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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.
<table>
<thead>
<tr>
<th>Student Branches</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>ASU Main, Engineering</td>
<td>Chair: Nathanael Coonrod&lt;br&gt;<a href="mailto:ieeeasuchair@gmail.com">ieeeasuchair@gmail.com</a>&lt;br&gt;Advisor: Cihan Tepedelenlioglu, (480) 965-6623, <a href="mailto:Cihan@asu.edu">Cihan@asu.edu</a></td>
</tr>
<tr>
<td>ASU Main, Computer Society</td>
<td>Chair: Guofeng Deng&lt;br&gt;<a href="mailto:guofeng.deng@asu.edu">guofeng.deng@asu.edu</a>&lt;br&gt;Advisor: Joseph Urban, 480-965-3374, <a href="mailto:joseph.urban@asu.edu">joseph.urban@asu.edu</a></td>
</tr>
<tr>
<td>ASU Polytechnic</td>
<td>Chair: Samir Sharma&lt;br&gt;<a href="mailto:Samir.Sharma@asu.edu">Samir.Sharma@asu.edu</a>&lt;br&gt;Advisor: Raji Sundararajan, 480-727-1507&lt;br&gt;<a href="mailto:raji.sundararajan@gmail.com">raji.sundararajan@gmail.com</a></td>
</tr>
<tr>
<td>DeVry, Phoenix</td>
<td>Chair: Richard Taylor&lt;br&gt;<a href="mailto:RLTaylor@ieee.org">RLTaylor@ieee.org</a>&lt;br&gt;Advisor: Dion Benes, (602) 870-9222, <a href="mailto:dion.benes@phx.devry.edu">dion.benes@phx.devry.edu</a></td>
</tr>
<tr>
<td>DeVry, Computer Society</td>
<td>Chair: David Huerta&lt;br&gt;<a href="mailto:huertanix@computer.org">huertanix@computer.org</a>&lt;br&gt;Advisors: Diane Smith, 602-870-9222, <a href="mailto:dasmith@phx.devry.edu">dasmith@phx.devry.edu</a></td>
</tr>
<tr>
<td>NAU, Engineering</td>
<td>Gabriel Brewer&lt;br&gt;<a href="mailto:rgb7@dana.ucc.nau.edu">rgb7@dana.ucc.nau.edu</a>&lt;br&gt;Advisor: Phil Misra, 928-523-2112&lt;br&gt;<a href="mailto:Phillip.Misra@nau.edu">Phillip.Misra@nau.edu</a></td>
</tr>
<tr>
<td>Embry-Riddle, Prescott</td>
<td>Chair: Chuck Cone&lt;br&gt;<a href="mailto:conec@erau.edu">conec@erau.edu</a></td>
</tr>
</tbody>
</table>

**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.
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
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](http://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](http://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.ivr@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**

<table>
<thead>
<tr>
<th>Date: Friday, November 17th, 2006</th>
<th>Time: 7:00 A.M. – 5:00 P.M.</th>
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<tbody>
<tr>
<td>Location: Arizona State University, Tempe, Arizona – ASU Memorial Union (Arizona Room)</td>
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</table>

**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:** Vass Atluri (480) 554-0360

**Technical Committee**

- Dev Gupta (480) 540-3232
- Mali Mahalingam (480) 413-5368
- Gary O’Brien (480) 727-7454
- Rao Bonda (480) 413-6121
- Steve Goodnick (480) 965-6410
- Steve Rockwell (480) 413-5235
- Henning Braunisch (480) 552-0844
- Debendra Mallik (480) 554-5328
- Dragan Zupac (480) 413-3964
- Shaheen Fazhunil (480) 413-6009
- Mel Miller (480) 413-6111
- Shahin Farahani (480) 413-6010

**For General Information:** http://www.ieee.org/phoenix

**For Workshop Registration Forms:** (480) 413-3737

**For Vendor Registration Forms:** (480) 554-2395
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.
- 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](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](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:
IEEE ANNOUNCEMENTS

- 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
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

<table>
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<tr>
<th>Member</th>
<th>Education</th>
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<tr>
<td>Young Engineer of the Year</td>
<td>Outstanding IEEE Student Branch</td>
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<tr>
<td>Engineer of the Year</td>
<td>Outstanding IEEE Student Branch Leader</td>
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<tr>
<td>Advance Member Grade</td>
<td>Outstanding Faculty</td>
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<tr>
<td>Fellows, Senior Members</td>
<td>Outstanding Pre-College Educator</td>
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<tr>
<td>Chapter/Society</td>
<td>Phoenix Section Student Scholarships</td>
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<td>Individuals, Teams, Organizations, Best Society Chapter</td>
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<tr>
<td>Non-IEEE Member</td>
<td>Special Chair</td>
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<tr>
<td>Contributions to the Engineering Profession</td>
<td>Chair Special Recognition</td>
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<td>Corporate</td>
<td>Phoenix Section 2006 Officers</td>
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<td>Large Company of the Year</td>
<td>Future Cities Competition</td>
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<tr>
<td>Small Company of the Year</td>
<td>Phoenix Section Communication Award</td>
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</table>

Banquet Fees:
- IEEE Members and Guests $30.00
- IEEE Student Member Guests $30.00
- 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**

<table>
<thead>
<tr>
<th>Banquet Fees:</th>
<th>Please mail completed registration form along with your check, payable to: “IEEE Phoenix Section” and mail to:</th>
</tr>
</thead>
<tbody>
<tr>
<td>IEEE Members and Guests</td>
<td>Dr. Keith E. Holbert</td>
</tr>
<tr>
<td>IEEE Student Members</td>
<td>Treasurer, IEEE Phoenix Section</td>
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<tr>
<td>IEEE Student Member Guests</td>
<td>Electrical Engineering Department</td>
</tr>
<tr>
<td>IEEE Chapter / Society Table</td>
<td>Arizona State University</td>
</tr>
<tr>
<td>Corporate Sponsorship</td>
<td>P.O. Box 875706 Tempe, AZ 85287-5706</td>
</tr>
<tr>
<td></td>
<td>Tel: (480) 965-8594</td>
</tr>
<tr>
<td></td>
<td>Fax: (480) 965-3837</td>
</tr>
<tr>
<td></td>
<td>Email: <a href="mailto:keith.holbert@asu.edu">keith.holbert@asu.edu</a> (preferred)</td>
</tr>
</tbody>
</table>

*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

**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

**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**
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- 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

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

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**IEEE PHOENIX SECTION ANNUAL BANQUET – 2007 Registration**
(Please complete all sections of the form by typing or printing in bold and capital letters)

<table>
<thead>
<tr>
<th>Name:</th>
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<td></td>
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<tr>
<td>Address:</td>
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<td>IEEE Member: Yes [ ] No [ ] Student [ ] Membership # [ ]</td>
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**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
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 ½-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 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 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
IEEE ANNOUNCEMENTS

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


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 if 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.
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
(https://ewh.ieee.org/soc/pes/phoenix/).

PLEASE NOTE: The November meeting is being held on the 2\textsuperscript{nd} Thursday of the month which is a change from the normal 3\textsuperscript{rd} 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 ANNOUNCEMENTS

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 ANNOUNCEMENTS

IEEE PHOENIX SECTION
SCHOLARSHIP APPLICATION
(Due: December 22, 2006)

Applicant IEEE Member No. _______________________

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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.
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 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).