

# The Valley Megaphone

Newsletter of the  
**Institute of Electrical and  
Electronics Engineers, Inc.,  
Phoenix Section**  
February 2010,  
Volume XXIV, Number 2



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

Please send announcements for the *Valley Megaphone* to Satish Ayer at [satish.ayer@ieee.org](mailto:satish.ayer@ieee.org) and to Russ Kinner at [r.kinner@ieee.org](mailto:r.kinner@ieee.org) for inclusion in the Section Calendar.

## Chapters

### Communication & Signal Processing

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### Computer Society

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### EMBS Chapter

TBD

### EMC Society

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### GOLD

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### Power & Energy Society

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### Waves & Devices Society

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## **U – News**

### **(for Student Members)**

IEEE STUDENT PAPER CONTEST ( See the Link Below for Application )

The Student Paper Contest is an excellent opportunity for visibility on student project work you are doing and to the University you are attending, as Papers are reviewed and selected by the Phx Executive Committee for a presentation at the Regional Event ( good visibility for Phx Section also ). Please take the opportunity to review requirements and submit your paper.

SCHOLARSHIP, CHAPTER and ADVISOR AWARDS at FEB BANQUET !

Recipients of the IEEE Phx Section Scholarship, Chapter and Advisor Awards ( as well as the other IEEE Section Award Recipients ) have been determined and Awards are presented at IEEE's Feb 13th Annual Banquet. Please take the opportunity to review IEEE Banquet Reservation Form page in this issue of the Megaphone and plan to be part of this great annual event.

REALLY IS A "FREE LUNCH" ( OR DINNER ) READ EVENT PROGRAMS

Many of the Professional Chapters of IEEE ( Chapters that you should be aware of and associated with based on your college major as these are your professional mentors ) offer engineering students a FREE ADMISSION to their Luncheon or Evening Meeting Events, which typically include meals. EVENT TRANSPORTATION AN ISSUE ? Simply Email Chapter Chairman as they can typically locate transportation from one of the chapter members.

Nick Leonardi  
480-720-1435 Cell  
[nleonardi@ieee.org](mailto:nleonardi@ieee.org)  
Student Activities Chair

## **Student Branches**

**ASU Main, Engineering**  
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[ieeeasuchair@gmail.com](mailto:ieeeasuchair@gmail.com)  
Advisor: Cihan Tepedelenlioglu,  
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**ASU Main, Computer Society**  
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[nvaidyan@asu.edu](mailto:nvaidyan@asu.edu)  
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**ASU Polytechnic**  
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[justin.burrell@asu.edu](mailto:justin.burrell@asu.edu)  
Advisor: TBD

**DeVry, Phoenix**  
Chair: TBD  
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**  
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[kry3@nau.edu](mailto:kry3@nau.edu)  
Advisor: Niranjan Venkatraman  
[v.niranjan@ieee.org](mailto:v.niranjan@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
- ERAU is planning an S-PAC Event and will be inviting Students from other Universities to participate. Details will be published as available
- Student volunteers are being enlisted by the IEEE Event Organizers for IECON 2010 in Glendale, AZ. Details to be published as available.

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



## IEEE EMC Society Phoenix Chapter Next Meeting



- Date:** Tuesday, February 25th, 2010
- Place:** Garcia's Mexican Restaurant at Embassy Suites Hotel
- Address:** 4400 South Rural Road, Tempe, Arizona,  
Just South of U.S. 60 on West side of Rural Rd.
- Time:** 5:30PM Social, 6PM Dinner (order off the menu), 7PM Meeting
- Title:** EMC Immunity Scanning – A New Way to Look at System Level Immunity
- Speaker:** Michael Hopkins, General Manager of EM Test USA, Hollis, New Hampshire

**Abstract:** The most common effects of ESD are the secondary effects such as “upset” or “soft” failures as opposed to hard failures where device fail completely. Michael Hopkins will present a method of locating specific areas and devices that are sensitive to the secondary effects of ESD and other transients. Michael also has a couple of short lightning videos that everyone will like including a 598ms lightning event photographed at 7000 frames/sec and played back over a 2 minute period.

**Biography:** Michael Hopkins has nearly 30 years experience with EMC and ESD as an independent consultant, an employee of Thermo Fisher Scientific working with the KeyTek product lines, Amber Precision Instruments, and now as the General Manager of EM Test USA. He has worked closely with manufacturers and laboratories world-wide providing training, applications help, and assistance with the development of interpretation of test standards. He is the author of several papers and articles on ESD and other system level EMC phenomena, and has participated in numerous national and international seminars as author, speaker, and panelist. Michael is an active member of several committees developing standards for industry including the ESD Association, IEC Technical Committees 77A and B for the development and maintenance of Basic EMC standards, IEEE, SAE and ANSI.

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

**Waves and Devices****Phoenix Chapter**

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

**2010 Calendar**

<b>Date</b>	<b>Time</b>	<b>Location</b>	<b>Topic / Title</b>	<b>Speaker</b>	<b>Affiliation</b>	<b>IEEE Society</b>
27-Jan	5:30 PM	Agilent, Chandler	Digital Pre-Distortion for high linearity RF Power Amplifiers	Dr. John Wood	Freescale	ED & MTT
3-Feb Jointly Sponsored w/ ASU Center of Nanophotonics	1:30 PM	ASU, GWC-487	Si Photonics: Towards Lasers on Silicon	Dr. Sangam Chatterjee	Philipps-Universität Marburg Marburg, Germany	Photonics Center of Nanophotonics
4-Feb	4:00 PM	Agilent, Chandler	Roth IRA Conversions – What You Need To Know	Mr. Greg Wojak	LPL Financial	General Interest
19-Feb	4:00 PM	ASU Brickyard	Non-Foster Reactances for Electrically-Small Antennas, High-Impedance Surfaces, and Engineered Materials	Dr. Jim Aberle	ASU	AP & MTT
March	TBD	Agilent, Chandler	IEEE's role in International Relations and Engineering Education	Dr. Barry Perlman	IEEE / Army	General
18-Mar	TBD	ASU Brickyard	High Speed Photonics for Space Applications	Dr. Davis Hartman	General Dynamics	Photonics
16-Apr	TBD	ASU Brickyard	State-of-the-Art Time-Domain Measurement and Modeling Techniques for Non-linear Components & Systems	Dr. Christopher Silva	The Aerospace Corp.	MTT
14-May		ASU Brickyard	DARPA Research	Dr. Robert Reuss	Consultant, Format DARPA program manager	General
25-Jun		Agilent, Chandler	Overview of NASA's Next Generation Manned Space Vehicle, Orion	Mr. William Boger	General Dynamics	MTT
23-Jul		TBD	Rough-Metal-Surface Propagation Loss Modeling	Dr. Henning Braunsch	Intel	MTT
Aug		TBD	mm-wave device characterization & modeling	Dr. Marcel Tutt	Freescale	ED & MTT
Sep		ASU	Wireless Networks for Medical Implant Devices	Dr. Sayfe Kiaei	ASU	ED, MTT, & AP

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



**Institute of Electrical and Electronic Engineers  
Waves and Devices Phoenix Chapter**

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



**Photonics Society Meeting  
1:30 PM, February 3<sup>rd</sup>, 2010**

**\*Sponsored jointly with the Center of Nanophotonics, Arizona State University**



## **ST Photonics: Towards Lasers On Silicon**

**Dr. Sangam Chatterjee**

Philipps-Universität Marburg  
Marburg, Germany

sangam.chatterjee@physik.uni-marburg.de

### **Abstract**

Silicon photonics nowadays receives more and more interest. Most of the building blocks for optoelectronic integrated circuits such as modulators, detectors, and wave guides have been demonstrated in a down-scalable process technology. However, the monolithic integration of a long-term stable laser diode has yet to be achieved. Of the many approaches towards this goal, two will be discussed here: The integration of III/V compounds and the Ge/SiGe material system.

The large lattice mismatch of conventional laser materials such as GaAs or InP on Si inevitably leads to the formation of high densities of threading dislocations preventing any long-term stable device operation. Here, a novel dilute nitride material Ga(NAsP) is used to facilitate the monolithic integration of a direct band gap III/V materials lattice matched to Si substrates. Gain measurements at room temperature using the variable stripe-length method revealed typical gain values comparable to those of conventional GaAs based laser materials. A first proof of laser operation is achieved by resonant optical pumping at low temperature. A clear threshold in the emission intensity is observed as a function of pump intensity in line with a spectral narrowing and a longitudinal mode spectrum above threshold.

As a second example, Ge quantum wells are investigated. Despite the indirect nature of its bandgap Ge is often considered a quasi-direct material due to the relatively narrow separation between the  $\Gamma$  and L minima of only about 140 meV. Indeed, many optical properties of Ge are governed by the direct transition such as the quantum-confined Stark-effect [Kuo et al., Nature 437, 1334 (2005)]. Here, transient optical gain after quasi-resonant excitation is observed on a 100 fs timescale. The carrier scattering dynamics and absorption processes as well as their implications for future laser applications are discussed.

### **Biography**

Sangam Chatterjee graduated in Physics (Dipl. Phys) from the University of Karlsruhe in 2000 and received his PhD from the University of Arizona in 2003. He then joined the experimental Semiconductor physics group at the Philipps-Universität Marburg where he is now an associate professor (Privatdozent). His current research interests include novel laser materials, ultrafast carrier dynamics, coherent control, as well as manybody effects in semiconductors and the realization of semiconductor disk lasers.

**Date:** **Wednesday, February 3<sup>rd</sup>, 2010**

**Location:** **Arizona State University, Main Campus, Goldwater Center (GWC) Rm 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.

**Time:** **1:20 PM *Refreshments Served*; 1:30-2:30 PM *Presentation*; 2:30 PM *Discussion***

For more information, contact: Shane Johnson at [shane.johnson@asu.edu](mailto:shane.johnson@asu.edu)

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



# Roth IRA Conversions – What You Need To Know



**Gregory Wojak<sup>1</sup> & Thala Rolnick, CPA<sup>2</sup>**

<sup>1</sup> LPL Financial\*, Chandler AZ; <sup>2</sup> Thala T. Rolnick, CPA, PLLC

\*LPL Financial, Member FINRA /SIPC

As of 6/30/2009, LPL Financial is the largest Independent broker/dealer in the country (Based on total revenues, Financial Planning magazine, June 1996-2009) with \$3.1 billion in 2008 revenues, over 7,000 branch offices in the U.S., and over 16,000 financial advisors supported.

## Abstract

Converting to a Roth IRA brings new opportunity for all in 2010. Anyone, regardless of income level, will be eligible to convert all or a portion of their Traditional IRA or employer-sponsored plan to a Roth IRA in 2010. Some of the advantages may include tax-free distributions, and no required minimum distributions or age and income limitations. Experts are saying this legislative change may become the single most powerful estate building and wealth transfer investment vehicle. I invite you to explore how you can take advantage of America's new tax break. Please join me for a seminar on the rules and regulations surrounding Roth IRA conversions in 2010 and how you can leverage the opportunity.

## Biographies

Gregory J. Wojak M.S. is a Financial Advisor and Account Executive at LPL Financial in Chandler, AZ. Greg focuses on asset management for institutional and retirement planning for retail clients with his expertise in economics. Before joining LPL, he worked with institutional investors providing them with research and diversification strategies to help them generate improved account performance. Before entering the financial field, he was a Project Manager at ABB Europe, a Research Scientist at North Carolina State University, and founded a semiconductor materials company.

Thala Rolnick practices public accounting from her office in Sun City Arizona. She received her Bachelor of Accounting Degree, Cum Laude, from the State University of New York at Albany. She received her Masters of Taxation from Arizona State University. She served two years on the Internal Revenue Service Electronic Tax Administration Advisory Committee (ETAAC), and was responsible for providing information used in the tax preparer section of the committee's 2002 Congressional report. She also served as a member the AICPA e-file taskforce, and chaired both the IRS Liaison Committee and the Arizona Department of Revenue Liaison Committee for the Arizona Society of CPAs. Thala has spoken at several tax conferences on Electronic Tax Administration topics, spoken to the Arizona Bar Association on Elder Care issues, has served as a panelist on the Internal Revenue Service webcast series, "TaxTalkToday. She also served as a board member of the Arizona Forum for the Improvement of Taxation. Thala

**Date:** **Thursday, Feb. 4th, 2010**

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

**Location:** **Agilent Sales Office, Suite 367, 4330 West Chandler Blvd., Chandler AZ 85226**  
(In Stellar Business Center on North side of Chandler Blvd west of McClintock Rd.)

For more information, contact: Steve Rockwell (WAD Chapter Chair) (480) 241-9891  
[steve.rockwell@ieee.org](mailto:steve.rockwell@ieee.org)

Chuck Weitzel (Chapter Publicity) (480) 292-0531 [c.weitzel@ieee.org](mailto:c.weitzel@ieee.org)

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



IEEE Phoenix Valley Megaphone February 2010

**INSTITUTE OF ELECTRICAL AND ELECTRONIC ENGINEERS**  
**WAVES AND DEVICES –**  
**Phoenix Chapter**



**“Antennas & Propagation” and “Microwave Theory & Techniques” Societies Meeting**

***Meeting Free & Open to Non-IEEE Members***

**4:00 PM, Friday, February 19, 2010**

**Non-Foster Reactances for Electrically-Small Antennas, High-Impedance Surfaces, and Engineered Materials**

**Dr. James T. Aberle**

Associate Professor of Electrical Engineering, Arizona State University, Tempe, AZ

**Abstract**

The laws of physics, particularly conservation of energy, often prevent engineers from achieving some of the truly useful devices that can be imagined. For instance, single chip solutions are the “holy grail” of low cost wireless systems. Virtually all of the required functionality can now be achieved on a single silicon die, except for the antenna and its associated matching network usually comprising discrete traces, inductors and capacitors that must still be implemented off chip on a printed circuit board. This is because passive antennas are limited by a consequence of conservation of energy: the gain-bandwidth-size properties of electrically-small antennas.

In this talk, we will imagine how the use of non-Foster reactances would allow us to circumvent the laws of physics and achieve truly remarkable performance from electrically-small antennas, high-impedance surfaces, and engineered materials. We will also discuss how non-Foster reactances can be achieved using active circuits, and summarize the current state-of-the-art in this area.

**Biography**

James T. Aberle received the B.S. and M.S. degrees in electrical engineering from Polytechnic Institute of New York (now Polytechnic University) in 1982 and 1985, respectively, and the Ph.D. degree in electrical engineering from the University of Massachusetts in 1989. From 1982 to 1985, he was employed by Hazeltine Corporation, Greenlawn, NY, where he worked on the development of wide-band phased array antennas. He was a Graduate Research Assistant at the University of Massachusetts from 1985 to 1989, where he developed and validated computer models for printed antennas. He has been a faculty member at Arizona State University since 1989, where he is currently an Associate Professor of Electrical Engineering. His research interests include the design of radio frequency systems for wireless applications as well as the modeling of complex electromagnetic phenomena.

During the Summer of 1993, Dr. Aberle was a NASA/ASEE Summer Faculty Fellow at NASA Langley Research Center. During the 1997/98 academic year, Dr. Aberle took a sabbatical leave from Arizona State University. During his sabbatical, he was a Visiting Academic at the Royal Melbourne Institute of Technology in Melbourne, Victoria, Australia as well as a Visiting Researcher at Atlantic Aerospace Electronics Corp. in Greenbelt, Maryland. In 2002, Dr. Aberle returned to ASU after a two-year leave-of-absence. During this leave Dr.



Aberle worked for a start-up company that provided innovative technological solutions for the wireless market.

**Date:**                   **Friday, Feb. 19th, 2010**

**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.

**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)

Derrick Lim (APS Rep) (480) 413-3949 [DERRICK.LIM@asu.edu](mailto:DERRICK.LIM@asu.edu)

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



## Power & Energy Society Announcements



### Palo Verde Plant Tour

**Date:** Thursday, February 23, 2010

**Location:** PVNGS

We extend our regrets to our membership that the Plant tour was canceled due to the storm. The tour has been rescheduled to February 23rd. For questions and additional information contact: Rafael Rios, APS, Transmission and Distribution & Engineering Standards at (602) 809-0349 or email [Rafael.Rios@aps.com](mailto:Rafael.Rios@aps.com)

### February 2010 Technical Meeting

**Date:** Thursday, February 18, 2010

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

**Location:** SRP

**Speaker:** Professor Heydt

**Topic:** Smart Grid Activities at ASU

### March 2010 Technical Meeting

**Date:** Thursday, March 18, 2010

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

**Location:** SRP

**Speaker:** Professor Holbert

**Topic:** An Update on Nuclear Power in the US

### Future Technical Meetings

April 15<sup>th</sup> APS      Oct 21<sup>st</sup> SRP      May 20<sup>th</sup> SRP      Nov 18<sup>th</sup> APS  
Sep 16<sup>th</sup> APS



## Phoenix Section Life Member Affinity Group

### 2010 February Technical Meeting

**Topic:** Nano Characterization of Material

**When:** Wednesday, February 24, 2010, 11am – 1pm

**Where:** SRP's PERA Club's Desert View [upstairs],  
1 East Continental Drive, Tempe, AZ  
West of 68th St., ½ mile south of McDowell Rd.  
Click this map link to SRP PERA Club:

<http://insidesrp/pera/facilities/PERAstreetmap.pdf>

**RSVP:** Please respond by *Tuesday, February 16*, to  
Section Secretary, Barry Cummings at: [Barry.Cummings@srpnet.com](mailto:Barry.Cummings@srpnet.com)

**Speaker:** Dr. Dieter K. Schroder, Ph.D., Regents Professor, ASU

**Biography:** Graduate from McGill University and at the University of Illinois, Dr. Schroder joined Westinghouse Research Labs in 1968 researching various aspects of semiconductor devices, including MOS devices, imaging arrays and magnetostatic waves. In 1981, Dr. Dieter joined ASU Center for Solid State Electronics Research. His current interests are semiconductor materials and devices, characterization, low power electronics, and defects in semiconductors. He has written two books and has published over 150 papers and holds 5 patents.

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

The Phoenix group was organized in 2008 to enable IEEE Life Members to retain active IEEE associations, contribute to the social good in their communities, advance IEEE's professional interests and enjoy each other's company. IEEE "Life" status is an automatic process when a member is least 65 year of age and has been a member of IEEE or one of its predecessor societies for such a period that the sum of his/her age and his/her years of membership equals or exceeds 100 years. Dues and regional assessments are waived for a Life member. For more information use the link:

[http://www.ieee.org/web/volunteers/mga/home/life\\_members\\_committee/index.html](http://www.ieee.org/web/volunteers/mga/home/life_members_committee/index.html)

Our 2010 Officers are:

Chair	C. Bruce Johnson	<a href="mailto:cbj@johnsonscientificgroup.com">cbj@johnsonscientificgroup.com</a>
Vice Chair	Michel Ebertin	<a href="mailto:Michel@ebertin.net">Michel@ebertin.net</a>
Secretary	A. Barry Cummings	<a href="mailto:Barry.Cummings@srpnet.com">Barry.Cummings@srpnet.com</a>
Treasurer	Leslie Daviet II	<a href="mailto:lesdaviatii@cs.com">lesdaviatii@cs.com</a>
Program Chair	Ronald L. Sprague, P.E.	<a href="mailto:rlsprague@cox.net">rlsprague@cox.net</a>
Past Chair	Professor George Karady	<a href="mailto:karady@asu.edu">karady@asu.edu</a>



# Computer Society Technical Meetings

**Phoenix Chapter Website**

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



## **Monthly Meeting**

**Date:** Wednesday, April 7, 2010 6:00 P.M. - 8:30 P.M.

**Speaker:** Dr. George Proeller, Colorado Technical University;  
IEEE Computer Society Distinguished Lecturer

**Title:** "Personal Electronic Devices; IPODS, PDAs and Cell Phones - a Forensics Discussion"

iPods, PDAs, and cell phones continue to merge in form, fit, and functionality and now include data acquisition (cameras, keyboards, usb ports, etc), data aggregation, and storage (some up to 80 gigabytes), and communications capabilities (IR, Bluetooth, wireless internet access, and cellular telephone). This presentation provides insights into the features and capabilities of such systems, their possible uses in unethical and possibly unlawful activities, and as discussion of the concepts of forensic analyses and approaches useful in combating such uses.

## **Location:**

University of Advancing Technology, 2625 W. Baseline Road., Tempe, Az. (near the corner of Baseline and 48<sup>th</sup> St.)

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

**Free, everyone is welcome.**



# Computer Society Technical Meetings

**Phoenix Chapter Website**

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



## Phoenix Chapter of the IEEE Computer Society

**Saturday, March 6, 2010**

## Phoenix Chapter 3rd Annual BBQ/Picnic

**Time:** 10:30 am until 2 pm

**Place:** Palo Verde Pavilion, southwest side of Desert Breeze Park, Chandler, AZ.  
(660 North Desert Breeze Boulevard East)

**(Send your ticket orders to:** [sdianesmith@computer.org](mailto:sdianesmith@computer.org) or [jjcandelaria@ieee.org](mailto:jjcandelaria@ieee.org)  
**before March 1<sup>st</sup>,** we'll put you on our 'pre-paid' list, and you can pay us at the picnic)

### **Before March 1<sup>st</sup>:**

\$2 for all students and kids  
\$3 for Chapter members  
\$5 for all non-students and guests

### **After March 1<sup>st</sup>:**

\$3 for all students and kids  
\$5 for Chapter members  
\$7 for all non-students and guests

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

[http://ewh.ieee.org/r6/phoenix/compsociety/photo\\_gallery/photo\\_gallery.htm](http://ewh.ieee.org/r6/phoenix/compsociety/photo_gallery/photo_gallery.htm))

### **More details about Desert Breeze Park:**

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

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

**Fishing Lake** - [http://www.azgfd.gov/h\\_f/urban\\_lake\\_desert\\_breeze.shtml](http://www.azgfd.gov/h_f/urban_lake_desert_breeze.shtml)



## Computer Society Technical Meetings



**Phoenix Chapter Website**

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

### **Future Events**

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

Please contact [jjcandelaria@ieee.org](mailto:jjcandelaria@ieee.org) or any of our officers to suggest a topic and/or speaker for any of our upcoming meetings.

### **Past Meetings**

For information about any past meetings and presentation files, go to:  
[www.ewh.ieee.org/r6/phoenix/compsociety/meetings/meetings.htm](http://www.ewh.ieee.org/r6/phoenix/compsociety/meetings/meetings.htm)



## IEEE Phoenix Area Consultant's Network



### February Meeting Announcement

**Date:** Wednesday, February 12, 2010 (7:00 P.M. - 8:00 P.M.)

**Speaker:** Ed Mischen

**Title:** "Intellectual Property In Today's World"

Ed will present some relevant intellectual property statistics (United States and global) along with some comments on interpretation. Ongoing proposed patent law changes and key court decisions will be reviewed, along with their corresponding impact on the invention process. To keep the presentation entertaining, he will inject some IP trivia, present several interesting IP examples, and possibly toss in a magic trick or two.

Ed is the founder and director for in-Source International Consulting Services. His firm specializes in management, manufacturing, quality, technical, and intellectual property consulting, including preparation of patent applications.

Ed received his undergraduate degree in electrical engineering at the University of Texas at El Paso and followed with graduate studies at Southern Methodist University.

His career spans multiple disciplines and technologies albeit mostly semiconductor related. Ed served as a design engineer and manager at Texas Instruments, a product manager at Medtronic, an operations manager at Motorola and at Philips Semiconductors. He is also a registered Patent Agent having worked on special assignments at Motorola.

In addition to his typical duties, Ed is preparing to become an author. His first book will be entitled "Lessons in Life, Business, and Golf from an Ordinary Guy™".

**Location:** The University of Advancing Technology  
2625 West Baseline Road, Tempe AZ 85283



## IEEE Phoenix Area Consultant's Network



### Board Meeting

**Date: Wednesday, February 12, 2010 (5:30 P.M. - 6:30 P.M.)**

Note: To facilitate traffic, we will be starting this meeting earlier than usual.  
The Board meeting will start at 5:30, with the food at 6:00.

**Location:** The University of Advancing Technology  
2625 West Baseline Road, Tempe AZ 85283

#### Topics:

1. The ever present discussions about where to meet and what to eat.
2. Speakers and topics for new programs, starting with January, 2010.  
I would like to map out the whole year as we did last year.
3. We still need to expand our membership and increase our attendance at the meetings.
4. It would be very good if we could have all of the board members attend the meetings and provide input for the future programs and for expansion of membership.

Our January meeting was held at Earle Associates Arizona. We had a moderate turnout. The program featured demonstrations of some of the product lines that Earle Associates Arizona represents. Each of the attendees was presented with a sample colored LED pack.





## IEEE Phoenix Area Consultant's Network



### Our current officers are:

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

We have established a tentative schedule of programs for the next year, so we can all plan for future attendance.

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

February 12	Final officer selection and business meeting
March 12	"Income Taxes for Consultants" David Isaac
April 25	PACN Picnic

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

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

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



## Upcoming IEEE Conferences in Phoenix

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

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

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

For further information, please contact,  
George E. Ponchak, NASA Glenn Research Center  
21000 Brookpark Rd., MS 54/5  
Cleveland, OH 44135  
[george.ponchak@ieee.org](mailto:george.ponchak@ieee.org)

Both of the above Conferences are being held at the Renaissance Glendale Hotel, Glendale, AZ. The hotel is adjacent to the Univ. of Phoenix Stadium and Jobing.com Arena at Westgate.

The ***IEEE Instrumentation and Measurement Society*** will sponsor the conference entitled **2010 IEEE International Workshop on Haptic Audio Visual Environments and Games (HAVE 2010)**. This conference will be held in Phoenix, AZ on October 16 - 17, 2010.

For further information, please contact,  
Chris Dyer  
1115 Westport Dr  
Ste. D-2  
Manhattan, KS 66502  
+1 785 783 5520  
[cdyer@conferencecatalysts.com](mailto:cdyer@conferencecatalysts.com)  
<http://have.ieee-ims.org/>

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

# Phoenix Section Annual Banquet



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

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

## Abstract:

The birth of modern photovoltaics (PV) traces only to the mid-1950s, with the Bell Telephone Laboratories' development of an efficient, single-crystal Si solar cell. Many do not realize that thin-film PV had its real beginnings at this same time, based upon CdS and Cu<sub>2</sub>S. Since then, Si has dominated the technology and the markets. But a window of opportunity with the relatively fortuitous alignment of higher performing thin-film devices, the emergence of several key manufacturers, and a high demand for PV product elevated thin-film PV technology into a valid market competitor from its previous “outlier” status. Some focus of this presentation will be directed toward PV R&D and technology advances, with indications of the limitations and relative strengths of crystalline (Si and GaAs) and thin-film (a-Si:H, Si, Cu(In,Ga)(Se,S)<sub>2</sub>, CdTe).

Recent advances, contributions, industry growth, and technological pathways for transformational *now and near-term* technologies (Si and primarily thin films) and status and forecasts for *next-generation* PV (nanotechnologies and non-conventional and “new-physics” approaches) are evaluated. The need for R&D accelerating the now and imminent (*evolutionary*) technologies balanced with work in mid-term (*disruptive*) approaches is highlighted. Moreover, technology progress and ownership for next generation solar PV mandates a balanced investment in research on *longer-term* (the revolution needs *revolutionary* approaches to sustain itself) technologies (quantum dots, multi-multijunctions, intermediate-band concepts, nanotubes, bio-inspired, thermophotonics, and solar hydrogen) having high-risk, but extremely high performance and cost returns for our next generations of energy consumers. This presentation provides insights to the reasons for thin-film PV technology emergence, how these technologies have to be developed—and where we can expect to be by this mid-21<sup>st</sup> century.

## Biography:



**Lawrence L. Kazmerski** is Executive Director, Science and Technology Partnerships at the **National Renewable Energy Laboratory**, Golden, Colorado—having served as Director of the *National Center for Photovoltaics* for the period 1999-2008. He received his B.S.E.E. in 1967, M.S.E.E. in 1968, and his Ph.D. degree in electrical engineering in 1970—all from the University of Notre Dame. He served in a postdoctoral position at the University of Notre Dame Radiation Research Laboratory (Atomic Energy Commission), January through August 1971, and was on the

electrical engineering faculty of the University of Maine before coming to SERI (NREL) in 1977.

His research at Maine included NSF- and ERDA-funded work in thin-film photovoltaics and the report of the *first* thin-film copper-indium-diselenide (CIS) solar cell. He was SERI's first staff member in photovoltaics, hired specifically to establish efforts in the characterization of photovoltaic materials and devices; he led NREL efforts in measurements and characterization for more than 20 years. He has held *adjunct professorships* at the University of Colorado, Colorado School of Mines, and the University of Denver. Dr. Kazmerski has published over 320 journal papers in the areas of solar cells, thin films, semiconductor materials and devices, surface and interface analysis, molecular beam epitaxy, semiconductor defects, scanning probe microscopy, nanoscale technology, high-temperature superconductivity, solar and photovoltaics technologies, and solar hydrogen.

He has authored or edited four books, and serves on the editorial board of several journals—and he has more than 160 invited presentations at international conferences, workshops, and seminars. He was co-founder and editor of the journal *SOLAR CELLS*, published by Elsevier-Sequoia (1979-1991). Kazmerski is Editor-in-Chief of the Elsevier journal, *Renewable and Sustainable Energy Reviews*. He has four **R&D 100 Awards**. He is active in the IEEE, AVS, MRS, APS, ISES, and ASES. Kazmerski was the recipient of the **Peter Mark Memorial Award** of the AVS in 1981 and IEEE **William R. Cherry Award** in 1993. He has received several international recognitions for his work in solar photovoltaics. Kazmerski is a *Fellow* of the Institute of Electrical and Electronics Engineers (IEEE), a *Fellow* of the American Physical Society (APS), a *Fellow* of the AVS, and a *Fellow* of the International Energy Foundation (IEF).

His is a *Distinguished Lecturer* of the AVS (1999-present). In 2000, Kazmerski was recognized as a **Honorary Member** of the AVS for his contributions to science and the Society. Kazmerski was elected as a member of the **National Academy of Engineering** in 2005. He received the **World PV Award** from the international PV communities representing the Europe, Asia-Pacific, and the U.S. for outstanding leadership and contributions to the worldwide advancement of photovoltaic science and technology in 2006. In September 2006, he was recognized with the *Nelson W. Taylor Award for Materials Science* by Penn State University. He received the 2007 **Karl W. Böer Medalist** for contributions to solar energy, and he is the recipient of the 2008 ASES **Charles Greeley Abbot Award** for outstanding leadership and scientific excellence in the research and development of photovoltaics.

Recently, Kazmerski was inducted into the **Environmental Hall of Fame** in the Field of Solar Energy (Photovoltaics Technology). In December 2008, he was the United Kingdom ISES *David Hall Memorial Lecturer* for his contributions to international photovoltaic R&D. Kazmerski is Visiting Professor of Solar Energy at the University of Southampton in the U.K., and in January 2009, he was elected as *Honorary Professor* at Strömstad Academy in Sweden.

To print the registration form for the banquet (on page 3 of the flyer), use the following link:

[http://ewh.ieee.org/r6/phoenix/Annual\\_Banquet\\_2010.pdf](http://ewh.ieee.org/r6/phoenix/Annual_Banquet_2010.pdf)

## **Phoenix Section Executive Committee Meeting** **– First Tuesday of the month.**

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

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

**Contact:** Dr. Henning Braunisch, Phoenix Section Chairman,  
[braunisch@ieee.org](mailto:braunisch@ieee.org)

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## **IEEE Phoenix - Calendar of Events**

You may access the IEEE Phoenix Section Calendar of Events at:

<http://ewh.ieee.org/r6/phoenix/Calendar.htm>

For inputs and updates to the Calendar, please contact the IEEE Phoenix Section Conferences Chair, Russ Kinner at 602-997-2353 or e-mail: [r.kinner@ieee.org](mailto:r.kinner@ieee.org)