grid
- Substation and distribution automation
- Internet tools for better understanding of power systems
- Dynamic performance and control of power systems
- Market interactions during system-wide events
- Asset management

and much more

The PSCE Audience-Who Should Attend: A program that has been designed for an international group of practicing power systems engineers, operators, planners, policy makers, economists, and others with interest in advancing state-of-the-art power systems. The conference will include a plenary session as well as tutorials on the most up-to-date topics on power systems. Timely and important paper, panel and poster sessions will be presented during the three-day conference.

The Exposition Offers Attendees a Look at State-of-the-Art Systems Technology: Attendees will have the opportunity to interact with the manufacturers and service providers who can provide the information that is essential to the multi-faceted field power and energy. Software and hardware systems and consulting services will be on display from leading companies in the field.

The paper submissions will open in August 2010.



Watch for program updates at: www.psceexpo.com



IEEE PES January 2011 Luncheon Meeting



Date: Thursday January 20, 2011

Time: 11:30 am - 11:45 noon: Registration
11:45 noon: Lunch
12:15 pm: Program

Location: SRP's **PERA Club** Bighorn Room ([map](#))
1 East Continental Drive, Tempe, AZ
West of 68th St., ½ mile south of McDowell Road

Speakers: Mr. Nosh Medora and Dr. Snehal Dalal

Topic: Failure Analysis - Selected Case Studies

Cost: \$5.00 (No cost if you are a college student)

Reservations: Contact Nancy or Stacy at (480) 991-9191
Ext 10 or Ext 16 or submit your name [here](#).
Reservations deadline is Noon on Monday, January 17, 2011.

If you have already registered for this luncheon but need to cancel, click [here](#).

Abstracts of the case studies:

1. Electrical Shock and/or Severe Burns due to contact with a 13.8 kV Distribution Conductor - This case study involved two workers, who were washing windows and were using a 40 foot aluminum ladder, in its extended position. After washing a set of windows, the workers started moving the ladder, while it was in its extended position. They lost control of the ladder and as the ladder fell, it landed on a primary distribution conductor. Due to the relatively high fault current, the two workers were very severely burnt. The plaintiffs' alleged that if the aluminum ladder had insulating links, it would have prevented the accident. This case study was also included in Chapter 2, "Overview of Electronic Systems Reliability" by Martin P.L., Medora N. K., and published in the Electronic Failure Analysis Handbook ©1999 McGraw Hill Book Company.

2. 75 MVA Power Transformer (with LTC) Failure - A power transformer with a Load Tap Changer (LTC) that varied the voltage on the low-voltage side from 38 kV to 15 kV was used to supply power to an electric arc furnace. The transformer was rated at 40/53.3/66.67/74.7 MVA, 138 kV Δ /38-15 kV Y, three-phase, 60 Hz. Downstream of this LTC transformer was a furnace transformer which stepped the voltage down from 34 kV to 600 V and was connected to the arc furnace leads. There was an explosion and the transformer failed violently.

3. Power Harmonic Problems at a Plastics Extrusion Plant - A plastics extrusion plant

operated a 250-hp thyristor dc adjustable speed drive from a 300-kVA, 13.8 kV to 480 V utility service transformer on two miles of 13.8 kV line. The operation was marginal. Tripping of the drive occurred on under voltage dips. To raise the power factor and reduce the voltage drop, the plant personnel installed 300 kvar of capacitors on the 480-V system. The installation was made without a power-harmonic study. The result was frequent tripping of the drives and noisy operation.

Biography:

Mr. Nosh Medora is a Senior Managing Engineer in Exponent's Electrical and Semiconductors practice, with graduate degrees in Electrical Engineering from MIT. Mr. Medora addresses issues related to power, and power electronics and analog/digital circuits and systems including electrical and thermal analysis, design, fabrication, testing and dynamic modeling, and simulation. Mr. Medora's failure investigations of electrical equipment and systems include arcing, ignition and fires and electrocution. He has performed surge voltage, and electrostatic discharge (ESD) tests on electrical and electronic products. Mr. Medora has over 30 years of experience and has worked on over 700 projects in the areas of power electronics and electrical and electronic products, and failure analysis of electrical and electronic components and system. He has also frequently been an expert witness in judicial proceedings and as such, has testified many times in depositions, mediations, and trials including fires and electrocution cases. Selected project experience is listed in his resume (attached). Mr. Medora is the holder of three US patents, is a Registered Professional Engineer in the State of Massachusetts and is a Senior Member of the IEEE. He has published numerous technical papers and publications and is the author or co-author of four chapters in the Electronics Failure Analysis Handbook, ©1999 by McGraw Hill Book Company.

Dr. Snehal Dalal specializes in condition assessment techniques for electrical equipment. In his Doctorate's work at Arizona State University, he performed extensive research on identifying and quantifying degradation parameters of underground XLPE insulated distribution cables. This resulted in development of a new accelerating procedure for underground XLPE insulated cables for specific atmospheric conditions and an aging model, which uses feedback from actual field experience to gauge the future performance of the underground distribution cables. At Exponent Dr. Dalal performed worked on various projects involving failure analysis of electrical equipments, fire investigations, aging mechanisms electrical equipments. Dr. Dalal also has performed safety evaluation of Li-ion rechargeable battery packs on handheld and notebook computers, portable audio devices, and other portable systems. Dr. Dalal has also investigated safety and reliability of computer power supply. Dr. Dalal is a member IEEE and he has published numerous technical papers and publications.



Life Member Affinity Group

2011 February Technical Meeting

Topic: To be announced

When: Monday, February 14, 2011, 11:00am – 1:00pm

Where: SRP's **PERA Club** Bighorn Room,
1 East Continental Drive, Tempe, AZ
West of 68th St., ½ mile south of McDowell Road

Click this map link to SRP PERA Club:

<http://insidesrp/pera/facilities/PERAstreetmap.pdf>

RSVP: Please respond to Program Chair, Ronald Sprague by email:
rlsprague@q.com

About IEEE Phoenix Section Life Member Affinity Group:

The IEEE Phoenix Section Life Member Affinity Group was organized to enable IEEE Life Members to retain active IEEE associations, contribute to the social good in their communities, advance IEEE's professional interests and enjoy each other's company.

An IEEE member automatically becomes an IEEE "Life Member" status when at least 65 years of age and the sum of your current age and years of membership is 100. For more details use the link

http://www.ieee.org/web/volunteers/mga/home/life_members_committee/index.html

Activities: Annual technical meetings scheduled in February, May, October, and December. Elections are held at the December meeting.

Technical meeting topics and suggested speakers are encouraged. Contact any Officer.

Future Technical Meetings:

- Monday, February 14, 2011 SRP PERA CLUB
- Tuesday, May 10, 2011 SRP PERA CLUB
- Tuesday, October 11, 2011 SRP PERA CLUB
- Tuesday, December 6, 2011 SRP PERA CLUB

Officers: The results of the annual election of officers, held December 7, 2010 meeting, resulted in the following.

Chair	A. Barry Cummings	Barry.Cummings@srpnet.com
Vice Chair	Michel Ebertin	Michel@ebertin.net
Secretary	Tom Lundquist	Tom-LCS@COX.NET
Treasurer	Leslie Daviet II	lesdaviatii@cs.com
Program Chair	Ronald L. Sprague, P.E.	rlsprague@q.com
Past Chair	C Bruce Johnson	cbj@johnsonscientificgroup.com



IEEE-USA Government Fellowships: Linking Science, Technology & Engineering Professionals with Government

(<http://ieeusa.org/policy/govfel/default.asp>)

Each year, IEEE-USA sponsors three government fellowships for qualified IEEE members. The fellows - chosen by the IEEE-USA Government Fellows Committee and confirmed by the Board - spend a year in Washington serving as advisers to the U.S. Congress and to key U.S. Department of State decision-makers. Known as either a Congressional Fellowship or an Engineering & Diplomacy Fellowship, this program links science, technology and engineering professionals with government, and provides a mechanism for IEEE's U.S. members to learn firsthand about the public policy process while imparting their knowledge and experience to policymakers.

2012 Application materials are now available online. **The deadline is March 18, 2011**

Application Kit for 2012 Congressional Fellowship

http://ieeusa.org/policy/govfel/documents/cfappkit12_000.doc

Application Kit for 2012 Engineering & Diplomacy (State Department) Fellowship

http://ieeusa.org/policy/govfel/documents/Stateappkit12_000.doc



Washington Internships for Students of Engineering (WISE)

(<http://wise-intern.org/>)

Each year, outstanding engineering students are selected to spend nine weeks in Washington, D.C., learning about the public policy process, including how government officials make decisions on complex technological issues and how engineers can contribute to legislative and regulatory public policy decisions. The WISE Program is ranked as one of the best Internship opportunities in the U.S. by the Princeton Review.

Applications are on-line at:

<http://wise-intern.org/application/index.html>.

The deadline for Summer 2011 is December 31, 2010.



Phoenix Chapter of the IEEE Computer Society

January, 2011

News

- Chapter officers will be meeting in January to chart the course for our meetings in 2011. We are considering various changes including the possibility of partnering with another chapter and perhaps moving to bi-monthly meetings instead of not having meetings in the summer months. We will detail our final decisions in this venue.

Future Events

- January 5, 2011 – Chapter meeting at DeVry University, Phoenix Campus; Speaker: Jerry Crow, “**Cryptography, Part 2**”
- February 2, 2011 – Chapter meeting at DeVry University, Phoenix Campus; Speaker: **TBD**

Meetings start at 6:00 pm with networking and light refreshments in the courtyard followed by the presentation at 7:00 pm. DeVry University is located at 2149 W Dunlap Avenue, Phoenix.

- Spring 2011 – ½-day workshop; topic: TBD (suggestions welcome)

Visit the CS Chapter website for the latest information: <http://ewh.ieee.org/r6/phoenix/compsociety/>

If you would like to suggest a topic and/or speaker for any of our 2011 meetings, please contact one of the chapter officers:

Jerry Crow (jerry.crow@computer.org)
Brad Morantz (bradscientist@ieee.org)
Audrey Skidmore (askidmore@computer.org)
Diane Smith (diane@web-oasis.com)



INSTITUTE OF ELECTRICAL AND ELECTRONIC ENGINEERS

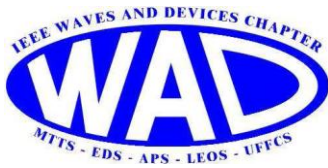
**WAVES AND DEVICES
PHOENIX CHAPTER**

<http://ewh.ieee.org/r6/phoenix/wad/>

2011 Calendar



2010 Waves & Devices Scheduled Technical Meetings					
Date	Time	Location	Topic/ Title	Speaker	Affiliation
Postponed until further notice	6:00 PM	Agilent, Chandler	Radio Communications Systems on Next Generation Manned Space Vehicle	Mr. William Eger	General Dynamics
Monday, Jan 17, 2011	5:00 PM	Freescale Semiconductor	1) Electromagnetic Band Gap (EBG) Structures in Antenna Engineering: From Fundamentals to Recent Advances	1) Dr. Yahya Rahmat-Samii	1) UCLA
			2) Green! RFID and Wireless Sensor Nodes: The Final Step to Bridge Cognitive Intelligence, Nanotechnology and RF?	2) Dr. Manos Tentzeris	2) Georgia Tech



INSTITUTE OF ELECTRICAL AND ELECTRONIC ENGINEERS
WAVES AND DEVICES - Phoenix Chapter
"Microwave Theory & Techniques" and "Antennas & Propagation"
Societies Meeting

Meeting Free & Open to Non-IEEE Members

5 to 7PM, Monday, January 17, 2011

Freescale Semiconductor, 2100 E. Elliott Road, Tempe, AZ
Group Conference Room (Main Lobby)

IEEE Distinguished Lecturer Double Header:

1) Electromagnetic Band Gap (EBG) Structures in Antenna Engineering: From Fundamentals to Recent Advances

Dr. Yahya Rahmat-Samii, UCLA (DL with APS)

Abstract 1

Periodic structures are abundant in nature, which have fascinated artists and scientists alike. When they interact with electromagnetic waves, exciting phenomena appear and amazing features result. Applications are seen in filter designs, gratings, frequency selective surfaces (FSS), photonic crystals and photonic band-gaps (PBG), etc. We classify them under the broad terminology of "Electromagnetic Band Gap (EBG)" structures. EBG structures have provided promising paradigm for novel antenna designs. Due to the complexity of the EBG structures, it is usually difficult to characterize them through purely analytical methods. Instead, full wave simulators that are based on advanced numerical methods have been used in EBG analysis. Analysis tools have been integrated with modern optimization techniques such as genetic algorithms and particle swarm optimization to synthesis unique EBG structures. Utilizing several representative antenna examples it will be demonstrated that proper utilizations of EBG structures could enhance the performance of low profile antennas.

Link to biography: <http://www.ee.ucla.edu/faculty-rahmat-samii.htm>

2) Green RFID and Wireless Sensor Nodes: The Final Step to Bridge Cognitive Intelligence, Nanotechnology and RF?

Dr. Manos Tentzeris, Georgia Tech (DL with MTTs)

Abstract 2

In this talk, inkjet-printed flexible antennas, RF electronics and sensors fabricated on paper and other polymer (e.g. LCP) substrates are introduced as a system-level solution for ultra-low-cost mass production of UHF Radio Frequency Identification (RFID) Tags and Wireless Sensor Nodes (WSN) in an approach that could be easily extended to other microwave and wireless applications. The talk will cover examples from UHF up to the millimeter-wave frequency ranges.

Link to biography: http://www.ece.gatech.edu/faculty-staff/fac_profiles/bio.php?id=103

Date: **Monday, Jan. 17, 2011**

Time: **5:00 PM Presentations**

Pizza will be served following the Seminar (approximately 7:00PM)

Location: Group Conference Room, Freescale Semiconductor, 2100 E. Elliott Road, Tempe, Arizona
Check in at Main Lobby for escort to conference room

For more information, contact: Steve Rockwell (WAD Chapter Chair) (480) 241-9891 steve.rockwell@ieee.org
Chuck Weitzel (Chapter Publicity) (480) 292-0531 c.weitzel@ieee.org

WAD Website: <http://ewh.ieee.org/r6/phoenix/wad/>



2011 Fellows - IEEE Phoenix Section

The Phoenix Section is please to recognize some of our members who have shown dedication and advancement throughout their careers by being name an IEEE Fellow. It is a distinction reserved for select IEEE members whose extraordinary accomplishments in any of the IEEE fields of interest are deemed fitting of this prestigious grade elevation. The class of 2011 includes 6 members in the Phoenix Section and 2 from our neighboring Tucson Section.

Tolga Mete Duman - Arizona State University

For contributions to coding and modulation for wireless, recording and underwater acoustic channels

Karl Gene Kempf - Intel Corporation

For applications of control and decision theories in industries

Thomas Joseph Kolze - Broadcom Corporation

For contributions to physical layer architecture in communication systems

John Scott Sadowsky - General Dynamics C4 Systems

For contributions to commercial and military wireless communications

Joseph Staudinger - Freescale Semiconductor, Inc.

For contributions to wireless communications systems

Guoliang Xue - Arizona State University

For contributions to survivability and quality of service in computer networks

Tucson Section

Ahmed Louri - University of Arizona

For contributions to optical interconnection networks for parallel computing

William Eugene Ryan - University of Arizona

For contributions to channel coding for reliable data transmission and storage

Tolga M. Duman received the B.S. degree from Bilkent University in 1993, M.S. and Ph.D. degrees from Northeastern University, Boston, in 1995 and 1998, respectively, all in electrical engineering. Since August 1998, he has been with the Electrical Engineering Department of Arizona State University. Dr. Duman's current research interests are in digital communications, wireless and mobile communications, channel coding, turbo codes, coding for recording channels, and coding for wireless communications. Dr. Duman is a recipient of the National Science Foundation CAREER Award. He has served as an editor for IEEE Transactions on Wireless Communications (2003-08) and IEEE Online Journal of Surveys and Tutorials (2002-2007). He is currently an editor for IEEE Transactions on Communications in the area of coding and communication theory (2007-present) and for Elsevier PHYCOM Journal (2010-present).

Karl G. Kempf is an Intel Fellow and director of Decision Engineering for the Intel Architecture Group at Intel Corporation. He currently focuses on product design and development decision problems, and previously was responsible for manufacturing and supply chain decision problems in Intel's Technology and Manufacturing Group.

Thomas J. Kolze is a senior principal scientist at Broadcom Corp. He holds a Ph.D. from the University of Southern California and a BSEE and MSEE from the University of Missouri-Rolla. Dr. Kolze was the lead vendor author for the physical layer of the DOCSIS standard.

John Sadowsky was a professor at Purdue and ASU for nearly 15 years, and is now a staff engineer at General Dynamics as well as having career stops at Intel and Motorola. He received the BSEE & BSMA, Electrical Engineering & Mathematics Rose-Hulman Institute of Technology in 1978, the MSEE, Electrical Engineering from Iowa State University in 1981 and PhD, Electrical Engineering & Mathematics University of Wisconsin-Madison in 1984.

Joe Staudinger is a Distinguished Member of the Technical Staff at Freescale Semiconductor, Inc. for the past 6 years, specializing in Development of Advanced Power Amplifier and Transmitter Architectures. He received the BSEE from Kansas State University and the MSEE from Arizona State University. Joe also served as a Senior Member of Technical Staff Motorola, SPS for and as a Principal Engineer Motorola, Government Electronics Group. He holds 27 issued US and foreign patents.

Guoliang Xue joined ASU as an associate professor in 2001. Dr. Xue previously worked at the University of Vermont and completed his postdoctoral training at the Army High Performance Computing Research Center. He has published over 150 refereed papers, including 80 journal papers. His research interests include QoS routing, Resource allocation in wireless networks, Security and survivability in sensor networks.

Tucson

Ahmed Louri received the M.S and Ph.D. degrees in Computer Engineering from the University of Southern California, Los Angeles in 1984 and 1988 respectively. He joined the University of Arizona in 1988 where he is currently a Professor of Electrical and Computer Engineering and the Director of the High Performance Computing Architectures and Technologies Laboratory. Dr. Louri chaired the Computer Engineering Program of the Electrical and Computer Engineering Department from 2000 to 2006. He has published more than 125 journal articles and conference papers in these areas, and holds several US patents. Prof. Louri is also a Program Director at the National Science Foundation in Washington D.C.

William Ryan received the B.S. degree from Case Western Reserve University in 1981, and the M.S. and Ph.D. degrees from the University of Virginia in 1984 and 1988, respectively. He is currently a Professor at the University of Arizona with research and teaching interests in the area of communication theory and coding for data transmission and storage. Prior to this position, he was at New Mexico State University from 1993 to 1998. He has worked at several companies prior to his present position, most recently, Applied Signal Technology, Ampex, and TASC. He was an Associate Editor for the IEEE Transactions on Communications for the coding area from 1998 through 2005.



Become an IEEE Senior Member

If you have 10 years of experience in electrical engineering (including any time in graduate school) you may qualify for elevation to IEEE Senior Member!

Apply on-line at the following link:

http://www.ieee.org/membership_services/membership/senior/senior_application.html

Need help with reference letters or a nomination? Contact any Section officer (see page 1 for contact information).



IEEE Phoenix Section Volunteer Positions

The Section Executive Committee is currently looking for volunteers for the positions of Membership, Conferences, and Publicity Chairs! If interested please contact Section Chair Jim Hudson (jim.hudson@srpnet.com) for more information.



Upcoming IEEE Conferences in Phoenix

The ***IEEE Signal Processing Society*** is sponsoring the ***14th DSP & 6th SPE Workshop*** January 4-7, 2011 at the Enchantment Resort, Sedona, Arizona. For more information, please click on the following link:

<http://www.dspe2011.org/>

The ***IEEE Communications Society and IEEE Microwave Theory and Techniques Society*** will sponsor the conference entitled ***2011 IEEE Radio and Wireless Symposium (RWS) along with Radio Wireless Week***. This conference will be held at in Glendale, AZ on January 16-20, 2011.

For further information, please contact,
George E. Ponchak, NASA Glenn Research Center
21000 Brookpark Rd., MS 54/5
Cleveland, OH 44135
george.ponchak@ieee.org

The above Conference is being held at the Renaissance Glendale Hotel, Glendale, AZ. The hotel is adjacent to the Univ. of Phoenix Stadium and Jobing.com Arena at Westgate.

The ***IEEE Power & Energy Society*** will sponsor the conference entitled ***2011 Power Systems Conference & Exhibition (PSCE)***. This conference will be held in the Phoenix Convention Center in Phoenix, Arizona, USA, on March 20-23, 2011. For further information please click on the following link:

<http://www.psceexpo.com/>



2011 IEEE Phoenix Section Calendar of Activities

The calendar is updated by the Vice Chair on a rolling basis.

- January 2011
 - Annual Banquet: Mail hard copy in the first week of January or earlier
 - Annual Banquet: Awards selection and notification
 - Finalize Section committee chairs and Chapter chairs
 - Update Web site with new officers and Chapter chairs
 - Scholarship Applications Due January 9, 2011
 - Scholarship Awards announced January 16, 2011
 - Concentration Banking Account Year End Statements will be available January 14, 2011
 - Future City competition:
 - Regional final: January 22, 2011
 - Judges to review: January 18-21, 2011
 - Coordinator: Past Chair Debendra Mallik
 - Deadline for submission of 1099 reports and bank account disclosure form: January 31, 2011
 - If your account is not in the Concentration Banking
- February 2011
 - Annual Banquet: February 12, 2011
 - **At the Phoenix Airport Marriott !!!**
 - Budget planning: Chapters and Affinity Groups
 - Deadline for submission of L-50 reports to receive the 10% bonus: February 18, 2011
 - Student Paper Contest
 - Papers due on a Friday in mid-February: February 12, 2011 Oral presentations on a Saturday two weeks later: February 27, 2011
- March 2011
 - Finalize Student Branch officers for new academic year
 - Deadline to receive completed L-50 report and rebate: March 31, 2011
 - Budget planning: Student-Industry Mixer
 - Region 6 meeting: March 18-19, 2011 in Phoenix
- April 2011
 - Student-Industry Mixer
 - MicroMouse registrations due to Southwest Area: TBD
 - Student papers due to Southwest Area: TBD
 - Southwest Area Spring meeting incl. Student Paper and MicroMouse contests: TBD
 - Nominating Committee formed for election of next year's Section officers
 - At least three members that are not Section officers (Chapter officers okay)

- May 2011
 - Student Branch reports to IEEE HQ and Student Activities Chair due: May 1, 2011
 - Call for Nominations issued by Nominating Committee
- June 2011
 - Review meeting schedules of Chapters
 - Nominations received by Nominating Committee
- July–August 2011
 - Summer break
- IEEE Congress August 19 -22, San Francisco
- September 2011
 - Student Branches send annual plan of activities to IEEE
 - Annual Banquet: Determine date, confirm hotel, speaker
 - Announcement of Student Paper Contest
 - Announcement of Student Scholarships
 - Call for nominations for awards
 - Categories: Young Engineer/GOLD, Engineer, Company, Educator
- October 2011
 - Announcement of Student Paper Contest
 - Announcement of Student Scholarships
 - Call for nominations for awards: see September
 - Southwest Area Fall meeting: TBD
- November 2011
 - Election of new officers
 - 2011 budget proposal
 - Start ad for Student Paper Contest and Scholarships
 - For dates see under February
 - Student Industry Mixer: TBD
- December 2011
 - Report of Section activities for 2011
 - Appoint chairs of Section committees
 - Student Scholarship applications due: TBD
 - Annual Banquet: Finalize speaker
 - Annual Banquet: E-mail program

Phoenix Section Executive Committee Meeting

Venue: Phoenix Airport Hilton
2435 S 47th St, Phoenix, AZ, 85034 ([map](#))
Tel.: 480-804-6017

More Info: Meetings are held on the first Tuesday of the month, 6–8 PM.
- Except for July & August

All interested IEEE members are welcome to attend.

Contact: Jim Hudson, Phoenix Section Chair
jim.hudson@srpnet.com

IEEE Phoenix - Calendar of Events

You may access the IEEE Phoenix Section Calendar of Events at:

<http://ewh.ieee.org/r6/phoenix/Calendar.htm>

For inputs and updates to the Calendar, please contact the IEEE Phoenix Section Conferences Chair, Russ Kinner at 602-997-2353 or e-mail: r.kinner@ieee.org

Phoenix Section LinkedIn Group

If you are interested in professional networking and shared Section related updates & discussions join the new [IEEE Phoenix Section Group on LinkedIn](#). Signing up only takes minutes and is free. A job board is available as well.