

The Valley Megaphone

Newsletter of the
**Institute of Electrical and
Electronics Engineers, Inc.,
Phoenix Section**
January 2010,
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In this Issue of the Valley Megaphone:

Contacts:

Executive Committee	1
Chapters and Branches	1
Student Branches	2

Contents:

U - News	2
U - Newsbytes	2
IEEE EMC Society	3
Waves and Devices	4
Power & Energy Society Announcements	6
Phoenix Section Life Members.....	7
Computer Society Technical Meetings	8
Electrical Engineering night at Imagine Charter School	10
IEEE Phoenix Area Consultant's Network ..	12
Upcoming IEEE Conferences in Phoenix	13
Help IEEE-USA Reform Science Education .	14
Teacher In-Service Program	15
Phoenix Section Annual Banquet.....	22
Award Nomination Form	27
Future City Competition Arizona Region	29
IEEE President's Change the World Competition.....	30
IEEE-USA Launches TechMatch to Help Entrepreneurs	31
60th Electronic Components and Technology Conference (ECTC)	32
Components, Packaging and Manufacturing Technology Society	33
Open Source University Meetup	34
Phoenix Section Executive Committee Meeting	34
IEEE Phoenix - Calendar of Events	34

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

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U – News

(for Student Members)

IEEE SCHOLARSHIP APPLICATIONS ARE FOCUS ! (Due Jan 21st)

Many students benefited financially from previous IEEE Scholarships noting there are several categories related to overall selection of recipients. These include academic achievement, financial need, service to IEEE and general review of the various portions of applications which are submitted.

Scholarship Application paperwork is minimal compared to semester of homework, tests and exams and well worth the effort for the opportunity to receive an award. This is also an opportunity for all applicants to have their resumes and capabilities reviewed by the Phoenix IEEE Exec Committee.

Scholarships are awarded at the Annual Banquet scheduled for 02/13/10 and I am looking forward to seeing many student members again this year.

STUDENT ACTIVITY CHAIR INVITED to DEC 2009 ASU GRADUATION !

It has been many years since I had attended a University Graduation Ceremony and was an honor to be invited by IEEE Student Members for their engineering graduation on the ASU Main Campus here in December, which may in fact become an event that I attend annually from now on !

Graduation is a very proud moment for students, teachers, friends and family members, with seeing them all in one location, having an impact on the perspective of exactly what was involved in getting to this point as well as, the importance of keeping close contact with this supportive network !

This U-News Page, initiated last year, will continue to serve as the focal point for communications related to Student Branch Activity. The Section Committee is always looking for student recommendations for various improvements and support in expanding student memberships.

Regards,

Nick Leonardi
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Student Activities Chair

Student Branches

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U - Newsbytes

See the Section Web site for updated forms for both the Student Paper Contest <http://www.ewh.ieee.org/r6/phoenix/StudentPaper.htm> and Scholarships <http://www.ewh.ieee.org/r6/phoenix/Scholarships.htm>.

Criteria for applying includes the following:

- For full-time undergraduates who are members of IEEE: approved majors are Electrical Engineering, Computer Systems Engineering, Electrical Engineering Technology, Computer Engineering Technology, or Computer Science
- Must attend a university in the Phoenix Section during 2008-2009 (*i.e.*, ASU, ASU Polytechnic, DeVry, Embry-Riddle, or NAU)



IEEE EMC Society Phoenix Chapter Next Meeting



Date: Tuesday, January 19th, 2010
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
Title: Platform Interference in Wireless Systems
Speaker: Kevin Slattery, Intel, Manager for Advanced Signaling and Interference Technologies

Abstract: With the advent of mobile computing, wireless communication has become an integral part of the compute platform. Who would now consider buying a laptop without wireless? At the same time, what were once simple communication devices such as cell phones are now adding functions which require subsystems ordinarily associated with compute devices. So what's the big deal? The problem is these devices were never intended to coexist. Communications devices have not been designed with high speed digital logic in mind. High Speed digital logic has never included communications as a design vector. The end result is that these devices don't work well together and much shoehorning is currently undertaken to make them cohabit in the same device. That shoehorning generally incurs costs in terms of product delays and additional mitigation solutions. It is a sobering thought that 3dB of noise can reduce the performance of your communications system by 50%. It is even more sobering that 20 or even 30dB of noise is common on some devices. This talk has two main intentions including an education in what RF interference is and as a reference source for identifying noise related issues and mitigating them in your current or future design.

Biography: Mr. Slattery is presently with Intel in Oregon and is the manager for the Advanced Signaling and Interference Technologies team in the Corporate Technology Group. He has been working in the field of EMI/EMC for 18 years and has developed measurement techniques and analytical approaches for the evaluation of high speed processors, chipsets, LAN and display electronics. Mr. Slattery has been one of the pioneers in developing near field measurement techniques for the scanning of integrated circuits providing some of the first surface field distributions of high spatial resolution. He was also one of the pioneers in the use of broadband radiated emissions techniques with VLSI GHz TEM cells designed specifically for measuring integrated circuits. Both the near field scanning and GTEM measurements have become IEC standards. In addition, he works on RF interference mitigation, EMI/EMC and high speed clocking issues. He has over 35 publications in the fields of EMC and RFI.

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.



Waves and Devices Phoenix Chapter

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



2010 Calendar

Topic / Title	Speaker	Affiliation	Date	Society	Location	Time
Digital Pre-Distortion for high linearity RF Power Amplifiers	Dr. John Wood	Freescale	27-Jan	ED & MTT	Agilent, Chandler	5:30 PM
Retirement planning	Dr. Gail Waytena / Greg Wojak	LPL Financial	5-Feb	General	TBD	TBD
Integrated circuit antennas	Dr. Jim Aberle	ASU	19-Feb	AP & MTT	ASU	TBD
IEEE's role in International Relations and Engineering Education	Dr. Barry Perlman	IEEE / Army	March	General	TBD	TBD
State-of-the-Art Time-Domain Measurement and Modeling Techniques	Dr. Christopher Silva	The Aerospace Corp.	16-Apr	MTT	TBD	TBD
DARPA Research	Dr. Robert Reuss	Consultant, Format DARPA program manager	14-May	General	TBD	TBD
Silicon device modeling	Dr. Abdol Keshavarz	ST Microelectronics	25-Jun	ED	TBD	TBD
Rough-Metal-Surface Propagation Loss Modeling	Dr. Henning Braunisch	Intel	23-Jul	MTT	TBD	TBD
mm-wave device characterization & modeling	Dr. Marcel Tutt	Freescale	Aug		TBD	TBD
Wireless Networks for Medical Implant Devices	Dr. Sayfe Kiaei	ASU	Sep	ED, MTT, & AP	ASU	TBD
	TBD		Oct		TBD	TBD
	TBD		Nov		TBD	TBD

Special Notice to IEEE Student Members: Present your IEEE Student Member card at the meeting and get your meal for free including drinks (except for alcoholic beverages).



Digital Pre-Distortion for High Linearity RF Power Amplifiers



Dr. John Wood

Freescale Semiconductor, Inc, Tempe, AZ

Abstract

In RF transmitters, the power amplifier is usually the limiting factor in terms of both the efficiency of the system, and the overall linearity. In recent years, as the spectral efficiency of the modulation methods required for communications standards such as WiMAX, LTE, etc. has increased, improvements in the PA efficiency have been wrought by device technology and circuit & system architectures. While the linearity and efficiency can be traded-off against each other, the communications standards also specify limits of acceptable nonlinearity in terms of error vector and spectral spreading, for instance. The PA or system designer must then include some form of linearizer to meet these specifications. The emergence of high speed digital processing as an enabling technology to implement pre-distortion on the PA input signal now provides a means of achieving high efficiency and satisfactory linearity from the PA. This presentation shall provide some background for the sources and effects of nonlinear behavior in RF power amplifiers, and a description of a typical digital pre-distortion system and its application in the transmitter.

Biography

John Wood received B.Sc. and Ph.D. degrees in Electrical and Electronic Engineering from the University of Leeds, UK, in 1976 and 1980, respectively. He is currently a Senior Member of the Technical Staff responsible for RF CAD & Modeling in the RF Division of Freescale Semiconductor, Inc, Tempe, AZ, USA. His areas of expertise include the development of compact device models and behavioral models for RF power transistors and ICs, and understanding of the impact, characterization, & control of nonlinearities in high-efficiency PAs using linearization and pre-distortion techniques. From 1997–2005 he worked in the Microwave Technology Center of Agilent Technologies (then Hewlett Packard) in Santa Rosa, CA, USA, where his research work has included the investigation, characterization, and development of large-signal and bias-dependent linear FET models for millimeter-wave applications, and nonlinear behavioral modeling using LSNA measurements and nonlinear system identification.

He is author or co-author of over 100 papers and articles in the fields of microwave device and system modeling and characterization, and microwave device technology. He is the co-author of Modeling and Characterization of RF and Microwave Power FETs (Cambridge, 2007), and co-editor of Fundamentals of Nonlinear Behavioral Modeling for RF and Microwave Design (Artech House, 2005). He received the ARFTG Technology Award in 2007. He is a Fellow of the IEEE, and a member of the Microwave Theory and Techniques, and Electron Devices Societies.

Date: Jan. 27th, 2010

Location: [Agilent Sales Office, Suite 367, 4330 West Chandler Blvd., Chandler AZ 85226](#)

(In Stellar Business Center on North side of Chandler Blvd west of McClintock Rd.)

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

For more information, contact:

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Chuck Weitzel (Chapter Publicity) (480) 292-0531

c.weitzel@ieee.org

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



Power & Energy Society Announcements



Palo Verde Plant Tour

Date: Thursday, January 21, 2010

Location: PVNGS

This tour is full and we are looking into a 2nd Tour for February.
For questions and additional information contact: Rafael Rios, APS, Transmission and Distribution & Engineering Standards at (602) 809-0349 or email Rafael.Rios@aps.com

February 2010 Technical Meeting

Date: Thursday, February 18, 2010

Time: 11:30 am - 12:00 noon: Registration
12:00 noon: Lunch
12:30 pm: Program

Location: SRP

Speaker: Professor Heydt

Topic: Smart Grid Activities at ASU

March 2010 Technical Meeting

Date: Thursday, March 18, 2010

Time: 11:30 am - 12:00 noon: Registration
12:00 noon: Lunch
12:30 pm: Program

Location: SRP

Speaker: Professor Holbert

Topic: An Update on Nuclear Power in the US

Future Technical Meetings

April 15th APS Oct 21st SRP May 20th SRP Nov 18th APS
Sep 16th APS



Phoenix Section Life Members Affinity Group, Announcements

The IEEE Phoenix Chapter Life Member (LM) Affinity Group was organized in 2008 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. Life Members Affinity Groups replaced Life Member Chapters in 2005.

Annually, three technical meetings and three administrative meetings meet our minimum required activity. A 2010 goal is to add activities meeting some of the other purposes stated above. Please participate in this 2010 goal by contacting any of the Group's officers with ideas. Technical meeting topics and suggested speakers are also encouraged.

An IEEE member automatically becomes an IEEE "Life Member" status when at least 65 years of age and a member of IEEE (including predecessor societies) for a period sufficient for the minimum 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

The LM Committee thank Bruce Johnson for accepting the Chair position for 2010 and thank George Karady the 2009 Past Chair and founding member Rao Thallam for his initiative and guidance for the last two years.

Our 2010 LM Group chairs, elected by the attending members at the December 9, meeting are:

Chair	C Bruce Johnson	cbj@johnsonscientificgroup.com
Vice Chair	Michel Ebertin	Michel@ebertin.net
Secretary	A. Barry Cummings	Barry.Cummings@srpnet.com
Treasurer	Leslie Daviet II	lesdavietii@cs.com
Program Chair	Ronald L. Sprague, P.E.	r.sprague@ieee.org
Past Chair	Professor George Karady	karady@asu.edu

Upcoming

Administrative Meeting: January (date not scheduled) to seat the elected Chairs and plan the February technical meeting

Technical meeting:

Topic: To be announced.

Date: Wednesday, Wednesday, 2010 (tentative)

Location: SRP's PERA Club, 1 East Continental Drive, Tempe, west of 68th street, ½ mile south of McDowell Road.



Computer Society Technical Meetings



Phoenix Chapter Website

www.ewh.ieee.org/r6/phoenix/compsociety

Monthly Meeting

Date: Wednesday, January 13, 2010, 6:00 P.M. - 8:30 P.M.

Speaker: **Dr. Gil Speyer**, HPCI, Arizona State University

After receiving his B.S. in electrical engineering from MIT, Dr. Speyer worked on FPGAs at Xilinx, Inc. in San Jose, CA. He earned his M.S. and Ph.D. in electrical engineering at ASU under Dr. David Ferry, researching transport in molecular devices. For the last few years, Dr. Speyer has worked for the High Performance Computing Initiative at ASU developing parallel codes with various research groups.

Topic: **"High Performance Computing at Arizona State University"**

Computational researchers often encounter difficulty with their calculations in the effort to model complex systems. Accuracy demands large-scale models, which, in turn, require large amounts of computer memory and processing. On a single processor system, the computation is therefore hamstrung. In harnessing thousands of processors together, the ASU High Performance Computing Initiative provides a resource for computational researchers to investigate at large scale. The aim of this talk is to describe the Saguaro 2 cluster at ASU, to discuss the fundamentals of parallel programming and to present research examples from ASU that exploit the Saguaro 2 system.

Location: **DeVry University**, 2149 W. Dunlap Ave., Phoenix, AZ 85021
(1 mile east of I-17 on Dunlap, SE corner of 22nd Ave and Dunlap)

Networking will be in the meeting room from 6:00-7:00 P.M. with a light meal. Meeting Room number will be announced on our web site and via email to all of those on our mailing list at least one week prior to the meeting. **Presentation starts at 7:00 P.M.**

Free, everyone is welcome.

***** Mark this date!! *****

Saturday, March 6, 2010

Phoenix Chapter 3rd Annual Picnic

Everyone is welcome. Please tell others about this really fun event!

Date: Saturday, March 6, 2010

Time: 10:30 am until 2 pm

Place: Palo Verde Pavilion, Desert Breeze Park, Chandler, AZ.

\$1 for in-advance student purchase

\$3 for in-advance member or at-event student purchase

\$5 for in-advance non-member or at-event member purchase

\$7 for at-event non-member purchase

(We will be selling tickets at our upcoming Chapter meeting in January, or email any of our officers to reserve your in-advance tickets as soon as possible!)

View the photos from last year's event on our web site:

http://ewh.ieee.org/r6/phoenix/compsociety/photo_gallery/photo_gallery.htm)

More details about Desert Breeze Park:

(660 North Desert Breeze Boulevard East, Chandler, AZ.)

The BBQ/picnic is at the **Palo Verde Pavilion on the Southwest side of the park.** There are several family friendly activities at the park.

A fantastic place to spend family time, Desert Breeze Park is chock full of fun things to do. Children especially like the splash pad, along with a playground, ball fields, rides on Desert Breeze Railroad (a 16"-gauge train), a carousel, and a lake for fishing. Grown-ups favor walking trails, tennis courts, a hummingbird habitat, and a demonstration garden that features Southwestern plants. Restrooms and picnic facilities are available.

Railroad - <http://www.desertbreezerr.com/start.html>

Hummingbird Habitat – <http://www.chandleraz.gov/default.aspx?pageid=679>

Fishing Lake – http://www.azgfd.gov/h_f/urban_lake_desert_breeze.shtml

Future Events

- **February 13, 2010 – IEEE Phoenix Section Annual Banquet**
Keynote Speaker: **Dr. Larry Kazmerski** - Director, National Renewable Energy Laboratory (NREL)
- **March 6, 2010 – Computer Society Chapter Annual Picnic**
- **April 7, 2010 – Dr. George Proeller; "Personal Electronic Devices; iPODS, PDAs and Cell Phones - a Forensics Discussion"**
- **May 5, 2010 - TBA**
- **September 8, 2010 – Jerry Crow; 'Cryptography, Part 1'**
- **October 6, 2010 – Jerry Crow; 'Cryptography, Part 2'**
- **November 3, 2010 – TBA**
- **December 1, 2010 - TBA**

Please contact Jon.Candelaria@motorola.com or any of our officers to suggest a topic and/or speaker for any of our upcoming meetings.

Past Meetings

For information about any past meetings and presentation files, go to:

www.ewh.ieee.org/r6/phoenix/compsociety/meetings/meetings.htm



Electrical Engineering night at Imagine Charter School

On November 25, the Eta Kappa Nu and IEEE members went to Imagine Charter School to show 2nd through 7th graders how to build circuits in an Electrical Engineering night.

Electrical Engineering was introduced in this program through hands on experience building circuits on an Electronics Learning Lab from Radio Shack. The children were split into seven small groups of 2 to 3 students according to their grade level and into three different sections. Each child was given a Basic Electronics workbook that contained two circuit designs that were picked out of the workbook that came with the Electronics Learning Lab. Before the students started the circuits, they were given an introduction speech by Dr. Hugh Barnaby and Dr. Jennifer Christen. The children were asked what Electrical Engineering was to them. Most children replied with an answer of the things that are in a computer, lights, and things that are in a car.

The children participating in this lab were given the goal of completing one of the two circuits in 30-45 minutes and were called the Junior Engineers in training. This goal was easy to complete with the supervision of the volunteer college students with Eta Kappa Nu and IEEE who were called "the Senior Engineers". At the end of the section, the Junior Engineers were given a certificate of completion to reward them for finishing one of the two circuits.







IEEE Phoenix Area Consultant's Network



Our current officers are:

President	Ronald L. Sprague, P.E.	r.sprague@ieee.org
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We have established a tentative schedule of programs for the next year, so we can all plan for future attendance.

Our meetings are held on the second Thursday of the month, unless otherwise indicated.

January 8	No meeting scheduled
February 12	Final officer selection and business meeting
March 12	"Income Taxes for Consultants" David Isaac
April 25	PACN Picnic

We invite any of the IEEE Phoenix Section members and student members to attend our meetings, and we would like some inputs on program topics. Some of the topics we are considering for future meetings are:

- SCORE assistance for Small Business Startups
- The State of Arizona Mechanic's Lien Laws and their application to consultants
- Engineering Registration requirements for offering Professional Engineering services

We will be happy to add any new topics, if they are of interest to the Phoenix Section Membership.



Upcoming IEEE Conferences in Phoenix

The ***IEEE Industrial Electronics Society (IES)*** of the IEEE is holding **IECON 2010 - 36th Annual Conference of IEEE Industrial Electronics** 7-10 November 2010 in Glendale, AZ. For more information:

<http://iecon2010.njit.edu/>

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

For further information, please contact,
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Both of the above Conferences are 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 Instrumentation and Measurement Society*** will sponsor the conference entitled **2010 IEEE International Workshop on Haptic Audio Visual Environments and Games (HAVE 2010)**. This conference will be held in Phoenix, AZ on October 16 - 17, 2010.

For further information, please contact,
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or Conference Business Services Dept., at IEEE Operations Center at +1 732 562 3878.
(Ed. Note: the link above has not yet been updated with the 2010 information as of the date of publication, January, 2010)



Help IEEE-USA Reform Science Education

Russell Harrison, IEEE-USA Senior Legislative Representative, Grassroots Activities

We have a unique opportunity to change the way science and engineering are taught in the United States - if we act quickly.

A bill will soon be introduced into Congress that would help states add engineering to their basic science curriculums at the K-12 level. If passed, the bill would be a significant reform to our STEM education system. The bill will introduce all students to engineering much earlier in their academic careers than we do currently. It will also encourage students to continue their science educations through high-school, a time when many American students abandon the hard sciences.

While the bill has support in Congress, it needs more. We need to explain to our elected officials exactly what the bill is and what it does. Most importantly, we need to convince Congress that this issue is important enough for them to focus on it.

To do this, IEEE-USA is inviting all IEEE members to come to Washington on February 8 and 9 to discuss the bill with your elected leaders.

Full details are here: <http://www.ieeeusa.org/policy/careerflyin/default.asp>

If you are interested in education reform, concerned about how America is educating our future engineers, or worried about the declining number of American students who are majoring in STEM fields, this is your opportunity to make a difference. Please join IEEE-USA on February 8 and 9 to explain this problem, and this solution, with Congress.

Register today!



Teacher In-Service Program Support to Phoenix Schools by IEEE Retirees

The "IEEE Retirees Group For TISP" has been very busy this past month. Two of them, John Purchase and Arnold Brenner, put on the "Working with Watermills" lesson at Sacaton Middle School in the Gila River Indian Community. They gave lessons to three classes of 7th graders, teaching them how potential and kinetic energy and the mechanical advantage of simple machines dictate how watermills work. The students also designed and built water wheels which were tested in a in a jig with a water jet supply and a weight of steel washers to lift. The record was 39 washers, or 624 gms, for the wheel built by two girls (photos below). The weight of water in one bucket on their wheel was 50 gms, giving an MA of 12.5 (the theoretical MA was 16 but they lost some in friction between the wheel axle and the test stand supports). That really brought home to them what mechanical advantage meant; as one said, wide eyed, when she felt the weight of the washers compared with the weight of the water: "Cool!"

We also signed up three new schools:

- **Phoenix Collegiate Academy** (a charter school) for two 6th grade classes doing "Sail Away"
- **Tempe Connolly Middle School** for five 7th grade classes doing "Here Comes The Sun" (this is a new lesson plan for us)
- **Tempe Fees Middle School** for ten 6th grade classes doing "Working With Watermills."

We have assembled three new teams of volunteers to work with these three schools. We have also been approached by Tempe Aguilar Elementary School for lessons with several classes and we are currently talking to them about their needs.

And we still already have Sacaton Middle School next quarter with three 7th grade classes doing "Here Comes The Sun" and then the following quarter three 8th grade classes doing "All About Electric Motors."

So we are now very, very keen to find more volunteers to join us in this extremely rewarding and most important activity, working with students to get them interested in science! Please contact John Purchase, jpurchase@cox.net, if you would like to join us!

Here are some pictures from the Sacaton visit to stimulate your interest:



John Purchase Teaching Potential Energy, Kinetic Energy, Simple Machines, and Mechanical Advantage As Applied To Watermills



Arnold Brenner And One Of The Students Exploring The Concept Of Mechanical Advantage As Applied To Their Water Wheel Designs



Designing And Building— This Design Maximized The Mechanical Advantage And Worked Well Until The Tape Holding The Cups Came Off In The Water Stream!



One Of Our Budding Engineers From Our Previous Lesson, "Sail Away," Building An Elegant Paddle Design (The Science Teacher, JoEllen Kinnamon, Is Sitting Behind; She Is An Avid Supporter Of What We Are Doing For Her Students)



Arnold Brenner And John Purchase Helping Run Various Designs In Test



Our Other Budding Engineer (On The Left) From "Sail Away" With A Good Design — The Red Cup On A String Carries The Steel Washers (Seen On The Table Surface)



The Proud Record Holders With Their Wheel — It Lifted 39 Washers (624 gms!). Unfortunately We Didn't Get A Picture Of It Running



A Large Paddle Design — It Would Have Worked Better If We Had Had A Stronger Water Jet From The Fountain Pump We Were Using!



A Long Paddle Design In Construction — The Students Quickly Grasped The Concept Of Mechanical Advantage Once They Had Run An Initial Test



Many Students Initially Went For A Design Using Spoons As Paddles Until They Saw The Performance Advantage Colleagues Using Small Cups Had Over Them



Another Good Design With Increased Mechanical Advantage In Test

The TISP program is an effort sponsored and promoted by the IEEE national office but run at the local chapter level. As a subset of TISP, talented retirees in the IEEE Phoenix section are being organized by John Purchase to help on this noble cause. Any retiree interested in joining the effort should please email John Purchase at: jpurchase@cox.net. Plus any non-retiree interested in helping the Chapter's TISP effort should get in touch with Mike Poggie at: Mike.Poggie@ieee.org.

Phoenix Section Annual Banquet



Saturday, February 13th, 2010
Hilton Phoenix Airport
5:00 PM – 9:30 PM

Keynote Speaker: **Dr. Larry Kazmerski**
Director, National Renewable Energy Laboratory
Topic: **" Solar Thin-Film Photovoltaics: No Longer an
Outlier. . ."**

Lawrence L. Kazmerski is director of the National Center for Photovoltaics at the National Renewable Energy Laboratory (NREL) in Colorado, US. He received his B.S.E.E. (1967), M.S.E.E. (1968), and his PhD degree in electrical engineering (1970) all from the University of Notre Dame. He served in a postdoctoral position at the University of Notre Dame Radiation Research Laboratory (Atomic Energy Commission) in 1971, and was on the electrical engineering faculty of the University of Maine, where his research included NSF and ERDA funded work in thin-film photo-voltaics and the report of the first thin-film copper-indium-diselenide (CIS) solar cell. He came to the Solar Energy Research Institute (SERI) at NREL in 1977. Kazmerski received the World PV Award in May 2006 for his outstanding contributions to the worldwide advancements of PV science and technology. Sponsored by professional organizations from the European, Asian-Pacific Rim, and American PV communities, the award recognizes superior and sustained leadership in solar PV technologies.

Kazmerski also received the Nelson W. Taylor Award in 2006. This award from the Department of Materials Science and Engineering at Pennsylvania State University has been recognizing outstanding achievements and contributions in the field of materials science since 1970.

The first scientist hired by NREL for PV research, Kazmerski has published more than 310 journal papers on solar cells, thin films, semiconductor materials and devices, surface and interface analysis, scanning probe microscopy, nanoscale technology, high-temperature superconductivity, and semiconductor defects. An author and editor of four books, he is editor-in-chief of the Elsevier journal *Renewable and Sustainable Energy Reviews*.

Kazmerski is a fellow of the Institute of Electrical and Electronics Engineers, the American Physical Society, and the American Vacuum Society. He has won three R&D 100 awards for novel measurement and characterization devices. Kazmerski was inducted into the National Academy of Engineering in 2005.

To print the registration form for the banquet (on page 3 of the flyer), use the following link:
http://ewh.ieee.org/r6/phoenix/Annual_Banquet_2010.pdf



Section Banquet
IEEE PHOENIX SECTION
ANNUAL BANQUET



Saturday, February 13th, 2010 Hilton Phoenix Airport

1. This Awards Guide lists the awards along with the selection criteria that will be implemented for selecting the award recipient.
2. Please read through this awards guide to help you in selecting the award category for nomination.
3. Complete the award nomination form given at the end of this document and submit ONLY as an email attachment to the IEEE Phoenix Section Annual Banquet Organizing Committee member responsible for the award category along with a copy to Dr. Vasu Atluri, Awards Committee Chair. Dr. Vasu Atluri's email address is vpatluri@ieee.org and telephone number is (480) 227-8411. The contact list for the organizing committee members is as follows:

For Member Category Nominations, please send the form along with supporting documents to Dr. Debendra Mallik, Chair, at dmallik@ieee.org. He can be reached by telephone at (480) 201-6322.

For Chapter / Society Category Nominations, please send the form along with supporting documents to Dr. Henning Braunisch, Vice-Chair, at braunisch@ieee.org. He can be reached by telephone at (480) 552-0844.

For Non-Member Category Nominations, please send the form along with supporting documents to Mr. James H. Hudson, Secretary, at jim.hudson@srpnet.com. He can be reached by telephone at (602) 809-0942.

For Corporate Category Nominations, please send the form along with supporting documents to Dr. Vasu Atluri, Awards Committee Chair, at vpatluri@ieee.org. He can be reached by telephone at (480) 227-8411.

For Educational Category Nominations, please send the form along with supporting documents to Mr. Nick Leonardi, Student Activities Coordinator, at nleonardi@ieee.org. He can be reached by telephone at (480) 720-1435.

4. All sections of the form should be completely filled by typing in bold and capital letters. Submission of additional documents such as resume in support of the nomination is highly encouraged.
5. Deadline for submission of the nomination form is Friday, January 21st, 2010. Awards Banquet Committee will review the forms and inform the selected candidates and nominators by Friday, January 25th, 2010 by email.

If you have any additional questions, please contact Dr. Vasu Atluri, Awards Committee Chair, at (480) 227-8411 or by email at vpatluri@ieee.org.

Saturday, February 13th, 2010 Hilton Phoenix Airport -

AWARDS GUIDE

(UPDATED NOVEMBER 2009)

The scope and purpose of the Section Awards program is to plan, promote and implement award and recognition programs that recognize outstanding performance in furthering the objectives and professional aims of the IEEE Phoenix Section, the IEEE and the IEEE-USA, and to stimulate others to pursue such achievements of excellence.

The Phoenix Section has established the following general award and recognition categories:

- Member
- Chapter/Society
- Non-member
- Corporate
- Educational
- Special Chair

Award and Recognition Categories

A. Member:

The Section recognizes individual members in two categories:

- Young Engineer of the Year
- Engineer of the Year

The **Young Engineer of the Year** award is offered to recognize an individual of Member Grade in the section with 10 years or less experience in the profession. Ten years include graduate degree study period. Nominations for this award may be offered by individuals, by a company or by a Society Chapter. Qualifications for the award must satisfy at least one of the following criteria:

- Be recognized by his/her employer for important contributions to a project or company mission
- Made important contributions to the Section/Chapter/Conference, profession or the community through leadership activities related to an event(s)
- Publish at least one refereed technical paper
- Hold at least one U.S. patent

The **Engineer of the Year** award is offered to recognize an individual of Member or Senior Member Grade in the section with over 10 years experience in the profession. Nominations for this award may be offered by individuals, by a company or by a Society Chapter. Qualifications for the award must satisfy at least one of the following criteria:

- Be recognized by his/her employer for important and significant contributions to the organization projects or towards the company mission
- Publish at least two refereed technical papers
- Hold at least two U.S. patents
- Made significant contributions to the community or profession

The Section also recognizes members who attain advanced member grade levels including **Fellow** and **Senior Member**. Criteria are established by the IEEE.

Fellow recognizes unusual distinction in the profession and is conferred only by invitation of the Board of Directors upon a person of outstanding qualifications and experience in IEEE designated fields. It is conferred to a person who has made important individual contributions to one or more of the IEEE designated fields. The Fellow Grade is the highest membership grade which can be achieved within IEEE. Total number selected in any one year does not exceed one-tenth percent of the total voting institute membership.

Senior Member Grade is the highest for which application may be made and requires experience reflecting professional maturity. Candidate should be an engineer, scientist, educator, technical executive, or originator in IEEE designated fields. Candidate should have shown significant practice for at least ten years and significant performance over a period of at least five of those years.

B. Chapter/Society:

The Chapter/Society may provide one award to recognize individual, team or organization using a variety of criteria including technical, professional, chapter / society contribution or other special category. Awards should recognize specific contributions, achievements and efforts (individual or team) in the development and implementation of the criteria used for the award.

An "**Outstanding Society Chapter Award**" for the IEEE Phoenix Section may also be awarded each year. The Section shall solicit and qualify chapters for the Outstanding Society Chapter Award. Nominees are either provided by the Society Chapters or decided by awards committee. The Section may recognize a Society Chapter using a variety of criteria including technical, professional or other special category. Awards should recognize specific contributions, achievements, and efforts including the number of meetings, workshops, etc. consistent with membership size of the Society Chapter, in the development and implementation of the criteria used for this award.

The Chapter/Society award nominations should be approved and submitted by the Chapter Chair or a Chapter Officer assigned by Chapter Chair. The assigned officer name should be informed by Chapter Chair by email in advance to both Dr. Henning Braunisch, Annual Banquet Organizing Committee Member responsible for Chapter / Society Category Nominations, and to Dr. Vasu Atluri, Awards Committee Chair.

C. Non-Member:

The Section may recognize non-IEEE members for exemplary contributions (technical and/or professional) to the engineering profession through their efforts within their company, the community or for the Section.

D. Corporate:

The Section recognizes companies in two categories:

- **Large Company of the Year**
- **Small Company of the Year**

The companies are recognized for their outstanding technical and/or professional contributions in furthering the objectives and professional aims of the IEEE Phoenix Section, the IEEE, the IEEE-USA and the field of Electrical Engineering. The Technical Contributions should include significant contributions or advancements in technology or the application of technology in the electronics or electro-technology fields. The specific area of technology is not restricted and may include, but is not restricted to, design and manufacturing processes, new products or creative applications to existing technologies. The Professional Contributions include significant contributions made to further the professional goals and programs of IEEE. Companies may be recognized for specific contribution, achievements and efforts that promote the professionalism goals of the section and IEEE. Nominations may be for a variety of professionalism related areas including support of IEEE members, employee development and training initiatives, community involvement or other programs that improve the general image of the engineer or engineering profession. Companies with less than or equal to 500 employees are considered Small Companies and those with greater than 500 employees are considered Large Companies during the award selection.

E. Educational:

The Section recognizes educational institutions and educators in the following categories:

- **Outstanding IEEE Student Branch**
- **Outstanding Pre-college Educator**
- **Outstanding Faculty**

The Section shall solicit and qualify award candidates for the Student Branch award. Nominees are provided by the student branch, branch advisor, administrators or Society Chapters. The Section may recognize a Student Branch using a variety of criteria including technical, professional or other special category. Awards should recognize specific contributions, achievements and efforts (individual or team) in the development and implementation of the criteria used for this award.

Nominations for Outstanding Pre-college Educator and Outstanding Faculty may be submitted by any member of the Section. Awards should recognize specific contributions, achievements, programs and efforts completed by an individual who promotes technical literacy, or the technical or professional goals of the Section, the IEEE or the IEEE-USA.

The section also recognizes student scholarship winners selected during the year by a committee consisting of section officers. The criteria for selection are based on academic excellence, participation in IEEE activities, contributions to IEEE and financial need.

F. Special Chair:

The Section Chair may wish to provide up to three special awards to recognize individuals or organizations for activities that support the goals of the Section that are not specified within the above categories, such as public service. The Section Chair may solicit inputs and recommendations from the Awards Committee, Section Officers, and Members of the Section. The Section Chair may recognize IEEE or Non-IEEE members for contributions to IEEE, the engineering profession, and volunteer work. The section chair also recognizes current section officers for their contributions for advancement of the section.



IEEE PHOENIX SECTION ANNUAL BANQUET



Saturday, February 13th, 2010

Hilton Phoenix Airport - Grand Ballroom, Phoenix, Arizona

Award Nomination Form

Completely filled form should be submitted as an email attachment ONLY to the appropriate award committee member
Award committee chair should be copied on the email – Award committee member contacts are listed on the first page

Candidate's Name:
(including Dr., Mr. and Ms.)

Address:

Telephone Number: **Fax Number:**

Email:

IEEE Member: Yes No **Student** **Membership #**

Award Categories: (please select one)

A. Member: Engineer of the Year Young Engineer of the Year

B. Chapter / Society: Technical Professional Special Category

Chapter / Society Contribution

Outstanding Society Chapter

C. Non-Member: Contributions to the IEEE / Engineering Profession

D. Corporate: Large Company of the Year

Small Company of the Year

E. Educational: Outstanding Student Branch Outstanding Faculty

Outstanding Pre-College Educator

F. Special Chair: IEEE / Engineering Contributions Non-IEEE Contributions

Award Citation:
(Limit to Maximum
Twenty Words)



**IEEE PHOENIX SECTION
ANNUAL BANQUET**



Saturday, February 13th, 2010

Hilton Phoenix Airport - Grand Ballroom, Phoenix, Arizona

Award Nomination Form

Completely filled form should be submitted as an email attachment ONLY to the appropriate award committee member Award committee chair should be copied on the email – Award committee member contacts are listed on the first page

Please provide information in support of the nomination in the space provided below – if needed use additional sheets. Submit other documents such as resume in support of the nomination.

Nominator's Name:

IEEE Member: Yes No Student **Member #**

Affiliation: Section Chapter / Society Student Branch None

Affiliated Organization Name:

Telephone Number: **Email:**

Future City Competition Arizona Region



2009-2010 FUTURE CITY COMPETITION

TEAM AND COMPETITION TIMELINE ARIZONA REGION

WWW.FUTURECITY-ARIZONA.ORG

The Future City Competition is a national educational program sponsored by the engineering community to promote technological literacy and engineering to middle school students. The program fosters an interest in math, science, and engineering through hands-on, real world applications. The competition is open to all public, private and parochial schools. The national finals of the Future City Competition are a featured event during Engineers Week with students from across the country competing in Washington, D.C.

The Arizona Regional Competition schedule is based on the same calendar as other regions in the United States. The winner of the Arizona Regional Competition will compete in the national finals in Washington, D.C. during Engineers Week.

Major dates of the Arizona Regional Competition are below. Materials must be submitted on or before the posted dates or points will be deducted.

COMPLETE COMPETITION AND REGISTRATION INFORMATION IS AVAILABLE ON THE WEB.

ACTIVITY	DATE	LOCATION/NOTES
School Registration	August 4, 2009 through October 31	Submit through Future City Arizona web site
Team Registration Deadline	October 31	Submit through Future City Arizona web site
Logical City Model and Computer Design completed	Wednesday, November 18	Submit through Future City Arizona web site
Research Essay and City Design Narrative due	Friday, December 11	Submit through Future City Arizona web site. Submissions must be provided in Word format.
Model, display and reports due to Central Phoenix Library	Saturday-Sunday, Jan 16-17	City models delivered to the Central Phoenix Library. Confirmation of team information and deliverables. Judging takes place.
Models on display at the Central Phoenix Library	January 17 – 22	1221 North Central Phoenix, AZ 85004
Regional Competition University Public School - Phoenix <i>(formerly Phoenix Preparatory Academy)</i> 7th Street and Fillmore	Saturday, January 23, 2010	Team registration begins at 7:00 am. Competition begins promptly at 8:15 am
National Finals in Washington, D.C.	February 13-16	The winning team from the Arizona Region will compete at the national finals.

IEEE President's Change the World Competition



Humanitarian Technology Challenge

Student Design Competition

IEEE is sponsoring a Regional Student Design Competition for solutions to one of three humanitarian problems as part of the joint IEEE-United Nations Foundation Humanitarian Technology Challenge (HTC). The competition runs from Oct. 2009 to May, 2010.

The HTC Regional Student Design Competition challenges students to provide a working prototype, scale model or detailed engineering design specifications for a project that satisfies one of these three Challenges

Reliable electricity

help solve this challenge

Reliable Electricity: Availability of electric power for lighting and other electronic devices in resource-constrained environments. Important for education, communications, and economic development.

Data Connectivity of Rural District Health Offices: Capability of exchanging data among remote field offices and central health facilities. Important for accessing treatment protocols, creating and monitoring health trends, and sharing results of treatments.

of rural district health offices

help solve this challenge

health records

help solve this challenge

Individual ID Tied to Health Records: Consistent availability of patient medical records. Important for ongoing treatment of patients, especially migrants and those with long-term diseases.

The project can be developed by student individuals or by student teams. Projects must be submitted no later than May 28, 2010. The winning teams will be announced in late June. Winning teams will receive regional prizes and the opportunity to present their solution at an HTC Conference in 2010.

Student teams will be judged on the creativity and applicability of their design, completeness of their documentation, and quality of their presentation.

Rules for the Regional Student Design Competition are at www.ieeehtc.org/students.

For additional information about the HTC project, detailed descriptions of the challenges and how to become involved, visit the IEEE-HTC site: www.ieeehtc.org.



IEEE-USA Launches TechMatch to Help Entrepreneurs

Get your high-tech business plan ready for prime time with [IEEE-USA TechMatch](#). The program, available free to IEEE members, provides new entrepreneurs with access to successful business people who will help you improve your plan. First, you get a detailed, automated assessment of your plan and objectives, and then a committee of experienced reviewers will provide sustained, customized feedback to help improve the business plan prior to presentation to prospective investors.

Plan submission and evaluation process

- Plans will be submitted on-line via the IEEE-Tech Match web site, powered by Business Catapult. Here you'll fill out the Benchmark Survey, complete your investment summary, and up load your executive summary and any other relevant documents.
- In the Benchmark Survey, we'll ask you questions about your business concept and strategy. Your answers will be compared to the answers of successful businesses that completed the survey and whose answers have been audited.
- The Investment Summary is a view of your business as an investment opportunity. It provides a clear snapshot to investors, so they understand the basic financial picture at a glance.
- If you have a clear understanding of your investment goals, you'll find the Investment Summary easy to complete. If not, you'll find it provides a framework of key issues investors will want to understand about your company, and thus will guide your preparations to seek outside investment.

The IEEE TechMatch Advisory Services will assign your plan to an Advisory Team. The Team will review the plan and make some detailed comments on how to improve the overall plan. These comments will be released back to you for review and modification. If warranted, the Advisory Team will re-review the updated plan and provide additional comments. This process could take up to 30 days. At the end of this process IEEE TechMatch will return the plan and comments back to you with a recommendation of how to go forward, and whether you are ready to seek funding or not.



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



**60th Electronic Components and Technology
Conference (ECTC)**
June 1 – June 4, 2010
Paris Las Vegas Hotel, Las Vegas, Nevada USA

Call for Papers

The ECTC Electronic Components & RF Program Committee and the CPMT RF & Wireless Technical Committee encourage you to submit an abstract to ECTC 2010 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.

Discrete Passive Components

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

Integrated & Embedded Components

Design, materials, processing, modeling, manufacture, and characterization of integrated & embedded passive & active components on silicon, organic, ceramic, ultra-thin, and glass type substrates for digital, mixed signal, and RF applications; metamaterials, component integration for power converter modules.

RF & Microwave Components

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

RF & Microwave Modules

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

Materials, Processing, Reliability, & Manufacture of Electronic Components

Design, High permeability and high permittivity materials at high frequencies and their processing, yield and reliability aspects of electronic components, through silicon vias, wafer level RDL, and nanostructured materials and processes,

SUBMISSIONS:

Please submit abstracts using the ECTC web site: www.ectc.net by October 15, 2009. 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 for the electronic components & RF/microwave sessions, please do the following:

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

STEP #2: Email abstract copy and author's email & contact information to:
Craig Gaw at c.a.gaw@ieee.org & Amit Agrawal at amiagra2@cisco.com

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

Amit P. Agrawal,
Chair - ECTC Electronic Components & RF TC
Cisco Systems, Inc.
amiagra2@cisco.com



Components, Packaging and Manufacturing Technology Society



Dear IEEE Phoenix Section members:

I am writing to invite you to take active participation in the local IEEE Components, Packaging, and Manufacturing Technology (CPMT) Society Phoenix Chapter. Currently, IEEE CPMT Society Phoenix Chapter is seeking volunteers to serve as officers for 2010. The officer positions include Chair, Vice-Chair, Secretary, Treasurer, Technical Program Chair and Assistant Chair, Membership Chair, Tutorial Committee Chair, Workshop Chair, and Publicity Chair.

The IEEE Components, Packaging and Manufacturing Technology (CPMT) Society is the leading international forum for scientists and engineers engaged in the research, design and development of revolutionary advances in microsystems packaging and manufacturing. The society has presence around the world with a total membership closer to 4000. More info about the CPMT society can be found at <http://www.cpmt.org/>

The activities of the IEEE CPMT Phoenix chapter can be found at <http://ewh.ieee.org/r6/phoenix/cpmt>. The list of activities include monthly technical seminars, two (2) half a day technical tutorials and an annual all-day workshop in partnership with the IEEE Waves and Devices (WAD) Phoenix Chapter. The chapter intends to cater to the needs of IEEE members and non-members within IEEE Phoenix Section by providing

- (i) wide array technical talks related to packaging and assembly
- (ii) low cost technical tutorials to enhance the job skill and
- (iii) generate funds for student scholarships.

The requirements to serve as on IEEE CPMT Society Phoenix Chapter Executive Committee are (i) IEEE member, (ii) IEEE CPMT society member, (iii) should reside in IEEE Phoenix Section. Additional information about membership can be obtained by accessing www.ieee.org. Metropolitan Phoenix, Flagstaff, Prescott and towns listed in the attached file fall under Phoenix fall under IEEE Phoenix Section.

Please circulate this announcement requesting for volunteers among your peers and colleagues to help with needed publicity.

Anyone interested in serving on IEEE CPMT Phoenix Chapter Executive Committee are requested to send their intent by email to samir.pandey@gmail.com by *no later than Sunday, December 13th, 2009*. For additional questions, I can be reached by telephone at (480) 208-7767 (Cell).

Looking forward to hear from you,

Regards

Samir Pandey, PhD
Chair



IEEE Computer Society at ASU

Open Source University Meetup

[IEEE Computer Society at Arizona State University](#) has a history of dedication to collaboration and innovation, and is a firm believer in the power of open source software. We are also passionate about helping our students network and succeed. In this spirit, we are proud to announce collaboration with [Sun Microsystems](#) and their [Open Source University Meetup \(OSUM\)](#) program!

Sun Microsystems has rapidly emerged as a leader in the open source community, making a large variety of their platforms open including [OpenOffice](#), [OpenSolaris](#), [OpenJDK](#), and even [OpenSPARC](#). You know a company is serious about open source when it makes its hardware open! In their passion for open source, they have created a community called the Open Source University Meetup which exists as a social networking tool for developers to meet others who are passionate about open source and learn more about Sun technologies. Members of the OSUM community include students from all around the world, Sun staff, and any developer who has a passion for expanding his or her own knowledgebase.

Beyond the obvious networking opportunities, [members of OSUM also get free, well-written and authoritative training](#) on Sun technologies through the [Sun Academic Initiative](#), and *extremely* reduced-cost sun certification exams! This is an amazing deal for those seeking to enhance their skill-set or prove that they have mastered a particular tool, and the best part is it's free and easy!

So what are you waiting for, an invitation? Well, here it is: go to <http://osum.sun.com> to sign up. Need more information? Please contact Nicholas Vaidyanathan at Nicholas.Vaidyanathan@asu.edu.

Phoenix Section Executive Committee Meeting

– First Tuesday of the month.

Venue: Phoenix Airport Hilton, 2435 S 47th St, Phoenix, AZ, 85034
Tel.: 480-804-6017

More Info: Meetings are held on the first Tuesday of the month. All interested IEEE members are welcome to attend.

Contact: Dr. Henning Braunisch, Phoenix Section Chairman, braunisch@ieee.org

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