The Valley Megaphone

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

May 2011, Volume XXV, Number 5

Executive Committee - 2011

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In this Issue of the Valley Megaphone:

Contacts:

IEEE Phoenix Section on-line updates can be found at http://ewh.ieee.org/r6/phoenix/ and on LinkedIn at:
http://www.linkedin.com/groups?gid=2765918
Please send announcements for the *Valley Megaphone* to Surinder Tuli at surinder.tuli@gmail.com and to Russ Kinner at r.kinner@ieee.org for inclusion in the Section Calendar.

The IEEE Banquet pictures are up, see http://ewh.ieee.org/r6/phoenix/AnnualBanquet.htm

Chapters

Signal Processing & Communications
David Frakes, 480-727-9284
dfrakes@asu.edu

Computer Society
Jerry Crow
jerry8128@gmail.com

CPMT Society
Vasudeva P. Atluri
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Power & Energy Society
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Solid State Circuits
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Mike Poggie
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Steve Rockwell
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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 Surinder Tuli at the above email address. Deadline for announcements and dvertisements 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://ewh.ieee.org/r6/phoenix/

U – News

(for Student Members)

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.

Nick Leonardi
480-720-1435 Cell
nleonardi@ieee.org
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: TBD
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: TBD
Advisor: Niranjan Venkatraman
v.niranjan@ieee.org

Embry-Riddle, Prescott
Chair: Tim Lemm
timothy.lemm@erau.edu
Advisor: John E. Post
postj@erau.edu

U – Newsbytes

- 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 Leornardi 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) check with Nick

Phoenix Chapter of IEEE Signal Processing Society and Communications Society

Thanks to all of the attendees who have made this year's technical meetings so successful. More to come in the coming months...

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

IEEE Components, Packaging and Manufacturing Technology Society Phoenix Chapter

Wednesday, May 11th, 2011 at 6 PM

Wire Bonding for Metallurgists

Mr. Lee Levine
Process Solutions Consulting
New Tripoli, Pa 18066

ABSTRACT:

Out of more than 10 trillion semiconductor interconnects produced in 2008, more than 90% were wire bonds, a high speed, ultrasonic welding process. In the typical process, fine diameter (<= 25μm) gold or copper wire is welded to a thin (1μm) Al-1%Si-0.5% Cu bond pad on the semiconductor device. Typical bond pads are now < 75μm square and devices like graphic processors may have more than 1000 bonds on a single device. State-of-the-art bonders now operate at rates > 16 wires/second (32 welds). Placement accuracy for each weld must be better than ±2.5μm. The talk will cover process of ball forming and its influence on the properties of material in Heat Affected Zone (HAZ). In addition, the influence of alloying elements as well as the machine motions on the loop shape and bond strength will be addressed. High bond strength, long-term reliability, loop shape and repeatability are all affected by wire alloy chemistry. The ultrasonic energy used in bonding to provide very repeatable, high-quality bonding, has shown to significantly change the physical properties of a metal: lowering the flow stress and Young's Modulus, allowing both easy flow of slip planes with massive plastic deformation of the ball and also significant deformation of the underlying bond pad.

BIOGRAPHY:

Mr. Lee Levine is a consultant for Process Solutions Consulting, Inc. providing process engineering consultation, SEM/EDS failure analysis, and wire bond training. He worked for 20 years as Principal and Staff Metallurgical Process Engineer at Kulicke & Soffa and as a Distinguished Member of the Technical Staff at Agere Systems. He has been awarded 4 patents, published > 50 technical papers, and in 1999 won John A. Wagnon Technical Achievement award from International Microelectronics and Packaging Society (IMAPs). Major innovations include copper ball bonding, loop shapes for thin, small outline packages (TSOP and TSSOP, and CSPs) and introduction of DOE and statistical techniques for semiconductor assembly processes. He is an IMAPs Fellow and a senior member of IEEE. Process Solutions Consulting, Inc is a sustaining member of the Lehigh Valley Chapter of ASM. Lee is a graduate of Lehigh University, Bethlehem, Pa where he earned a degree in Metallurgy and Materials Engineering.

Date: Wednesday, May 11th, 2011

Location: Group Conference Room, Freescale Semiconductor, Inc., 2100 E. Elliot Rd. Tempe, AZ. Enter the facility through the Main (South) lobby in building 94, by the flag poles; you will be escorted to the meeting venue.

Time: 5:30–6:00 Social/Refreshments, 6:00–7:00 Presentation, 7:00 Dinner
(Pizza and Soda will be provided by the IEEE CPMT Phoenix Chapter)

IEEE members and non-members are all welcome to attend. Those who plan to attend should be at the facility entrance no later than 6:00 pm, as there will be no escorts available after that.

For more information, please contact any of the following CPMT officers:

Vivek Gupta (480) 413-5849
Vasu Atluri (480) 227-8411
Guat Li Chew (480) 552-1128
Samir Pandey (480) 552-7502

IEEE Components, Packaging and Manufacturing Technology Society
Phoenix Chapter

Wednesday, May 18th, 2011 at 6 PM

Multilayer Packages for Wireless Communication Modules and Systems

Dr. Telesphor Kamgaing
Staff Research Scientist, Intel Labs and Components Research
Intel Corporation
Chandler, Arizona 85226

ABSTRACT:
The role of the package is becoming paramount as a key integration medium to achieve form factor and cost reduction in mobile internet devices (MID) such as smart phones and net-books. In the mobile market segment, restrictions on the package z-height and footprint require design and architectures innovation to address performance degradation and enable multi-radio coexistence. Some high-density packaging approaches being pursued in the industry include die or package stacking, and die embedding in the package core or build-up layer. It's envisaged that most of the MID platforms will be integrated on at least two packages in a near future with the ultimate vision of integration of the whole platform on a single package. This presentation examines recent advances in packaging for wireless communication systems. In radio architectures, the impact of multimode and broadband radio integration on both chip level and substrate level packaging is discussed. Also included are some recent developments in both silicon and multilayer organic packages to enable form factor miniaturization. Some radio coexistence challenges in wireless communication systems and potential solutions are also discussed.

BIOGRAPHY:
Dr. Telesphor Kamgaing received the Diplom.-Ingenieur Degree in Electrical Engineering from Darmstadt University of Technology, in Germany, in 1997, the M.S. and Ph.D. degrees in Electrical Engineering from the University of Maryland at College Park in 2003. From 2000 to 2004 he worked in the Digital DNA Laboratories of Motorola Inc. in Tempe, Arizona, developing silicon integrated passives for wireless communication. In 2004 he joined Intel Corporation in Chandler, Arizona, and has served in various research and engineering positions. He is currently a Staff Research Scientist with Intel Labs and Components Research, researching disruptive packaging technologies involving on- and off-chip radio integration, radio coexistence on ultra small form factor platforms and mm-wave applications. He has also pioneered the expansion of Intel FCBGA package substrate technology to include embedded RF passives. Dr. Kamgaing is a senior member of IEEE and has served on numerous editorial boards, Technical Program Committees of IEEE Symposiums, and has helped organize several IEEE seminars and workshops. He has co-authored more than 50 technical papers in refereed journals and conference proceedings. He has Five US patents issued and more than 15 patent applications pending.

Date: Wednesday, Wednesday May 18th, 2011

Location: Group Conference Room, Freescale Semiconductor, Inc., 2100 E. Elliot Rd. Tempe, AZ. Enter the facility through the Main (South) lobby in building 94, by the flag poles; you will be escorted to the meeting venue.

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For more information, please contact any of the following CPMT officers:

Vivek Gupta (480) 413-5849
Vasu Atluri (480) 227-8411
Guat Li Chew (480) 552-1128
Samir Pandey (480) 552-7502

Save the Date for Seminar on Wednesday June 15th

IEEE Power and Energy Society

Phoenix Chapter

News and Announcements:

- Want to know more about IEEE PES? Watch this video: http://www.youtube.com/watch?v=BRKM4lpo_tk
- IEEE PES Scholarships are available: http://www.ee-scholarship.org/

Upcoming Events:

May 2011 Luncheon Meeting

Date:	**Thursday, May 19, 2011**
Time:	**11:30 am - 11:45 noon: Registration** **11:45 noon: Lunch** **12:15 pm: Program**
Location:	**TBD**
Speakers:	**Peter A. Carpenter, Director of Applied Engineering, Lightning Eliminators & Consultants, Inc.**
Topic:	**Lightning Protection, Grounding and Surge Protection**
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**
Additional Information:	**http://ewh.ieee.org/soc/pes/phoenix/lunch1105.php**

More information regarding the IEEE PES Phoenix Chapter can be found at:
http://ewh.ieee.org/soc/pes/phoenix/index.php

Phoenix Section Life Member Affinity Group

2011 May Technical Meeting

Topic: **Nuclear Power in the U.S. for the Present Decade**

Speaker: Keith Holber, Ph.D. Associate Professor in the School of Electrical, Computer and Energy Engineering at ASU. He earned his Ph.D. in nuclear engineering from University of Tennessee in 1989. Keith is the Director of the Nuclear Power Generation Program at ASU.

Summary: As of December 2010, the NRC has received 17 construction and operating license applications (COLAs) for 26 new nuclear power reactors sited primarily in the eastern U.S. Recessionary times have led to difficulty in financing such large capital projects; however, the federal government is providing loan guarantees for some new reactor construction. Simultaneously, small modular reactors are receiving considerable press. Meanwhile, the Department of Energy is withdrawing its license application for a national nuclear waste repository at Yucca Mountain, NV, while simultaneously creating a Blue Ribbon Commission on America's Nuclear Future. Furthermore, in the Southwest, there is interest in nuclear for both electricity generation and desalination.

When: Tuesday, **May 10, 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 by **Friday, May 1st** to Ronald Sprague by email: rlsprague@q.com

About IEEE Phoenix Section Life Member Affinity Group:

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.

Future Technical Meetings:

- Tuesday, October 11, 2011 SRP PERA CLUB
- Tuesday, December 6, 2011 SRP PERA CLUB

Officers:

Chair	A. Barry Cummings	*Barry.Cummings@srpnet.com*
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Past Chair	C Bruce Johnson	*cbj@johnsonscientificgroup.com*

Teacher in Service Program/ 99999 Engineers In The Classroom

"Helping Students Transfer What Is Learned In The Classroom To The World Beyond"

VOLUNTEER RETIRED ENGINEERS NEEDED

Teacher In Service Program / Engineers In The Classroom (TISP/EIC) uses retired engineers to provide in-classroom support to science teachers to implement project-based STEM lesson plans. The objective is to encourage students to become interested in science such that they pursue studies in science and go on to a career in science.

A team of 2 — 5 retired engineers puts on a project-based science lesson at a Middle School. A lesson takes three or four 45 minute class periods over three or four days and includes a lecture, hands-on demonstrations, and a construction project.

If students are to become interested in science, they have to see and understand how the scientific principles relate to their everyday life. To do this, TISP/EIC lesson plans use lots of simple hands-on demonstrations to illustrate the scientific principles, and include real examples of everyday objects to illustrate how the scientific principles affect the design and operation of the object. They finish with a hands-on construction project for teams of two students to reinforce the learning of the science.

The TISP/EIC offer to Middle School Science Teachers:

- **The teacher chooses a topic from the list of available, ready-to-run lesson plans**
- **TISP/EIC brings the turnkey project-based science lesson that supports the National Education Content Standards into the classroom**
- **TISP/EIC provides all the materials and volunteer engineers at no cost to the teacher or the school**
- **The teacher provides classroom management**
- **The TISP/EIC volunteer engineers do the rest!**

Each lesson is structured around a particular science topic, such as electromagnetism, structure loads, photovoltaics, simple machines, Newton's Laws, Archimedes Principle, or electrical circuits, for example. **Seven fully provisioned lesson plans for Middle School are currently available:**

- "Sail Away" – Archimedes Principle, Newton's Laws; Design and build a sail boat
- "Working With Watermills" – Mechanical Advantage, Simple Machines; Design and build a water wheel
- "All About Electric Motors" – Magnetism, Electromagnetism, Electric Motors; Build an electric motor
- "Here Comes The Sun" – Electric Circuits, Sources & Loads In Series & Parallel, Solar Cells; Design and build a solar powered race car
- "Rockets!" – Newton's Laws, rocket flight stability; Design and build a bottle rocket
- "Popsicle Bridges" – Structures In Compression And Tension; Design and build a truss bridge
- "Cracking the Code" – scytale, Caesars ciphers and other transposition and substitution codes, Kids Data Encryption Standard, and Kids Public Key Cryptography
- Two more lesson plans are generally being added each school year!

Building sail boats

Building water wheels

Building electric motors

Building solar powered cars

Building bottle rockets

"There are a number of programs that have students engaged in hands-on activities, but what you all do that puts your program head and shoulders above the rest is to help students make the connections between theory and practical application. This is an area where teachers have the most struggles, helping students transfer what is learned in the classroom to the world beyond."
(Dr. Dianna Bonney, Orangewood Middle School, July 2010)

TO VOLUNTEER TO HELP TISP/EIC PUT ON SCIENCE LESSON PLANS IN MIDDLE SCHOOLS IN THE PHOENIX METRO AREA, PLEASE CONTACT:

JOHN PURCHASE
JPURCHASE@COX.NET
480-921-3217

IT'S FUN! IT'S REWARDING! IT'S HELPING THE NEW GENERATION ACHIEVE THEIR FULL POTENTIAL!

Women In Engineering Affinity Group (WIE)

The IEEE Phoenix Section supports establishing a local **Women in Engineering (WIE) Affinity Group**. Before moving forward with the process, we would like to ascertain the level of interest in the area of the Phoenix Section. If you see value in having this group and if you would be interested in participating in local WIE Affinity Group activities, please contact Shamala Chickamenahalli (shamala@ieee.org), Lesley Polka (lesley.a.polka@intel.com) and Diane Watkins (diane.watkins@srpnet.com).

The IEEE WIE Affinity Group's mission is to inspire, engage, encourage and empower IEEE women worldwide with a vision of creating a community of IEEE women and men innovating the world of tomorrow. More information about IEEE WIE can be found at their website:
http://www.ieee.org/membership_services/membership/women/women_about.html

Looking forward to hearing from you,
Shamala, Lesley and Diane

IEEE
Advancing Technology for Humanity

IEEE Phoenix Section
Women in Engineering
Affinity Group

IEEE Women in Engineering WIE

Together We Lead – Locally, Nationally, & Internationally

The Phoenix Section of the IEEE invites you to the kick-off event of its newly formed Women in Engineering Affinity Group.

Join us as we meet & listen to women technical leaders speak on the impact of women technical leaders coming together to create change & be a powerful voice in our communities – locally, nationally & internationally.

WHEN: MAY 20, 2011 (FRIDAY), 4 PM - 6 PM

AGENDA & SPEAKERS:

- 4:00 PM: REFRESHMENTS & INTRODUCTIONS
- 4:30 PM: DR. JAN BELT
  CEO OF BILLFIRE SOLUTIONS, INC., SCOTTSDALE, AZ
- 5:00 PM: RAMALATHA MARIMUTHU
  WIE INTERNATIONAL COMMITTEE CHAIR
- 5:30 PM: DR. KAREN PANETTA
  IEEE FELLOW & WORLDWIDE DIRECTOR OF IEEE WIE

RSVP: *THERE IS NO CHARGE, BUT PLEASE REGISTER AT THIS LINK:*
HTTP://MEETINGS.VTOOLS.IEEE.ORG/MEETING_VIEW/LIST_MEETING/6613

Location: **Embassy Suites – Biltmore**
2630 East Camelback Road, Phoenix, AZ 85016

Contacts: **IEEE WIE Phoenix Section Committee**

- **Shamala Chickamenahalli** (shamala@ieee.org)
- **Diane Watkins** (Diane.Watkins@srpnet.com)
- **Lesley Polka** (lesley.a.polka@intel.com)

IEEE Computer Society

Phoenix Chapter of the IEEE Computer Society

May, 2011

News

- The chapter picnic was held on March 26th. Attendance was light, but the conversation was excellent and it was a productive event.

Future Events

We continue with our bi-monthly schedule for 2011:

- May 4 – Chapter meeting, DeVry University; speaker: Dr. Brad Morantz, "Multiprocessing Mathematics"
- July 6 – Chapter meeting, DeVry University; speaker TBD
- September 7 – Chapter meeting, DeVry University; speaker TBD
- November 2 – Chapter meeting, DeVry University; 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.

Visit the CS Chapter website for the latest information: http://ewh.ieee.org/r6/phoenix/compsociety/.
For brief announcements regarding upcoming events we are also on Twitter: @IEEECS_PHX

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 (sdianesmith@computer.org)

INSTITUTE OF ELECTRICAL AND ELECTRONIC ENGINEERS

WAVES AND DEVICES

PHOENIX CHAPTER

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

2011 Calendar

Date	Time	Location	Topic / Title / Status	Speaker	Affiliation
17-Jan	5:00 PM	Freescale	1) Electromagnetic Band Gap (EBG) Structures in Antenna Engineering: From Fundamentals to Recent Advances 2) Green" RFID and Wireless Sensor Nodes: The Final Step to Bridge Cognitive Intelligence, Nanotechnology and RF?	1) Dr. Yahya Rahmat-Samii 2) Dr. Manos Tentzeris	1) UCLA 2) Georgia Tech
18-Feb	4:00 PM	ASU GWC487	Miniaturized Directional Microphones and Microspeakers for Hearing Aids Applications	Dr. Junseok Chae	ASU
28-Feb	1:00 PM	ASU GWC487	Joint Meeting With SSCS: Technology Challenges of Integrated Voltage Regulators for Future Microprocessors and SOC's	Dr. Shamala A. Chickamenahalli	Intel
24-Mar	5:30 PM	ASU GWC487	Semiconductor Device Characterization and Failure Analysis	Dr. Dieter Schroder	ASU
18-Apr	1:30 PM	ASU	Analog-to-Digital Converters for Software-Definable Radios	Dr. Doug Garrity	Freescale
2-May	**6:00 PM**	**ASU**	**Modeling and Simulation of Submillimeter Wave Semiconductor Devices**	**Dr. Stephen Goodnick**	**ASU**
29-Jun	**6:00 PM**	**TBD**	**Radio Communications Systems on Next Generation Manned Space Vehicle**	**Mr. William Boger**	**General Dynamics**
July (TBD)	**TBD**	**TBD**	**Wide Band Gap Materials & Applications**	**Dr. Chuck Weitzel**	**Consultant**
Aug 18 (Tentative)	**TBD**	**TBD**	**Microwave topic**	**Dr. Jeremy Muldavin**	**MIT Lincoln Labs**
Sept (TBD)	**TBD**	**ASU**	**Antennas Topic**	**Dr. Constantine Balanis**	**ASU**

INSTITUTE OF ELECTRICAL AND ELECTRONIC ENGINEERS

IEEE SOLID-STATE CIRCUITS SOCIETY

Solid State Circuits Society - Phoenix Chapter

Meeting Free & Open to Non-IEEE Members
12:00pm to 1:00pm, Thursday, May 12th, 2011
Intel Chandler-Campus: Building:C7 room: 7101 (map)

Total Dose Effects on Materials and Devices

Speaker: ***Prof. Hugh Barnaby*** *(hbarnaby@asu.edu) School of Electrical, Computer and Energy Engineering, Arizona State University*

Abstract:

Integrated electronic components demonstrate parametric sensitivity to ionizing radiation. While the sources of radiation may take many forms, from high energy particles trapped in the earth's magnetosphere to man-made sources found in nuclear facilities, the ultimate effect on integrated systems share many common origins. Electron-hole-pair generation in semiconductor and insulating materials can cause defects to build up in sensitive regions, thereby degrading the performance and reliability of solid state devices and circuits. In this talk, Professor Barnaby discusses fundamental concepts related to some of the most hazardous radiation environments and describes the processes that lead to ionizing radiation damage in solid state materials. The talk will also cover the primary device level effects that result from material degradation. Technologies covered in talk will include advanced bulk and SOI CMOS as well as bipolar. The anomalous effects of enhanced-low-dose-rate sensitivity and radiation-enhanced gate-induced drain leakage are defined and described in detail.

Biography

Dr. Hugh Barnaby joined the ASU faculty in 2004. His primary research focus is the analysis, modeling, and experimental characterization of hostile environment effects in semiconductor materials, devices, and integrated circuits. These environments create hazardous operating conditions primarily characterized by both extreme temperature exposures and high levels of radiation. Professor Barnaby also develops designs and processing techniques that enable the reliable operation of electronics in these environments. In addition, Dr. Barnaby has ongoing research activities in wireless (RF and optical) IC and data converter design, radiation-enabled compact modeling, energy harvesting, and bio-electronics. He has been an active researcher in the microelectronics field for 18 years in both industry and academics, presenting and publishing more than 100 papers during this time.

SSCS-PHX Chapter Website: http://www.ieee.org/go/sscs_phx
Contact: Dr. Mohamed Arafa (Mohamed.arafa@ieee.org), SSCS-PHX Chapter Chair

CALL FOR PAPERS

2011 BIPOLAR/BiCMOS CIRCUITS AND TECHNOLOGY MEETING

Atlanta, Georgia, USA

http://2011.ieee-bctm.org

Short Course: Sunday, October 9, 2011, Conference: Monday and Tuesday, October 10-11, 2011

The Bipolar/BiCMOS Circuits and Technology Meeting (BCTM) is a forum for technical communication focused on the needs and interests of the bipolar and BiCMOS community. Papers covering the design, performance, fabrication, testing and application of bipolar and BiCMOS integrated circuits, bipolar phenomena, and discrete bipolar devices are solicited. All papers must be suitable for a twenty-minute presentation. Text and figures must not have been presented at other conferences or published in any scientific or technical publications prior to BCTM.

Publication in the BCTM 2011 Proceedings does not preclude publication in an IEEE journal, and authors are encouraged to do so. A Special Issue of the *IEEE Journal of Solid-State Circuits* will include selected papers from BCTM 2011.

Papers are solicited in the following areas

ANALOG / DIGITAL CIRCUIT DESIGN: Analog ICs - Digital ICs - Mixed analog/digital ICs - Novel design concepts and methods - DACs and ADCs - Amplifiers - Integrated filters - Communications ICs - Sensors - Gate arrays - Cell libraries - Voltage references - Analog subsystems within a VLSI chip - Packaging of high-performance ICs. High-voltage ICs - Automotive electronics, disc drives, display drivers, power supplies, electric utility, medical electronics, motor controls, regulators, amplifiers, converters, aerospace electronics.

RADIO FREQUENCY CIRCUIT DESIGN: Low Noise Amplifiers - Automatic gain control - VCOs - Mixers – Active gyrators - Power amplifiers - RF DMOS-based circuits - Switches - Noise suppression techniques - Frequency synthesizers - Radio subsystems - Packaging of RF components - Designing with integrated passive components at RF frequencies - Millimeter-wave circuits and systems.

WIRELINE COMMUNICATIONS: LAN, WAN, FDDI, Ethernet, Metro, Fiber channel, SONET, ATM, ISDN, xDSL, optical data links - Power-line/phone-line networks - Cable modems, broadband circuits - MUX/DEMUX – Clock and data recovery - Error coding and correction - Crosspoint switches - Laser and modulator drivers - Preamplifiers - AGC amplifiers - Decision circuits - Equalizers - Optical networking ICs.

DEVICE PHYSICS: New device physics phenomena in Si, SiGe, and III-V devices - Device design issues and scaling limits - Hot electron effects and reliability physics - Transport and high field phenomena - Noise - Linearity/Distortion – Novel measurement techniques - Operation in extreme environments (low and high temperatures, radiation effects).

MODELING / SIMULATION: Improved BJT and HBT models - Behavioural modeling techniques - Parameter extraction methods and test structures - De-embedding techniques - RF and thermal simulation techniques - Modeling of passives, interconnect and packages - Statistical modeling - Device, process and circuit simulation. CAD/modeling of power devices, packaging of power devices, and ESD phenomena.

PROCESS TECHNOLOGY: Advances in processes and device structures demonstrating high speed, low power, low noise, high current, high voltage, etc. BiCMOS processes - Advanced process techniques – Si and Si-C homojunction bipolar/BiCMOS devices, III-V and SiGe heterojunction bipolar/BiCMOS devices. Manufacturing solutions related to Bipolar and BiCMOS yield improvements. Fabrication of high-performance passive components, including, MEMs. Process technology related to discrete and integrated bipolar/BiCMOS power devices, IGBT, RF power devices including DMOS. Wide bandgap bipolar devices (i.e. SiC, GaN, GaAs etc.) and related process technology.

STUDENT paper submissions are highly encouraged. Papers must be clearly marked as 'STUDENT SUBMISSION' in the abstract cover sheet to be eligible for the Best Student Paper Award.

If you know of people who may have a paper to contribute please bring this Call for Papers to their attention.

IMPORTANT DEADLINES FOR AUTHORS

Monday, May 2, 2011 Deadline for receipt of abstract and summary
Friday, June 10, 2011 Notification of acceptance to be sent by email
Friday, July 8, 2011 Final proceedings manuscript due

SUBMISSION AND CONTACT INFORMATION

Visit the conference website: http://2011.ieee-bctm.org, or contact:
Jan Jopke, Conference Manager, CCS Associates, 6611 Countryside Drive, Eden Prairie, MN 55346, USA
TEL: 1-952-934-5082, FAX: 1-952-934-6741 E-mail: ccsevents@comcast.net.

RFIC 2011

www.rfic2011.org

2011 IEEE Radio Frequency Integrated Circuits Symposium

Baltimore Convention Center
Baltimore, MD, USA
Sunday, June 5th, 2011 – Tuesday, June 7th, 2011

Topics related to original work in RFIC design, system engineering, system simulation, design methodology, RFIC circuits, fabrication, testing and packaging to support RF applications in areas such as: Cellular System ICs, Wireless Data System ICs, Wideband System ICs, Silicon mm-Wave ICs, Small-Signal Circuits, Large-Signal Circuits, Frequency Generation Circuits, RFIC Device Technologies, RFIC Testing, RFIC Modeling and CAD.

Image Courtesy of Ed Niehenke

Plenary Speakers

Dr. Samuel Sheng, Telegent Systems
"RF Coexistence – Challenges and Opportunities."

Mr. Ron Ruebusch, Avago Technologies
"3G to 4G Transition – Challenges and Opportunities."

Technical papers will be presented during oral sessions throughout Monday and Tuesday. There will be a total of 130 papers presented in 23 technical focused sessions. The technical program will conclude with the Interactive Forum session on Tuesday afternoon, which will feature 31 poster papers and the chance to speak directly with authors regarding their work.

Workshops (Sunday):
Introduction to GaN MMIC Design
Advancements and Challenges toward Radio-in-Package and Radio-on-Chip
Imaging at mm-Wave and Beyond
RF Bio-Medical Electronics and Sensors
Re-configurability Requirements for Multi-Standard Low-Power Operation
Advancements in Linear Power Amplifiers for Cellular Infrastructure
EMI Compliant Product Design Practices: Interference Analysis, Floor Planning, Grounding Strategies, Chip-Package-Board Co-Design
New Architectures for Digitized Receivers
Design for Manufacturability and Self-Testability of RFICs
Systems & Circuits for Sensing, Co-Existence, and Interference Mitigation in SDR and Cognitive Radios
Efficiency Enhancement Techniques of Power Amplifiers and Transmitters for Mobile Applications

Panels (Monday & Tuesday):
Software Defined Radios - Facts and Fantasies
What is the limit of multi-radio integration … or rather, is it 'disintegration'?

Short Courses (sponsored by IMS):
Techniques and Realizations of Microwave and RF Filters
Nonlinear Dynamics and Stability Analysis/Design of Microwave Circuits

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IEEE-USA Government Fellowships:

Linking Science, Technology & Engineering Professionals with Government

(http://ieeeusa.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://ieeeusa.org/policy/govfel/documents/cfappkit12_000.doc

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

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

2011 IEEE Phoenix Section Calendar

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

- 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

Phoenix Section 70th Anniversary Family Celebration

Co-sponsored by Jim Hudson

Please RSVP with the number of people attending to Jim.Hudson@srpnet.com

In order to comemmorate 70 years of dedication to the progression of electrical engineering in the Phoenix Area. We are having a 70TH Anniversary Celebration at SRP's Pera Club on June 11. This celebration will be from noon till 3 pm and will include activities for kids and adults. Pera Club has a Pool with Lifeguards, Volleyball, Tennis, and a softball field. We will also have a barbeque and vegetarian meals avilable if desired. There will be a 5 dollar fee for single attendees and a 10 dollar fee for families that would like to eat.

Location:
Building: Ramada near pool
1 East Continental Drive
Just south of Mcdowell Road off Scottsdale Road
Tempe, Arizona
United States

Date: 11-June-2011
Time: 12:00PM to 03:00PM (3.00 hours) **All times are:** America/Phoenix

Email meeting contact... Please RSVP with the number of people attending to Jim Hudson at Jim.Hudson@srpnet.com

IEEE Phoenix Section Nomination of Officers

The IEEE Phoenix Section is seeking nominations for the following elected Section officer positions for the 2012 term:

- Chair
- Vice Chair
- Secretary
- Treasurer

Additionally, the Nominating Committee is seeking candidates for the following non-elected appointed standing committee chair positions for the 2012 term:

- Publicity
- Membership
- Student Activities
- Conferences
- Awards
- Inter-Society
- PACE (Professional Activities Committees for Engineers)
- TISP (Teacher In-Service Program)
- Web Master

Section officers must be IEEE members. Self-nominations are acceptable.

Please send nominations or any questions to Steve Rockwell (e-mail steve.rockwell@ieee.org), copying also Nominating Committee members Mike Andrews (e-mail: m.andrews@ieee.org) and Mohamed Arafa (e-mail: mohamed.arafa@intel.com).

Section members are urged to submit your nominations by no later than September 1.

Sincerely,
Steve Rockwell
Chair, Nominating Committee, Phoenix Section

Section Officer Job Descriptions

Section Chair

The Section Chair shall serve as Chair for all meetings of the Section, the Section Committee and the Section ExCom where such ExCom exists.

Roles:

- Preside at meetings of the Section Executive Committee
- Represent the Section at IEEE gatherings
- Represent the Section at Regional Committee Meetings and vote on issues on the basis of the best interest of IEEE

Vice Chair

The Section Vice Chair shall assist the Chair in the coordination of all Section activities. At the request of the Section Chair or in the absence of the Section Chair, the Section Vice Chair shall chair meetings of the Section, Section Committee or Section ExCom.

Secretary

The duties of the Section Secretary shall include correspondence, the keeping of the minutes of the Committee meetings, mailing notices, and submission of meeting and officer reports to the Member and Geographic Activities Department at the end of each year and such other duties as are assigned to him/her by the Chair.

Treasurer

The duties of the Section Treasurer shall include the development of a Section budget for approval by the Section, accounting of all Section funds, keeping financial records, and submitting the Financial Operations Report of the Section to the IEEE Staff Director, Financial Services.

Publicity

- Publish and distribute monthly section newsletter
- Maintain section email lists
- Support chapter publicity submissions to the the IEEE E-Notice system

Membership Chair

- Monitoring a current record of membership.
- Analyzing membership trends.
- Ensure adequate supplies of membership development materials available for distribution (chapter meetings, conferences, job fairs, etc.).
- Coordinating membership exhibits for local meetings and conferences, soliciting materials for exhibits, indentifying volunteers to staff booth.

Student Activities Chair

- Coordinate and support student chapters by working with the student chapter representatives and their faculty advisers.
- Organize the annual student paper competition
- Organize the annual student scholarship awards program

Conferences Chair

- Support and act as liaison between the section and locally held IEEE affiliated conferences
- Maintain calendar of IEEE related conference events on the section website calendar

Awards Chair

- Plan, coordinate, and organize the annual awards banquet

Inter-Society Chair

- Coordinate and act as liaison between section and other engineering or relevant organizational entities

PACE (Professional Activities Committees for Engineers) Chair

- Coordinate and support professional and career developmental activities

TISP (Teacher In-Service Program) Chair

- Coordinate the local TISP program

Web Master Chair

- Maintain and update the Section website as needed

"IEEE Phoenix Section Survey

IEEE Phoenix Section Executive Committee is requesting all IEEE Phoenix Section Members to provide their valuable inputs to help with continuous improvement of section activities. The survey can be accessed at www.ewh.ieee.org/r6/phoenix. Please download the survey and send by email to IEEE Phoenix Section Secretary, Dr. Chuck Weitzel, at c.weitzel@ieee.org. Your support in this matter will be greatly appreciated."

"IEEE Member Grade Advancement

All IEEE members are advised to look into advancing their IEEE membership to higher grades – senior member and Fellow. Please refer to www.ieee.org for additional information, requirements, and process for obtaining senior member and fellow grades. Please contact Dr. Vasudeva P. Atluri, Membership Chair, IEEE Phoenix Section at vpatluri@ieee.org for guidance and support."

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 Treasurer, 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 IEEE Phoenix Section Group on LinkedIn. Signing up only takes minutes and is free. A job board is available as well.