

# The Valley Megaphone

Newsletter of the  
**Institute of Electrical and  
Electronics Engineers, Inc.,  
Phoenix Section**  
September 2012,  
Volume XXVI, Number 9



## Executive Committee 2012

### Chair

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

### Vice Chair

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

### Secretary

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

### Treasurer

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

### Past Chair

Jim Hudson, 480-855-8987  
[jim.hudson@srpnet.com](mailto:jim.hudson@srpnet.com)

### Publicity

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

### PACE

Mike Andrews, 602-682-5440  
[m.andrews@ieee.org](mailto:m.andrews@ieee.org)

### 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

Guoliang Xue  
480-965-6218  
[xue@asu.edu](mailto:xue@asu.edu)

### 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)

## In this Issue of the Valley Megaphone: Table of Contents

(click on an item to go directly to it)

U – News .....	2
Student Branches .....	2
U – Newsbytes.....	2
Signal Processing & Communications Society .....	3
CPMT Phoenix Chapter.....	4
Power & Energy Society.....	6
Solid State Circuits Society .....	7
IEEE EMC society.....	8
Life Member Affinity Group.....	9
Women in Engineering Affinity Group.....	10
Computer Society .....	11
Wave and Devices.....	12
The Arizona Science Lab .....	14
2012 IEEE Phoenix Section Calendar .....	17
Phoenix Section Executive Committee Meeting.....	18
IEEE Membership Grade Advancement .....	19
Enhanced Senior Member Application Launched ...	19
IEEE-USA Government Fellowships: .....	20
Section Officers Election/Job description.....	21
IEEE USA E Book on Transition .....	22
Phoenix Section LinkedIn Group.....	22

IEEE Phoenix Section on-line updates can be found at <http://ewh.ieee.org/r6/phoenix/> and on LinkedIn at:

<http://www.linkedin.com/groups?gid=2765918>

Please send announcements for the *Valley Megaphone* to Surinder Tuli at [surinder.tuli@gmail.com](mailto:surinder.tuli@gmail.com) and to Russ Kinner at [r.kinner@ieee.org](mailto:r.kinner@ieee.org) for inclusion in the Section Calendar.

The IEEE Banquet pictures are up, see <http://ewh.ieee.org/r6/phoenix/index.php>

## Chapters

### Signal Processing & Communications

Pavan Turaga  
TBD

[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

Chaturvedi Gogineni  
[cogoginen@asu.edu](mailto:cogoginen@asu.edu)

### Power & Energy Society

Scott Freymuller 480-991-9191

[scott@youngpower.com](mailto:scott@youngpower.com)

### Solid State Circuits

Mohamed Arafa

[mohamed.arafa@ieee.org](mailto:mohamed.arafa@ieee.org)

### Teacher-In-Service

John Purchase

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

### Waves & Devices Society

Steve Rockwell

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

### Life Members

Barry Cummings

[abarrycummings@gmail.com](mailto:abarrycummings@gmail.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: Ahmet Durgun,  
480-371-7743, [adurgun@asu.edu](mailto:adurgun@asu.edu)  
Advisor: Cihan Tepedelenlioglu,  
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: Donovan Benedict  
[Don4ben5@gmail.com](mailto:Don4ben5@gmail.com)  
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: Niranjana Venkatraman  
[v.niranjana@ieee.org](mailto:v.niranjana@ieee.org)

**Embry-Riddle, Prescott**  
Chair: Tim Lemm  
[timothy.lemm@erau.edu](mailto:timothy.lemm@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 Nick (at email address above) with Recommendations.**

Start your own MicroMouse and compete for cash prizes!

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

- View pictures from the MicroMouse contest at the Southwest Area Spring 2010 meeting at <http://picasaweb.google.com/ieeegoldphx/2010IEEEESWASpringMeeting> (photography by David Huerta, GOLD Affinity Group Chair)

# Signal Processing & Communications Society



Phoenix Chapter of IEEE Signal Processing Society and  
Communications Society



We will be hosting two IEEE Distinguished lecturers in November this year. The speakers, and some information for their presentations are given below. Please note that this is to provide early information about upcoming talks, and that details about date/time/venue may change marginally, so please watch this space for updates.

1. **Dr. Kadangode Ramakrishnan**, AT&T Research Labs.  
Topic: Networking the Cloud  
Tentative Date and Time: Nov 9<sup>th</sup> 2012, 11:00am  
Location: ASU Goldwater Center, Room no. 487
2. **Dr. Mischa Dohler**, Centre Tecnologic de Telecomunicacions de Catalunya (CTTC), Barcelona, Spain.  
Topic: Home Networking  
Tentative Date and Time: Nov 16<sup>th</sup> 2012, 11:00am  
Location: ASU Goldwater Center, Room no. 487

Please contact Chapter Chair Pavan Turaga ([pturaga@asu.edu](mailto:pturaga@asu.edu)) to volunteer or propose a speaker for upcoming meetings.

**CPMT- Packaging and Manufacturing Technology Society**



THE INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS, INC.



**IEEE Components, Packaging and Manufacturing Technology Society**

**Wednesday, September 19<sup>th</sup>, 2012 at 6 PM**

**PACKAGE FAILURE ANALYSIS - FAILURE MECHANISMS AND ANALYTICAL TOOLS**

**Dr. Rajen Dias**

**Principal Engineer with Intel Corporation at Intel Corporation Chandler AZ 85226**

**ABSTRACT:**

The technical presentation will provide an overview of the failure modes and mechanisms observed in the plastic packages. A brief introduction to the methodology of failure analysis of these packages will be described and emphasis will be paid to the tools and techniques currently used and the future direction for the tools and techniques required for successful and timely failure analysis of next generation package technologies. A discussion on the strategies for use of these techniques and a flow chart for failure analysis will be discussed.

**BIOGRAPHY:**

Dr Rajen Dias graduated with a MS and Ph.D in Materials Science from Lehigh University and joined Intel in 1984. He is currently a Principal Engineer in the Assembly Technology Development Quality & Reliability Group. His main areas of responsibility are in understanding failure modes and mechanisms of new package technologies and in developing next generation analytical tools and techniques for the failure analysis. He is a past General Chair of ECTC and a member of IEEE and CPMT

---

***(NOTE NEW DIRECTIONS DUE TO CONSTRUCTION:)***

**Date:** Wednesday, September 19<sup>th</sup>, 2012

**Location:** Group Conference Room, Freescale Semiconductor, Inc., 2100 E. Elliot Rd. Tempe, AZ. To enter the Freescale facility, after exiting from 101, go West on Elliot Road. Turn North on Country Club Way (first right turn). Enter the facility and walk to the Main (South) lobby in building 94, by the flag poles; you will be escorted to the meeting venue.

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

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

---

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

Surinder Tuli (480) 554-8275

Vivek Gupta (480) 413-5849

David Dougherty (480) 413-6923

Vasu Atluri (480) 227-8411

Mahesh Shah (480) 544-9438

## **CPMT Phoenix Chapter**

IEEE CPMT Society Phoenix Chapter is seeking volunteers to serve as Chapter Officers during remaining of 2012 and 2013. One has to be a member of IEEE CPMT Society to serve as the IEEE CPMT Society Phoenix Chapter Officer. If interested, please contact Dr. Vasudeva P. Atluri, Chair, IEEE CPMT Society Phoenix Chapter, by sending an email to [vpatluri@ieee.org](mailto:vpatluri@ieee.org).

## Power & Energy Society



IEEE Power and Energy Society  
Phoenix Chapter

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



### News and Announcements:

- The luncheon scheduled for September 20<sup>th</sup> has been cancelled. There is a Transmission Line Design Seminar scheduled for that same day at APS. For more information about the seminar, contact Young Power Equipment at 480-991-9191. We will resume our monthly luncheons in October.
- Don't miss our **55<sup>th</sup> Annual PES Golf Tournament**, which will be held on Saturday, October 13<sup>th</sup>, at the Antelope Hills Golf Club in Prescott. This is our annual fundraising event, allowing us to sponsor scholarships, student outreach programs, and, of course, our \$5 luncheons and technical seminars.
- At the IEEE Phoenix Section Annual Award Banquet, the Phoenix PES Chapter was named the [Outstanding Chapter](#) for 2011. We would like to thank everyone who supports our Chapter by sponsoring and participating in our annual golf tournament and by attending our monthly luncheons.
- We are pleased to announce that our Chapter sponsored a \$1000 electrical engineering scholarship, which was awarded by the IEEE Phoenix Section in February. The deadline for the next round of scholarships is January 2013. For more details, see the [Section website](#).
- 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)

# Solid State Circuits Society



INSTITUTE OF ELECTRICAL AND ELECTRONIC ENGINEERS



*Next Updates coming soon*

# EMC Society

## Technical Meeting

### Announcement on Rod Antennas



**Date:** Thursday, September 20th, 2012

**Place:** Garcia's Mexican Restaurant at Embassy Suites Hotel

**Address:** 4400 South Rural Road, Tempe, Arizona

**Address:** Just South of U.S. 60 on West side of Rural Rd.

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

**Title:** Electromagnetic Modeling and Measurements of the 104cm Rod and Biconical Antenna for RE102 Radiated Emissions Testing Below 30MHz

**Speaker:** Harry W. Gaul, EMC Group Manager, General Dynamics C4 Systems

**Abstract:** This talk identifies the optimum approach for grounding the 104cm rod antenna counterpoise in a radiated emissions test setup when testing below 30MHz.

Electromagnetic modeling is used to analyze various grounding approaches and empirical results are included to substantiate the analysis. Results of the analysis and measurements reveal a complete floating of the counterpoise to be the optimum approach for obtaining accurate measurements. Commercially available fiber optic isolators are demonstrated as an easy way to achieve isolation of the counterpoise. Additional results are included for the biconical antenna in the frequency range of 20 to 30MHz.

**Biography:** Mr. Gaul has been actively involved in EMC, EMP, ESD and TEMPEST test and design engineering for more than 30 years. He currently manages the EMC/TEMPEST Lab for General Dynamics C4 Systems in Scottsdale, Arizona. He is a Registered Professional Engineer (PE) in the state of Arizona, a NARTE Certified EMC Engineer, and a TEMPEST Professional Level II. Mr. Gaul is a Senior Member of the IEEE since 1996 and is the IEEE EMC Society Chapter Chair for the greater Phoenix area since 1999. He has seven publications in the areas of EMP, EMI, and TEMPEST. He received the BSME degree from the University of Colorado in 1978 and the Technology M.B.A. degree from Arizona State University in 1998.

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



# Life Member Affinity Group



## Technical Meeting

**Topic:** October TBD

**When:** Tuesday, October 16, 2012, 11:00am – 1:00pm Registration fee is \$15.

**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:  
[rlsprague@q.com](mailto:rlsprague@q.com) at least a few days before the meeting.

The Program Chair is seeking suggestion from members for future technical presentations. Any ideas of interest are open for consideration. Please contact Ronald Sprague Program Chair at [rlsprague@q.com](mailto:rlsprague@q.com) 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.

An IEEE member automatically becomes an IEEE "Life Member" status when at least 65 years of age and the sum of your current age and years of membership is 100. For more details use the link [http://www.ieee.org/web/volunteers/mga/home/life\\_members\\_committee/index.html](http://www.ieee.org/web/volunteers/mga/home/life_members_committee/index.html)

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

Technical meeting topics and suggested speakers are encouraged. Contact any Officer.

### Future Technical Meetings:

- Tuesday, October 16, 2012 SRP PERA CLUB
- Tuesday, December 4, 2012 SRP PERA CLUB

### Officers:

Chair	A. Barry Cummings	<a href="mailto:Barry.Cummings@srpnet.com">Barry.Cummings@srpnet.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:lesdavietii@cs.com">lesdavietii@cs.com</a>
Program Chair	Ronald L. Sprague, P.E.	<a href="mailto:rlsprague@q.com">rlsprague@q.com</a>
Past Chair	C Bruce Johnson	<a href="mailto:cbj@johnsonscientificgroup.com">cbj@johnsonscientificgroup.com</a>

## Women in Engineering Affinity Group



IEEE Phoenix Section  
Women in Engineering  
Affinity Group



IEEE Phoenix Section **Women in Engineering (WIE) Affinity Group (AG)** will be representing WIE at the Arizona State University (ASU) Engineering Career Exploration Night on ASU's Tempe Campus on September 12, 2012, from 4:00 to 8:00 pm on the second floor of the Memorial Union. 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. Several WIE members participated in this event last year and found the experience both fun and rewarding. If you would like to participate as part of WIE, please contact any of the Executive Committee members listed below.

WIE is also planning an event for the third week of October. The October meeting will feature a panel of women discussing the transition from engineering student to professional engineer. This event will be an opportunity for students to learn lessons from experienced engineers on how to successfully transition to the full-time workplace. Please stay tuned for more information in next month's Megaphone.

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 September, 2012

### News

- We are planning a chapter picnic for November. The picnic will be at Desert Breeze Park in Chandler and will be held on Saturday, November 17<sup>th</sup>. More details will be forthcoming.
- Chapter elections for officer positions for 2013 will be held at the chapter meeting in November. If you are interested in an officer position in 2013 please contact one of the current officers.

### Future Events

- September 5 – Chapter meeting, DeVry University, speakers Dr. Steve Miller, Don Willey, MCS, "Integrating GPS from a Software Perspective".
- November 14 – Chapter meeting, DeVry University, speaker Gil Speyer, PhD, graphical processing units and applications.
- November 17 – Chapter Picnic, Desert Breeze Park, Chandler.
- January 9, 2013 – Chapter meeting, DeVry University, speaker TBD.

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.

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

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

Jerry Crow ([jerry.crow@computer.org](mailto:jerry.crow@computer.org))  
Brad Morantz ([bradscientist@ieee.org](mailto:bradscientist@ieee.org))  
Audrey Skidmore ([askidmore@computer.org](mailto:askidmore@computer.org))  
Diane Smith ([sdianesmith@computer.org](mailto:sdianesmith@computer.org))



# **Wave and Devices**

## **TUNABLE RF-COMPONENTS AND MODULES FOR WIRELESS COMMUNICATION SYSTEMS**

**Dr. Holger Maune**

Technische Universität Darmstadt

### **Abstract**

This presentation highlights the current research and development efforts in the design and the implementation of reconfigurable rf-frontends for wireless systems in particular for terrestrial and satellite based mobile communication. In a first part it addresses the realization of different tunable components such as phase shifters, filters, duplexers, matching networks. The second part will focus on reconfigurable/adaptive antennas such as beam-steering antennas or reflectarrays. The presented rf-components and modules are based on different materials such as novel tunable non-linear dielectrics and techniques such as rf-mems.

### **Biography**

Holger Maune was born in Cologne, Germany, in 1981. He received the Dipl.-Ing. and Dr.-Ing. degree in communications engineering from the Technische Universität Darmstadt, Darmstadt, Germany, in 2006 and 2011 respectively. His research is currently focused on advanced RF devices employing tunable dielectrics on the system level and for high power applications.



**Date:** **Wednesday, Sept. 19<sup>th</sup>, 2012**

**Location:** [Arizona State University, Brickyard on Mill, 6<sup>th</sup> Floor, Room BYeng-660](#)

Best parking is underground. Take elevator at west end of parking area up to 6<sup>th</sup> floor.

**Time:** **4:00 PM Presentation, Pizza will be served following the Seminar**

For more information, contact:

Steve Rockwell (WAD Chapter Chair) (480) 241-9891 [steve.rockwell@ieee.org](mailto:steve.rockwell@ieee.org)  
Adel Elsherbini (Publicity Chair) (734) 686-2278 [a.elsherbini@gmail.com](mailto:a.elsherbini@gmail.com)

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



Institute of Electrical and Electronic Engineers  
 Waves and Devices Phoenix Chapter  
<http://ewh.ieee.org/r6/phoenix/wad/>



Photonics Society Meeting  
 GWC-487, Friday, 3:30 PM, Oct 5<sup>th</sup>, 2012



**Absorption edge of GaAsN and GaAsBi measured by photothermal deflection spectroscopy and synthesis of InSb nanowires by template assisted electrodeposition**

Dr. Mario Beaudoin, University of British Columbia, Vancouver, Canada

**Abstract:** This talk will discuss photothermal deflection spectroscopy (PDS) measurements of epitaxial films and the synthesis of InSb nanowires. The PDS technique has been used to measure the absorption bandedge and gap states of GaAsN and GaAsBi films. Bulk samples with typical thickness of 200 nm are grown on GaAs substrates by solid source molecular beam epitaxy (MBE) with an RF plasma nitrogen source. The N concentrations as well as the sample thicknesses are assessed by high resolution X-ray diffraction measurements. A 1D model for PDS is used to extract the absorption edge of GaAsN from the raw PDS data. Since the GaAs substrates are transparent in the region of interest for GaAsN, reflections at the substrate backside become important in the magnitude of the PDS signal and need to be properly accounted for in the model. The results reveal details of the subgap and bandedge absorption in dilute GaAs<sub>1-x</sub>N<sub>x</sub> films for  $x < 2\%$ . While the deduced optical bandgap is found to be in agreement with the empirical relation deduced by Tisch et al. [APL, 81 463-465 (2002)], the characteristic energy of the exponential absorption edge is found to be 4 times larger than in pure GaAs films. InSb nanowires (NWs) have been synthesized by pulsed electrodeposition using anodic alumina membranes (AAM) as templates. Two sets of AAMs were used: one set had 150 nm diameter pores and a porosity of 32% with a density of  $2 \times 10^9$  pores/cm<sup>2</sup> while the other set had 35 nm pores and 12% porosity with a density of 1010 pores/cm<sup>2</sup>. Scanning electron microscopy imaging shows that the free standing nanowires had uniform diameters but varied in length although they were all several  $\mu$ m long. Transmission Electron Microscopy measurements performed on both sets of wires shows that the 35 nm diameter wires are amorphous while the 150 nm diameter wires have polycrystalline domains. Powder X-Ray Diffraction (XRD) shows that the 150 nm diameter nanowires exhibit polycrystalline properties with the {111} and {220} diffraction being slightly more prominent than the {331}, {422}. As-grown samples with 55 nm diameter annealed at 350°C showed a marked improvement in the powder XRD peak widths which improved from 0.46° to 0.26°.

**Biography:** Mario Beaudoin completed his B.Sc. and M.Sc. in physics at McGill University, in 1986 and 1988 respectively, with a thesis on electronic transport properties of n-type InP. Mario then completed a Ph.D. in engineering physics at the École Polytechnique in Montréal in 1992 where he synthesized a-Si:H/a-SiN<sub>x</sub>:H multilayers and studied their optical properties. Mario then held a series of postdoctoral fellowships and research positions at École Polytechnique (93-95), University of British Columbia (95-97) and Arizona State University (97-99) where he synthesized III-V semiconductor strained layer multi-quantum well structures by MOCVD and MBE in order to study their structural, electrical and optical properties as well as to fabricate optoelectronic devices. Those positions led Mario to California in 1999 to work for Bandwidth9, Inc., where he worked on the development of a novel tunable vertical cavity surface emitting lasers (VCSELs). Mario came back to UBC in 2003 where he now manages the Advanced Nanofabrication Facility. His current research interests are in the area of structural and optical characterization of semiconductor materials for photonic applications. Mario is also very active in the francophone and francophile community of Vancouver having recently created a new networking website, [francouver.ca](http://francouver.ca), to help promote and organize social events.

**Date:** Friday, October 5<sup>th</sup>, 2012; **Time:** Presentation and Discussion 3:30 – 5:00 PM

**Location:** Arizona State University, Tempe Campus, Goldwater Center (GWC) Room 487  
 Enter building through main (south) lobby and take elevator to fourth floor. Go north down the west hallway, the conference room is on the right. See <http://www.asu.edu/map/> for map.

Sponsored jointly with the Center for Photonics Innovation, Arizona State University; for additional information please contact Shane Johnson at [shane.johnson@asu.edu](mailto:shane.johnson@asu.edu)

## The Arizona Science Lab



# THE ARIZONA SCIENCE LAB®

### Please Help Ensure The Future Sustainability Of The "Arizona Science Lab"!

The volunteer staff of the "Arizona Science Lab" (ASL) has achieved a lot this past year and is now fully engaged in preparing to start the new school year. A stroll through our website: [www.azsciencelab.org](http://www.azsciencelab.org) will give you a comprehensive overview of the objectives, achievements, structure, sponsorship and partners of this important and voluntary educational outreach initiative. You will also find lots of information and videos about our workshops, our staff, news articles, and so on.

Since we started in early 2009:

- 79 Teachers have been coached in Teacher in Service Program (TISP) workshops
- More than 6,000 students have participated in student workshops
- 46 Schools have attended Arizona Science Lab
- 164 student workshops have been given
- And approx. 300 teachers have participated in student workshops.

In the current 2012/2013 school year we plan on having around 5,000 students participating in workshops. The Teacher in Service Program (TISP) sessions, where we teach the middle school science teachers the math and science they need to know plus how to use project-based learning techniques in the classroom, are very important as a means of correcting the acknowledged math and science teaching problems in the schools, and we were asked by the school districts to emphasize this teacher mentoring.

As an all-volunteer organization, the future financial sustainability of ASL is always a major concern for our management team. Over the past four years since early 2009, a major sponsorship has been by the individual members of the Phoenix Section — we couldn't have succeeded without you! As you will note, and have probably heard before now, we have been very successful in attracting charitable funding from SRP Community Outreach, APS Foundation, and Nina Mason Pulliam Charitable Trust. And it is a fulltime job for our Executive Director to look for any other funding opportunities! This success has allowed us to procure tables, chairs and equipment for the main classroom to replace the old furniture we had been loaned until now. However, any charitable funding comes with various constraints on how it can be spent and is almost always directed solely at the consumable materials and

**other direct costs involved in running the workshops. Frequently it cannot be used for the indirect expenses involved in operating an office as part of the ASL. This includes ISP charges, printing charges, supplies of office materials, city garbage collection, cleaning services, and so on. Hence, we rely on the less constrained donations from the Section ExCom, the Technical Chapters, and the individual members to help us with that. So even though we are well funded for the direct costs of the workshops we provide to the grade 4 thru' 9 students, we are currently in the red for these indirect costs. Won't you please help us resolve this problem by making a tax deductible donation to the "Arizona Science Lab"? Any size of donation is of great help to us and will directly benefit the students by helping us continue our ASL operations.**

**Please use PayPal to make your donation by clicking this link or pasting it in to your Web browser:**

[https://www.paypal.com/cgi-bin/webscr?cmd=\\_s-xclick&hosted\\_button\\_id=KMXHMN385V4C4](https://www.paypal.com/cgi-bin/webscr?cmd=_s-xclick&hosted_button_id=KMXHMN385V4C4)

**Or, if you prefer, send your check made out to: "IEEE Phoenix Section TISP" to:**

**John Purchase, 1220 S. McKemy St, Tempe, AZ 85281.**

**Include your return mail address so I can send you a signed official receipt on headed paper. ASL is a 501(c)3 not-for-profit through IEEE and all donations are fully tax deductible.**

**Thank you for anything you can do to help us in our efforts to enhance the science, technology, engineering and math (STEM) learning of our grade 4 thru' 9 students, and to stimulate their interest in STEM subjects, and inspire them to pursue studies and future careers in STEM subjects!**

**John F. Purchase  
Executive Director  
Arizona Science Lab**

## **Future Rocket Scientist Seeks Experience**



**Yours!**

## **An Invitation to Engineers, Scientists and Science Enthusiasts**

**Dozens of engineers, scientists and amateur science enthusiasts with an aptitude for hands-on experiments are working to make a difference for Phoenix and Maricopa County 4<sup>th</sup> through 9<sup>th</sup> grade students at the **IEEE Arizona Science Lab**.**

**Come join us. Just a few hours can change a child's life – and yours!**

**Help us spark an interest in science and engineering careers.**

**Volunteers are needed to teach or help students perform the experiments and construct projects that will make science come alive for them.**

**Comprehensive volunteer training and orientation are provided.**

**The **IEEE Arizona Science Lab** has excellent equipment and a spacious facility, and is located at the Meyer School facility, 2615 S. Dorsey Lane, Tempe, AZ.**

**To RSVP or ask for more details, please contact:**

**Jane von Schilling, ASL Director of Volunteer Recruitment**

**(623) 256-8294 or [jvonschilling@gmail.com](mailto:jvonschilling@gmail.com)**

# **THE ARIZONA SCIENCE LAB**

**[www.arizonasciencelab.org](http://www.arizonasciencelab.org)**



## 2012 IEEE Phoenix Section Calendar



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

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

- September 2012
  - Student Branches send annual plan of activities to IEEE
  - Annual Banquet: Determine date, confirm hotel, speaker
  - Announcement of Student Paper Contest
  - Announcement of Student Scholarships
  - Call for nominations for awards
    - Categories: Young Engineer/GOLD, Engineer, Company, Educator



# Executive Committee Meeting

## Phoenix Section

**Venue:** Phoenix Airport Hilton 2435 S 47th St, Phoenix, AZ, 85034 ([map](#))  
Tel.: 480-804-6017

**More Info:** Meetings are held on the first Tuesday of the month, 6–8 PM.  
- Except for July & August

All interested IEEE members are welcome to attend.

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

## 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.

---

### 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](#).

## **IEEE-USA Government Fellowships:**

2013-2014 IEEE-USA Government Fellowships

Each year, IEEE-USA sponsors three qualified IEEE members to serve as government fellows: one Engineering & Diplomacy Fellow and two Congressional fellows. The fellows spend a year in Washington – from September to August each year – serving as advisers to the U.S. Congress or key U.S. Department of State decision-makers. IEEE-USA's Government Fellowships link engineers with government, providing a mechanism for IEEE-USA members to learn firsthand about the public policy process through personal involvement.

The congressional fellowship consists of an appointment to the personal staff of a U.S. Senator or Congressman, or to the professional staff of a Congressional Committee. For an application Kit for the 2013-2014 Congressional Fellowship Program, visit: <http://ieeeusa.org/policy/govfel/congfel.asp>

The State Department fellowship offers an opportunity for an engineer to provide technical expertise to the State Department, and help raise awareness of the value of engineering input while learning about and contributing to the foreign policy process. For an application Kit for the 2013-2014 Engineering & Diplomacy (State Department) Fellowship Program, visit:

<http://ieeeusa.org/policy/govfel/state.asp>

The postmark application deadline for 2013-2014 Fellowships is 8 February 2013. For more information, visit: <http://ieeeusa.org/policy/govfel/congfel.asp>

# **Section Officers Election/Job Descriptions**

*Updates coming soon*

## IEEE USA E Book on Transition

### **IEEE-USA E-Book E-Books to Members in September and October Feature Career Survival and Writing for Success:**

IEEE-USA is offering two free e-books to IEEE members the next two months as a special benefit of IEEE membership. In September members can receive "The Best of IEEE-USA Today's Engineer on Career Survival." In October, the free featured publication will be "Writing for Success -- An Engineer's Guide, Volume 1: Designing for Success." "The Best of Today's Engineer on Career Survival" is a compilation of career-focused articles from "IEEE-USA Today's Engineer" that can help you find success in a challenging job market. We all need the ability to survive in a changing world, and engineers need a better awareness about the evolving business ecosystem and what those changes mean. The articles in this e-book will help to increase your situational awareness of the marketplace, which in turn, can help you with career planning and developing sustainable job skills. You'll also learn how to assess the market and yourself, how to stay competitive, and what steps to take to thrive in the job market. "The Best of Today's Engineer on Career Survival" can be downloaded at <http://www.ieeeusa.org/communications/ebooks/files/wisao2sf/Best-of-TE-On-Career-Survival-V1.pdf> for free to IEEE members. The nonmember price is \$5.99. The purpose of "Writing for Success -- An Engineer's Guide, Volume 1: Designing for Success" is to inspire and help engineers to approach their writing tasks with the same confidence and skill they take to the technical problems that confront them -- so that emails, reports, test-plans, and other documents they write are as useful, successful and valued as their engineering efforts. "Writing for Success -- An Engineer's Guide, Volume 1: Designing for Success" will be available for members to download in October.

---

## 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.

---