The IEEE International Symposium on Power Electronics For Distributed Generation Systems set for July 8-11, 2013

The work has begun on presenting a prestigious symposium here in NWA. Experts from around the world will present papers on power electronics for distributed generation systems. Chair of Technical Programs Dr. Juan Balda, Co-Chair Dr. Simon Ang and Local Travel Director Dr. Alan Mantooth are excited to bring this symposium to the United States for the first time ever.

The Tradition of Research and Innovations Strengthen in Electrical Engineering

The University of Arkansas has a prestigious credential to add to its many accomplishments. The Carnegie Foundation for the Advancement of Teaching ranked the University of Arkansas with a "Very high level" of research, placing the U of A among and elite 108 universities out of a classified 4,633 field of other universities. This impressive honor is the result of growth and hard work on the part of the excellent faculty and staff the University has to offer. Chancellor G. David Gearhart describes the new Carnegie classification as this:

"a reflection of the university’s transformation as a truly world-class institution. It documents our advancement as a national and internationally influential research university. We have reached this top status as a result of the innovation, productivity and successful collaboration of our university’s faculty, students and staff." (Arkansas, 25)

Chancellor G. David Gearhart

The research activity in the Electrical Engineering department continues to thrive as several professors were awarded National Science Foundation grants to continue their work Dr. Magda El-Shenawee, Dr. Shui-Qing “Fisher” Yu and Dr. Jingxian Wu have all been awarded a grand total of over $1,000,000 since this Spring. Jim Rankin, Vice Provost for Research and Economic Development at the University was recently quoted as saying “Organizations such as the National Science Foundation and the National Institutes of Health, look at what our professors and the University of Arkansas bring to the table, and they know they can count on us to pursue our research vigorously and with rigor.”

A $400,000 NSF grant, over five years was awarded to Dr. Shui-Qing “Fisher” Yu. The Faculty Early Career award is one of the highest honors given to all young faculty members. Dr. Yu’s project provides comprehensive training for graduate students in all aspects of advanced optoelectronic devices, as well as heavy involvement for undergraduate students. The research advances discovery and understanding while promoting teaching, training and learning.

Dr. Jingxian Wu, Assistant Professor received a recent grant of $279,425 over the next three years for his research in creating "distortion-tolerant communications for wireless networks that can use very little power. This research will improve wireless sensors deployed in remote areas where these systems must rely on batteries or energy-harvesting devices for power” (Newswire, 2012).

We are all excited about expanding our capabilities in the RF and Microwave area. Benefits will extend to both the undergraduates and graduate program.

Dr. Juan Balda, Associate Department Head

Dr. Magda El-Shenawee, Professor and researcher, was awarded an NSF grant of $400,000 for support for the project “MRI: Acquisition of a Terahertz System for Medical and Biological Imaging and Nanomaterial Characterization Research at the University of Arkansas”. 
Welcome to the Fall 2012 issue of spARKs, the newsletter from your Department of Electrical Engineering at the University of Arkansas.

The first news to report is regarding the enrollment. As you know, the enrollment in undergraduate electrical engineering programs was declining nationwide for several years. There are many anecdotes to explain the decline. The sluggish economy and the feeling that the market had an oversupply of electrical engineers were used as a cause. Another explanation often offered was the outsourcing of electrical engineering jobs which impacted certain areas within the field more than others. For instance, it was perceived that the VLSI design was affected the most. Certainly, Thomas Friedman did not help when every other example he used to argue that “The World is Flat” was from electrical engineering. The good news is all of the above does not matter anymore. It is being reported nationwide, as well as here in Fayetteville, that the job market has stabilized, the demand is growing for electrical engineering jobs, and the students are coming back. This semester, more than 60 students are enrolled in sophomore class offered at Fayetteville and Ft. Smith. While we do not have specific freshman enrollment to report, because the College of Engineering has a common freshman engineering class, we project more students coming to electrical engineering next year. This brings the current enrollment in the sophomore-senior classes to about 220 students. The department also enrolls 45 M.S. and 50 Ph.D. Students.

The department hired a new assistant professor, Dr. Jing Yang. She received her Ph.D. from University of Maryland-College Park. Prior to joining our department this semester, she was a research associate in the Department of Electrical and Computer Engineering at the University of Wisconsin-Madison. Her current research interest include statistical signal processing and learning theory, high-dimensional graphical models and their applications, energy harvesting communication systems, scheduling and resource management in networked systems, wireless communication theory and information theory.

Last, I am now back in the department and very delighted to communicate with you using spARKs. I look forward to meeting you in person either during your next visit to Fayetteville or, maybe, in your hometown. In the meanwhile, I hope that you enjoy learning about our department and I look forward to connecting with you in the next spARKs transmission.

Samir El-Ghazaly
Distinguished Professor,
Twenty-First Century Leadership Chair

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Electrical Engineering Department Welcomes New Members

This Fall, the Electrical Engineering Department welcomes new faculty and staff to the University of Arkansas.

Dr. Jing Yang is the newest Assistant Professor in the Electrical Engineering Department. Prior to joining the team in August 2012, she was a research associate in the Department of Electrical and Computer Engineering at the University of Wisconsin-Madison. She obtained her PhD from the Department of Electrical and Computer Engineering at the University of Maryland, College Park in 2010 and B.S. in Electronic Engineering and Information Science fro the University of Science and Technology of China (USTC) in 2004. Currently, Dr. Jing Yang is teaching Microprocessor System Design this semester and will be teaching in the Spring as well. Her current research interest include statistical signal processing and learning, Wireless communication Theory, Scheduling, routing and Resource Allocation in networked Systems and Information Theory.

Mr. Robert Saunders, P.E., has rejoined the Electrical Engineering family this fall as well. Mr. Saunders teaches on both the Fayetteville campus and at the Fort Smith campus. Mr. Saunders just recently returned from a trip to Switzerland where his innovations make an auto-pilot feature a part of the design on the world’s only Solar Impulse plane. This function of the plane will allow for the pilot to take scheduled breaks in his flight around the world.

Kelli Nixon, a recent University of Arkansas graduate, joined the EE team as the new administrative specialist in May. “I feel very fortunate to work with such and amazing team” said Kelli.

Dr. Manasreh has added two new research associates to the department this year. Dr. Mahmood Alam Khan (left) has traveled the world and has some credentials to show for it. His B.S. and M.S. degrees were obtained at the Aligarh Muslim university in Aligarh, India and he received his Ph.D. in Chemical Engineering from Chonbuk National University in Jeonju, South Korea. Dr. Khan’s research interest are in Solar Energy and Solar cells, renewable energy generation and Novel Nanomaterials design and their Optoelectronic Properties. Dr. Scott Little (right) holds a B.S. in Engineering physics from Taylor University in Upland Virginia, an M.S. in Physics from Ball State University of Toledo Ohio in May 2012. Both are enjoying the area. Dr. Little enjoys bike riding on the many trails in Fayetteville. Dr. Khan enjoys spending time with his wife.
This September, the Electrical Engineering department hosted its fall freshman engineering class recruitment event. The 2012 event was held at the HiDEC facilities in the Arkansas Research and Technology Park. Organizer, Dr. Roy McCann planned the evening’s events around the many research opportunities and possibilities that each lab has to offer. Many Electrical Engineering professors took the opportunity to give students a sneak peek of state-of-the-art tools and some hands on experience. Ph.D. student Chris Farnell demonstrated one of the many REU student projects.

Diversity Outreach

T.A. Walton has been busy in creating a lasting impression on K–12 students throughout Arkansas. T.A. Walton, VICTER Diversity Outreach Director, travels the state of Arkansas to promote the STEM demo’s. This one of a kind Science, Technology, Engineering and Mathematics program is essential to exposing K–12 students to the importance of these areas of study. Mr. Walton has developed a program that brings the STEM demo’s to the schools. A newly purchased trailer is used to house items such as a Jacob’s ladder machine, the razor-crusher, solar, electromagnetic and high-voltage “Carver” demo’s.

These experiences have helped to build important partnerships with schools and steer students in the direction of engineering. During the month of October alone, 15 STEM presentations were made to more than 500 Arkansas Delta students. Locally more than 400 students have visited the STEM presentations.

T.A. Walton demonstrates Jacob’s Ladder to a group of students from West Wood Elementary.

With Sadness, we say Goodbye

This year marks the passing of Charter ASEE member, Charles Edward Cook. Mr. Cook was born on a farm near Magnolia, Arkansas on August 27, 1918. He was laid to rest on June 20, 2012. He completed his Bachelors of Science degree in Electrical Engineering at the University of Arkansas, while working for Southwestern Gas and Electric Company in Fayetteville, Arkansas. He spent his entire post-war working career at SWECO, retiring in 1983 as Vice-President of Personnel, Safety and Insurance in Shreveport.

David Calvin Fairbanks, 74, passed away on September 2, 2012. He was born November 30, 1937 in Sterling, Illinois. Mr. Fairbanks graduated from the University of Arkansas in 1962 with a bachelor’s degree in Electrical Engineering. He retired from Texas Utilities as Vice-President in charge of System Operations of the East Texas Division.

Dr. Simon Ang Host Visitors from Capitol Normal University

This August, Dr. Simon Ang served as host to several professors from the Capitol Normal University (CNU), Beijing, China. The purpose of their visit was to establish research collaboration in prognostic health management of power electronic management systems. The visitors enjoyed tours of campus including the facilities at Bell Engineering as well as Dr. Simon Ang’s lab located in the Arkansas research and Technology Park.

ALUMNI ASSOCIATION PARTNERSHIP

The Electrical Engineering Department will be partnering with the Alumni Association on future mailings of the spARKs. If the Association has an email address on file for you, future newsletters will be sent to you by email. If you do NOT wish to receive the newsletter electronically, please let us know. We encourage you to connect with the Alumni Association and keep them up to date on events in your life. The website is www.arkansasalumni.org.
Student Achievements

Congratulations to the following students:

The University of Arkansas has 6 students who have received NSG Graduate Research Fellowships this year and four who have received an honorable mention. In the Electrical Engineering department, Thomas Ryland Rembert was one of those elite students.

Spring 2012 Dean’s List students included:

- Maria Raquel Benavides Herrera
- Quang Minh Le
- Reed B Rogers
- Abby Logan Wise

New AAEE Inductees and Officers

The Arkansas Academy of Electrical Engineers met for their annual induction banquet and business meeting on April 20-21, 2012. The new inductees were Michael T. Campbell (American Electric Power Company), William A. McVey, Jr. (PSA Consulting Engineers), R. Brian Naylor (DaySpring Cards), Kean W. Steely (Carroll Electric Cooperative), and Don R. Van Rheeden (Southwest Research Institute).

Officers and board of directors for the upcoming year are Mike Russ, president; Michael Harkey, vice-president; Bruce Bumgarner, secretary/treasurer; Micky Mayfield, past president; Greg Garner, board member; Jim Davis, board member; Pat Bourne, board member.

The 2013 meeting will be April 12-13, 2013.