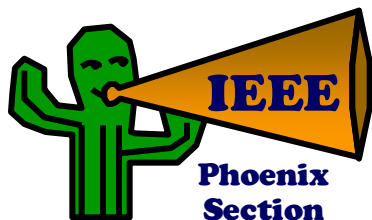


# The Valley Megaphone

Newsletter of the  
**Institute of Electrical and  
Electronics Engineers, Inc.,  
Phoenix Section**  
November 2013,  
Volume XXVII, Number 11



## Executive Committee 2013

### Chair

Charles Weitzel, 480-292-0531  
[c.weitzel@ieee.org](mailto:c.weitzel@ieee.org)

### Vice Chair

Barbara McMinn 602-371-6383  
[barbara.mcminn@aps.com](mailto:barbara.mcminn@aps.com)

### Secretary

Bruce Ladewig, 480-620-9291  
[bruceladewig@ieee.org](mailto:bruceladewig@ieee.org)

### Treasurer

Surinder Tuli, 480-554-8275  
[Surinder.tuli@gmail.com](mailto:Surinder.tuli@gmail.com)

### Past President

Ralph Hogan, 480-774-8227  
[rhogan@ieee.org](mailto:rhogan@ieee.org)

### Publicity

Mahesh Shah, 480-544-9438  
[mkshah@ieee.org](mailto:mkshah@ieee.org)

### PACE

Vivek Gupta, 480-734-0266  
[vmgupta@msn.com](mailto:vmgupta@msn.com)

### Membership

Vasudeva P. Atluri,  
480-227-8411  
[vpatluri@ieee.org](mailto:vpatluri@ieee.org)

### Student Activities

S.Diane Smith, 602-749-4601  
[sdianesmith@computer.org](mailto:sdianesmith@computer.org)

### Conferences

Brad Morantz, 480-348-5945  
[bradscientist@ieee.org](mailto:bradscientist@ieee.org)

### Awards

Vasudeva P. Atluri,  
480-227-8411  
[vpatluri@ieee.org](mailto:vpatluri@ieee.org)

### Inter-Society

Mike Andrews, 480-991-1619  
[m.andrews@ieee.org](mailto:m.andrews@ieee.org)

### Webmaster

Krishna Bharath 480-552-8913  
[kbharath@ieee.org](mailto:kbharath@ieee.org)

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IEEE Phoenix Section on-line updates can be found at <http://sites.ieee.org/phoenix/> and on LinkedIn at: <http://www.linkedin.com/groups?gid=2765918>

Please send announcements for the *Valley Megaphone* to Mahesh Shah at [mkshah@ieee.org](mailto:mkshah@ieee.org) for inclusion in the Section Calendar.

The IEEE Banquet pictures are up at <http://sites.ieee.org/phoenix/category/annual-banquet/>

**All meetings announced in the Phoenix Section Megaphone or on the Phoenix Section Calendar are open to everyone (IEEE members and non-Members)**

## Chapters

### Signal Processing & Communications

Pavan Turaga  
[pturaga@asu.edu](mailto:pturaga@asu.edu)

### Computer Society

Jerry Crow  
[jerry.crow@computer.org](mailto:jerry.crow@computer.org)

### CPMT Society

Vasudeva P. Atluri  
480-227-8411  
[vpatluri@ieee.org](mailto:vpatluri@ieee.org)

### Education Chapter

Martin Reisslein, 480-965-8593  
[reisslein@asu.edu](mailto:reisslein@asu.edu)

### EMBS Chapter

TBD

### EMC Society

Harry Gaul, 480-441-5321  
[harry.gaul@ieee.org](mailto:harry.gaul@ieee.org)

### GOLD

Shafiul "Jacky" Islam 520-245-9010  
[shafiul.islam@intel.com](mailto:shafiul.islam@intel.com)

### Power & Energy Society

Kory Hedman  
[Kory.Hedman@asu.edu](mailto:Kory.Hedman@asu.edu)

### Solid State Circuits

Cyndi Recker  
[cyndi.recker@ieee.org](mailto:cyndi.recker@ieee.org)

### Teacher-In-Service

Rickie Currens  
[Rickie.Currens@att.net](mailto:Rickie.Currens@att.net)

### Waves & Devices Society

Steve Rockwell  
[steve.rockwell@ieee.org](mailto:steve.rockwell@ieee.org)

### Life Members

Les Daviet II  
[lesdavietii@cs.com](mailto:lesdavietii@cs.com)

### Women In Engineering

Shamala Chickamenahalli  
[shamala.chickamenahalli@intel.com](mailto:shamala.chickamenahalli@intel.com)

## **U – News**

**(for Student Members)**

### **Updates of Student Advisors and Committee Members**

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

S. Diane Smith  
602-749-4601  
[sdianesmith@computer.org](mailto:sdianesmith@computer.org)  
Student Activities Chair

## **Student Branches**

**ASU Main, Engineering**  
Chair: Jennifer Taggart  
928-581-5198, [jennifer.taggart@asu.edu](mailto:jennifer.taggart@asu.edu)  
Advisor: Cihan Tepedelenioglu,  
480-965-6623, [cihan@asu.edu](mailto:cihan@asu.edu)

**ASU Main, Computer Society**  
Chair: TBD  
Advisor: Guoliang Xue  
480-965-6218, [xue@asu.edu](mailto:xue@asu.edu)

**ASU Polytechnic**  
Chair: TBD  
Advisor: TBD

**DeVry, Phoenix**  
Chair: Lori Renaldi  
[lorirenaldi@computer.org](mailto:lorirenaldi@computer.org)

Advisor: Diane Smith  
[dsmith2@devry.edu](mailto:dsmith2@devry.edu)

**DeVry, Computer Society**  
Chair: TBD  
Advisor: Diane Smith  
[dsmith2@devry.edu](mailto:dsmith2@devry.edu)

**NAU, Engineering**  
Chair: TBD  
Advisor: Niranjan Venkatraman  
[v.niranjani@ieee.org](mailto:v.niranjani@ieee.org)

**Embry-Riddle, Prescott**  
Chair: Lisa M. Ferguson  
[FERGUSL2@my.erau.edu](mailto:FERGUSL2@my.erau.edu)  
Advisor: John E. Post  
[postj@erau.edu](mailto:postj@erau.edu)

## **U – Newsbytes**

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

The Department of Computer, Electrical, and Software Engineering at **Embry-Riddle Aeronautical University** in Prescott, AZ invites applications for a faculty position (tenure-track or tenured) at the assistant or associate professor level. The successful candidate should have a Ph.D. in Computer Science, Software Engineering, Computer Engineering or a related field at the time of employment. Preferred areas of expertise for this position include network, cyber, or computer system security, agile software development, cyber-physical and trustworthy systems, and management and team approaches for building software systems. Apply online at [www.erau.edu/jobs](http://www.erau.edu/jobs) and search for positions at Prescott. Contact Professor Post at [john.post@erau.edu](mailto:john.post@erau.edu) for further information.

Start your own MicroMouse and compete for cash prizes!

The Section has a full tournament sized MicroMouse maze. Funding for your project may be available. For details contact the Section Student Activities Chair, S. Diane Smith  
[sdianesmith@computer.org](mailto:sdianesmith@computer.org)

The Embry-Riddle Aeronautical University IEEE Student Branch would like to report its activities for the month of October. On October 10th, the ERAU student branch held a general meeting and had fifteen students in attendance. An upcoming tour of Pure Wafer silicon reclamation facility was discussed and six students and a faculty member signed up for the tour. It was also decided that the ERAU IEEE student branch would hold an S-PAC presentation in December. An accelerated planning schedule was devised and the topic of presentation was selected. Weekly meetings are being held to plan and facilitate the S-PAC presentation. The tour of Pure Wafer silicon wafer reclamation facility in Prescott, AZ was attended by six students and one faculty member and was well enjoyed by all. The tour covered both the mechanics and chemistry behind the silicon reclamation process. Next month, further planning for the S-PAC presentation will continue and become the main focus of the student branch until the new year.

Sincerely,

Lisa Ferguson  
ERAU IEEE Student Chair  
Electrical Engineering  
[fergusl2@my.erau.edu](mailto:fergusl2@my.erau.edu)



## Upcoming Conferences in November in Region 6

While not a chapter of the IEEE, all Phoenix IEEE members have been invited to attend the Phoenix Tech Security Conference 2013 on Thursday, November 7, 2013 at The Tempe Mission Palms Hotel  
60 East Fifth Street Tempe, AZ

IEEE Members can receive a FREE VIP registration by clicking on the following link:  
[http://www.dataconnectors.com/events/2013/11Phoenix/inv\\_np.asp](http://www.dataconnectors.com/events/2013/11Phoenix/inv_np.asp)

The Phoenix Tech-Security Conference features 25-30 vendor exhibits and several industry experts discussing current tech-security issues such as email security.

or call Chris Meier at 636-778-9495 for more information.

his email is [cmeier@DataConnectors.com](mailto:cmeier@DataConnectors.com)

November seems to be a quiet month for conferences. There are a total of 9 conferences in region 6 for the month of November, and all of them are in California.



IEEE COMPONENTS, PACKAGING AND  
MANUFACTURING TECHNOLOGY SOCIETY

## IEEE Components, Packaging and Manufacturing Technology Society Phoenix Chapter

Wednesday, November 20<sup>th</sup>, 2013 at 6:00 PM

### Natural Resource Limitations to Terawatt Solar Photovoltaics Prof. Meng Tao

Laboratory of Terawatt Photovoltaics, Arizona State University

#### ABSTRACT

The predicted global energy demands are predicted to reach 46 terawatts by 2100. Solar photovoltaics has to be deployed at a scale of tens of peak terawatts in order to meet a noticeable portion of these demands, which requires massive amounts of natural resources including raw materials and electricity. The limited supplies of these natural resources will likely prevent many of the current photovoltaic technologies from reaching terawatt scales. In this talk, we will present a quantitative analysis on these resource limitations for solar photovoltaics under the best scenarios, i.e. the maximum possible wattage from each of the current cell technologies. Without significant technological breakthroughs, these cell technologies combined would meet only 1–2% of our energy demands in 2100. Several strategic R&D directions are identified for a sustainable photovoltaic industry.

#### BIOGRAPHY

Dr. Meng Tao is a Professor in the School of Electrical, Computer and Energy Engineering at Arizona State University. He received his Ph.D. in Materials Science and Engineering from the University of Illinois at Urbana-Champaign. His career includes nine years with the State Key Lab for Silicon Materials at Zhejiang University and ten years as a professor of electrical engineering at the University of Texas at Arlington. His research covers a wide range of topics in terawatt photovoltaics from wafer-silicon photovoltaics to next-generation thin-film photovoltaics to solar electricity storage to power devices in renewable energy systems. He played a critical role in the establishment of the U.S. Photovoltaic Manufacturing Consortium under SEMATECH in Albany, New York. Since 2006 he has been the lead organizer for the Electrochemical Society symposium series on Photovoltaics for the 21st Century.

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**Date:** Wednesday, November 20<sup>th</sup>, 2013

**Location:** Group Conference Room, Freescale Semiconductor, Inc., 2100 E. Elliot Rd. Tempe, AZ. There are new signs on the property (Discovery Business Center). Enter the facility through the Main (South) Lobby in building 94 and sign in with Security (Photo ID required). You will be escorted to the meeting room.

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

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

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

Vasu Atluri (480) 227-8411

Devrajan Balaraman (480) 619-0944

Vivek Gupta (480) 252-8493

Mahesh Shah (480) 544-9438

David Dougherty (480) 413-6923

Surinder Tuli (480) 554-8275

## **IEEE CPMT Society Phoenix Chapter Annual Meeting**

IEEE Components, Packaging, and Manufacturing Technology (CPMT) Society Phoenix Chapter will be holding the 2013 Annual Meeting on Wednesday, December 4<sup>th</sup>, 2013 from 6:00 PM to 7:00 PM. The meeting will be a teleconference meeting. The logistics of the meeting will be sent to the chapter members that are active on Wednesday, November 27<sup>th</sup>, 2013 and others who have sent in their RSVP by email to Dr. Vasudeva P. Atluri, Chapter Chair, at [ypatluri@ieee.org](mailto:ypatluri@ieee.org) by Wednesday, November 27<sup>th</sup>, 2013. This meeting announcement is being sent by IEEE enotice to all IEEE Phoenix Section members.

The agenda for the meeting is as follows:

- Roll Call
- 2013 Chapter Review
- 2014 Officers Election
- 2014 Goals
- New Business
- Opens
- Adjourn

The chapter is looking for volunteers to serve as officers for the following positions:

- Chair
- Vice Chair
- Secretary
- Treasurer
- Program Chair
- Assistant Program Chair
- Workshop Chair
- Tutorial Chair

To serve as the chapter officer, the candidate has to be an active member of IEEE and / or IEEE CPMT Society on November 27<sup>th</sup>, 2013.

All interested candidates should send an email to current Chapter Chair, Dr. Vasudeva P. Atluri, at [ypatluri@ieee.org](mailto:ypatluri@ieee.org) expressing their interest to serve as an officer by mentioning the position they are interested to serve as an officer along with their active IEEE Member #.

## Power & Energy Society

IEEE Power and Energy Society

Phoenix Chapter

<http://www.ewh.ieee.org/soc/pes/phoenix/>



### News and Announcements:

- Want to know more about IEEE Power and Energy Society? Watch this video:
  - [http://www.youtube.com/watch?v=BRKM4lpo\\_tk](http://www.youtube.com/watch?v=BRKM4lpo_tk)
  - More videos are available at:  
<http://ieee-pes.org/outreach/pes-informational-promotional-videos>
- Have you considered becoming a Senior Member of IEEE? It's not as difficult as you think. Basically, you need ten years of professional experience, and your bachelor's degree counts for three of those years. Find out more at:  
[http://www.ieee.org/membership\\_services/membership/senior/index.html](http://www.ieee.org/membership_services/membership/senior/index.html)

### November 2013 Luncheon Meeting

Date: Thursday, November 21, 2013

Time: 11:30 am - 11:45: Registration

11:45: Lunch

12:00 pm: Program

Location: Bobby Q's  
8501 N 27<sup>th</sup> Ave  
Phoenix, AZ

Map: <http://www.bobbyq.net/location/>

Speaker: Felicia A. Muñoz, Power System Engineer, Eaton Electrical Services and Systems

Topic: Arc Flash Safety

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

Reservations: Contact Nicole at (602) 470-0400 or submit your name here:

<http://ewh.ieee.org/soc/pes/phoenix/lunch.php>

The reservation deadline is NOON on Monday, November 18, 2013.

## Are You A Professional in the Power Industry Who Would Like to Learn More About the Electric Power System?



- **Do You** work in the power industry but not as an engineer?
- **Would You** like to understand more about the technical aspects of the industry in a format that is geared to non-technical professionals?
- **Are You** an engineer new to the industry, or working in another industry who would like to transition to the power industry?

**If you answered YES to the questions above...**

**Register for our upcoming courses:**

### **Plain Talk About the Electric Power Industry**

**December 3-5, 2013 in Phoenix, AZ**

**Hilton Phoenix East/Mesa**

- **Power System Basics**-Understanding the Electric Utility Operation Inside and Out
- **Distribution System**-Delivering Power to the Customer
- **Transmission System**-The Interconnected Bulk Electric System

*These courses will provide you with the practical knowledge you need to help you understand the electric power system and how you can apply that knowledge to work better and smarter!*



PES Plain Talk courses for the Power Industry Professional will help you to understand technical aspects of the Electric Power System, even if you do not have an engineering background. You will gain insights into the concerns of engineers, the demands of regulators and consumer groups, and the factors and trends that impact the operation of today's electric power systems. These courses are also appropriate for non-power engineers who are transitioning to the electric power industry.

### **For Detailed Course Brochure and To Register:**

**Visit** <https://event-wizard.com/PlainTalkPhoenixAZDec13/0/welcome/>

**Contact** LaToya Gourdine, Administrator Education Services  
IEEE Power & Energy Society  
at (732) 981-2876 or via email [l.gourdine@ieee.org](mailto:l.gourdine@ieee.org)







## Phoenix Chapter of IEEE Signal Processing Society and Communications Society

**We have instituted a technical student seminar series to provide exposure to students in presenting their research and technical projects. These meetings are often scheduled on short notice, and we request members to continue to track the meeting announcements on IEEE vtools at (<https://meetings.vtools.ieee.org/main>)**

### **SenSIP/IEEE SPCOM Student Seminar Series**

**This is a newly instituted student seminar series co-sponsored jointly by the IEEE SPCOM Phoenix Chapter and ASU's Sensor, Signal, and Information Processing (SenSIP) Center.**

### **Nonlinear Amplify and Forward Distributed Estimation by Utilizing a Nonlinear Amplifier**

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Location:

Building: Goldwater Center Room Number: 487

Tempe, Arizona, United States

[Click here for Map](#)

Date: 01-November-2013

Time: 11:00AM to 12:00PM (1.00 hours) All times are: America/Phoenix

#### **Speaker:**



**Robert Santucci** of Arizona State University

**Topic:** Nonlinear Amplify and Forward Distributed Estimation by Utilizing a Nonlinear Amplifier

This seminar presents the use of nonlinear distributed estimation in a wireless system with channels of random strengths. In a distributed estimation system, a network of sensors simultaneously transmits their measurements to a single fusion center using energy-efficient nonlinear amplifiers. Specifically, I develop estimators and analytically determine their attainable variance for two conditions: (i) when full channel-state information is available; and (ii) when only channel gain statistics and phase information are available. For the case where full channel-state information is available, an optimization problem is formulated to allocate power amongst each of the transmitting sensors while minimizing the estimate variance. It is shown that optimizing to minimize the estimate variance when the transmitter is operating in its

most nonlinear region can be formulated in a manner very similar to optimizing with full channel-state information and linear transmitters. Furthermore, it is shown that the solution to this optimization problem in most scenarios is equivalent to one of two low-complexity power allocation systems in which power is allocated either in proportion to or in inverse proportion to the channel power.

**Biography:** Robert Santucci obtained Bachelor of Science degrees in both electrical engineering and in computer science from Embry-Riddle Aeronautical University in 2000. He has obtained a Master of Science degree in electrical engineering from Arizona State University in 2008. He is currently a Ph.D. candidate at Arizona State University in the School of Electrical, Computer, and Energy Engineering. He has worked in industry doing wireless transceiver and power-management integrated circuit design and pre-silicon verification for cellular products. He has also worked in high-speed serial interconnect design for servers. His current research interests include amplifier linearization, wireless transceivers, and distributed estimation.



## Phoenix Section Life Member Affinity Group

### Technical Meeting December 3, 2013

**Topic:** Officers Election with a technical topic to be determined

**When:** Tuesday, December 3, 2013 11:00am – 1:00pm, Registration fee is \$15. This fee will include lunch provided by the PERA Club.

#### LIFE MEMBER AFFINITY GROUP MEETING

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

**RSVP:** Please respond to Program Chair, Ronald Sprague by email:  
[r.sprague@ieee.org](mailto:r.sprague@ieee.org) at least 5 days before the meeting.

The Program Chair is seeking suggestion from members for future presentations. Any ideas of interest to LM are open for consideration. Please contact Ronald Sprague Program Chair at [r.sprague@ieee.org](mailto:r.sprague@ieee.org) or any officer with ideas.

#### About IEEE Phoenix Section Life Member Affinity Group:

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

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

#### Future Technical Meetings:

- Tuesday, December 3, 2013 SRP PERA CLUB

#### Officers:

Chair	Leslie Daviet II	<a href="mailto:lesdaviatii@cs.com">lesdaviatii@cs.com</a>
Vice Chair	Michel Ebertin	<a href="mailto:Michel@ebertin.net">Michel@ebertin.net</a>
Secretary	Tom Lundquist	<a href="mailto:Tom.Lundquist@ieee.org">Tom.Lundquist@ieee.org</a>
Treasurer	Leslie Daviet II	<a href="mailto:lesdaviatii@cs.com">lesdaviatii@cs.com</a>
Program	Ronald L. Sprague.	<a href="mailto:r.sprague@ieee.org">r.sprague@ieee.org</a>
Past Chair	A. Barry Cummings	<a href="mailto:abarrycummings@gmail.com">abarrycummings@gmail.com</a>



IEEE Phoenix Section  
Women in Engineering  
Affinity Group



The IEEE Phoenix Section **Women in Engineering (WIE) Affinity Group (AG)** represented WIE and IEEE at the Fall 2013 Arizona State University (ASU) Engineering Career Exploration Night on ASU's Tempe Campus on September 10, 2013. Our Phoenix section WIE AG members partnered with members from the IEEE ASU Student Chapter and the IEEE Phoenix AG of the Graduates of the Last Decade (GOLD) to staff a booth at the Career Exploration Night. This unique event specifically targets students in their first year of engineering study. The event is focused on helping new engineering students learn about the many facets of engineering and learn from real engineers. This is the third year that the IEEE Phoenix Section WIE AG has participated in this event. There are over 1750 ASU Engineering Freshman this year, and most attended this event to ask questions about careers in engineering. During the evening we had the opportunity to talk to many incoming Freshman Engineering majors and to answer questions ranging from which elective classes to choose, to when or whether to pursue an internship, to what to expect out of a first engineering job. We also took the opportunity to explain the benefits of joining IEEE and the various local chapters, including WIE, GOLD and the ASU Student Branch. We received positive feedback from the students indicating that they enjoyed the opportunity to interact with and ask questions of local engineers. It is always a fun and energizing event, and we are looking forward to participating again next year!

**CALL FOR VOLUNTEERS!** Once again, Phoenix WIE members will be volunteering to participate in Arizona Science Lab (ASL) workshops that teach students in grades 4-9 about science and engineering. If you are interested in helping with the rockets class on October 29<sup>th</sup>, please contact Barbara McMinn, Shamala Chickamenahalli, or Diane Watkins (contact information below) by October 15<sup>th</sup>. WIE members are also welcome to volunteer on their own on other days. Visit the ASL website at [www.azsciencelab.org](http://www.azsciencelab.org) for more information and a calendar of events.

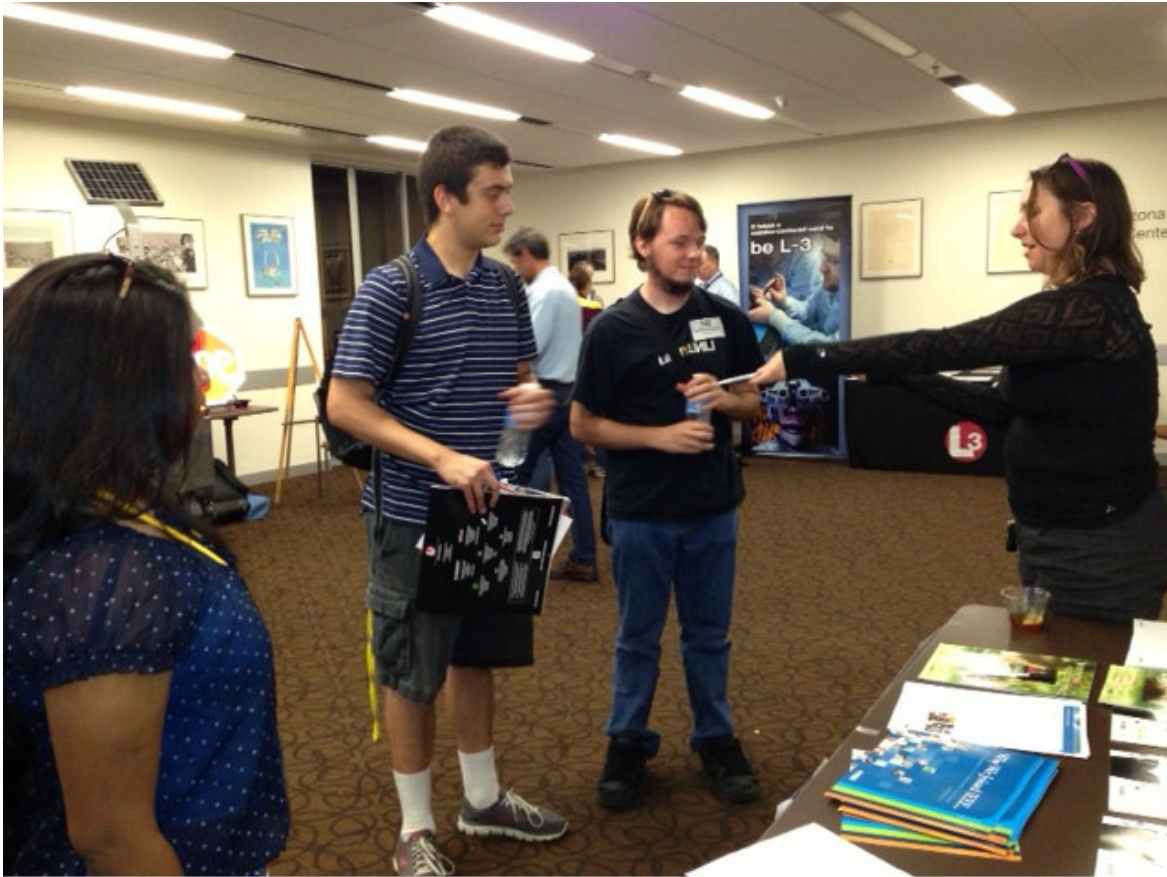
If you would like to be added to our distribution list for further information about this and future events, please contact Diane Watkins ([diane.watkins@srpnet.com](mailto:diane.watkins@srpnet.com)).

If you would be interested in helping to organize any of our activities or have suggestions for other activities or speakers for future events, please feel free to contact any of our Executive Committee members:

Chair: Shamala Chickamenahalli ([shamala@ieee.org](mailto:shamala@ieee.org))  
Vice-Chair: Joy Harris ([joyelle.j.harris@intel.com](mailto:joyelle.j.harris@intel.com))  
Secretary / Publicity: Diane Watkins ([diane.watkins@srpnet.com](mailto:diane.watkins@srpnet.com))  
Treasurer: Diane Smith ([diane@web-oasis.com](mailto:diane@web-oasis.com))  
Web Master: Audrey Skidmore ([ASkidmore@azmag.gov](mailto:ASkidmore@azmag.gov))  
Membership: Lesley Polka ([lesley.a.polka@intel.com](mailto:lesley.a.polka@intel.com))  
Region 6 Liaison: Barbara McMinn ([barbara.mcminn@aps.com](mailto:barbara.mcminn@aps.com))

The IEEE WIE Affinity Group's mission is to inspire, engage, encourage and empower IEEE women worldwide with a vision of creating a community of IEEE women and men innovating the world of tomorrow. More information about IEEE WIE can be found at:

[http://www.ieee.org/membership\\_services/membership/women/women\\_about.html](http://www.ieee.org/membership_services/membership/women/women_about.html).



## Computer Society



### Phoenix Chapter of the IEEE Computer Society November, 2013

#### News

- We are beginning to assemble our programs for 2014. Tentative 2014 chapter meeting dates are listed below. Mark your calendars to save the dates:
  - January 8<sup>th</sup> at DeVry University
  - March 5<sup>th</sup> at ITT-Tech
  - May 7<sup>th</sup> at DeVry University
  - July 2<sup>nd</sup> at ITT-Tech
  - Sep 3<sup>rd</sup> at DeVry University
  - Nov 5<sup>th</sup> at ITT-Tech

Details of the program for these chapter meetings will be published as the speakers are confirmed.

- Our November meeting will be held on November 6<sup>th</sup> at ITT Technical Institute. Officer elections for 2014 will be held. The speakers will be Lori Renaldi and Jerry Crow presenting on "WiFi Penetration Testing Using Open Source Tools". This presentation will feature a number of actual penetration attempts on various WiFi access point devices employing various encryption protocols (WEP, WPA, WPA2, etc.)

#### Future Events

- January 8<sup>th</sup> – Chapter meeting, DeVry University, possible presentation on program analysis.
- March 5<sup>th</sup> – Chapter meeting, ITT Technical Institute, IEEE Distinguished Lecturer invited.
- May 7<sup>th</sup> – Chapter meeting, DeVry University, possible presentation on solid state disk drives.

Meetings start at 6:00 pm with networking and light refreshments followed by the presentation at 7:00 pm. DeVry University is located at 2149 W Dunlap Avenue, Phoenix, (a mile east of I-17 on Dunlap). ITT-Tech is located at 5005 S Wendler Drive, Tempe (NW corner of I-10 and Baseline Rd).

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

Election of chapter officers for 2014 will take place at the November meeting. If you would like to volunteer to serve in one of the officer positions please contact one of the chapter officers.

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

Chair:	Jerry Crow ( <a href="mailto:jerry.crow@computer.org">jerry.crow@computer.org</a> )
Vice-chair:	Brad Morantz ( <a href="mailto:bradscientist@ieee.org">bradscientist@ieee.org</a> )
Secretary/Webmaster:	Audrey Skidmore ( <a href="mailto:askidmore@computer.org">askidmore@computer.org</a> )
Treasurer:	Diane Smith ( <a href="mailto:sdianesmith@computer.org">sdianesmith@computer.org</a> )

INSTITUTE OF ELECTRICAL AND ELECTRONIC ENGINEERS

## WAVES AND DEVICES - Phoenix Chapter

*Meeting Free & Open to Non-IEEE Members*

5:00 to 6:30PM, Thursday, October 10th, 2013

Arizona State University

Goldwater Center, GWC487, 650 E. Tyler Mall, Tempe, AZ

# Floquet modal based Analysis of Finite and Infinite Phased Array Antennas

**Dr. Arun K. Bhattacharyya**

Distinguished Engineer and Engineering Fellow, Northrop Grumman Corporation



### Abstract

Phased array antennas are becoming increasingly popular in communication and broadcasting satellites because of their inherent advantages of beam reconfigurability. For wide angle scan application an accurate analysis of the array antenna including mutual coupling effects is very important. In this talk we present the Floquet modal analysis procedure for analyzing periodic phased array antennas. The talk begins with a discussion on the relevance of Floquet analysis with regard to a scanned beam array design. Effects of mutual coupling on the performances of an array are discussed in details. It is shown how Floquet analysis can be employed to analyze a finite array with arbitrary amplitude taper including mutual coupling effects. Design examples of patch and horn arrays are presented. Method of analysis for multilayered array structures with different periodicities is presented and applications of such structures in phased array antennas are discussed. Accuracy of Floquet model for small finite arrays is discussed. Examples of on-board array antennas in modern communication satellites are shown.

### Biography

Arun K. Bhattacharyya received his B.Eng. degree in electronics and telecommunication engineering from Bengal Engineering College, University of Calcutta in 1980, and the M.Tech. and Ph.D. degrees from Indian Institute of Technology, Kharagpur, India, in 1982 and 1985, respectively.

From Nov 1985 to April 1987, he was with the University of Manitoba, Canada, as a Postdoctoral Fellow in the electrical engineering department. From May 1987 to October 1987, he worked for Til-Tek Limited, Kemptville, Ontario, Canada as a senior antenna engineer. In October 1987, he joined the University of Saskatchewan, Canada as an assistant professor of electrical engineering department and then promoted to the associate professor rank in 1990. In July 1991 he joined Boeing Satellite Systems. Dr. Bhattacharyya became a Technical Fellow of Boeing in 2002. In September 2003 he joined Northrop Grumman Space Technology group as a staff scientist, senior grade. At present he holds Distinguished Engineer and Engineering Fellow position at Northrop Grumman. He is the author of "Electromagnetic Fields in Multilayered Structures-Theory and Applications", Artech House, 1994 and "Phased Array Antennas, Floquet Analysis, Synthesis, BFNs and Active Array Systems", Wiley, 2006. He authored over 95 technical papers, 5 book-chapters and has 16 issued patents. His technical interests include electromagnetics, printed antennas, multilayered structures, active phased arrays and modeling of microwave components and circuits.

Dr. Bhattacharyya became a Fellow of IEEE in 2002. He is a Distinguished Lecturer of IEEE APS society. He is a recipient of numerous awards including the 1996 Hughes Technical Excellence Award, 2002 Boeing Special Invention Award for his invention of High Efficiency horns, 2003 Boeing Satellite Systems Patent Awards and 2005 Tim Hannemann Annual Quality Award, Northrop Grumman Space Technology.

**Date:** Monday, November 4, 2013

**Time:** 12:00 PM Presentation, Pizza will be served following the Seminar

**Location:** Goldwater Center, GWC487, Arizona State University, [650 E. Tyler Mall, Tempe, AZ](#)

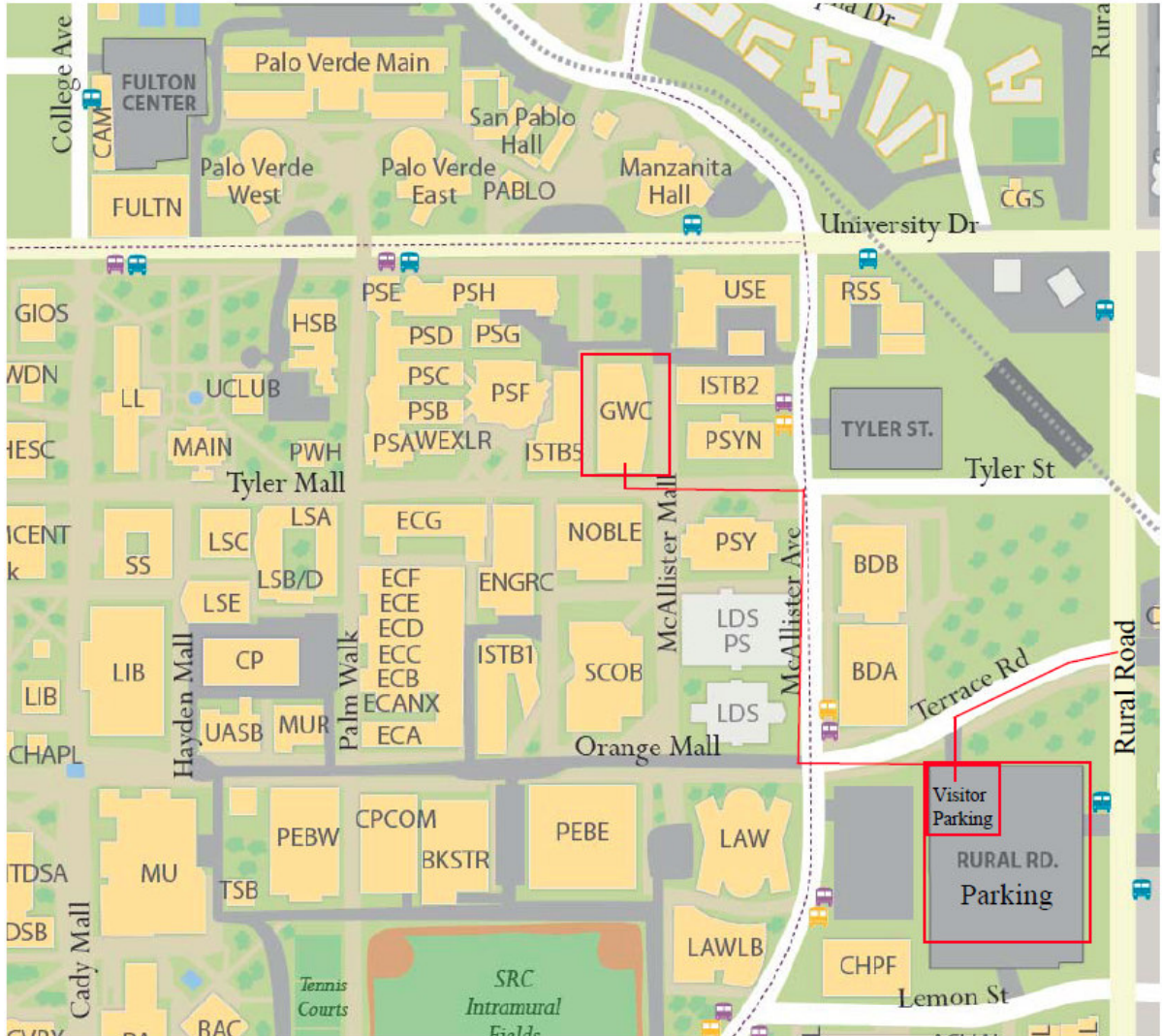
**For more information, contact:**

Steve Rockwell (Chapter Chair) (480) 241-9891 [steve.rockwell@ieee.org](mailto:steve.rockwell@ieee.org)

Vishwanath Natarajan (Chapter Publicity) (404) 428-0514 [vishwanath.natarajan@ieee.org](mailto:vishwanath.natarajan@ieee.org)

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

# Goldwater Center – GWC – Room 487 Building is across from Noble Science Library





# IEEE GOLD

## Phoenix Section Affinity Group



### IEEE Graduates of the Last Decade (GOLD) Phoenix Section Officers

- Chairman: Shafiul “Jacky” Islam (shafiul.islam@intel.com)
- Treasurer: Ashley Meredith (ashley.meredith@aps.com)
- Secretary/Webmaster: Joseph Caglio (joseph.m.caglio@intel.com)

### IEEE GOLD Officers Meeting – September 10, 2013

Jacky Islam, Ashley Meredith, and Joseph Caglio had an officers meeting to discuss new officer recruitment, plan for upcoming events, and paperwork / administration from about 6:00pm to 7:00pm.



### Presentation Workshop – November, 15, 2013

Please join us for a presentation workshop organized by IEEE GOLD (Graduates of the Last Decade) Phoenix Section, in collaboration with IEEE Arizona State University Student Branch, IEEE-Eta Kappa Nu Epsilon Beta Chapter, IEEE WIE (Women in Engineering) Phoenix Section, IEEE Life Members Phoenix Section, and Intel AZWITLF (Intel Arizona Women in Technology Leadership Forum).

#### Presenting for Excellence

How many times do you sit through presentations that are full of text-filled slides and complicated charts and graphs? Besides being tedious, how much information do you really take away from these presentations?

The **Presenting for Excellence** workshop will show you how to prepare and deliver a presentation that people will pay attention to, remember, and act upon. This two-hour workshop will show you how to focus your message so that the important points are clear and memorable. You’ll learn how to design visually pleasing slides that convey your key points effectively, and develop your presentation skills to enable you to effectively present your message.

Who: Dave Hughes, Software Engineer, Assembly/Test Technology Development Automation Group, Intel Corporation

When: Friday, November 15, 2013 4:00—6:00 pm

Where: Room 487, Goldwater Center for Science & Engineering, ASU Tempe Campus, 650 E. Tyler Mall, Tempe, AZ 85287

<http://www.asu.edu/map/interactive/?campus=tempe&building=GWC>

#### Speaker Biography



Dave Hughes is a 17-year Intel veteran with over 33 years’ experience in the software industry. His varied industry experience includes eight years as a trainer and course developer and eight years as a highly-rated manager. Dave leads a series of Communicating for Extraordinary Results workshops and is a sought-after instructor for Strengthening Manager Skills and Building Trust.

Dave is an Area Governor in Toastmasters, and has achieved Advanced Communicator-Gold and Advanced Leader-Bronze. Dave has served as Master of Ceremonies for several Intel Software Professionals Conferences and Arizona Site Diversity Leadership Awards, and has delivered various keynote speeches and lunchtime brown-bag presentations. Dave recently served as Intel’s Chief Ambassador.

#### Registration

Please register for the event at: [https://meetings.vtools.ieee.org/meeting\\_view/list\\_meeting/21387](https://meetings.vtools.ieee.org/meeting_view/list_meeting/21387)

#### Parking

Visitor parking available at Lot 57:

<http://www.asu.edu/map/interactive/?campus=tempe&visitorparking=Lot%2057>

Campus visiting parking information: <https://cfo.asu.edu/pts-visitor-tempe>



 **2013 IEEE Phoenix Section News**

View or down load the pictures from IEEE Phoenix Section Annual Banquet 2013 at: <http://sites.ieee.org/phoenix/category/annual-banquet/>

## Executive Committee Meeting

Upcoming Meeting Tuesday, December 3, 2013  
The Airport Hilton Phoenix,  
2435 S 47th St. Phoenix, AZ 85034, (480) 894-1600.  
Next Meeting December 3, 2013

## Executive Committee Meetings

**Date:** First Tuesday of every month, except July and August

**Time:** 6:00 – 8:00 p.m.

**Location:** Hilton Phoenix Airport, 2435 South 47th Street, Phoenix, AZ 85034

## 2014 IEEE Phoenix Section Annual Banquet

### IEEE Phoenix Section is issuing a Call for Award Nominations and Student Scholarship Applications.

IEEE Phoenix Section Awards Committee is seeking nominations for Section Awards. The deadline for receiving the nominations is Sunday, November 24th, 2013. The selected candidates will be informed by Wednesday, December 4th, 2013. The deadlines were pulled in for this year to accommodate and align with IEEE Region 6 deadlines in view of upcoming IEEE Sections Congress 2014.

The following are the section award categories:

- Member
- Society Chapter / Affinity Group
- Non-Member
- Corporate
- Education
- Section Chair

IEEE Phoenix Section Awards Committee is also seeking applications for Section Student Scholarships. The deadline for receiving the applications is Sunday, January 12th, 2014. The selected students will be informed by Wednesday, January 15th, 2014.

The awards and scholarships will be presented at the IEEE Phoenix Section Annual Banquet 2014 scheduled for Saturday, February 8th, 2014 at Hilton Phoenix Airport located at 2435 South 47th Street, Phoenix, AZ - 85034.

Refer to IEEE Phoenix Section website at [sites.ieee.org/phoenix](http://sites.ieee.org/phoenix) for award nomination forms and student scholarship applications along with instructions and additional information.

For additional information, contact Dr. Vasudeva P. Atluri, Section Awards Committee Chair, at (480) 227-8411 (Cell) and by email at [vpatluri@ieee.org](mailto:vpatluri@ieee.org), or Dr. Charles E. Weitzel, Section Chair, at (480) 292-0531 (Cell) and by email at [c.weitzel@ieee.org](mailto:c.weitzel@ieee.org).

### **IEEE Phoenix Section Annual Banquet 2014**

IEEE Phoenix Section is holding the Annual Banquet 2014 on Saturday, February 8<sup>th</sup>, 2014, from 6:00 PM to 9:30 PM at Hilton Phoenix Airport located at 2435 South 47<sup>th</sup> Street, Phoenix, AZ – 85034.

The agenda for the banquet includes:

6:00 PM – 7:00 PM Registration / Social Hour  
7:00 PM – 8:00 PM Dinner  
8:00 PM – 8:30 PM Keynote  
8:30 PM – 9:30 PM Awards Presentation

The online banquet registration site will be accessible on January 1<sup>st</sup>, 2014 at <http://sites.ieee.org/phoenix>.

For additional information, contact Dr. Vasudeva P. Atluri, Section Awards Committee Chair, at (480) 227-8411 (Cell) and by email at [vpatluri@ieee.org](mailto:vpatluri@ieee.org), or Dr. Charles E. Weitzel, Section Chair, at (480) 292-0531 (Cell) and by email at [c.weitzel@ieee.org](mailto:c.weitzel@ieee.org).

### **IEEE Senior Member and Fellow Grade**

IEEE Phoenix Section Membership Development would like to nominate eligible IEEE Members from the Section to Senior Member and Fellow Grades. Please review the requirements at [www.ieee.org](http://www.ieee.org) for eligibility.

Eligible candidates are requested to send in their resumes to Dr. Vasudeva P. Atluri, Membership Development Coordinator, at [vpatluri@ieee.org](mailto:vpatluri@ieee.org) and Dr. Charles E. Weitzel, Section Chair, at [c.weitzel@ieee.org](mailto:c.weitzel@ieee.org) for consideration.

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## **Phoenix Section LinkedIn Group**

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

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## IEEE Phoenix Section Ventures into Social Media

We have made good progress in our Facebook page so far.

We have 43 people who Like this page (subscribers). Our first goal is to reach 500 likes by end of this year.

The activity chart shows that between 100 to 160 people are accessing this page every week.

You can access the web page three ways:

Use the URL: <https://www.facebook.com/IEEEPhoenixSection>

Click on the Facebook logo link from IEEE Phoenix section home page. <http://sites.ieee.org/phoenix/>

Search for IEEE Phoenix Section from your Facebook page.

We need following help.

1. Each of you access the IEEE Phoenix Section Web page and click on "Like" hyperlink.
2. Go on the Friends section of the page and "Invite Your Friends." Once you click on Invite button, it will get your email contact list. Your facebook contact list will already be populated with your Facebook friends and you can simply click the Invite button next to their name. Please invite as many friends as you can.
3. Provide me the contents for posting on a regular basis - meeting/ event announcements, Event pictures, Videos.
4. Start some discussion topics under - Status section.

If you have any questions, please call me.

Thanks for you help in advance.

I will send out regular reminders as well to make sufficient progress.

Vivek Gupta  
Pace Chair  
IEEE Phoenix Section

480-734-0266

# THE ARIZONA SCIENCE LAB®



The Arizona Science Lab (ASL) offers students in grades 4-9 full day project based science workshop taught by expert volunteer engineers and scientists. This experimental based learning offers students a window into the world of science, technology, engineering and math (STEM) through a unified lessons that includes scientific principles, social relevance, experimental demonstrations and hands-on project construction activities. This program, offered free of charge to all student classes in the greater Phoenix area; is in direct response to the growing concern that not enough students are adequately prepared to enter into the stem fields.

## Special Edition

We are very happy to bring you good news that may help enable your students to participate in an ASL Workshop!

With budgets as tight as they are, some teachers find it difficult to financially arrange for bus transportation to our lab in Tempe. Here are three programs that you may find useful. You may be able to use the funds for other purposes as well.

Please visit these sites for complete details <http://www.ieee.org>

The Arizona Science Lab is a project of the Institute of Electrical and Electronic Engineers. The IEEE-USA is a constituent part of IEEE and focuses on issues concerning its United States-based members. They have created a "K-12 STEM Activity Fund" to help teachers to sponsor innovation and creativity in or outside of the classroom.

Funds can be provided for an IEEE program such as ASL which is an implementation of an IEEE Teacher In-Service Program. One of our IEEE members will be happy to help you with the application and act as sponsor.

To find out more and to apply, please go to: <http://www.ieeeusa.org/volunteers/committees/pec/teacher-grants.html>

## Target

**Target is offering Field Trip Grants.** Stores provide education grants to local K-12 schools to support educational field trips, early childhood reading programs and participation in the arts. Since launching the program in 2007, Target has made it possible for millions of students to go on a field trip.

To find out more and to apply, please go to: <https://corporate.target.com/corporate-responsibility/grants>

## NEA Foundation

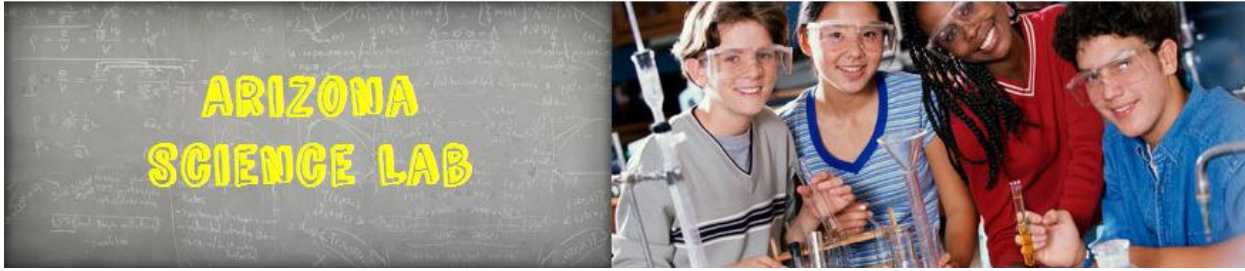
The National Education Association Foundation offers grants to support new ideas and practices that strengthen teaching and learning. Their goal is to fund and share successful strategies to educate and prepare students for bright and rewarding futures. They have awarded more than \$8.5 million to fund nearly 4,000 grants to public school educators to enhance teaching and learning.

Applicants must be practicing U.S public school teachers or public school education support professionals.

To find out more and to apply, please go to: <http://www.neafoundation.org/pages/grants-to-educators/>

Engineers,

Do you have some time to give something worthwhile back to society without costing you a dime?



We have a program which is quite fulfilling personally, and lots of fun as well. A small group of retired engineers (actually 7 of us) have put together a program sponsored by the Phoenix Section of IEEE called the Arizona Science Lab ([www.azsciencelab.org](http://www.azsciencelab.org)), where we take middle school kids to our school facility in Tempe, and teach them physical science through hands-on learning. The kids get to build and test water bottle rockets, solar cars, sailboats, popsicle stick bridges, electric motors, water wheels, computer coding, and other activities, while learning Newton's laws, Archimedes principle, the law of levers, etc.

We're looking for volunteers who are willing to put in 2-4 days/month (or more if you like) to help us develop curriculum, design and build demonstrations, teach, assist in teaching, or just work with the kids doing experiments and building their projects.

Call or email our Director of Staffing, **Michel Ebertin, ASL Director of Volunteer Recruitment** [mebertin@azsciencelab.org](mailto:mebertin@azsciencelab.org) (408) 991-2136

He'll send you more information about our lab, invite you to come down to one of our workshops, and sign you up to join us. Give us a peek at: [www.azsciencelab.org](http://www.azsciencelab.org). You'll like it!

## IEEE Membership Grade Advancement

IEEE Phoenix Section Executive Committee encourages all to apply for advancement in membership grade to Senior Member and Fellow Grade. Please review the requirements at [www.ieee.org](http://www.ieee.org). Please contact IEEE Phoenix Section Membership Development Chair, Dr. Vasudeva P. Atluri, at [vpatluri@ieee.org](mailto:vpatluri@ieee.org) for additional information.

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### Enhanced Senior Member Application Launched

Effective 29 July 2011, IEEE Admission and Advancement launched a [new Senior Member Application](#). The new application includes numerous enhancements, based on feedback from volunteers and members, including:

- New user friendly format / design
- Secure environment (need IEEE Web account)
- Ability to save application in “draft” form
- Ability to upload resume or Curriculum Vitae (up to 3 MB)
- Applicant can view application online
- Applicant can view status of requested reference forms
- References will be notified by email to provide applicant reference
- References will have the ability to view their completed reference form(s)
- Real time application status

The goal is to provide prospective Senior Members with an easy to use and intuitive interface, while streamlining internal operations at the same time. [View the new Senior Member application](#).

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## IEEE Member's Benefits

### IEEE-USA's Free E-Books to Members

#### October Free E-Book

IEEE-USA E-Books is offering “Engineers Can Write! Thoughts on Writing from Contemporary Literary Engineers” this month free to IEEE members.

Award-winning author Tom Moran explores the similarities and differences found in writing and engineering; offers thoughts on how engineers can conceptualize their writing to improve their reports, articles, proposals and other documents; and shows why many engineers are able to write very well.

Each of the engineer authors Moran features has been successful in the world of literature -- poems, shorts stories, novels -- and their competence with language undermines any claims that engineers can't write.

“Many engineers are excellent writers, adroit at taking on technology’s toughest challenges, and using language to clearly and cogently describe what they have learned,” Moran writes. “Indeed, engineering’s history has been marked by important works written clearly and competently by engineers.”

“Engineers Can Write! Thoughts on Writing from Contemporary Literary Engineers” can be downloaded at [www.ieeeusa.org/communications/ebooks/files/z382n9i/Engineers-Can-Write.pdf](http://www.ieeeusa.org/communications/ebooks/files/z382n9i/Engineers-Can-Write.pdf) for free to IEEE members. The nonmember price is \$9.99.

### **November Free E-Book**

“The Best of Today’s Engineer: On Innovation – Volume 1” is a compilation of some of IEEE-USA’s top stories on innovation - what it means, what it is, how to do it, what to think about, how to achieve it, and how it might affect some aspect of engineering.

Topics include: Top 10 Innovation Tools for New Millennium Engineers; Is Innovation the Answer?; How the Government Refocused on Innovation and Competitiveness; and Engineer, Promote Thyself.

This e-book will be available free to members in November.

To purchase IEEE Members-only products, and to receive the member discount on eligible products, members must log in with their IEEE Web Account.

### **Call for Authors**

IEEE-USA E-books seek authors to write an e-book, or e-book series, on career guidance and development topics. If you have expertise in a particular area that you’re willing to share for the benefit of members, email your proposal to IEEE-USA Publishing Manager Georgia C. Stelluto ([g.stelluto@ieee.org](mailto:g.stelluto@ieee.org)) and IEEE-USA E-Book Chair Gus Gaynor ([g.gaynor@ieee.org](mailto:g.gaynor@ieee.org)).

IEEE-USA advances the public good and promotes the careers and public policy interests of more than 206,000 engineering, computing and technology professionals who are U.S. members of IEEE.

Web: [www.ieeeusa.org](http://www.ieeeusa.org)

Facebook: [www.facebook.com/ieeeusa](http://www.facebook.com/ieeeusa)

Twitter: [www.twitter.com/ieeeusa](http://www.twitter.com/ieeeusa)

Join IEEE: [www.ieee.org/join](http://www.ieee.org/join)

Contact: Sharon C. Richardson, Coordinator  
IEEE-USA Communications & Publishing  
Phone: 1 202 530 8363  
E-mail: [s.richardson@ieee.org](mailto:s.richardson@ieee.org)

### **GoogleApps@IEEE Now Available to IEEE Members**

GoogleApps@IEEE is a suite of products offered to IEEE members to enhance peer-to-peer communications and collaboration. The suite of applications includes e-mail, calendaring, contacts, and document sharing along with other collaborative tools. 30G of available cloud storage memory is available for these applications. Learn more about <http://www.ieee.org/googleapps>

GoogleApps@IEEE is available to members at no additional cost, bringing access to:

- A unique IEEE e-mail address (e.g., [John.A.Doe@ieee.org](mailto:John.A.Doe@ieee.org));
- Mail forwarding or e-mail inbox (Gmail);

- 30-gigabytes of shared storage (Gmail and Google Drive);
- 99.9 percent up time guaranteed by Google;
- Advertisement-free Gmail;
- Files stored in the cloud for easy sharing and access from anywhere via Google Drive.

## Member Discounts

### Flood Insurance for U.S. Members

Do you think you need flood insurance only if you live near water? Think again. Floods can be caused by heavy rainfall, melting snow, clogged drainage systems and broken levees. All it takes is a few inches of water to cause major damage to your home and belongings.

Don't get caught off guard. If you think you're at risk, consider protecting your home with a flood insurance policy. Although Liberty Mutual's home and renters policies do not cover flood losses, you can purchase flood insurance through FEMA's National Flood Insurance Program. To find out more information on coverage and premiums, visit [www.fema.gov/business/nfip](http://www.fema.gov/business/nfip) or contact your Liberty Mutual sales representative for assistance.

In the meantime, take these steps to protect your home from flood damage:

- Safeguard your important documents in a waterproof container.
- Keep gutters clear of debris.
- Landscape with native plants and vegetation that resist soil erosion.
- Leave the basement floor unfinished.
- Raise your washer, dryer, water heater, oil tank, furnace and electrical wiring at least a foot above your home's projected flood elevation.
- Install and maintain a sump pump.
- Install backflow valves and standpipes to prevent backed-up sewers.
- Install flood shields for basement windows and doors.
- Plan and practice a flood evacuation route with your family.

Keep in mind that there is a 30-day waiting period from date of purchase before a flood policy goes into effect. Don't delay; buy flood insurance today!

As an IEEE member, you are eligible for a discount on your auto, homeowners and renters insurance through Liberty Mutual. For more information about this program, please visit [www.libertymutual.com/ieee](http://www.libertymutual.com/ieee) or call 1-800-531-4958.

Coverage underwritten and provided by Liberty Mutual Insurance Company and its affiliates, 175 Berkeley Street, Boston, MA 02116. 2012 Liberty Mutual Group. All rights reserved.

### Complimentary Member Discount Cuts Prescription Costs:

Prescription costs keep marching up. But as an IEEE member, you can drive them back down with a FREE discount card.

Allergy prescriptions for you or your children, Antibiotics when nasty colds turn into painful sinus infections. Medicines you take on a daily basis to keep health problems in check.

They all leave you exposed to the ever-increasing cost of today's prescription drugs. But as an IEEE member living in the United States or Puerto Rico, you have an option to help hold the cost of your prescriptions in line the complimentary IEEE Member Prescription Discount Card.

Simply request your FREE discount card at

<http://www.ieeeinsurance.com/us/PersonalInsurance/HealthInsurance/DiscountPrescriptionCard.aspx> and start saving.



How much could you save? That depends on your prescriptions and where you're buying them. In general, you can expect to save an average of 20 percent and as much as 50 percent by mail. When you consider that you pay nothing for this discount card . . . then add up the savings potential . . . it just makes sense to request this complimentary IEEE member discount card today at <http://www.ieeeinsurance.com/us/PersonalInsurance/HealthInsurance/DiscountPrescriptionCard.aspx>

This is NOT insurance. Discounts only available at participating pharmacies. Available in the United States and Puerto Rico.

This program is administered by Marsh U.S. Consumer, a service of Seabury & Smith, Inc. d/b/a in CA Seabury & Smith Insurance Program Management. CA Ins. Lic. #0633005. AR Ins. Lic. #245544 (6/13) Seabury & Smith, Inc. 2013

### **Technology Discounts**

Looking for a computer for your home or small business? Need to back up your valuable digital files? Before you shop anywhere else, visit the [http://www.ieee.org/membership\\_services/membership/discounts/technology.html](http://www.ieee.org/membership_services/membership/discounts/technology.html) where you will find well-known brands exclusively discounted for IEEE members. Check back often to view special promotions posted for additional savings.

Find out more about the FREE Technology Discounts at [http://www.ieee.org/membership\\_services/membership/discounts/technology.html](http://www.ieee.org/membership_services/membership/discounts/technology.html)

### **Dues Renewal: A Time to Inspire the Future**

The altruism and generosity of IEEE members and friends enabled the IEEE Foundation to award US\$3 million last year to technology programs that:

- Empower the world's brightest young minds;
- Encourage impactful ideas and creative solutions;
- Share the history and evolution of ground breaking ideas;

IEEE Foundation and IEEE thank all of you who have donated and shown a strong commitment to the founding ideas and principles of IEEE.

While renewing your IEEE Membership, take time to reflect on how your IEEE Membership has influenced your career and enhanced your opportunities. Then consider making a donation to support the programs and projects important to you. Giving through your IEEE renewal is just one way you can support the work of IEEE and continue to make a difference. You may choose to designate your donation, in any amount, to one or more funds listed in your renewal packet. You may also donate online at <http://www.ieee.org/organizations/foundation/DonateOnline.html>, anytime.

There is so much more that we can accomplish together to inspire the future and enable the impact of IEEE. Visit <http://www.ieeefoundation.org/> and learn more about:

- maximizing your donation through your employers Matching Gift Program at <https://www.ieee.org/organizations/foundation/matchinggifts.html>;
- Donor recognition groups (<http://www.ieee.org/organizations/foundation/donorrecognition.html>) such as the IEEE Heritage Circle, the IEEE Goldsmith Legacy League, the Advocates Association and the Leadership Association;
- our activities on <https://www.facebook.com/IEEEFoundation> and Twitter;
- making your gift electronically at <http://www.ieee.org/organizations/foundation/DonateOnline.html>