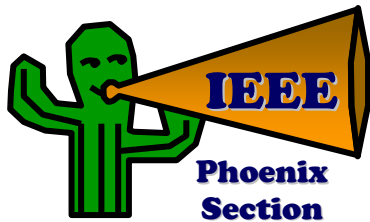


The Valley Megaphone



**Newsletter of the
Institute of Electrical and
Electronics Engineers, Inc.,
Phoenix Section
March 2011,
Volume XXV, Number 3**

Executive Committee - 2010

Chair

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jim.hudson@srpnet.com

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Webmaster

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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
480-227-8411
vpatluri@ieee.org

Education Chapter

Martin Reisslein, 480-965-8593
reisslein@asu.edu

EMBS Chapter

TBD

EMC Society

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harry.gaul@ieee.org

GOLD

David Huerta
huertanix@ieee.org

Power & Energy Society

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Solid State Circuits

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Teacher-In-Service

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Waves & Devices Society

Steve Rockwell
steve.rockwell@ieee.org

Life Members

Barry Cummings
abarrycummings@gmail.com

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.niranjn@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 Leonardi at nleonardi@ieee.org.
- View pictures from the MicroMouse contest at the Southwest Area Spring 2010 meeting at <http://picasaweb.google.com/ieeegoldphx/2010IEEEESWASpringMeeting> (photography by David Huerta, GOLD Affinity Group Chair) check with Nick



Phoenix Chapter of IEEE Signal Processing Society and Communications Society



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

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



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 RFIDs; integration of RFIDs & 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 PES Power Systems Conference & Exhibition



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

2011 Power Systems Conference & Exposition IEEE
 March 20 - 23, 2011 • Phoenix, Arizona, U.S.A.

Host Utility Companies:

- [Home](#)
- [Call for Papers](#)
- [Local Organizing Committee](#)
- [Technical Program](#)
- [Accommodation & Venue](#)
- [Registration](#)
- [Paper Submission](#)
- [Exhibition](#)
- [Support Opportunities](#)
- [Technical Tours](#)
- [Social Tours](#)
- [Tutorials](#)
- [Plain Talk Course](#)
- [Mailing List](#)
- [Previous Conferences](#)

Latest News

- The [Program Schedule](#) is now available.
- [Click here](#) to book your room at the Wyndham for the PSCE group rate of \$189!
- [Online Registration](#) is now open.
- The call for papers and paper submission are now closed.

Welcome

Building on the success of past editions, the 2011 IEEE PES Power Systems Conference & Exhibition (PSCE) is a major power systems event that will provide an exceptional venue for discussing issues and developments as well as for highlighting key vendors with products and services essential to the multifaceted field of electrical power systems.

PSCE will bring together an international group of practicing power systems engineers, operators, planners, policy makers, economists, academics, and others with interest in the profession.

The conference will begin with a timely and valuable plenary session and will also include tutorials on the most up-to-date topics on power systems. Paper-, panel- and poster-sessions and paper forums will be scheduled along with featured Super Sessions on the theme of: ***The Next Generation Grid – Putting It All Together***

- Smart sensors, communication and control in energy systems
- Smart grid for distributed energy resources
- Cyber and physical security systems of the smart grid
- Advanced computational methods for power system planning, operation, and control
- 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
- Flexible AC transmission systems
- and much more

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



IEEE PES

March 23, 2011



Light-Inspired Solutions

The Smart Grid – Future Directions

*Guest Speakers from the
Institute of Electrical and Electronics Engineers (IEEE)*



Wanda Reder

IEEE's Smart Grid Chair

Smart Grid and some of the energy challenges that are on the Nation's forefront and advancements that are underway to address them.



William R. Tonti

Director of Future Directions IEEE

Semi-conductor technology impacts on Cloud Computing and power consumption.



Wednesday, March 23

3:00 – 4:30 pm

RSVP: gina.gillies@asu.edu

Location

ASU SkySong

1475 N. Scottsdale Road, Scottsdale

1st Floor, Convergence Room #150

Free, uncovered parking on north side of building

Presented by Energy, Ethics, Society and Policy Initiative



Consortium for Science, Policy & Outcomes
at Arizona State University

Additional information on Speakers attached.

**Wanda Reder
Biography**

Wanda Reder is the Vice President of the Power Systems Services Division at S&C Electric Company offering engineering, field service, and project management capabilities to utilities, developers and industrial customers through the US and Canada. She oversees technical activity associated with analyzing, engineering and constructing the most advanced smart grid technologies available including large scale batteries, micro grids, and renewable installations.

Prior to S&C, Wanda has held numerous leadership positions at Exelon and Northern States Power (now Xcel) where she has had responsibility for asset investment strategy, standards, engineering, system planning, reliability and work management, unregulated business start-ups, distribution automation, automated meter reading and development of conservation and load management initiatives. She has been active in smart grid activity before the term was used and continues to provide leadership for the deployment of leading edge grid technology.

Wanda is the Immediate Past-President for IEEE Power & Energy Society and has served on the IEEE PES Governing Board since 2002. During her term, she re-positioned the Society to address the emerging technologies, introduced two new transactions and numerous conferences while increasing membership of all ages throughout the world. Wanda is leading a \$10M philanthropic campaign to double the pipeline of power and energy engineers by awarding scholarships and career experiences. Wanda is now the Chairperson for IEEE's Smart Grid efforts and is on the IEEE Women In Engineering Governing Committee. In 2010 Wanda was appointed by Secretary Chu as a member of the Electricity Advisory Committee (EAC) to advise the DOE Office of Electricity Delivery and Energy Reliability.

In her comments today, Wanda will introduce us to IEEE Smart Grid and discuss some of the energy challenges that are on the Nation's forefront and advancements that are underway to address them.



Wanda Reder
Vice President – Power Systems Services Division
S&C Electric Company

IEEE Smart Grid Chair

Past President IEEE Power & Energy Society

w.reder@ieee.org
773-391-7326

A Powerless Cloud: An Enabling Architecture paradigm for Power Efficient Electronics

William R. Tonti PhD/MBA FIEEE

IEEE, 455 Hoes lane, Piscataway NJ 08854 w.r.tonti@ieee.org

In 2009 IT systems consumed ~2% of the worlds energy. This is predicted to double by 2013, coincident with the pervasive deployment of cloud. Given the current energy trends in the year 2030 the US will have a ~ 2 trillion kWh demand.

State of the art cloud hardware is on the order of 200 million transistors for a typical central processing unit (CPU) and about the same for a typical graphical processing unit (GPU). Cloud power requirements are on the order of 2 mega watts per cloud install. Unlike a terrestrial machine the cloud must have 100% availability and thus does not have a true off cycle. The cloud cycles between standby and active. The power requirements of a cloud in standby as wells as in the active state are significant. Traditional semiconductor scaling is faced with the challenge of power performance and reliability which is magnified by the cloud.

This talk will address the power performance issue of cloud and offer some alternative technology insights that are presently being investigated.



William R. Tonti

Dr Tonti received the B.S.E.E. with honor (1978) from Northeastern University, an MSEE(1982) and a PhDEE(1988) from the University of Vermont. He holds an MBA(1983) from St. Michael's College. Currently Dr. Tonti is the Director of Future Directions at the IEEE, the largest non profit engineering institute in the world. In this position he investigates new and emerging technologies for IEEE. Retired from IBM he held the positions of IBM senior technical staff member , senior manager, and master inventor. . Dr. Tonti managed the semiconductor compact model and release chip design teams. Previously at IBM he held the position as the lead device engineer in 32nm development at the Albany Nanotech facility. He has also held positions at IBM in the capacity of the technical assistant to the VP of process development, and in Engineering and Technology Services, working as a technologist for AMD's 65nm SOI technology. Dr. Tonti has contributed in the development of PowerPC microprocessor technology and reliability strategies, as well as a program manager in the wired communication space. Dr Tonti was heavily involved in the giga-bit vertical DRAM cell technology development.

Dr. Tonti was the 2002 IEEE International Reliability Physics Symposium General Chairman, and the 2000 IEEE Integrated Reliability Workshop General Chairman. He has authored numerous contributed, keynote , and invited papers, and holds just under 250 U.S. patents.

Dr. Tonti is a member of tau beta pi, eta kappa nu, a fellow of the IEEE, a former advisory board member of the IEEE Transactions on Device and Material Reliability, a recipient of the IEEE 3'rd millennium medal (for contributions in semiconductor reliability) , and a former ABET engineering curriculum evaluator. Dr. Tonti served as the IEEE Reliability Society President. Dr Tonti was elevated to the position of IEEE fellow in November 2008 and he was awarded the IEEE reliability engineer of the year.



Life Member Affinity Group

2011 May Technical Meeting

Topic: To be announced

When: Monday, 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://insidersrp/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:

- 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	lesdavietii@cs.com
Program Chair	Ronald L. Sprague, P.E.	rlsprague@q.com
Past Chair	C Bruce Johnson	cbj@johnsonscientificgroup.com

**March Meeting Announcement
for the
Phoenix Chapter of the
IEEE EMC Society**



Date: Thursday, March 17th, 2011

Place: Garcia's Mexican Restaurant at Embassy Suites Hotel

Address: 4400 South Rural Road, Tempe, Arizona
Just South of U.S. 60 on West side of Rural Rd.

Time: 5:30PM Social, 6PM Dinner (order off the menu), 7PM Meeting in Embassy Suites Junior Ballroom (upstairs)

Title: Introduction to Antennas, Antenna Theory, Parameters and Antennas for EMC

Speaker: Vicente Rodriguez, Ph.D., Antenna Product Manager, ETS-Lindgren L.P., Cedar Park, TX, USA

Abstract: Antennas are a mysterious element in the EMC lab. Clearly EMC engineers use antennas in a way that nobody else does. EMC engineers introduce their own nomenclature to antenna engineering, with parameters such as the antenna factor. As standards evolve, other antenna parameters are becoming more important and standards and auditors love to throw them in the faces of confused EMC engineers. The goal of this presentation is to shine a light onto the mysterious world of antennas. Antennas are studied and their radiation mechanisms and performance are evaluated. The radiation pattern is broken into its parameters for easier evaluation and understanding. The concepts are applied to the needs of the EMC engineer. The goal is to provide the EMC engineer using antennas with the knowledge to battle zealous auditors and confusing standards. The presentation is done using minimal mathematics as the complexity of formulas can fog the message and make the subject unclear.

Biography: Dr. Vince Rodriguez attended Ole Miss, in Oxford MS, where he obtained his BSEE, MS and Ph.D. in 1994, 96 and 99, respectively. After a short period as visiting professor at the department of Electrical Engineering and Computer Science at Texas A&M University, Dr. Rodriguez joined ETS-Lindgren as an RF and Electromagnetics engineer in June 2000. In September 2004 Dr. Rodriguez took over the position of Senior Principal Antenna Design Engineer, placing him in charge of the development of new antennas for different applications and on improving the existing antenna line. In 2006 Dr. Rodriguez became the Antenna Product Manager placing him in charge of development, marketing and maintenance of the entire antenna product line. Dr. Rodriguez' interests are Numerical Methods in Electromagnetics especially when applied to antenna, EMC and RF/MW absorber design and analysis. Dr. Rodriguez is the author of more than fifty publications including journal and conference papers as well as book chapters. Dr. Rodriguez holds US patents for hybrid absorber and for a new dual ridge horn antenna. Dr. Rodriguez is a Senior Member of the IEEE and several of its technical societies. He is also a Senior Member of the Antenna Measurements Techniques Association (AMTA) as well as a member of the board of directors of AMTA. Dr. Rodriguez is an active member of the Applied Computational Electromagnetic Society (ACES). He is an Associate Editor of the ACES Journal and serves as a reviewer for the ACES Journal and for the Journal of Electromagnetic Waves and Applications (JEWAA).

Reservations: To help us get an accurate headcount, please send an email to Harry Gaul (harry.gaul@ieee.org). There is no charge for meetings, but you pay for your own meal and drinks. Since we order off the menu, we do not need an exact number, so if you decide at the last minute, please come anyway. You don't need to be an IEEE or EMC Society member to attend -- all are welcome.



IEEE Components, Packaging and Manufacturing Technology Society
Phoenix Chapter

Wednesday, March 16th, 2011 at 6 PM

Thermal Characterization of Heat Removal Apparatus for High Power RFPA Devices

Dr. Mahesh Shah

Senior Member of the Technical Staff, RF Product Division.
Freescale Semiconductor Inc.
Tempe, Arizona 85284

ABSTRACT:

“Green” initiatives are driving focus on power dissipated as heat, in the cellular and broadcast base stations. In addition, cost-effective and efficient heat removal is necessary for high power RF transistors, to boost the device performance and reliability. This presentation summarizes thermal characteristics of commercially available heat removal apparatus. Some of the heat removal products evaluated in this presentation include: heat spreaders with pin fin array, four pass Cu heat pipes in Aluminum, bonded fin Aluminum heat sink and extruded fin Aluminum heat sink. MRF6VP2600H device with 600W of RF output at 200 MHz band was used as the test vehicle to compare the performance of various commercially available heat sinks technologies. The presentation will cover effectiveness of various cooling technologies and how it impacts the performance of high power amplifiers used in broadcast applications such as Cellular Base Stations, Radio and TV transmitters and Peer-to-Peer communication network.

BIOGRAPHY:

Dr. Mahesh Shah is Manager for DFM in RF Product Division of Freescale Semiconductor. He received Bachelor in Engineering from India; Masters and Ph. D. from North Carolina State University. His expertise is in Applied Mechanics and Finite Element Analysis. Dr. Shah joined Motorola’s Government & Space Technology Group in 1987 where he was involved in design and analysis of electronics modules and development of fracture and penetration mechanics simulation for defense electronics products. In 1993, he joined Sensor Product Division to set up a Packaging Technology Center for MEMS packaging. He developed a modeling methodology to couple piezo-resistive behavior of Si sensors for use in circuit simulators. He developed new packages for pressure and inertial sensors. In 1998, he joined the Wireless Infrastructure Systems Division and developed metal-ceramic and plastic packages for high power wireless application. He is an active member of the Electronics Packaging Section of American Society of Mechanical Engineers and Components, Packaging and Manufacturing Technology Section of IEEE. He has authored over 40 technical papers in the field of Numerical Simulation and Electronic Packaging and has been awarded 9 US patents. He is part of peer review process and has chaired and organized conference session on Electronics Packaging at the ASME Annual meeting.

Date: Wednesday, March 16th, 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

Surinder Tuli (480) 554-8275

Samir Pandey (480) 552-7502

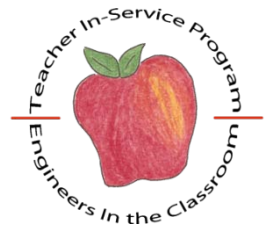


TISP/EIC Report

1 February 2011

Mike Poggie

John F. Purchase



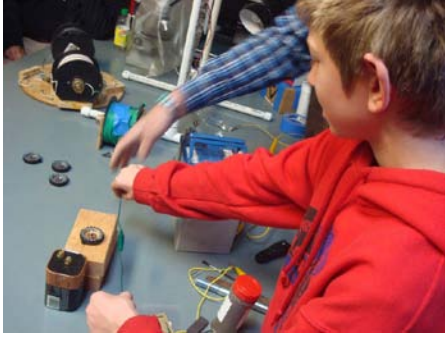
School Support Plan For 2010 / 2011 School Year:

- In the current support plan for the 2010 / 2011 school year we now have:
 - 9 schools / 44 classes in 2010, September 1 – December 31
 - 11 schools / 69 classes in 2011, January 1 – May 31
 - A total of 2562 students
 - This student count excludes Kid Zone where we only loan the capital equipment
- We are basically fielding a team of 4 – 5 members to a school each and every week until the end of May
- We are already receiving bookings for the next 2011 / 2012 school year
 - October is already fully booked

We Offer Six Ready-To-Run Lesson Plans:

- "Sail Away" – Archimedes Principle, Newton's Laws
- "Working With Watermills" – Mechanical Advantage, Simple Machines
- "All About Electric Motors" – Magnetism, Electromagnetism, Electric Motors
- "Here Comes The Sun" – Electric Circuits, Sources & Loads In Series & Parallel, Solar Cells
- "Rockets!" – Newton's Laws
- "Popsicle Bridges" – Structures In Compression And Tension
- Three of them were new this year:
 - All About Electric Motors
 - This was actually a rework of an existing lesson plan from the beginning of EIC
 - Rockets!
 - Popsicle Bridges

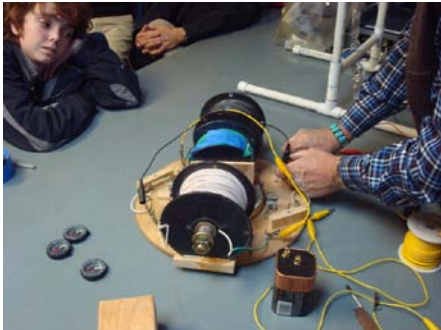
TEACHING ELECTROMAGNETIC THEORY & PRACTICE



DEMONSTRATING ELECTROMAGNETICS



DEMONSTRATING ELECTROMAGNETICS



WINDING THE KIT MOTOR ARMATURE



2/1/2011

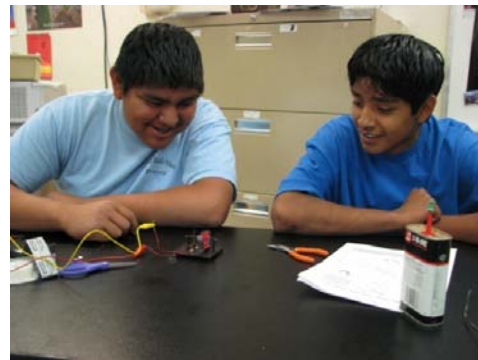
IEEE TISP/EIC

4

WORKING OUT WHAT TO DO



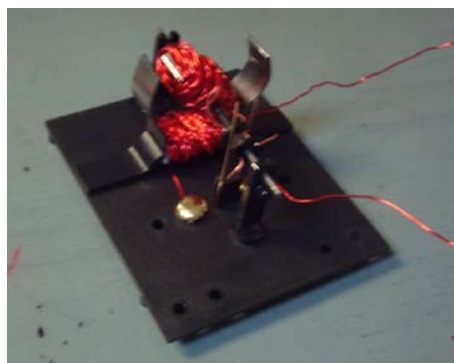
SUCCESS!



THE ENGINEERS HELP OUT



STUDENT'S KIT MOTOR AS BUILT



2/1/2011

IEEE TISP/EIC

5

TEACHING ROCKET THEORY



DEMO OF CG / CG OFFSET FOR FLIGHT STABILITY



TEACHING THE SIMULATOR OPERATION



THE SAME TEACHER HELPS WITH THE SIMULATOR



2/2/11

2/2/11

3

BUILDING



BUILDING



A COMPLETED ROCKET



LAUNCH



2/2/11

2/2/11

4

We Did A "Classic TISP" In January:

- The Principal of Rover Elementary in Tempe is converting his school to an Arts And Science Academy
- Consequence of pressure from parents unhappy with NCLB
- Started in 2009 and completes in 2011
- Is getting some support from a professor at ASU School of Engineering
- He asked Phoenix TISP to conduct a "classic TISP" session to train 14 of his grade 2 thru' 5 teachers in how to teach STEM
- TISP session was scheduled for Friday, January 7th and Saturday, January 8th
- Led by Mike Poggie with support from
 - John Purchase
 - Dave Leeper
 - Tom Innes
- Lecture followed by two hands-on lesson plans from TryEngineering
 - All About Electric Motors
 - Popsicle Bridges
- After the session the principal, Mark Martinez, told us it had been exactly what he wanted
- The teachers also all expressed their appreciation and enjoyment of the session
- Our equipment and material costs are being covered by IEEE National Office

MIKE P LECTURES ON IEEE & TISP



DAVE L LECTURES AND JOHN P DEMO'S MAGNETISM



JOHN F LECTURES ON TEACHING GRADES 2 - 5



JOHN F LAUNCHES AN AIR ROCKET



2/1/2011

IEEE TISP/EIC

10

BUILDING TRUSSES



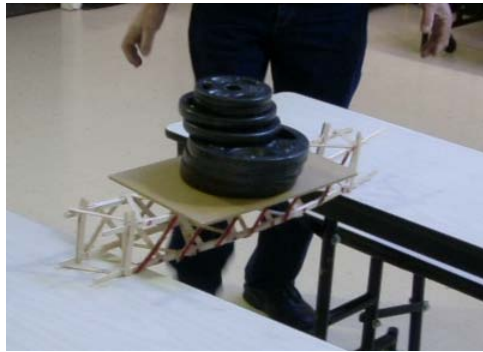
BUILDING A TRUSS STRUCTURE



COMPLETE WITH SPARKLES!



AND IT CARRIES 50 LBS!



2/1/2011

IEEE TISP/EIC

11

A FINISHED TRUSS BRIDGE, BUT.....OOOPS!



A MASSIVE TRUSS THAT CARRIED 75 LBS WITH HARDLY ANY SAG!



2/1/2011

IEEE TISP/EIC

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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



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) by February 28, 2011. Please indicate if you would be willing to serve on the organizing committee and which roles would be of interest to you (e.g., Chair, Vice Chair, Treasurer/Secretary, Publicity/Web).

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



Phoenix Chapter of the IEEE Computer Society

March, 2011

Future Events

We continue with our bi-monthly schedule for 2011:

- March 27, 2011 – Chapter picnic, Wilkin Ramada, McCormick-Stillman Railroad Park, Scottsdale; details forthcoming, picnic will begin at 3:00 pm.
- May 4, 2011 – Chapter meeting, DeVry University; speaker: Brad Morantz.
- July 6, 2011 – 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/>

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)



WAVES AND DEVICES

PHOENIX CHAPTER

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

2011 Calendar



<u>Date</u>	<u>Time</u>	<u>Location</u>	<u>Topic / Title / Status</u>	<u>Speaker</u>	<u>Affiliation</u>
Postponed until further notice		Agilent, Chandler	Radio Communications Systems on Next Generation Manned Space Vehicle	Mr. William Boger	General Dynamics
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. Chickamenahall	Intel
24-Mar	5:30 PM	ASU GWC487	Semiconductor Device Characterization and Failure Analysis	Dr. Dieter Schroder	ASU

INSTITUTE OF ELECTRICAL AND ELECTRONIC ENGINEERS
WAVES AND DEVICES - Phoenix Chapter

Meeting Free & Open to Non-IEEE Members

4:00PM, Friday, March 24, 2011

**Arizona State University
Goldwater Center, GWC487
650 E. Tyler Mall, Tempe, AZ**



Failure Analysis of Semiconductor Devices

Dr. Dieter Schroder of Arizona State University

Abstract:

The first task during failure analysis is failure site location. This becomes progressively more difficult as the feature size of today's devices continue to shrink, the device structure becomes more complex, consisting of many metal layers, flip-chip bonding, etc., pushing many existing characterization tools to the limits. Techniques to be discussed include IDDQ testing, laser stimulated defect localization methods, emission microscopy, microprobing, voltage contrast, optical beam induced resistance change, and picosecond imaging circuit analysis. Well-established techniques like mechanical probing have taken on a second life as scanning probes with submicron mechanical resolution have been developed. Transmission electron microscopy is continuing to improve with sub-Angstrom resolution, allowing imaging of individual atoms. I will give relevant examples of these various techniques.

Biography:

Dieter K. Schroder has worked with semiconductor material and device electrical characterization for the last 40 years. He received his education at McGill University and at the University of Illinois. He joined the Westinghouse Research Labs. in 1968 where he was engaged in research on various aspects of semiconductor devices, including MOS devices, imaging arrays, power devices, and magnetostatic waves. In 1981 he joined Arizona State University, where his current interests are semiconductor devices, defects in semiconductors, semiconductor material and device characterization, low power electronics, photovoltaics and device modeling. He has written two books Advanced MOS Devices and Semiconductor Material and Device Characterization, edited 11 books, has written over 180 papers and 10 book chapters, holds 5 patents, supervised 105 graduate students. He has received several teaching awards, has taught many short courses in the area of Semiconductor Characterization and is an IEEE Life Fellow.

Date: Thursday, March 24, 2011

Time: 5:30 PM Presentations
Pizza will be served following the Seminar

Location: Goldwater Center, GWC487, Arizona State University, 650 E. Tyler Mall, Tempe, AZ

For more information, contact:

Steve Rockwell (WAD Chapter Chair)	(480) 241-9891	steve.rockwell@ieee.org
Haolu Xie (Chapter Publicity)	(480) 413-5644	haolu.xie@ieee.org

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



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 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 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.pscexpo.com/>

The conference is currently being hosted by the following utilities: Arizona Public Service, Salt River Project, Tucson Electric Power (UniSource) UniSource Energy Services (Kingman), Page Electric Utility, Navopache Electric Cooperative, Trico Electric Cooperative, Southwest Transmission Cooperative and the City of Mesa.

The conference theme has been identified as: ***The Next Generation Grid... Putting it All Together***. It is expected that professionals from the worldwide power and energy industry will attend the event. Individuals who are practicing power systems engineers, operators, policy makers, economists, academics and others with interest in the advancing the state-of-the-art in power systems are encouraged to attend and register early to achieve the best conference registration fee and the most preferred rate for their hotel room reservation. The conference program spans four days and is combined with a three-

day exposition. The technical conference program will include technical poster sessions, focused technical panel sessions, instructional tutorial sessions, a special short course, a collegiate program and an exposition that features exhibitors who will showcase state-of-the-art software and hardware systems and consulting services for those attendees who are involved with power systems. Significant papers originating from all PES Technical Committees of the Power & Energy Society will be presented.

A comprehensive technical program is offered to attendees and will include the following subjects:

- Smart sensors, communication and control in power and energy systems
- Smart grid for distributed energy resources
- Cyber and physical security systems for the Smart Grid
- Advanced computational methods for power system planning, operation, and control
- 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
- Flexible AC transmission systems
- And more...

Tutorials

A complete program of tutorials is being offered and will feature the topics listed below.

Visit www.psceexpo.com/Tutorials.asp

Tutorial T1: FACTS Controllers and Their Modeling Techniques

Tutorial T2: Understanding of Electrical Concepts in Wind Turbines and Photovoltaic Arrays

Tutorial T3: Microgrids – Designing Their Role in Smart Grid

Tutorial T4: Smart Grid Cybersecurity – Protecting the Smart Grid

Tutorial T5: Fundamentals of Wind Energy

Tutorial T6: Emerging Smart Grid: Improved Distribution Management System
Incorporating Advanced Solutions

Plain Talk Courses Offered 3 Days

Plain Talk about the Electric Power Industry Courses are co-located with the PSCE. Registration to the Conference not required. **PES PLAIN TALK** courses for the power industry professional will help you to understand technical aspects of the electric power industry, even if you do not have an engineering background. Topics include:

Power System Basics—Understanding the Electric Utility Operation Inside and Out

Distribution System—Delivering Power to the Customer

Transmission System—The Interconnected Bulk Electric System



2011 IEEE Phoenix Section Calendar

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

- 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 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 new [IEEE Phoenix Section Group on LinkedIn](#). Signing up only takes minutes and is free. A job board is available as well.