

# The Valley Megaphone

Newsletter of the  
Institute of Electrical and  
Electronics Engineers, Inc.,  
Phoenix Section  
November 2009,  
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Phoenix  
Section



**IEEE**  
Celebrating 125 Years  
of Engineering the Future

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

Please send announcements for Valley Megaphone to Russ Kinner at  
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# U – News

(for Student Members)

## STUDENT BRANCHES FOCUS ON REGIONAL INDUSTRY TOURS!

The majority of technical students are typically more familiar with the End Products versus the types of facilities involved in manufacturing. Facility tours give students the opportunity to interface with the industry experienced professionals and exposure to overall working environment.

Please note, as Student Activities Chair, I am compiling a current Facility Locations and Contact Listing to make any future coordination of tours much easier and organize an annual rotation for the Branches.

Following is a brief listing of the recent events and events in planning :

- \* IEEE IECON / ICELIE are being held Nov 2010 in Glendale, AZ and organizing committee has requested Student Branch support.
- \* IEEE SouthWest Region Event was held on Oct 10th in LV, NV. Phx Section Chair, D. Malik, presented Student Branch Activities.
- \* Scholarship Applications and Student Paper Contest Forms are being updated and will be sent out for participation by Students!

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

480-720-1435 Cell

nleonardi@ieee.org

Student Activities Chair

## Student Branches

ASU Main, Engineering  
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Advisor: Cihan Tepedelenlioglu,  
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ASU Main, Computer Society  
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Advisor: Guoliang Xue  
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Advisor: TBD

DeVry, Phoenix  
Chair: TBD  
Advisor: Diane Smith  
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DeVry, Computer Society  
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Advisor: John E. Post  
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# U - Newsbytes

Following is summary of successfully completed and the planned tours:

- \* ASU Main Branch toured Freescale Semiconductor Wafer Fab
- \* ASU Main Branch toured at ASU Flexible Panel Display Center
- \* Embry-Riddle is planning tours to Boeing, ASU Flex and Ditron

INSTITUTE OF ELECTRICAL AND ELECTRONIC ENGINEERS



**WAVES AND DEVICES  
PHOENIX CHAPTER**

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



*2009 Calendar*

**2009 Waves & Devices Technical Meetings**

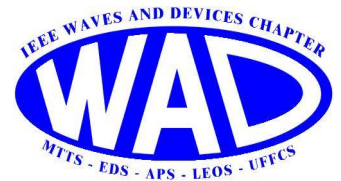
<b>Date</b>	<b>Speaker</b>	<b>Society</b>	<b>Location</b>	<b>Time</b>	<b>Topic/ Title</b>
2-Feb	Dr. Mike Gofio (Consultant)	MITT	Freescale	4:00 PM	Engineering your retirement
16-Apr	Mr. Bruce Bosco (Consultant)	MITT	Freescale	4:00 PM	Emerging Wireless Standards for Gigabit Applications
23-Apr	Dr. Michael Goryll (ASU)	EDS	ASU	4:00 PM	Ion Channel Biosensors on Silicon
18-May	Dr. Fadhel Ghannouchi (DL) (Univ. of Calgary)	MITT	Freescale	2:00 PM	SDR Based Power amplifiers /Transmitters for Advanced Wireless and Satellite Communications
28-May	Dr. Shahin Farahani (Freescale)	MITT	Freescale	4:00 PM	Short-Range Wireless Networking Standards
25-Aug	Dr. Peter De Maagt (DL) (ESA)	APS	ASU - ML246 (Coconino)	4:00 PM	Terahertz Technology for Space and Earth Applications
18-Sep	Dr. Abbas Abbaspour-Tamijani (ASU)	APSMITT	ASU - ML228 (Cochise)	4:00 PM	Electronically-steerable Antennas for Millimeter-wave Frequency Range
14-Oct	Dr. Shane Johnson (ASU)	LECS	Agilent	6:00 PM	Device physics related to the efficiency of LEDs for lighting and optical refrigeration applications
16-Oct	Dr. Bruce Towe (ASU)	UFFCS	ASU - PSF-566	4:00 PM	Medical Microelectronic Implants for Biosensing and Therapeutics
6-Nov	<b>Dr. Tahir Ghani (Intel)</b>	EDS	Agilent	2:00 PM	<b>Transistor Nanotechnologies for High Performance-Power Efficient CMOS Logic</b>
18-Nov	Dr. Sergio Pacheco (Freescale)	MITT	Agilent	6:00 PM	<b>Automotive Radar Technology &amp; Markets</b>



## WAVES AND DEVICES PHOENIX CHAPTER

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

*Electron Devices Society Meeting  
2 PM, November 6, 2009  
Ailent Sales Office. Chandler. AZ*



### *IEEE Distinguished Lecture:*

## Transistor Nanotechnologies for High Performance - Power Efficient CMOS Logic

Dr. Tahir Ghani

Intel Fellow, Logic Technology Development, Intel Corporation

**Abstract:** The scaling of CMOS technology dimensions has led to phenomenal growth in transistor density and performance during the last four decades. However, starting at 90nm CMOS node, the industry started to experience significant barriers in achieving historical transistor performance gains through traditional dimensional scaling. Fortunately, the industry has responded positively to this challenge by implementing many innovations in device structure and materials to overcome traditional scaling barriers. Intel has been at the forefront in addressing these challenges by successfully driving transistor innovations from research phase to mainstream CMOS manufacturing. Implementation of uniaxial strained-silicon transistors at the 90nm node and the "HiK+Metal Gate" transistors for the 45nm node are two excellent examples of major innovations which have demonstrated dramatic performance enhancement. After a general review of technology evolution trends, I will discuss how innovations such as uniaxially-strained silicon and "HiK+Metal Gate" technologies, pioneered by Intel, have enabled dramatic performance enhancement for the recent CMOS nodes and describe specific challenges which had to be overcome to expedite their implementation into mainstream CMOS manufacturing.

In the second part of my talk, I will present how future innovations in device architecture, novel process modules and material systems have the potential to successfully address upcoming scaling challenges in a power-limited era. This talk will highlight a list of open fundamental challenges which need to be successfully addressed before these new innovations can be implemented into mainstream CMOS technology.

**Biography:** Tahir Ghani is an Intel Fellow and Director of transistor technology and integration at Intel Corporation. Since joining Intel in 1994, he has led the research and development teams responsible for introducing some of the most important innovations in transistor technology and implementing these into mainstream CMOS manufacturing. These include the industry-first HiK/Metal Gate CMOS transistor technology for Intel's 45nm technology node and the uniaxially strained silicon transistors for Intel's 90 CMOS node. Tahir has received three Intel Achievement Awards (Intel's highest technical award), all for his work on transistor research and development. He is also the co-recipient of the 2008 SEMI Award for North America for the development of Intel's 90nm strained silicon technology, and the 2008 EDN (Electronics Design, Strategy, News) "Innovator of the Year" award for the development of Intel's 45nm high-k metal gate transistor technology.

**Date:** Friday, November 6th, 2009

**Location:** Agilent Sales Office, 4330 West Chandler Blvd., Suite 367, Chandler AZ 85226  
(In office park on North side of Chandler Blvd west of McClintock Rd. Agilent sign is not visible from the street)

**Time:** 2:00-3:30 PM Presentation, Pizza will be served following the Seminar

For more information, please call:

Steve Rockwell (Chapter Chair) at (480) 241-9891 [steve.rockwell@ieee.org](mailto:steve.rockwell@ieee.org)  
Chuck Weitzel (Chapter Publicity) at (480) 292-0531 [c.weitzel@ieee.org](mailto:c.weitzel@ieee.org)





IEEE EMC Society Phoenix  
Chapter  
November Meeting



- Date:** Monday, November 16th, 2009
- 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:** ESD as an EMI Problem
- Speaker:** Bill Kimmel, PE, of Kimmel Gerke Associates, Ltd. Bill Kimmel will be in Arizona doing the annual Kimmel-Gerke seminar on "Designing for EMC" (see <http://www.emiguru.com/seminartek.htm> for details on the seminar.)
- Abstract:** When an ESD event occurs, it often becomes an EMI problem. This talk will provide some insights on ESD, and will address how to identify, prevent, and fix common ESD induced problems with your electronic products and systems.
- Biography:** Mr. Kimmel received his BSEE with distinction from the University of Minnesota, and has worked in the electronics field for over 40 years. His experience ranges from electronic design and systems engineering to technical management with industry leaders like Control Data Corporation and Sperry Defense Systems. Mr. Kimmel's EMC experience includes the design/test/qualification of military systems to MIL-STD-461 and NACSEM 5100 (TEMPEST) and commercial systems to FCC Part 15 and IEC/CISPR. He has solved EMI problems in computer systems, medical devices, industrial controls, vehicles, telecommunications systems, and more. He has several years experience in radiation hardened circuits and high speed memories for computers. He is a Registered Professional Engineer, an active member of the IEEE, and a NARTE certified EMC and ESD Engineer. He is based in South St. Paul, Minnesota.
- Reservations:** To help us get an accurate headcount, please send an email to Harry Gaul ([harry.gaul@ieee.org](mailto: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.
- 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).



## Power & Energy Society Announcements



- Date:** Wednesday, November 18, 2009
- Time:** 11:30 am - 12:00 noon: Registration  
12:00 noon: Lunch  
12:30 pm: Program
- Location:** APS Deer Valley Building N-1, Conference Room E ([map](#))  
2124 W. Cheryl Dr.  
Phoenix, AZ
- Speaker:** TBA
- Topic:** TBA
- Cost:** \$5.00 (No cost if you are a college student)
- Reservations:** Contact Michelle at (602) 437-0469 or submit your name [here](#).  
**Reservations deadline is Noon Monday, November 16th, 2009.**  
*If you have already registered for this luncheon but need to cancel, click [here](#).*



# Phoenix Section Life Members Affinity Group, Announcements

## November Meeting

- What:** IEEE Life Members Affinity Group, Phoenix Section Technical Meeting
- When:** Wednesday, December 09, 11am – 1pm
- Where:** SRP's PERA Club's Desert View [upstairs], 1 East Continental Drive, Tempe, AZ (west of 64th St., ½ mile south of McDowell Rd.)
- Click this map link to SRP PERA Club:  
<http://insidesrp/pera/facilities/PERAstreetmap.pdf>
- RSVP:** Requested by Monday, November 30, to the Section Secretary, Michel Ebertin by email: [michel@ebertin.net](mailto:michel@ebertin.net)
- Topic:** China and the USA getting to low carbon economy
- Speaker:** Dr. Gary Dirks, Ph.D., Director of LightWorks, Arizona State University and also at ASU member of the Board of Trustees for Sustainability and Julie Wrigley Chair of Sustainable Practices.

Before joining ASU, Dr. Dirks was both the president of BP Asia-Pacific and president of BP China. Dr. Dirks served on the boards of the India Council for Sustainable Development and the China Business Council for Sustainable Development.

**About IEEE Phoenix Section, Life Members Affinity Group:** The Phoenix 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. IEEE "Life" status is an automatic process when a member is least 65 years of age and has been a member of IEEE or one of its predecessor societies for such a period that the sum of his/her age and his/her years of membership equals or exceeds 100 years. Dues and regional assessments are waived for a Life member. For more information use the link: [http://www.ieee.org/web/volunteers/mga/home/life\\_members\\_committee/index.html](http://www.ieee.org/web/volunteers/mga/home/life_members_committee/index.html)

**Election:** The executive committee of the IEEE Phoenix Section Life Members Affiliation Group is nominating for the 2010 year the members listed below for the executive committee:

Chair	Dr. Bruce Johnson	<a href="mailto:cbj@johnsonscientificgroup.com">cbj@johnsonscientificgroup.com</a>
Vice Chair	Michel Ebertin	<a href="mailto:michel@ebertin.net">michel@ebertin.net</a>
Secretary	Leslie Daviet II	<a href="mailto:lesdavierii@cs.com">lesdavierii@cs.com</a>
Treasurer	A. Barry Cummings	<a href="mailto:abcummin@srpnet.com">abcummin@srpnet.com</a>
Program Chair	To be nominated	
Past Chair	Dr. George G Karady	<a href="mailto:Karady@asu.edu">Karady@asu.edu</a>

The annual election of officers will be held at this December 9 meeting. Please send your nominations or questions to any officer. Self nominations are perfectly acceptable.



# Computer Society Technical Meetings



Phoenix Chapter Website  
[www.ewh.ieee.org/r6/phoenix/compsociety](http://www.ewh.ieee.org/r6/phoenix/compsociety)

## Monthly Meeting & Chapter Elections

**Speaker:** Ryan Anderson, Rainbow Studios, Phoenix, AZ

**Date:** Wednesday, November 4, 2009, 6:00 P.M. - 8:30 P.M.

**Topic:** Computer Animation: Where it's come from, where it's headed, and how to do it today

**Location:** DeVry University, 2149 West Dunlap Ave, Phoenix, AZ 85021

(1 mile east of I-17 on Dunlap, SE corner of 22<sup>nd</sup> Ave and Dunlap)

Networking will be in the Courtyard 6:00 -7:00 P.M. with light meal. Meeting Room location will be announced during the light meal. Chapter Elections will be from 7:00 – 7:15 P.M. Presentation starts at 7:15 P.M. Free, everyone is welcome.

**Abstract:** Video games have long relied on animations to create action, simulate reality, and provide an immersive interactive experience. Animations started as simple 2D displays, but have continued to push the limits of computation and are driving the next generation of 3D game experience. Ryan will give a history of game animations, current and upcoming technologies, and finally some examples of how games can be created using animations.

**About the Speaker:** Ryan Anderson has been in the video game industry for 7 years. He has released games for the PC, Nintendo Gameboy Advance, Nintendo DS, Nintendo Wii, Playstation 2, Xbox, Playstation 3, and Xbox 360. He has been responsible for many aspects of game code: collision systems, rendering, optimizations, and animation systems among them. He currently works for Rainbow Studios as a Senior Technology Engineer, otherwise known as "Engine Programmer". He has a B.S. from the University of Utah in Computer Science, and is currently taking classes for an M.S.E. in Software Engineering at ASU.

## Monthly Meeting

**Speaker:** Dr. Brad Morantz

**Date:** Wednesday, December 2, 2009, 6:00 P.M. - 8:30 P.M.

**Topic:** Biological Neural Processing as a Paradigm for Visual Pattern Recognition

**Location:** DeVry University, 2149 West Dunlap Ave, Phoenix, AZ 85021

(1 mile east of I-17 on Dunlap, SE corner of 22<sup>nd</sup> Ave and Dunlap)

Networking will be in the Courtyard 6:00 -7:00 P.M. with light meal. Meeting Room location will be announced during the light meal. Presentation starts at 7:00 P.M. Free, everyone is welcome.

For more information about these meetings, contact Jon Candelaria, Program Coordinator, at [jon.candelaria@motorola.com](mailto:jon.candelaria@motorola.com).



## Symposium

Project Management Institute Phoenix Chapter

\$275 fee (\$250 for IEEE members)

**Date:** November 6, 2009, 8 A.M. - 5:00 P.M.

**Location:** Sheraton Phoenix Downtown Hotel, Phoenix, AZ

**Website:** <http://www.phx-pmi.org>

## LinkedIn Group

Louis Rayes [louis.rayes@computer.org](mailto:louis.rayes@computer.org), LinkedIn Coordinator, manages the Computer Society Phoenix Chapter Group.

Join LinkedIn for free, the most widely used social network for technical professionals. Try it!

Website: [www.linkedin.com](http://www.linkedin.com)

*For more information about these announcements or to be added or removed from the Computer Society Phoenix Chapter e-mail list, contact: [joy.shetler@computer.org](mailto:joy.shetler@computer.org) or [c.vasquez-carrera@computer.org](mailto:c.vasquez-carrera@computer.org)*

*Chapter Website: <http://www.ewh.ieee.org/r6/phoenix/compsociety/>*

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## Moshe Kam Is 2010 IEEE President-Elect

The tally of votes for the 2009 annual IEEE election is in: Moshe Kam has been elected 2010 IEEE President-Elect. The results are unofficial until the IEEE Tellers Committee Report is accepted by the IEEE Board of Directors at its 22 November 2009 meeting. View the complete results at:

<http://bmsmail3.ieee.org:80/u/15408/855379>

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## U.S. IEEE Members Select Ronald Jensen to Serve as 2011 IEEE-USA President

Congratulations to [Ronald G. Jensen](#), retired chief engineer at IBM Corporation, Rochester, Minn., who has been [selected by U.S. IEEE members](#) to serve as 2010 IEEE-USA President-Elect. Pending acceptance of the Teller's Committee report by the IEEE Board of Directors on 22 November, Jensen will begin serving as IEEE-USA president on 1 January 2011. He will succeed 2010 IEEE-USA President Evelyn Hirt. The U.S. membership also selected [Winnfort Myles](#) as IEEE-USA Member-at-Large, 2010-2011. He will begin his term on 1 January 2010.

[Ed. Note: I had the pleasure of serving with Ron while we were both on the Region 4 Executive Committee. He is a quality and highly skilled person and will serve the IEEE-USA well]



# IEEE Phoenix Area Consultant's Network



The meeting of the IEEE Phoenix Area Consultant's Network will be held at the offices of ETA Engineering, Inc., 4049 E Presidio Drive, Mesa Arizona, on November 12, 2009. Our speaker will be Jim Soudriette, and Tom Funk, and their topic will be "How to Conduct an Assignment." This should be an interesting presentation. We will need to determine what our choice of menu should be in advance, so we can have it provided. For food types, we have Bellagios Pizza and Mediteranian foods, Vitos Pizza and Italian foods, Tia Rosas Mexican foods, Subway, or Arbys. Please respond by e-mail what your preference would be and we will go with the majority choice. The Board meeting will start at 5:30, with the food at 6:30. The presentation will start at 7:00.

Some of the topics that need to be addressed at the board meeting are:

1. The ever present discussions about where to meet and what to eat.
2. Speakers and topics for new programs, starting with January, 2010. I would like to map out the whole year as we did last year.
3. Next month will be the annual business meeting, with the election of Officers and Board members. We should identify which seats are open, as well as determine who might be willing to fill the positions.
4. We still need to expand our membership and increase our attendance at the meetings.

Our October meeting was held at ETA Engineering, and our speaker was Ron Sprague filling in for Bruce Johnson. A briefing was provided on the IEEE National Consultant's Network Programs that are available to the Consultant's Network membership.

Our officers are:

President	Ronald L. Sprague, P.E.	r.sprague@ieee.org
Vice President	C. Bruce Johnson	cbj@johnsonscientific.com
Treasurer	Bill Morgan	bill.morgan@cox.net
Secretary	Ed Mischen	ed.mischen@cox.net
Webmaster	Mike Pyska	m.pyska@ieee.org
Advisor editor	Ronald Sprague	r.sprague@ieee.org
Program Chairman	Robert Petro	Robert.petro@systemdatasolutions.com
Member at Large	Land Garrett, P.E.	lanegarret@aol.com
Member at Large	Ed Bawolek	bawolek@ieee.org
Website		ieeepacn.com

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



## IEEE Documentary Specials

KJZZ-FM (91.5 MHz) will be broadcasting 2 Specials, both co-productions of IEEE Spectrum magazine and the Directorate for Engineering of the National Science Foundation.

The first is to air on Sunday, November 15 at 3 PM with the topic "Engineers of the New Millennium – Dream Jobs" and the 2<sup>nd</sup> airs the following Sunday the 22<sup>nd</sup> also at 3 PM with the topic ["Engineers of the New Millennium: The Global Water Challenge"](#).

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## 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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[george.ponchak@ieee.org](mailto:george.ponchak@ieee.org)

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.

# IEEE Honored Dr. Charles E. Weitzel

Submitted by Dr. Vasudeva P. Atluri,  
IEEE Phoenix Section Awards Committee Chair



Dr. Charles E. Weitzel was honored by IEEE Region 6 Southwest Area and IEEE Region 6 by bestowing "Outstanding Engineer Award" during 2009. The awards were presented at Fall 2009 meetings. IEEE Region 6 has nominated Dr. Weitzel for IEEE MGA Leadership Award and final selection is being processed.

Dr. Charles E. Weitzel has contributed to and led a wide variety of Research & Development projects and technology transfers to manufacturing focusing on advanced compound semiconductor devices employing GaAs, GaN, and SiC for RF and switch-mode power applications during his 35-year career in the semiconductor industry. In these varied capacities he gained valuable experience in project and intellectual property management, technology benchmarking and certification, and US government contracts. In particular he led the effort to certify GaAs FET and HBT technologies in Motorola/Freescale manufacturing facilities meeting all product performance targets and project timelines.

For 25 years, Dr. Charles E. Weitzel has held leadership positions in international and Phoenix area IEEE committees, and since 2000 has been a contributor to the International Technology Roadmap for Semiconductors (ITRS) and the International Electronic Manufacturing Initiative (iNEMI) roadmaps.

Dr. Charles E. Weitzel has a PhD in electrical engineering from North Carolina State University and has published over 80 technical papers and holds 42 US patents. Dr. Charles E. Weitzel is currently serving as Chief Technology Officer at Renavitas Technologies LLC located in Scottsdale, Arizona, USA.



Section Banquet  
IEEE PHOENIX SECTION  
ANNUAL BANQUET

Saturday, February 13<sup>th</sup>, 2010  
Hilton Phoenix Airport - Grand Ballroom, Phoenix, Arizona

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](mailto: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](mailto: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](mailto: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](mailto: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](mailto: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](mailto: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 1<sup>st</sup>, 2010. Awards Banquet Committee will review the forms and inform the selected candidates and nominators by Friday, January 15<sup>th</sup>, 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](mailto:vpatluri@ieee.org).



Saturday, February 13<sup>th</sup>, 2010  
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#### 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. Rao Bonda, 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 13<sup>th</sup>, 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

**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 13<sup>th</sup>, 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

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

[www.futurecity-arizona.org](http://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 science, technology, engineering and math (STEM) 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.

## Goals

The Future City Competition offers students a fun way to learn about engineering and cities of the future. Through the program, students will:

- Work as a team under the guidance of a teacher and a practicing engineer.
- Apply their knowledge to real world situations.
- See firsthand how engineers turn ideas into reality.
- Use the award-winning computer game, *SimCity 4 Deluxe* to design their future city.
- Build a scale model of a section of their city.
- Utilize their communication skills by preparing an essay in response to a special problem and a verbal presentation relating their experience in the design of their city and some specific engineering features.

The Competition brings together Teachers, Students and Engineers. Each team consists of three students, a teacher-sponsor and an engineer-mentor. All members of the team have a role that is necessary for the successful completion of the project.

## TEACHERS

The Future City Competition is an excellent educational program designed to support your classroom science, technology, engineering and math initiatives. Under your leadership, by integrating the competition deliverables into classroom activities, students will develop:

- Problem solving skills
- Teamwork
- The application of math and science to practical problems
- Research and presentation skills
- Computer skills
- An increased awareness of community related issues

## Arizona Region Competition

The team registration period is from August until late October. A school may enter multiple teams. Students may participate on one team only.

There are 5 student deliverables:

- Logical Model: A computer model of their city using SimCity 4 Deluxe.
- Research Essay: 500-700 word report explaining how a design challenge was completed
- City Narrative: A “Chamber of Commerce” explanation of key features of the city
- City Scale Model: A scale model of a section of their city of the future, using recycled parts
- Team presentation: Student teams will present a verbal summary of their designs and concepts

Regional Competition: Regional Competition is held in January.

The National Finals of the Future City Competition will be held in February in Washington, D.C. as a highlighted event of National Engineers Week.

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### VOLUNTEERS NEEDED:

There are many opportunities to become involved with the student teams and the competition. Volunteers can be:

**ENGINEER-MENTORS:** Future City Competition – Arizona Region. The engineer is involved in all phases of the competition as an advisor and provides input and technical assistance, integrating real life engineering experiences as the students work on the competition. The students must do all of the actual work, such as the computer design of the city, building the tabletop model, writing the essay and presenting the project during the competition with support from the engineer.

Approximate commitment: 35-45 hours from now until the regional finals in January.

**JUDGES:** Judging teams evaluate all of the student submissions (logical model, essay, abstract, scale model and verbal presentation).

Approximate commitment: 30 – 35 hours, November-January

**DAY-OF-THE-EVENT SUPPORT:** The competition will involve students statewide. Volunteers will assist in all aspects of the competition including team check-in, awards and recognition, gift distribution and other logistical requirements of the event.

Approximate commitment: 10 – 15 hours, Region Finals

**COMMITTEES:** There are volunteer opportunities that support the competition success including: Industry Relations, Professional Society contact, School contact, Administration and Finance, Communications, Competition, Data Management, Judges, Awards and Logistics. All individuals, both technical and non-technical, can participate on a committee.

For additional information

Michael Andrews, Coordinator

[m.andrews@ieee.org](mailto:m.andrews@ieee.org)

Darcy McCulloch, Co-Coordinator

[fcdarcy1@cox.net](mailto:fcdarcy1@cox.net)



# IEEE President's Change the World Competition

<http://www.ieee125.org/change-the-world/>

For additional details, contact Mike Andrews, [m.andrews@ieee.org](mailto:m.andrews@ieee.org)

## HTC STUDENT DESIGN PROJECT

The IEEE Presidents' Change the World Competition recognizes students who took on the challenge of developing unique solutions to real-world problems using engineering, science, computing and leadership skills to benefit their community and/or humanity.

The IEEE Humanitarian Technology Challenge (<http://www.ieeehtc.org>) is a partnership between the IEEE, UN Foundation and the Vodafone Foundation targeted at developing technological solutions to some of the greatest challenges facing humanitarian health and disaster workers today. The goal is to bring together humanitarian service providers, IEEE members and other technologists around the world to collaborate for the benefit of humanity.

The top three challenges have been identified as:

### 1. Reliable Electricity

Increase the availability of electric power in resource-constrained environments. Inexpensive, reliable electricity generation on a small scale (home or village) can provide lighting at night, charging of cell phones, refrigeration, and other communications, education, and economic development functions.

Specific design considerations for Reliable Energy projects included:

- Low power stationary facilities
- Rugged, mobile power supplies for emergency settings
- Mechanical transducers
- Passive generation devices (e.g., charge as you walk)
- Renewable energy hubs

### 2. Data Connectivity of Rural District Health Offices

Sharing information and exchanging data among remote health clinics and providers with central health facilities, hospitals and ministries is a significant challenge to tracking outbreaks of disease and ensuring the appropriate treatments and medicines get to those who need it most. Improving communication between these entities can improve access to treatment protocols, monitor health trends, and share results of treatments.

Specific design considerations for Data Connectivity projects included:

- Two way transmission – upload, download
- Data could be batched for daily transfer
- Also useful for emergency/outbreak alerts
- Less expensive service and higher bandwidth needed
- Create maps of existing connectivity
- Use intermediate field offices as data relay points

### 3. Individual ID and tied to Health Record Tracking

Keeping health records in the developing world is sporadic at best and tying them to treatment regimens and tracking the impact of them is sorely lacking. When individuals are displaced by natural, man-caused disasters or diaspora, it is vital for NGO's and Governments to understand the healthcare needs of refugees and be able to deliver the appropriate treatment – especially for those with chronic diseases.

Specific design considerations for Individual ID and Health Record Tracking projects included:

- Secure, confidential ID for patients
- Emergency Response and Chronic Care Applications
- Useful for routine care for migrant populations

### IEEE-HTC STUDENT DESIGN PROJECT OBJECTIVE

The objective of the IEEE-HTC Student Design Project is to provide a working prototype, scale model or detailed engineering design specifications for a project that satisfies one of the three HTC Challenges.

University students participating in the IEEE-HTC Design Project are required to specify the following:

The scope of the project

The location where the project is/will be installed or tested

Project results (impact, value, cost, anticipated changes, maintenance, manufacture & production)

Implementation plan

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Celebrating 125 Years  
of Engineering the Future



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](http://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](http://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](mailto:c.a.gaw@ieee.org) & Amit Agrawal at [amiagra2@cisco.com](mailto:amiagra2@cisco.com)

Craig Gaw,  
Chair - CPMT RF & Wireless TC  
Freescale Semiconductor Inc.  
[c.a.gaw@ieee.org](mailto:c.a.gaw@ieee.org)

Amit P. Agrawal,  
Chair - ECTC Electronic Components & RF TC  
Cisco Systems, Inc.  
[amiagra2@cisco.com](mailto:amiagra2@cisco.com)





## IEEE Strategies to Help School Science Teachers

The national office of the IEEE has had an active program for a couple of years now to train science teachers in improved ways to teach science and engineering to school children. Called TISP – Teacher In-Service Program – the program is a response by the institute to the widely acknowledged appallingly low quality of science and mathematics knowledge among graduating school children, and the rapidly decreasing number of students who opt for a degree and a career in engineering rather than in business management, finance or law. The institute recognizes that a large part of the problem is the lack of knowledge and experience of engineering matters among the science teachers, this leading to a lack of exposure of children at a young age to real science or the encouragement of any child that might have an interest. In fact, studies show if children have not been exposed to science before high school it is really too late for them to get into it. Along with that, by 5<sup>th</sup> grade students need to know that going to college is a possibility for them.

Hence, a major part of the national IEEE program is the creation of a growing set of teaching modules / lessons plans, each module being structured around a particular engineering problem such as electric motors, structure loads, etc. Each module emphasizes the teaching of the relevant engineering, science and mathematics principles through a practical project performed by the students. These modules are freely available to any teacher on the institute website: [www.tryengineering.org/lesson.php](http://www.tryengineering.org/lesson.php).

The TISP program is an effort sponsored and promoted by the national office but run at the local chapter level. The Phoenix Section lead on TISP is Mike Poggie. To further help the process, the national office has been running a series of workshops to train IEEE member volunteers in achieving two goals: to train teachers in better ways to teach engineering and science principles, and to provide in classroom assistance to the science and mathematics teachers. A small group from the Phoenix Section participated in the last session in November held in San Francisco; it was a lot of fun and very inspiring! But it is clear that to manage and implement TISP over the whole Phoenix Section, we have to divide up the tasks into manageable subsets, each subset under a different lead and all the subsets coordinated by Mike Poggie. A subset could be a distinct grouping such as retirees, or a town remote from Phoenix like Flagstaff, or even quite possibly a particular school.

As a first subset we are seeking to enlist the help of the talented retirees in the IEEE. Retirees represent a tremendous pool of engineering talent and knowledge associated with its application in the real world of industry, academia, government, etc. They are very capable of being able to show school children in science classes how what they are being taught relates to the real world and how science and math studies can lead to a fruitful and enjoyable career in engineering. Plus they have more time they can devote to this cause than do our colleagues in full-time employment and with young families. This subset is being organized by John Purchase. So any retiree interested in joining this effort should please email John Purchase at: [jpurchase@cox.net](mailto: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](mailto:Mike.Poggie@ieee.org). And the national office continues to run regular TISP workshops (and all travel expenses are reimbursed!); they are well worth attending for anyone interested in working with school children and teachers.

Please read the June 2009 edition of the Valley Megaphone at <http://ewh.ieee.org/r6/phoenix/vm/2009/June09vm.pdf>, for a glimpse of the contributions by the IEEE Phoenix TISP volunteers.



## 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](mailto:Nicholas.Vaidyanathan@asu.edu).

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## Phoenix Section Annual Election

The Phoenix Section Executive Committee the 2010 calendar year are:

Treasurer: Charles Weitzel

Secretary: Ralph Hogan

Vice Chair: James Hudson

Chair: Henning Braunisch

As no more than one candidate is nominated for each position, the election was held by the Executive Committee at its meeting on November 3, 2009.



## Phoenix Section Executive Committee Endorses SI chart for AZ Schools

The Phoenix Section Executive Committee passed a resolution at the November 6<sup>th</sup> meeting avocating "... that the SI Diagram (International System of Units) from the NIST (National Institute of Standards and Technology) be posted in each AZ Science classroom for students in grades 7-12."

There are 3 different versions of this chart that the NIST has published on their website. You can review the versions at:

<http://www.physics.nist.gov/cuu/Units/SIdiagram2.html>

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### 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: Debendra Mallik, Phoenix Section Chairman, [dmallik@ieee.org](mailto:dmallik@ieee.org)

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### IEEE Phoenix - Calendar of Events for November 2009:

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](mailto:r.kinner@ieee.org)