The Department of Electrical Engineering is proud to announce that Simon Ang and Frederick W. Sexton have been named IEEE Fellows.

Dr. Ang, Professor in the Electrical Engineering Department and Director of the High Density Electronics Center, was recognized in December for his contribution to microelectronic packaging and power electronics education.

Earlier in the year, Dr. Sexton, who is currently employed at Sandia National Labs, was recognized for contributions to ionizing radiation and catastrophic single-event effects in microelectronics.

The prestigious honor of being named IEEE Fellow is reserved for those IEEE members who have an extraordinary record of accomplishments in one of the IEEE fields of interest. The total number selected in any one year does not exceed one-tenth of one percent of the total voting members.

Institute membership. IEEE Fellow is the highest grade of membership and is recognized by the technical community as a prestigious honor and an important career achievement. 321 individuals were elevated to IEEE Fellow for 2011.

Dr. Sexton and Dr. Ang share this distinction with these other current and retired faculty members in the department: Samir El-Ghazaly, Alan Mantooth, William Brown, Leonard Schaper, and Jerry Yeargan.

Three teams of researchers at the University of Arkansas will receive $8.7 million over five years in a cooperative agreement between the National Science Foundation and the Arkansas Science & Technology Authority. The funds will be used to establish two new centers – the Green Renewable Energy Efficient Nanoplasmonic Solar Cells Center, known as GREEN, and the Vertically Integrated Center for Transformative Energy Research, known as VICTER. The agreement will also continue the funding for a third center – the Plant Powered Production Center, or P3.

Two of the three centers will focus on different aspects of solar cell technology – an efficient form of renewable energy that has the potential to solve some of the world's energy problems, if certain barriers can be overcome. Vasundara Varadan is Principal Investigator for GREEN. She stated that there are two challenges facing solar energy today — cost and storage. Most of the cost of solar cells comes from the silicon used to absorb the sunlight. Although the silicon coating is only 100 microns thick, it still accounts for about 60 percent of the cost of a solar cell. Her research group is working on reducing the silicon coating to 200 to 400 nanometers, or one-sixth to one-eighth of the thickness of current solar cells. The other center, VICTER, will have a slightly broader focus. Alan Mantooth, Principal Investigator, states, “We're interested in taking these new photovoltaic materials and determining how to make a new device out of them and package them.” Mantooth said. “We want to take the materials they make to the electrical grid.” The center will pursue the creation of more energy-efficient solar cells, but also will address the challenges of packaging solar cells and forming solar panels that are efficient, rugged and cost-effective. Further, VICTER researchers will focus on next generation solar inverter technology, the electronics that converts the DC power from the panels to AC power for the grid. Other department members are Simon Ang, Juan Balda, Omar Manasreh, Hameed Naseem, T. A. Walton, and Fisher Yu.
College of Engineering Summer Programs

We are excited to announce the 2011 University of Arkansas College of Engineering Summer Programs.

Programs are for rising 6th to 12th grade students and are designed with hands on activities that are fun and educational.

The Explore Engineering Programs I and II are for rising 6th – 9th grade students to learn about a different area of engineering each day. Students will explore civil, chemical, computer, electrical, industrial, and mechanical engineering through activities that are centered around robotics, electronics, structure design, water filtration, roller coasters, chemical reactions, and much, much more!

The Engineering Summer Academy is for rising 10th – 12th grade students. Students will select between chemical engineering, the Razorback Solar Boat Competition, and sustainability to explore a specific area in more depth.

Worried about paying the program fee? No worries! We offer need-based scholarships to help participants overcome the financial burden.

For more information, visit www.engr.uark.edu/summerprograms or contact Eric Specking, Assistant Director of Recruitment, College of Engineering. Eric’s email address is especki@uark.edu and his phone number is 479-575-7780.

IEEE PELS Campus Awareness of Renewable Energy Sources

The Department of Electrical Engineering registered student organizations, led by the newly formed IEEE Power Electronics Student Chapter, will host a day long Campus Awareness of Renewable Energy Sources event.

Dr. Johann Walter Kolar, a world renowned researcher in the field of power electronics will be visiting the University. Dr. Kolar has published over 350 scientific papers in international journals and conferences, and has filed 75 patents. He is Professor and Head of the Power Electronic Systems Laboratory at the Swiss Federal Institute of Technology (ETH) Zurich. Dr. Kolar will be giving a technical talk to the faculty and students.

A panel of specialists from around the community that are experts in Biofuels, Solar & Wind Energy, Power Transmission, and more will be discussing the future trends of energy. This is an opportunity to get educated about advances in technology, problems being faced, and programs started at UA that will make real differences. Questions will be taken so you can gain information specific to your interests.

Dinner will be provided and the final speeches given by Drs. Nicholas Brown and Alan Man- tooth. Dr. Brown will provide information about the sustainability programs at UA, and Dr. Man- tooth will explain the current research efforts in the energy sector and cast a vision for future research at University of Arkan- sas.

Silicon Solar Solutions Going Strong

Douglas Hutchings (MEPH 2010), CEO of Silicon Solar Solutions reports that the company is still going strong and winning awards.

They received a Phase I NSF SBIR award and have filed additional patents to expand and compliment the University of Arkansas’ IP.

The company was selected as one of 18 finalists in the prestigious Cleantech Open business competition, as one of the most promising cleantech startup companies in the nation. Silicon Solar Solutions also won the “People’s Choice” award in this competition.

Dr. Hutchings states that the company has exceeded commercially available solar cell performance metrics in several key areas. The company will be expanding in the coming months and will be looking for additional personnel.

Dr. Hutchings has also been invited to be part of a four-member panel as a “thought leader in nano-micro technology” at the Licensing Exec- cutive Society Winter Meeting which was held in February in San Jose, California. The LES established in 1965, is a professional society with nearly 5,000 members engaged in the development, use, transfer, marketing and manage- ment of intellectual property.

Note From the Dept. Head

Dear Alumni, students, friends of the department and colleagues,

Welcome to our spring 2011 issue of our departmental newsletter. Our enrollment numbers for this semester are 137 undergraduate students and 77 graduate students. We continue to strengthen our recruiting efforts in the Freshman Engineering Program. Moreover, the department will host once again three summer camps for 6th-7th, 8th-9th and 10-12th graders in cooperation with the Dean’s recruiting staff. We have obtained additional funding so we will be subsidizing more high school students.

Our students continue to make us very proud; Whitney Davis (sophomore) was awarded the WISE internship in engineering and public policy (Washington Internships for Students of Engineering). She and two other non-UA students were selected by IEEE to spend 9 weeks in Washington DC during this 2011 summer.

Dr. El-Shenawee will be awarded the Imhoff Teaching Award, and Dr. Man- tooth the Imhoff Research Award at the College of Engineering Banquet on April 16. Congratulations to both of them for their hard work towards accomplishing the department goals.

In general, the department faculty and staff members continue to stay busy; if not performing teaching and support activities, they are supervising graduate students and leading high quality research activities. Reward came recently when the University was elevated by the Car- negie Foundation for the Advancement of Teaching to RU/VH (doctoral-granting research university with very high levels of research activities), the highest possi- ble classification.

We will be inducting 9 new members into the Arkansas Academy of Electrical Engineering at its Annual Banquet on April 15, 2011; please, plan to attend if you are an AAE member.

Lastly, we want to hear about your accomplishments. Please, send your news to Mrs. Connie Howard at cjhowar@uark.edu.

Kind regards,
Juan C. Balda
Interim Dept. Head
Student Spotlight

Whitney Davis, who is currently pursuing a BSEE here at the U of A, has been selected to participate in the WISE (Washington Internships for Students of Engineering) program. WISE is a summer internship program in engineering and public policy. Third-fourth year engineering and computer science students and graduates pursuing policy-related graduate studies are selected in a nationwide competition to spend 9 weeks during the summer in Washington, DC, learning how engineers contribute to public policy decisions on complex technology issues. Each year, IEEE sponsors 2-3 IEEE U.S. student members in the WISE Program. The WISE Program is ranked as one of the best internship opportunities in the U.S. by the Princeton Review.

Whitney has studied at the Baja California Language College Spanish Immersion Program, Ensenada, Baja California, Mexico, and the Service Learning Project (Study Abroad Program) in Belize. She is co-founder and President of Young Americans For Liberty, Fayetteville, AR, founder of Campaign for Liberty, Conway, AR, and also organized Constitution Day 2010. She has been fortunate enough to work in the past as a Design Engineering Assistant in Conway, Arkansas, since 2007, and is thrilled to be on board this round of the WISE Program.

Visit from Gyeongnam National University of Science and Technology

Two faculty members and five students from Gyeongnam National University of Science and Technology (GNTECH) of South Korea visited the University of Arkansas (UA) campus on February 7-11. The trip was initiated by Dr. Taeksoo Ji (Assistant Professor in EE) and Dr. Simon Ang (Professor in EE and HiDEC Director) to discuss exchange programs between GNTECH and UA. They toured several departments including our department where they were welcomed by Dr. Juan Balda (EE Department Head). They were also given a tour of the HiDEC and NCREPT facilities, which was followed by a meeting with Drs. Ang and Ji to discuss opportunities for summer student research internships. They visited several beautiful and historical spots around the area including Fay Jones Chapel in Bella Vista before they returned to South Korea. An agreement of cooperation and exchange is currently initiated by Bryan Hill (Assistant Dean of Recruitment and International Programs). GNTECH plans to send exchange students to Fayetteville this summer under this agreement, some of these students would like to conduct their research projects during the summer at the HiDEC facilities.

GNTECH is among the largest schools located in the southern part of the Korean Peninsula. It was founded under the name of Jinju Public Technical School in 1910 (the 4th year of the last king of the Joseon Dynasty) as the first agricultural school in the South of the Han River in order to develop agricultural technology and produce skilled technicians. Approximately 6000 students are enrolling in GNTECH that offers now over 25 undergraduate and graduate degree programs.

Faculty Focus

Dr. Vijay Varadan was a plenary speaker at the IUPAC Sponsored International Conference on Nanomaterials and Nanotechnology—Nano 2010, held on December 13-16, 2010, in Salem, India. His talk was entitled, “Nanotechnology and Smart Devices in Engineering, Life Sciences and Medicine.” Other speakers at the Conference were Professor Richard R. Ernst, Nobel Laureate 1991, and Professor Ada Yonath, Nobel Laureate 2009.

NCREPT Included in “Today In America”

Terry Bradshaw’s “Today in America” has completed production on a segment featuring Fayetteville, Arkansas. In the segment, NCREPT as well as other parts of the ARTP and UA campus were shown in small video clips as the narrator discusses the positive aspects of our community.

The segment was aired nationally on Saturday, February 26, 3:00 p.m. Central Time on the Fox Business Network. It will also be showing on 19 regional markets in the US over the stretch of the next few months, beginning with Ohio in March.

GRAPES Strategy Meeting

The NSF I/UCRC GRid-connected Advanced Power Electronic Systems (GRAPES) Center held its strategic planning session in Charleston, South Carolina in January. Faculty and central administration developed the key elements of their 3-5 year strategy in the two day meeting. The University of South Carolina, UA’s research partner in the GRAPES center, hosted the meeting.
Outstanding Alumni

Four Electrical Engineering alumni will be recognized at the College of Engineering’s Alumni Awards Banquet to be held on April 16, 2011.

James M. Davis (BSEE 1978) will be recognized as a Distinguished Alumni of the College of Engineering. This award honors exceptional professional and personal achievements of University of Arkansas College of Engineering graduates who are over the age of 40. Recipients have achieved distinction in their fields of endeavor and have provided outstanding leadership and service to the College of Engineering. Mr. Davis was Co-Founder and Vice President of Operations of Celcore, Inc. He and three other engineers applied for and received the fifth cellular experimental license issued in the US. In 1992, he wrote the first technical agreement between Plexsys Corporation and Vimpie, a Russian Company. The outcome of that agreement was the installation of the first AMPS Cellular System, a switching platform designed by Mr. Davis, in Russia. Mr. Davis made the first AMPS cellular telephone call in Russia in the summer of 1992. He and his wife, Manha, reside in Fayetteville, Arkansas. They have two children, Matthew and Meredith.

Jeffery C. Sanders (BSEE 1969) will also be recognized as a Distinguished Alumni. Mr. Sanders is Founder and CEO of Eclipse Electronic Systems, Inc. in Richardson, Texas. The company has pioneered the development of software/firmware defined radios for the DOD and other Government Agency Signals Intelligence (SIGINT) market-place. This technology enables the US Defense forces to rapidly adapt their surveillance capabilities using software or VHDL firmware updates to deployed systems. Eclipse receiver components provide key enabling hardware technology used in protecting our troops overseas. Eclipse supplies approximately 80% of the USAF, US Army, and US Navy requirements for Software defined SIGINT receivers. In addition, many friendly allied forces also use Eclipse technology for their surveillance requirements. Mr. Sanders and his wife, Kathy, reside in Richardson, Texas. They have two daughters, Laura and Emily.

William T. Sommers (BSEE, 1996, MSEE 1998) will receive an Outstanding Young Alumni Award - The College of Engineering Young Alumni Award recognizes exceptional professional and personal achievements of University of Arkansas College of Engineering graduates who are under the age of 40. Recipients have achieved distinction in their fields of endeavor and have shown significant promise for professional leadership in state, national and international activities. Mr. Sommers has been with Northrop Grumman since 1995, where he is currently Program Manager of the Advanced Concepts and Technology Demonstration Division, managing a hardware technology development program with aggressive schedules and cost constraints. His team designed, built and tested a hardware system with half of the usual budget and successfully demonstrated a “rapid” design capability for advanced hardware delivery. He continues in this role to manage and deliver advanced hardware capabilities for Northrop Grumman’s customers. He has received the Northrop Grumman Electronic Systems President’s Leadership Award two different times, once in 2003 and again in 2006. He and his wife, Sarah, and their two daughters, Sabine and Sloane, reside in Ellicott City, Maryland.

Bob Mitchell will be inducted into the Engineering Hall of Fame at this year’s event. Established in 1965, the Hall of Fame is the highest honor bestowed by the College of Engineering at the University of Arkansas. The award recognizes prominent graduates and leaders who have made outstanding contributions to the engineering profession and to society as a whole. Members of the Hall of Fame have, throughout their careers, made a difference to the engineering profession and demonstrated concern for improving their communities. Mr. Mitchell is currently the Cassini Program Manager at the Jet Propulsion Laboratory in Pasadena, California. He has worked on trajectory design, mission design, and navigation for planetary exploration projects such as Mariners 5, 6, 7, and 9, and on the Viking mission. After that, he moved to the Galileo mission, where he served as design manager from 1979 to 1988. He then went on to manage JPL’s mission design section from 1988 to 1993. Mr. Mitchell returned to Galileo to manage the science and sequence office until 1996 when he was appointed Project Manager of the mission. Two years later, he accepted the dual-role of Program Manager/Project Manager of Cassini. He is a recipient of two NASA Exceptional Achievement Awards and has also earned two NASA Outstanding Leadership awards.