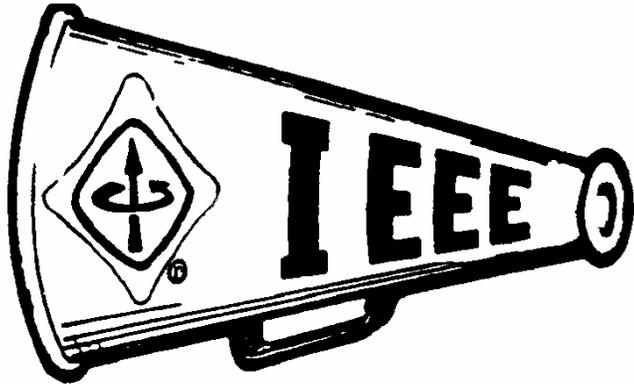


The Valley Megaphone



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

November 2006, Volume XX, Number 11

Executive Committee

Past Chair

Shamala Chickamenahalli, 480-554-6774
shamala@ieee.org

Chair

Rao Thallam, 602-236-5481
thallam@ieee.org

Vice Chair

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r.bonda@ieee.org

Secretary

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Treasurer

Keith Holbert, 480-965-8594
holbert@asu.edu

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ecpalmer@ieee.org

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m.andrews@ieee.org

Membership

Russ Kinner
r.kinner@ieee.org

Student Activities

Jim Drye, 480-413-5685
jdrye@ieee.org

Conferences

Henning Braunsch, 480-552-0844
braunsch@ieee.org

Awards

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vpatluri@ieee.org

Inter-Society

Mike Andrews, 480-991-1619
m.andrews@ieee.org

Web Master

Chandan K. Das, 480-554-1300
cdas@ieee.org

This Issue of The Valley Megaphone Features:

Contacts:

- Executive Committee (page 1)
- Chapters and Branches (page 1)
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IEEE Phoenix Section Executive Committee meeting minutes can be found at: <http://www.ieee.org/phoenix>

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

Chapters

Communication & Signal Processing

Gang Qian
gang.qian@asu.edu

Computer Society

Cesar A. Vasquez-Carrera
cvasquezcarrera@yahoo.com

Consultants Network (PACN)

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CPMT Society

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EMC Society

Harry Gaul, 480-441-5321
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GOLD

Mike Poggie
michael.poggie@gdc4s.com

Power Engineering Society

Doug Selin, 602-371-6388
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Solid State Circuits

Bertan Bakkaloglu
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Waves & Devices Society

Chuck Weitzel, 480-413-5906
Chuck.weitzel@freescale.com

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 3200 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

ASU Main, Engineering

Chair: Nathanael Coonrod

ieeemasuchair@gmail.com

Advisor: Cihan Tepedelenlioglu,
(480) 965-6623, Cihan@asu.edu

ASU Main, Computer Society

Chair: Guofeng Deng

guofeng.deng@asu.edu

Advisor: Joseph Urban, 480-965-3374,
joseph.urban@asu.edu

ASU Polytechnic

Chair: Samir Sharma

Samir.Sharma@asu.edu

Advisor: Raji Sundararajan, 480-727-
1507 raji.sundararajan@gmail.com

DeVry, Phoenix

Chair: Richard Taylor

RLTaylor@ieee.org

Advisor: Dion Benes, (602) 870-9222,
dion.benes@phx.devry.edu

DeVry, Computer Society

Chair: David Huerta

huertanix@computer.org

Advisors: Diane Smith
602-870-9222, dasmith@phx.devry.edu

NAU, Engineering

Gabriel Brewer

rgb7@dana.ucc.nau.edu

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

The IEEE Computer Society is now accepting nominations for new officers. Elections will be held at the December meeting: 7:00 PM Wednesday December 6, at DeVry University, 2149 West Dunlap Ave., Phoenix, AZ. You must be a current paid member of both the IEEE and the Computer Society to hold office. You can nominate yourself by speaking to Bob Bianca at either the November 1st or December 6th meeting, during the networking hour, 6:00-7:00 PM. The Computer Society will be electing: Chair, Vice Chair, Program Chair, Treasurer, Secretary, and Webmaster. All members are encouraged to run for office.

Message from the Chair

November 2006

By Rao Thallam



The IEEE Region 6 Southwest Area meetings were held on Saturday, October 7, 2006 in ASU Memorial Union. The area section officers, and Student branch officers, from Phoenix, Tucson, Albuquerque, Los Alamos, Las Vegas and San Diego met. The agenda included the update on developments and services provided by IEEE and training of section and student branch officers. Section officers training was conducted by Dr. Vasu Atluri, who is Southwest Area Student Activities Chair. The student branch officers training was conducted by Elizabeth Johnston, Region 6 student representative, Jim Drye, the Phoenix Section Student Activities Chair.

IEEE Fellows Committee asked to publicize that IEEE Fellow nomination process was revised to include adding “Application Engineer / Practitioner” category. This is done to assure equal opportunity for election to IEEE Fellow grade of members with careers involving the application of technology. This category was approved in 2003, but became effective in 2005. IEEE Fellow grade membership is the highest grade of membership bestowed by the Board of Directors on IEEE Senior Members with an extraordinary record of accomplishments in any IEEE field of interest.

Micro mouse race is a competition for autonomous vehicles designed to get to the centre of a micro mouse maze in the shortest possible time. It is an amazing sight to watch the mice trying to navigate the obstructions. The Phoenix Section is building a micro mouse maze with funding support from Region 6. Jim Drye, Student Activities Coordinator is leading the effort. The maze construction is expected to be complete by the end of the year and available for the spring 2007 competitions. All five student branches Get Ready for robotics wars! The section will also encourage high school students to compete. This will be nice addition to the already very popular Future Cities Competition for high schools. Please contact Jim Drye, (e-mail: jdrye@ieee.org) for details.

The Section is planning to have some pre-college level activities. “Teacher-in-Service” program is developed by the IEEE in which section volunteers will develop and present technologically oriented subject matter to local pre-college educators in an in-service or professional development setting. The subject matter will also be such that it will fit within the curriculum and the educators will be able to take the knowledge gained to improve the teaching of engineering and science in the class room. Michael Poggie, GOLD chapter chair is leading the effort with Mike Andrews, Jim Drye, Jim Hudson, Keith Holbert and Rao Thallam participating. If you are interested, contact Mike at, e-mail: mike.poggie@ieee.org

The IEEE student prize paper contest offers the undergraduate IEEE student members opportunities to improve both written and verbal communication skills. Since the paper contest primary function is to improve the communicative skills, no student should be discouraged from entering the contest due to a false requirement of technical sophistication. One winner from each of the five student branches in the Phoenix Section will have the opportunity to go to the South West Area level competitions with expenses paid by the section. See the announcement regarding the section contest in this newsletter.

The Section is already planning for the annual banquet to be held on February 10, 2007. In the banquet, the section recognizes the members who achieved distinction as IEEE Fellows or IEEE Senior Members, members who made contributions to the chapters and section, pre-college and university educators with outstanding contributions, and companies large and small for their support to the engineering profession. More details will be communicated through the section newsletter “Megaphone” and by e-mails to members.

IEEE ANNOUNCEMENTS

**2nd ANNUAL ADVANCED MATERIALS FAILURE ANALYSIS
(AMFA) WORKSHOP**

TO BE HELD FRIDAY, APRIL 20, 2007

**(Following the International Reliability Symposium, SUNDAY-THURSDAY, APRIL 15-19,
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. Preliminary program details will be available in September, 2006.

Mark your calendars now for this exciting event!

<http://www.amfaworkshop.org>

IEEE ANNOUNCEMENTS

INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS, INC.
COMPONENTS, PACKAGING AND
MANUFACTURING TECHNOLOGY SOCIETY
ECTC Components & RF Program Committee
CPMT RF & Wireless Technical Committee



57th ECTC May 29 – June 1, 2007

Reno, Nevada, USA

The CPMT RF & Wireless Technical Committee and the ECTC Components & RF Program Committee encourage you to submit an abstract to ECTC 2007 in the area of passive components & networks, RF and Microwave components and modules and subsystems. ECTC is the premier Electronic Components and Packaging conference held annually and attended by about 1000 delegates with equal participation from companies and academia. As in the past, Components, RF & Microwave related papers are solicited for focus sessions during this prestigious conference.

Passive components

Design, Materials, Processes and manufacturing considerations for discrete passive components-resistors, capacitors, inductors and passive networks

Integrated / Embedded Passives for digital, mixed signal, RF/Microwave applications:

Design, technology, characterization - Embedded passives (inductors, capacitors) for RF/microwave applications & evaluation of their performance in terms of Quality Factor (Q), component value, fabrication challenges & cost

RF and Microwave Components:

Integrated Antennas, filters, baluns, RFID/sensors, RF MEMS, high power and high efficiency RF/microwave power amplifiers – design, technology, new high frequency characterization methodologies

RF and Microwave Modules:

RF/Microwave Packaging techniques & characterization

Module Integration in semiconductor, ceramic, organic or glass substrates for UWB, integrated transceivers for Zigbee, mobile digital TV ---

EMI and innovative shielding techniques for passive components and mixed signal application

SUBMISSIONS:

Please submit abstracts using the ECTC web site: www.ectc.net by October 15, 2006. Abstracts must comply with the guidelines outlined at the website. To have your paper considered for inclusion in the “Components & RF” focused sessions **YOU MUST SELECT**

“Components & RF” committee as your PRIMARY subcommittee preference

when you submit your abstract at the ECTC web site. Again, to have your paper considered for the RF & microwave components sessions, please do the following:

STEP #1: Submit abstract through the ECTC web site (www.ectc.net) and select **“Components & RF” as PRIMARY subcommittee preference**

STEP #2: Email abstract copy and author’s email & contact information to:
Craig Gaw at c.a.gaw@ieee.org & Mahadevan Iyer at mahadevan.iyer@ece.gatech.edu

Craig Gaw, Chair - CPMT RF & Wireless TC
Freescale Semiconductor Inc.
c.a.gaw@ieee.org

Mahadevan K Iyer, Chair - ECTC RF & Components TC
Georgia Institute of Technology
mahadevan.iyer@ece.gatech.edu



Institute of Electrical and Electronics Engineers, Inc.
Phoenix Section
Components, Packaging and Manufacturing Technology Society Chapter
&
Waves and Devices Chapter
PRESENT AN ALL-DAY WORKSHOP ON

Convergence in Communication and Computing

Date: Friday, November 17 th , 2006	Time: 7:00 A.M. – 5:00 P.M.
Location: Arizona State University, Tempe, Arizona – ASU Memorial Union (Arizona Room)	

Abstract

The convergence of mobility, seamless connectivity, and broadband access are the underpinning of next-generation communication systems. Several new applications such as video-conferencing and wireless multimedia are emerging to leverage this capability. Many communication platforms (3G Cellular, WiMax, WLAN, etc.) compete to provide the best solutions for consumer needs in communication, computing and entertainment products. Technology challenges - component through system level - abound for realizing such opportunities at a marketable price point. This one day workshop will bring together experts from industry, academia, government labs, and the financial community to share market visions and to discuss technology issues, options, opportunities and emerging standards. The goal is to provide a comprehensive view of the challenges facing system, device, interconnect and packaging technologies. A panel discussion on the “Future of Convergence in Communications” will bring closure to the day’s workshop. Vendors in the entire supply chain will display their products and services throughout the day.

Topics

- Vision – A View of the Future of Convergence
- Market – Current Status and Future Trends
- Business Model
- System and Architecture
- Communication Technology Options and Standards
- Device Technology – RF, Microwave, Analog, and Base Band / Graphic Processing
- Packaging – Mobile Products and Infrastructure
- Antenna / Propagation
- System Integration
- Panel discussion on the Future of Convergence in Communications



Chair: Vasu Atluri (480) 554-0360

Co-Chair: Chuck Weitzel (480) 413-5906

Technical Committee

Rao Bonda (480) 413-6121	Dev Gupta (480) 540-3232	Mali Mahalingam (480) 413-5368	Gary O'Brien (480) 727-7454
Henning Braunsch (480) 552-0844	Steve Goodnick (480) 965-6410	Debendra Mallik (480) 554-5328	Steve Rockwell (480) 413-5235
Shahin Farahani (480) 413-6010	Rashaunda Henderson (480) 413-5374	Mel Miller (480) 413-6111	Dragan Zupac (480) 413-3964

For General Information:
<http://www.ieee.org/phoenix>

For Workshop
 Registration Forms: (480) 413-3737

For Vendor
 Registration Forms: (480) 554-2195

IEEE Senior Membership

Dr. Vasudeva P. Atluri
IEEE Phoenix Section Officer

IEEE Phoenix Section has taken the responsibility for helping eligible IEEE members within the section for getting elevated to IEEE Senior Member grade. IEEE Admissions and Advancement (A&A) committee meets about eight times a year to review and decide on the applications for Senior Member grade. The next meeting is being held on November 18th, 2006, in New Orleans, Louisiana. If you meet the requirements for Senior Member grade as listed below, please send your detailed resume including IEEE Member Number, Home Address / Telephone Number / Fax Number / Personal Email Address; Business Address / Telephone Number / Fax Number / Business Email Address; Academic Credentials including starting and ending month for each program; Professional / Work Experience including starting and ending month for each assignment; Publications / Presentations / Patents / Etc.; Honors / Awards; Professional Affiliations / Memberships; Up to Four References Contact Information who are IEEE members; etc. IEEE Phoenix Section will help you with IEEE Senior Member References in case you are not able to find one. Please send your resume in word format to my attention at both vpatluri@ieee.org and vasudeva.atluri@intel.com. The resumes should be received at least six weeks prior to next scheduled IEEE Admissions and Advancement Committee meetings mentioned above for 2006. The meeting schedule for 2007 is not yet decided by IEEE. Additional information regarding IEEE Senior Member grade and IEEE Admissions and Advancement Committee meetings can be obtained by accessing <http://www.ieee.org/organizations/rab/md/smprogram.html>. The following paragraphs also give a brief summary of the IEEE Senior Member program.

The grade of Senior Member is the highest for which application may be made and shall require experience reflecting professional maturity. The benefits of IEEE Senior Membership benefits include:

- The professional recognition of your peers for technical and professional excellence.
- An attractive fine wood and bronze engraved Senior Member plaque to proudly display.
- Up to \$25.00 gift certificate toward one new Society membership.
- A letter of commendation to your employer on the achievement of Senior Member grade (upon the request of the newly elected Senior Member.)
- Announcement of elevation in Section/Society and/or local newsletters, newspapers and notices.
- Eligibility to hold executive IEEE volunteer positions.
- Can serve as Reference for Senior Member applicants.
- Invited to be on the panel to review Senior Member applications.

IEEE takes keen interest in encouraging members to get elevated to higher grades for the following reasons:

- Many Executive Volunteer offices require that a member hold Senior Member grade.
- Senior Members provide leadership on a volunteer basis.
- The percent and number of IEEE Senior Members reflects on the competence and prestige of IEEE, its products and services.

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- Senior Membership in IEEE is key to Retention:
 - Senior Members have a retention rate of 98%.
 - A greater percentage of Senior Members belongs to more IEEE Societies than do other IEEE member grades.
 - Senior Members volunteer at a higher percentage rate than do other grades of IEEE members.

To qualify for Senior Member elevation, an applicant should meet certain requirements as listed below. IEEE Bylaw I-105.3 sets forth the criteria for elevation to Senior Member grade, as follows:

For admission or transfer to the grade of Senior Member, a candidate shall be an engineer, scientist, educator, technical executive, or originator in IEEE-designated fields. The candidate shall have been in professional practice for at least ten years and shall have shown significant performance over a period of at least five of those years."

IEEE Designated Fields:

IEEE-designated Fields include Engineering, Computer Science and Information Technology, Physical Sciences, Biological and Medical Sciences, Mathematics, and Technical Communications, Education, Management, Law, and Policy. Additional information regarding IEEE-designated fields can be obtained by accessing <http://www.ieee.org/portal/pages/membership/rep/designatedfields.html>. The following paragraphs assist individuals in determining whether they possess the requisite academic credentials or work experience for membership in the IEEE at the grade of Member. Membership at all grades is described in IEEE Bylaw I-104 and can be accessed at <http://www.ieee.org/portal/pages/about/whatis/bylaws/index.html>.

Member grade requirements include:

- An individual who shall have received a three-to-five year university-level or higher degree in an IEEE designated field, as listed above
- An individual who shall have received a three-to-five year university-level or higher degree from an accredited institution or program
- An individual who has at least three years of professional work experience engaged in teaching, creating, developing, practicing or managing in IEEE-designated fields
- An individual who, through at least six years of professional work experience, has demonstrated competence in teaching, creating, developing, practicing or managing within IEEE-designated fields

Sufficient work experience that can be categorized as being in one or more of the six technical areas is also sufficient for admission or advancement to Member grade. In judging whether education or work experience is relevant to the six technical areas, one critical test is: Does it apply, or is it related to the application of, mathematics, science, or technology for the benefit of humankind?

Ten Years of Professional Experience:

The A&A Committee evaluating your application will count the years you have been in professional practice. Your educational experience is credited toward that time as follows:

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- 3 years for a baccalaureate degree in an IEEE-designated field as listed above
- 4 years if you hold a baccalaureate and masters degree
- 5 years if you hold a doctorate

Five Years of Significant Performance:

Many prospective applicants make the mistake of assuming that "significant performance" requires special awards, patents or other extremely sophisticated technical accomplishments; such is not the case. Substantial job responsibilities such as team leader, task supervisor, engineer in charge of a program or project, engineer or scientist performing research with some measure of success (papers), or faculty developing and teaching courses with research and publications, all are indications of significant performance well as the following:

- a. Substantial engineering, responsibility or achievement
- b. Publication of engineering or scientific papers, books or inventions
- c. Technical direction or management of important scientific or engineering work with evidence of accomplishment
- d. Recognized contributions to the welfare of the scientific or engineering profession
- e. Development or furtherance of important scientific or engineering courses that fall within the IEEE designated fields of interest.
- f. Contributions equivalent to those of (a) to (e) above in areas such as technical editing, patent prosecution or patent law, provided these contributions serve to substantially advance progress in IEEE designated fields.

Significant performance that would serve to qualify an individual for elevation to Senior Member need not have occurred in the years immediately prior to the application. Thus, life and retired members are eligible for elevation.

The following are examples of significant performance that would serve to qualify an individual for elevation to Senior Member. In each case, we are assuming that three qualified references were provided:

Case 1. An applicant/nominee has a bachelor's degree and seven additional years of professional experience beyond graduation in an area encompassed by one of IEEE's technical Societies, which meets the requirement of ten years of professional experience. Significant performance can be demonstrated by describing substantial job responsibilities (e.g., team leader) for a period of at least five years. **Result:** All criteria are satisfied and the application is **Approved**.

Case 2. Same as Case 1, except that the applicant/nominee worked in industry for one year following graduation with the bachelor's degree and then was a full-time graduate student for two years, obtaining a masters degree. The applicant demonstrates significant performance during another five years in industry. **Result: Approved**

Case 3. An applicant/nominee has bachelor, masters, and doctoral degrees in an IEEE-designated field. Five years of significant performance in academia, industry, or government beyond the doctoral degree are demonstrated (e.g., a faculty member with five years beyond the doctorate and promotion to associate professor). **Result: Approved**

Case 4. An applicant/nominee has no degree and has worked for many years in the electric industry as a technician. Ten years ago, he accepted an engineering level position and continued with it since that time. Included was a period of at least five years with demonstrated significant performance. **Result: Approved**

IEEE ANNOUNCEMENTS

Case 5. An applicant/nominee retired some years ago and has not been active recently in the profession. Prior to retirement, the applicant/nominee had at least ten years of professional experience, including five years of significant performance. **Result: Approved.**

References:

The applicant must also provide three references from *current* IEEE members holding Senior Member, Fellow or Honorary Member grade. Your professional colleagues are your best source of these references. If you have difficulty in locating Senior Members or Fellows to serve as references, please contact your local Section or Chapter for assistance.

The applicant is responsible for contacting his/her references. Referees must send a brief note of recommendation directly to IEEE, preferably using the Senior Member Reference Form. If the applicant is being nominated by a Senior Member or Fellow, TWO OTHER references are required.

Submittal of a reference form does not by itself constitute a nomination. In order for a nomination to be processed as such, the nomination section of the application form has to be filled in, with or without a nominating entity. However, if you wish your Section or Society to receive a rebate of \$10 for each successful nomination as part of the Nominate a Senior Member Initiative, the Section or Society's name must be provided.



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>



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



Registration Form

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

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	Crab Stuffed Mushrooms
Teriyaki Beef Kabobs	Cheese and Cracker Tray
Vegetable Tray with Ranch Dip	

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 ANNOUNCEMENTS



INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS, INC.
WAVES AND DEVICES
PHOENIX CHAPTER



November 15, 2006 Meeting
www.eas.asu.edu/~wadweb

Magnetic Materials and Devices for MRAM Technology

Jijun Sun, PhD

Research and Development Engineer
Technology Solutions Organization, Freescale Semiconductor, Chandler, AZ

Abstract

MRAM technology has the attributes of non-volatility, high-speed operation and unlimited read and write endurance not found in any other existing memory technology. We provide an overview of the recent progress and possible future directions of MRAM technology with emphasis on the role of new and optimized magnetic materials.

We describe the operation of the first commercially available MRAM device, the 4Mbit Freescale MR2A16A. This device has memory cells based on a magnetic tunnel junction (MTJ) device as the memory element integrated with CMOS circuitry. The memory uses the Toggle write mode to enable volume manufacturability and reliability. The Toggle approach makes the write operation robust by eliminating the 1/2-select disturb phenomenon present in previous approaches. Extensive accelerated stress data shows the aluminum oxide tunnel barrier to far exceed the reliability requirements for 10 year product lifetime. Detailed data and analysis will be presented.

Due to the large operating window for write, and the enhanced data retention that results from the SAF free layer, Toggle MRAM cells can be scaled to dimensions significantly below the 0.18 μm technology used for the first production part. A recent scaling demonstration has shown successful integration of a new generation of high-MR MTJ material with a 90nm CMOS front-end logic process. A new enhanced permeability dielectric has been developed to improve efficiency of transferring current into magnetic field at the bit for write current reduction. As MRAM is scaled to even smaller dimensions, there is an alternative means of programming that passes current directly through the bits and switches using the spin torque effect. This mode offers a promising path to higher density and lower power MRAM.

Biography

Dr. Jijun Sun received his B.S. and M.S. degrees in Physics from Lanzhou University, China, and his Ph.D. in Physics at Institute of Physics, Chinese Academy of Sciences, Beijing, China. After his graduation he was a Postdoctoral Fellow at INESC, Lisbon, Portugal. Prior to joining Motorola/Freescale in 2001 to work on MRAM, Jijun was a staff engineer at Data Storage Technology Center, TDK Corporation, Japan, focusing on developing magnetic tunnel junctions (MTJs) for hard disk drive applications. Currently, Jijun is a Research & Development Engineer in the Technology Solutions Organization at Freescale Semiconductor, and is responsible for developing new magnetic materials/structures and processes for the MTJ film stack in MRAM. Jijun has 6 issued U.S. patents and over 30 publications in scientific/technical journals and proceedings.

Date: November 15, 2006

Location: Arizona State University, Main Campus, Goldwater Center (GWC) Room 487

See <http://www.asu.edu/map/b2.html> for more details.

Time: 6:00-7:00pm Presentation, 7:00pm Dinner (Pizza & soda are being provided by the WAD Phoenix Chapter)

For more information, please call Chuck Weitzel (Chapter Chair) at (480) 413-5906.

IEEE ANNOUNCEMENTS

IEEE Phoenix Area Consultants Network November Meeting: Critical Challenges

Date: Thursday, November 9th, 2006

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

Place: Denny's Restaurant
3315 N. Scottsdale Rd. (at Osborn)
Scottsdale, Arizona 85251

Abstract: Bruce Johnson, principal of the Johnson Scientific Group, will talk about critical challenges confronting engineers and society in the 21st Century.

For more information, contact Vaughn Treude, vaughn@nakota-software.com, or see the IEEE PACN website, ieeepacn.com.

IEEE ANNOUNCEMENTS

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

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



Date: Wednesday, December 6th, 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: The New EMC Directive for Europe, Are You Ready?

Speaker: Gary Fenical, Laird Technologies

Abstract: At the end of 2004, the European Council and the European Parliament have formally adopted a revised Directive on Electromagnetic Compatibility (EMC Directive): the new Directive 2004/108/EC of the European Parliament and of the Council, of 15 December 2004, on the approximation of the Laws of Member States relating to electromagnetic compatibility, published in the OJEU on 31 December 2004 (L 390/24). This new Directive will replace the old Directive 89/336/EEC within three years (from 20 July 2007).

Some items to be presented are:

- Timeline
- Updated Definitions
- Fixed Installations
- Documentation
- New role for Notified Bodies
- Enforcement

There will be no grandfathering for products currently being placed on the market. With mandatory compliance to the new directive to be the 20th of July 2007, **are you ready?**

About the speaker: Mr. Fenical is the EMC Technical Sales Representative at Laird Technologies, in Delaware Water Gap, PA and has been with the firm for 23 years. Mr. Fenical is a specialist in RF shielded enclosures and has been responsible for the design and/or measurement and quality control of hundreds of large-scale shielded enclosures as well as a number of shielded equipment cabinets and housings. He was instrumental in the design and construction of Laird Technologies' state-of-the-art World Compliance Centers. Mr. Fenical has authored many articles on EMC Requirements for Medical Devices, Mutual Recognition Agreements and Guidelines to meet the essential requirements of the EMC Directive. He has also authored several seminars on the EU EMC Directive, International Compliance, and Designing for EMC and EMC Requirements for Medical Devices which have been presented worldwide. He holds the patent for the invention of heat-treated beryllium-copper knitted wire mesh gasket.

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 dgerke@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

Next Meeting

Speaker: Jerry Crow, GIAC/GSEC

Date: 6:00 P.M., Wednesday, November 1, 2006

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.

Cryptography 102

A continuation of the material covered in Cryptography 101, this presentation addresses contemporary cryptographic techniques in greater detail, with particular emphasis on so-called "public key" cryptography. I will avoid mathematical detail to the extent possible, but certain topics, public-key cryptography in particular, require a foray into basic mathematical concepts.

The presentation is organized as follows:

- Review of Crypto 101
- An unbreakable symmetric crypto system
- Basic mathematics of asymmetric systems
- Public Key cryptography
- Hashing algorithms

About the Speaker

Jerry Crow's 35-year career in information technology includes experience with mainframe operating systems, notably Honeywell's GCOS; formal work with software engineering and software metrics; line management of a software development group; work with local and wide area networks; and administration level experience with every major flavor of commercial UNIX and Linux. His contemporary areas of focus include information technology security, information protection and computer forensics.

Crow is a member of the Capability Engineering group within the Global Network Engineering organization of Electronic Data Systems. His activities for EDS include architectural design, creation and deployment of various network security related product offerings.

Crow is a member of the IEEE Computer Society, the ACM, the Information Systems Security Association, the High Technology Crime Investigation Association and the Phoenix Chapter of InfraGard. He is Director, Programs, for Phoenix InfraGard and serves on the Board of Directors of the Phoenix Cisco Users Group.

For more information about this meeting, contact [Cesar Vasquez-Carrera c.vasquez-carrera@computer.org](mailto:Cesar.Vasquez-Carrera@c.vasquez-carrera@computer.org).

Power Engineering Society November 2006 Luncheon Meeting

Date: Thursday, November 9, 2006

Time: 11:30 am - 12:00 noon: Registration
12:00 noon: Lunch
Program follows lunch

Location: SRP PERA Club
1 E. Continental Dr.
Tempe, AZ

Speaker: Jim Hudson, Salt River Project

Topic: Rudd Substation Contamination Problems

Cost: \$8.00 (Students \$4.00)

Contact Michelle at (602) 437-0469 or submit your name using
Reservations: the on-line lunch reservation link at the PES Website
(<http://ewh.ieee.org/soc/pes/phoenix/>).

PLEASE NOTE: The November meeting is being held on the 2nd Thursday of the month which is a change from the normal 3rd Thursday meeting.

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 **February 16, 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 03, 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 PHOENIX SECTION SCHOLARSHIPS

Applications Due: December 22, 2006

Awardees Announced: January 2007

Institute of Electrical & Electronics Engineers

IEEE Student Member Scholarships

- For full-time undergraduates who are members of IEEE: approved majors are Electrical/Electronic Engineering, Computer Systems Engineering, Electrical Engineering Technology, Computer Engineering Technology, or Computer Science
- Must attend a university in the Phoenix Section during 2006-07 (*i.e.*, ASU, ASU Polytechnic, DeVry, Embry-Riddle, or NAU)

Scholarship Application Requirement

- Application form (attached) with general information and qualifications including:
 - financial aid statement, and
 - one-page personal statement of attainments, interests and goals
- Official transcripts of all college work
- Recommendation letters (optional, but helpful to the selection committee)

For any further Information Please Contact:

Jim Drye
jdrye@ieee.org
(480) 413-5685

Send Completed Application Materials to:

Jim Drye
Student Activities Chair
705 E. Bates St.
Mesa, AZ 85203



IEEE PHOENIX SECTION

SCHOLARSHIP APPLICATION

(Due: December 22, 2006)

Applicant IEEE Member No. _____

Name _____
Last/Family , First , Middle

Home Address _____
Number Street Apt
City State Zip Code

Telephone No. () _____ E-mail _____

Social Security No. _____ Date of Birth _____
Month/Day/Year

Are you an Arizona resident? Yes No

Present School _____ GPA (and scale) _____

Class (Fr/So/Jr/Sr) _____ Academic Probation/ Suspension Yes No

Name of Instructor familiar with your qualifications _____ Her/His Telephone _____

College Attending Next Year _____ Expected Graduation Date _____

College Major _____ Specialty within Major, if any _____

Please complete pages 2 and 3 (Financial Aid Statement and Personal Statement),
And Attach Official Transcripts from Present School/College.

IEEE ANNOUNCEMENTS

IEEE PHOENIX SECTION SCHOLARSHIP
FINANCIAL AID STATEMENT

Name _____

Marital Status: Married ____ Single ____

Can anyone claim you as a dependent? Yes ____ No ____

Number of dependents you are able to claim _____

Who sponsors your education? Yourself ____ Other ____ (please specify) _____

Projected College Costs and Financial Resources (for the 2006-2007 School year)

Projected Expenses

Tuition and Fees:	\$ _____
Books and Supplies:	\$ _____
Transportation (Car/Bus/Insurance)	\$ _____
Room & Board (Dorm/Apt/Food/Utilities/Phone)	\$ _____
Personal (Clothes/Insurance/Recreation)	\$ _____
Total Expenses:	\$ _____

Projected Financial Resources

Education Loans	\$ _____
Government Grants	\$ _____
Federal Benefits (GI Bill/Social Security/etc)	\$ _____
Scholarships	\$ _____
Parent and/or Spouse Support	\$ _____
Employment (your job income)	\$ _____
Total Resources:	\$ _____

I certify that the information in this scholarship application is true to the best of my knowledge.

Signature

Date

IEEE ANNOUNCEMENTS

**IEEE PHOENIX SECTION SCHOLARSHIP
PERSONAL STATEMENT**

Name _____

Please provide a one-page statement summarizing your interests, academic accomplishments, school & athletic activities, community service, education and career goals, and employment history (position, company, dates).