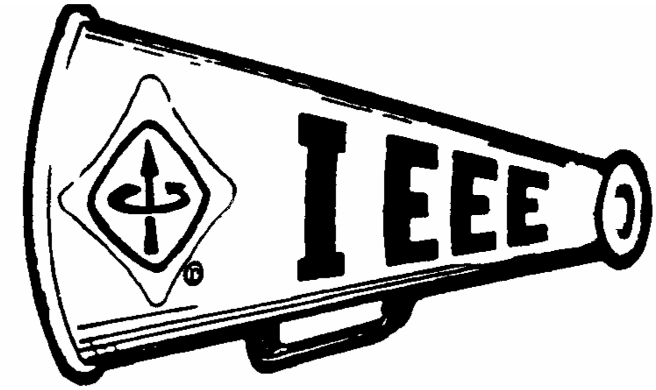
The Valley Megaphone



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

February 2007, Volume XXI, Number 2

Executive Committee

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This Issue of The Valley Megaphone Features:

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Contents:

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

Please send announcements for Valley Megaphone to Eric Palmer: ecpalmer@ieee.org.

Chapters

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The Valley Megaphone is the newsletter of the Phoenix Section of the Institute of Electrical and Electronics Engineers. It is published monthly and reaches about 4000 members. Submit articles, advertisements, and announcements to Eric Palmer at the above email address. Deadline for announcements and advertisements is the third Friday of the month prior to publication.
Advertising Rates: Full page: $200, 3/4page: $125, ½ page: $75, 1/3 page: $50, 1/4 page: $25.
Change of address/email? Call toll free 1-800-678-IEEE. Please allow 6-8 weeks. Section Web Page is: http://www.ieee.org/phoenix

Student Branches

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ASU Polytechnic
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DeVry, Computer Society
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NAU, Engineering
Chair:
Advisor: Phil Mlsna, 928-523-2112
Phillip.Mlsna@nau.edu

Embry-Riddle, Prescott
Chair:
Advisor: Chuck Cone
conec@erau.edu

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

Time:	6:00 pm to 8:30 pm
Place:	Phoenix Airport Hilton, 2435 South 47th Street Phoenix, AZ, 85034 Phone: 480-804-6017
Directions:	From 143, exit University Ave, go west, turn right on 47th street.
More Info:	Meetings held first Tuesday of month. No meetings in July and August. All interested IEEE members are welcome to attend.
Contact:	Rao Thallam, Phoenix Section Chairman, ph: (602) 236-5481 or e-mail: thallam@ieee.org

Advanced Materials/Failure Analysis (AMFA) Workshop

April 20, 2007 • Hyatt Regency Hotel • Phoenix, Arizona

AMFA MISSION:

To serve the interests of failure analysis & materials characterization professionals by providing a forum for the presentation and ***active*** *discussion of timely and pertinent technological issues and trends and to promote the development of new capabilities that fill critical gaps in emerging technologies.*

Unlike traditional conferences that often restrict audience participation, AMFA Workshops provide only top quality invited speakers on leading edge topics, in a format where audience participation is expected and strongly encouraged.

Program

•*Leveraging Federal Funding for Characterization Tools*……………………………Bruce Gnade, University of Texas, Dallas

This presentation will address funding schemes to develop sophisticated, small volume analytical tools for the semiconductor industry. History has shown us that development cycles of 5-7 yrs and millions of dollars of non-refundable engineering costs are typical. The problem is exacerbated by small world wide sales and the fact that typically the tools are being developed by small, venture capital firms whose budgets are strained. The presentation will include an introduction based on the actual development costs and resources necessary to bring x-ray tomography to the marketplace and the path forward to avoid some of the obvious limitations of that process.

•*"FA Role: Dynamic Driver or Passive Passenger?"*..Rich Blish, Spansion; Efrat Raz, Gemtech

The FA team does not take an active role in technology roadmaps, design reviews, production assessment and post analysis recovery plans and with a limited budget it is expected to continue to support advanced technology and production cost cutting - crying silently in our beer won't change anything! We must demand to become a *technical* partner by developing interactive communication; demanding data and being a follow up partner. The FA manager must be a *business* manager, who markets his/her products aggressively. Success must be communicated both technically and in dollar terms - "top management language".

•*"FA Role: Dynamic Driver or Passive Passenger?"*…………………………….Breakout Discussion

Metrology for Emerging Devices and Materials ………Eric Vogel, University of Texas, Dallas

Scaling of the Metal Oxide Semiconductor Field Effect Transistor (MOSFET) and its traditional materials has been the basis of the semiconductor industry for nearly 30 years. A wide variety of materials and devices are emerging to extend and replace the traditional MOSFET. This talk will provide an overview of these emerging devices and materials and of the metrology requirements for these technologies

Atomic Level Ion Source Microscopy. …………………………Bill Ward, ALIS Corp.

A novel helium ion microscope has been developed which has advantages over traditional scanning electron microscopes(SEMs) and focused ion beams (FIBs) for many applications. The ALIS scanning ion microscope uses a beam of helium ions as the imaging particles. Ions can be focused into a smaller probe size - less than 1 nm with a properly designed column, and have less sample interaction than electrons. The ALIS microscope can generate higher resolution images with more material contrast so more detail can be seen. We expect to be able to see things much smaller than we've ever been able to see with even the most sophisticated scanning electron microscope (SEM).

Materials Characterization Using Ultrafast Lasers………...David Cahill, University of Illinois

This presentation describes how the rapid heating of the near surface of metal films by nJ ultrafast optical pulses can be used to generate nanoscale wavelength strain and temperature fields for measurements of the mechanical and thermal properties of thin films and interfaces.

Failure Analysis Year In Review………………Christian Boit, Berlin University of Technology

FA innovation trends are measured by IC technology roadmaps. This presentation takes snapshots of the year and introduces major trends. A picture of the dynamics in the different analysis sections metrology, debug/diagnosis on die and package and their respective interactive potential emerges that also anticipates economical aspects of the development.

Registration Fees: $150.00 for IEEE or EDFAS members, $200.00 for non-members. Registration may be done online at www.amfaworkshop.org (after Jan. 01), onsite during IRPS, or at the AMFA Workshop. Registration for the AMFA Workshop includes a CD-ROM of the presented materials, lunch, and morning/afternoon breaks.

The AMFA Workshop is technically co-sponsored by the IEEE Reliability Society and the Electronic Device Failure Analysis Society.

For general workshop information, visit http://www.amfaworkshop.org/ or contact:

Gay Samuelson
Workshop Chair, AMFA
Technical Consultant
Tel: (480) 707-2083
Email: g.m.samuelson@att.net

For registration and mailings
IRPS Publishing Services
P.O. Box 308
Westmoreland, NY 13490 USA
Tel: (315) 339-3968
Fax: (315) 336-9134
e-mail: pub_services@irps.org

IEEE PHOENIX SECTION ANNUAL BANQUET

Saturday, February 10th, 2007

At

Hilton Phoenix Airport Grand Ballroom

2435 South 47th Street
Phoenix, Arizona 85034
Tel: (480) 894-1600

Program:	6:00 PM – 7:00 PM	Registration and Social Hour with Cash Bar
	7:00 PM – 8:30 PM	Dinner and Keynote Presentation
	8:30 PM – 9:30 PM	Section Awards Program

Keynote Speaker: Dr. Deirdre R. Meldrum
Dean and Professor of Electrical Engineering
Director, Center for EcoGenomics
Arizona State University, Tempe, Arizona

Keynote Presentation: Health and the Environment: From Fundamental Understanding to Future Applications

AWARD RECOGNITION CATEGORIES

Member
Young Engineer of the Year
Engineer of the Year

Advance Member Grade
Fellows, Senior Members

Chapter/Society
Individuals, Teams, Organizations, Best Society Chapter

Non-IEEE Member
Contributions to the Engineering Profession

Corporate
Large Company of the Year
Small Company of the Year

Education
Outstanding IEEE Student Branch
Outstanding IEEE Student Branch Leader
Outstanding Faculty
Outstanding Pre-College Educator
Phoenix Section Student Scholarships

Special Chair
Chair Special Recognition
Phoenix Section 2006 Officers

Future Cities Competition
Phoenix Section Communication Award

Banquet Fees:	IEEE Members and Guests	$30.00	IEEE Student Members	$20.00
	IEEE Student Member Guests	$30.00	IEEE Chapter / Society Table	$300.00*
	Corporate Sponsorship	$500.00**		

*Table sits 10 persons
**Sponsorship includes recognition at program, table of ten for dinner, and space for display
The deadline for receiving the registration fee is **Friday, January 26th, 2007**

For Making Reservations and Sending Checks Please Contact:
Dr. Keith E. Holbert
Treasurer, IEEE Phoenix Section
Electrical Engineering Department
Arizona State University
P.O. Box 875706
Tempe, AZ 85287-5706
Tel: (480) 965-8594
Fax: (480) 965-3837
Email: keith.holbert@asu.edu (preferred)

For Further Information Please Contact Annual Banquet Organizing Committee Members:

Dr. Vasudeva P. Atluri	(480) 554-0360
Dr. Rao Bonda	(480) 413-6121
Mr. James E. Drye	(480) 413-5685
Dr. Dongming He	(480) 552-0947
Dr. Keith E. Holbert	(480) 965-8594
Dr. Rao S. Thallam	(602) 236-8064

For more information visit our web page: http://www.ieee.org/phoenix

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*Table sits 10 persons
**Sponsorship includes recognition at program, table of ten for dinner, and space for display

For additional information please access www.ieee.org/phoenix

The deadline for receiving the registration fee is **Friday, January 26th, 2007**

Please mail completed registration form along with your check, payable to: "**IEEE Phoenix Section**" and mail to:

Dr. Keith E. Holbert
Treasurer, IEEE Phoenix Section
Electrical Engineering Department
Arizona State University
P.O. Box 875706
Tempe, AZ 85287-5706

Tel: **(480) 965-8594**
Fax: **(480) 965-3837**
Email: **keith.holbert@asu.edu (preferred)**

Banquet Timings:

Registration / Social Hour with Cash Bar:	6:00 PM – 7:00 PM
Dinner / Keynote Presentation:	7:00 PM – 8: 30 PM
Section Awards Program:	8:30 PM – 9:30 PM

Social Hour Hors D'Oeuvres:
Tequila Jalapeno Poppers
Teriyaki Beef Kabobs
Vegetable Tray with Ranch Dip
Crab Stuffed Mushrooms
Cheese and Cracker Tray

Cash Bar:
Sodas and Alcoholic beverages

Dinner Menu:
1) Petite Filet Mignon and Chicken Piccata Combo Dinner
2) Chilean Sea Bass Dinner
3) Vegetable Wellington with Roasted Red Pepper Sauce

Dinner Menu also includes Field Green Salad with Ranch and Vinaigrette Dressings, Garlic Mashed Potatoes, Rolls and Butter, Fresh Vegetables, Ice Tea and Water

Dessert:
New York Cheesecake with Strawberry Sauce
Coffee, Decaffeinated Coffee and Tea are served with Dessert

Please limit Registration to two persons per form, attach multiple forms if necessary. Detach below and mail with check.

IEEE PHOENIX SECTION ANNUAL BANQUET – 2007 Registration

(Please complete all sections of the form by typing or printing in bold and capital letters)

Name: ☐

Guest Name: ☐

Address: ☐

Telephone Number: ☐ **Email:** ☐

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

Dinner Choice (please select one per person)

(1) ___Petite Filet Mignon and Chicken Piccata Combo Dinner
(2) ___Chilean Sea Bass Dinner
(3) ___Vegetable Wellington with Roasted Red Pepper Sauce

IEEE Phoenix Section Student Paper Contest 2007

The IEEE Student Prize Paper Contest offers the undergraduate IEEE Student member opportunities to exercise and improve both written and verbal communication skills. Throughout an engineer's career, (s)he will be constantly called upon to communicate ideas to others. Researching, writing, and presenting a paper provides a student with invaluable early experience in expressing ideas related to engineering. Since the paper contest primary function is to improve the engineering student's communicative skills, no student should be discouraged from entering the contest due to a false requirement of technical sophistication.

This undergraduate student paper contest consists of a written paper and an oral presentation. The written paper should be in the IEEE region 6 standard, which is available at http://www.ewh.ieee.org/reg/6/MemberStudentActivities/IEEERegionalStudentPaperContestGuidelines.doc . Briefly, the type-written papers are 15 pages maximum, double-spaced with 12 pt font. The written paper, as either an MS Word or an Acrobat pdf file, should be emailed to jdrye@ieee.org by 6 p.m. on **March 3, 2007**.

The oral presentations are 15 minutes plus a 5-minute question & answer period. The oral portion of the contest to be held the morning of Saturday **March 17, 2007**, at the ASU Tempe campus in the ASU Memorial starting at 8 a.m. A computer with projector will be provided for the contestants to use, since PowerPoint slides are the recommended approach. The best place to park that day should be the visitor section of Parking Structure 1 which is located near the intersection of Apache Blvd. and Normal St., and which is a short walk to the south of the Memorial Union (see http://www.asu.edu/map/).

The local cash awards for the paper contest winners are (1) First Place – $300, (2) Second Place – $200, and (3) Third Place – $100. The five judges are IEEE members from local industries.

The top entrant from each Local Student Branch (ASU Main, ASU Polytechnic, DeVry, Embry-Riddle, and NAU) is eligible to present their paper to the IEEE Region 6 Southwest Area contest to be held April___ in Las Vegas, NV.

If you have any questions, please contact:

Jim Drye
Student Activities Chair
Phoenix Section

Voice: (480) 413-5685
Email: jdrye@ieee.org

IEEE Mentoring Connection

IEEE is offering its members the opportunity to participate in an online program which will facilitate the matching of IEEE members for the purpose of establishing a mentoring partnership. By volunteering as a mentor, individuals use their career and life experiences to help other IEEE members in their professional development. I believe this program can be a great tool to provide our newest members of our profession guidance in their careers and provide experienced members a chance to hear first hand from the newly graduated about the latest training the next generation is receiving. This is a program for higher level members and is provided to help ease the transition out of school and into a career.

As a mentee, you lead your partnership by selecting your mentoring partner from among those who have volunteered to serve in this capacity. I ask that you review the time and effort commitment to the program to ensure a successful mentoring partnership. Participation in the program is voluntary and open to all IEEE members above the grade of Student Member.

If you are interested, please go to http://www.ieee.org/mentoring for information on the roles and responsibilities of each mentoring partner. I encourage you to take advantage of the IEEE network of technical professionals or offer your expertise and sign up for the online mentoring program today.

Who can be an IEEE Mentor?

IEEE higher-grade members (above Student Member grade) who are, but not limited to:

- Willing to give time and effort to the mentoring partnership (we suggest minimum of two hours per month)
- Able to communicate effectively with others
- Willing to share some career successes and failures
- Individuals who may be or have been executives, consultants, or in middle or upper management, or in research
- Individuals who may be or have been educators, entrepreneurs, or self-employed
- Individuals who may be or have been proven leaders offering inspiration and insight
- Individuals who may be or have been IEEE officers or volunteers
- Willing to review an orientation session to learn guidelines, tools of program and the mentee and mentor's role and responsibilities

Who can be an IEEE Mentee?

IEEE higher-grade members (above Student Member grade) who are, but not limited to:

- New professionals in their first or second job, or considering entering graduate programs
- Recent graduates entering the professional workforce for the first time
- Professional making a career move or career change
- Passionate for learning
- Willing to give time and effort to the mentoring partnership (we suggest minimum of two hours per month)
- Willing to identify and clarify their developmental goals
- Interested in learning from another professional "who has been there"
- Willing to participate in mentee orientation session to learn guidelines, and tools of program and their role and responsibilities as a mentee

This program deserves your consideration and doesn’t require a large amount of time on your part. It can provide of great assistance to the next generation of engineers.

Russ Kinner
Membership Chair, Phoenix Section

Volunteer Opportunity for Retired Members

There is a volunteer opportunity for retired members of the IEEE in the valley. RE-SEED (Retirees Enhancing Science Education through Experiments and Demonstrations) is seeking volunteers. The organization will be conducting training for volunteers at the Chandler Unified Schools in conjunction with Arizona State University. The all day workshops will take place Monday, March 19-Thursday March 22, 2007. They are hoping to have 15-20 engineers or scientists take part in it and they will then be placed in Chandler schools as volunteers. If interested, please contact Shelia Kirsch at Sheila.Kirsch@asu.edu and / or Deirdre Weedon, d.weedon@neu.edu. See also the web site: www.reseed.neu.edu or phone: 1-888-742-2424

RE-SEED

Retirees Enhancing Science Education through Experiments & Demonstrations

Overview

RE-SEED (Retirees Enhancing Science Education through Experiments and Demonstrations) is a Northeastern University program that prepares engineers, scientists, and other individuals with science backgrounds to work as volunteers, providing in-classroom support to upper elementary and middle school science teachers with teaching the physical sciences.

After completing a comprehensive free training program, participants volunteer in middle school classrooms on the average once a week for at least one year. RE-SEED began in 1991 with six volunteers. To date close to 500 RE-SEED volunteers have worked in schools in about 100 communities throughout the country offering about 500,000 hours of their time.

Nationally, 75 percent of 7th and 8th grade students are taught physical science by teachers who do not have a major or a minor in the subject (The National Science Board, Science and Engineering Indicators 2000). RE-SEED volunteers possess talent and expertise that complement those of science teachers. They bring with them a wealth of knowledge and experience that allows them to make science interesting and relevant to everyday situations.

RE-SEED volunteers work closely with the host science teachers to help them enrich and implement their school curriculum. Overall the volunteers become involved members of their schools' and even their districts' teaching team, sometimes taking part in curriculum adoption decisions.

Please contact us by email at reseed@neu.edu or phone 888-742-2424; Shelia Kirsch at Sheila.Kirsch@asu.edu and / or Deirdre Weedon, d.weedon@neu.edu. if you are interested in learning more about these training programs.

February Meeting Announcement for the Phoenix Chapter of the IEEE EMC Society

Date: Wednesday, February 21st, 2006
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, 6PM Dinner (order off menu), 7PM Meeting and Presentation
Title: Shielding Theory and Design
Speaker: Michael J. Oliver, MAJR Products Corporation

Abstract: It is important for electronic and hardware engineers to not only be knowledgeable of a products intended function and performance, but also the ability of the product to perform within electromagnetic compatibility (EMC) limits. In this talk, practical shielding theory and design fundamentals are introduced that includes crosstalk, electromagnetic fields, board level, and enclosure shielding. A segment on testing of board level shields is presented in conjunction with an aperture attenuation modeling program used to model attenuation characteristics prior to expensive FCC/CE compliance testing. As a final point, honeycomb vent panels and respective plating attenuation comparisons are discussed.

About the speaker: Mr. Oliver is Vice President of Electrical / EMC Engineering at MAJR Products Corporation. His expertise is in EMI/RFI shielding technology with a background in electronics, military shelter electrical systems, and high power antenna / radome design. Mr. Oliver holds a B.S. degree in Electrical Engineering from Gannon University and he currently holds three patents (two pending), on EMC shielding-thermal management devices. He has experience in the design and testing of aerospace antennas, shielding of military shelter electrical systems, and discrete EMC shielding components. Mike has performed open and anechoic chamber radiated tests to military standards and has utilized many antenna and radiated test systems. He has written numerous technical papers and publications on electromagnetic shielding components, product testing - design, and military antenna/radome test methodology standards. He currently serves as Chairman of the newly formed IEEE Pittsburgh EMC Society, Vice Chairman of the SAE AE4 Electromagnetic Compatibility Committee, and is a member of the IEEE EMC Standards Advisory Coordination Committee (SACCom).

RESERVATIONS: Please call Daryl or Mary at Kimmel Gerke Associates in Mesa AZ at 480-755-0080. (If no answer, please leave a voice mail.) You may also register by email at mdgerke@emiguru.com. 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

IEEE Computer Society - Phoenix Chapter

February Meeting

Speaker:	Tobijah Pettus
Date:	6:00 P.M., Wednesday, February 7, 2007
Location:	DeVry University, 2149 West Dunlap Ave, Phoenix, AZ 85021 (1 mile east of I-17 on Dunlap, SE corner of 22nd Ave and Dunlap). Networking will be in the Courtyard (6-7PM with light meal), presentation at 7PM.

Free, everyone is welcome. Please tell others about this meeting.

http://ewh.ieee.org/r6/phoenix/compsociety/index.html

IEEE Phoenix Area Consultants Network February Meeting: Professional Insurance – Why You Need It and How to Get It

Date: Thursday, February 8th, 2007

Time: Networking begins at 6:30 pm
Dinner begins at 7:00 pm
Program starts at 8:00 pm

Place: Monti's Restaurant
1 Rio Salado Parkway
Tempe, Arizona

Abstract: Betty Meier and Kristi DeWitt, of Acoma Insurance Professionals in Scottsdale, will speak about the types of insurance available for consultants, and will answer your questions on insurance-related topics. With insurance premiums rising, it is important to know how and where to find the best plans at the most competitive rates.

Please RSVP by noon on Monday the 5th to Vaughn Treude, vaughn@nakota-software.com. For more information about the Consultants Network, see the IEEE PACN website, ieeepacn.com.

INSTITUTE OF ELECTRICAL AND ELECTRONIC ENGINEERS

WAVES AND DEVICES
PHOENIX CHAPTER

February 19, 2007 MTT-S Meeting

RF MEMS for Commercial and Defense Applications

Gabriel M. Rebeiz
University of California, San Diego
rebeiz@ece.ucsd.edu

Abstract

It has been now 10 years since RF MEMS saw the light of day, and we have come a long way. We currently have many switches arriving to 100 billion cycles and even trillion cycles, both in the metal-contact and in the capacitive contact designs. We have demonstrated low loss phase shifters up to 100 GHz, tunable filters in the 4-18 GHz range, tunable matching networks up to 100 GHz, and many other switching circuits (NxN) up to 40 GHz. But is RF MEMS ready for prime-time? When will the cost drop to “reasonable” levels? When will we see it in cell phones? What are the challenges in today’s technology transition from the lab to commercial and defense related products? This talk will summarize RF MEMS and address some of these issues.

Biography

Gabriel M. Rebeiz (Fellow, IEEE) earned his Ph.D. degree in electrical engineering from the California Institute of Technology, Pasadena, and is a Full Professor of ECE at the University of California, San Diego. His research interests include applying microelectromechanical systems (MEMS) for the development of novel RF and microwave components and sub-systems. He also leads a large effort in Si RFIC design for radar and communication systems, and in the development of millimeter-wave front-end electronics, planar antennas, imaging systems and phased-arrays.

Prof. Rebeiz was the recipient of the National Science Foundation Presidential Young Investigator Award in April 1991, and the URSI International Isaac Koga Gold Medal Award in August 1993. At the University of Michigan, Ann Arbor, Prof. Rebeiz was selected by the students as the 1997-1998 Eta-Kappa-Nu EECS Professor of the Year. In October 1998, he received the Amoco Foundation Teaching Award, given yearly to one or two faculty at the University of Michigan, for excellence in undergraduate teaching. Prof. Rebeiz is the co-recipient, with Prof. Scott Barker, of the IEEE 2000 Microwave Prize. In 2003, he received the Outstanding Young Engineer Award of the IEEE MTT Society. Prof. Rebeiz is the author of the book *RF MEMS: Theory, Design and Technology*, Wiley 2003.

Date: February 19, 2007
Location: Group Conference Rm, Bldg 94, Freescale Semiconductor, 2100 E. Elliot Rd., Tempe, AZ
Use Freescale Main Entrance on Elliot Road
Time: 2:00 – 3:00 pm Presentation
For more information, please call Sergio Pacheco (Chapter Treasurer) at (480) 413-3737.