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Tennessee Engineer Newsletter

Engineering

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Spring 2005

# Tennessee Engineer Spring 2005

College of Engineering

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## Focus on Research

The scope of research conducted by the College of Engineering's faculty covers the gamut from exploring outer space to delving into the mysteries of the atom. This research not only contributes to the engineering field, but also provides valuable hands-on technical experience for COE students at both the graduate and undergraduate levels.

### "We're Here to Educate"

Dr. John Collier, professor and head of the Department of Chemical Engineering, has been conducting research financed by grants from the Environmental Protection Agency (EPA), the United States Department of Agriculture (USDA), the National Science Foundation (NSF), private industry and the Department of Energy (DOE-ORNL). Collier's multi-disciplinary team, consisting of co-investigators Dr. Billie Collier, a professor in the Department of Materials Science and Engineering; ChE Research Associate Professor Simioan Petrovan; and Dr. Tim Rials, a professor in the Department of Forest Products, are researching ecologically friendly processes for manufacturing textiles. A product of this research, called *lyocell™* is a biodegradable solvent that is created from materials processed out of wood pulp, and could be produced from agricultural waste, including kudzu and pulp, and other cellulose sources such as office waste.

"We've involved both undergraduate and graduate students in this project," Collier said. "The students perform economic and environmental analyses of both the process and the product, and also work on a conceptual life cycle to determine if the material is actually environmentally friendly."

Collier and his colleagues have submitted a proposal to DOE to establish a "Chemicals and Materials from Biomass Center" at UT with funding of \$2.5 million over four years. They have also submitted preliminary proposals to NSF for a "Center for Renewable and Biodegradable Materials," and for an Integrated Graduate Education and Research Training (IGERT) grant for "Biomass Materials."

Collier said the environmentally-friendly nature of his research is appealing to students, and he hopes that the opportunities for hands-on research provide more extensive knowledge of the chemical engineering discipline.

"We're here to educate," Collier stated. "We need to include students in all phases of our research. Teaching students is what this university is all about."

## Mission to Mars

Dr. Ben Blalock, an assistant professor in the Department of Electrical and Computer Engineering, has recently been awarded four grants from the National Aeronautics and Space Administration (NASA) Exploration Systems Research and Technology program. This new initiative is the initial phase of a robotic mission to the moon, scheduled to take place by 2020. The next phase of the project will be a manned mission to Mars.

The Blalock team has generated almost \$1 million in new incoming grants and contracts for 2005 alone. The NASA funding allows Blalock to fully incorporate students in his research testing and procedures, developing prototype chips to be used for the missions.

"I have undergraduate and graduate students working in both circuit design and testing," Blalock said. "The research in our department has benefited significantly from the fact that we have a very strong undergraduate program. We are fortunate that our university has maintained a consistent dedication to teaching."

The son of a late ECE professor, Dr. Vaughn Blalock, the younger Blalock sees himself as part of a strong legacy of faculty in electrical engineering who are dedicated to students.

"I'm the second generation," Blalock com-

mented. "Dr. Ed Kennedy, Dr. Jim Rochelle, my father, all of these very capable teachers established a comprehensive undergraduate electronics program in the ECE department. The students are comfortable working in the labs, so we can easily get them into a research situation and they handle it well. They have something

tangible to work with, they're not just dealing with software programs, and that's why the program is such a success."

In addition to the NASA grants, Blalock's team is also part of a new collaborative research effort funded by the National Science Founda-

tion (NSF) with Kansas State University and UT/ORNL joint faculty Dr. Charles Britton to develop a silicon-based neutron detector for the Spallation Neutron Source (SNS) in Oak Ridge.

"I'm happy that we can incorporate our students into research situations where they can actually see the results of their work," Blalock commented. "When you look at the success stories that have come from our program—the captains of local industry like Ron Nutt of CTI and Mike Crabtree with IdleAire, the numerous individuals doing valuable work at ORNL and at local start-up companies—it makes you understand the importance of perpetuating our legacy in high-quality teaching while also growing as a research institution."



ECE undergraduates Sam Caylor (left) and Jesse Richmond (center), working under the direction of Dr. Ben Blalock, are developing computer chips for NASA that may some day travel to Mars.

## A Passion for Learning

Dr. Kenneth Kihm, the COE's Magnavox Professor in the Department of Mechanical, Aerospace and Biomedical Engineering, has a distinguished academic career that spans almost two decades. However, it's his love of teaching that serves as his best motivation for achievement.

"I have a good heart toward young people," Kihm said. "I want to see the students in both undergraduate and graduate programs succeed. I do not believe that the undergraduate program should be sacrificed for the 'bottom line' under any circumstances."

Kihm's research is in the areas of micro and nano transport, phenomenon and bioapplications. He joined the UT faculty earlier in the semester after spending 16 years with Texas A & M University, where he initiated and established an interdisciplinary research field in his area.

Kihm is currently refining proposals to extend his interdisciplinary research here at UT, working with professors in the biomedical, environmental sciences and electrical engineering disciplines. He is currently supervising eight doctoral graduate students who are working on his projects.

# DEAN'S *message*

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## Editor's Note

Welcome to the latest edition of *Tennessee Engineer*.

Our focus in this issue is on [research](#). The college's research efforts provide hands-on experience for engineering students. Research generates grants and funding for both engineering academic programs and other necessities.

As always, we welcome your feedback. Please send your comments to [kcowart@utk.edu](mailto:kcowart@utk.edu).

We hope you enjoy this issue of *Tennessee Engineer*.

—Kim Cowart

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## From the Dean's Desk

As we begin the new year, I would like to provide an update of the college's accomplishments, primarily focusing on the areas of curriculum and teaching for the 2004-2005 academic year. Additional progress in other areas of the college will be reported in the near future.

I firmly believe that our curriculum needs to be constantly reviewed, overhauled and modernized, and that our administration and faculty should be held accountable for the success of the college and its students.

The advent of the HOPE Scholarship has improved both the quantity and quality of students applying to our college—the average ACT score for the incoming Fall 2004 freshman engineering class was 26.3.

We are also currently benchmarking our programs and student academic achievement with other successful institutions, such as Georgia Tech, the University of Florida and Virginia Tech, in order to discover other new ways to increase the number of graduating engineering students each year.

The curriculum for our Engage Engineering Fundamentals Program has been revised and improved. We have reduced the required credit hours from 12 to 9, have decreased the statics component and increased mechanics physics instruction. The program continues to emphasize team design and communications, computer tools and graphics and calculus-based courses.

Other progress has occurred within the biomedical engineering program, where we have seen a large increase in the number of undergraduate and graduate students. The approval of an M.S. and Ph.D. program in this exciting new discipline will allow us greater range to build an outstanding department that will attract students from around the world.

The Department of Industrial and Information Engineering also received approval for a Ph.D. program; additionally the Department of Electrical and Computer Engineering is now offering both M.S. and Ph.D. degrees in computer engineering.

Our innovative MS-MBA dual-degree program, which previously offered engineering degrees only in industrial, mechanical and nuclear engineering, is now a college-wide program, and we hope to attract 20 to 25 new students to the program by the Fall 2006 semester.

In accordance with our efforts to improve academic excellence among our students, the college has also joined the University Honors program. We admitted 190 honors students this past fall, and hope to have an even larger group for the Fall 2006 semester.

We have also increased our emphasis on international initiatives, with a study abroad program, and we are making efforts to internationalize our entire curriculum and to establish joint research and design programs with institutions in other countries.

As many of you know, there has been a significant, nation-wide decline in the number of international students attending U.S. universities. We are fortunate in that our graduate enrollment has actually increased, but we are also being vigilant about staying aware of this trend, and we are increasing our efforts to attract graduate students from other countries. Increased stipends and graduate fellowships are two of the ways that we are addressing this situation.

I have challenged the administrators and faculty of the college to immediately begin to (1) streamline the teaching load in order to be competitive with other engineering schools; 2) offer courses in an efficient manner and examine/update course content frequently; 3) implement the new curriculum approved by the faculty and 4) promote innovative instruction.

I greatly appreciate the efforts of our dedicated faculty and staff. This past year was one of positive change and growth for the college, and I look forward to making even greater strides in 2005.

Way Kuo  
Dean of Engineering and  
University Distinguished Professor



The Cassini spacecraft and artificial valves placed inside the human heart share a connection: Both require materials testing at the atomic level. Nanotechnology makes this testing possible. Dr. George M. Pharr, professor of materials science, is one of the researchers using nanotechnology to manipulate matter that is 1/100,000 the width of a human hair.

Pharr is devoted to refining and accelerating the testing and production processes of materials such as those used in deep space exploration and biomedical applications.

Pharr has been a joint faculty member of the college's Department of Materials Science and Engineering and ORNL since 1998. His pioneering work at ORNL and UT has furthered the accuracy of materials testing, in particular the submicron measurement of materials' mechanical properties.

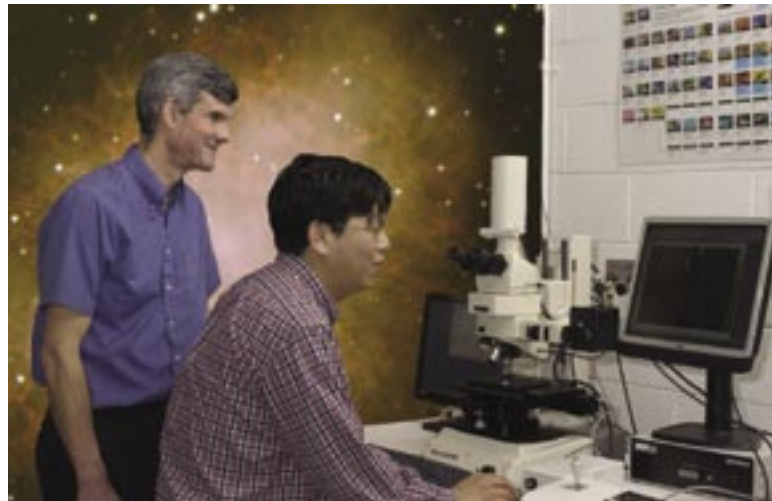
Pharr earned his B.S. in mechanical engineering in 1975 from Rice University, and both his master's (1977) and Ph. D. (1979) from Stanford. While at Stanford, Pharr met Warren Oliver, also pursuing graduate degrees in materials science and engineering. During the mid 1980s Pharr teamed with Dr. Oliver, who worked at ORNL at the time, to advance nanomechanical technology.

Oliver constructed machines to test materials through nanoindentation, a process allowing evaluation of materials' mechanical behavior while pressure is applied at the submicron level. Pharr developed the analysis and processing of the data collected as well as the theoretical perspective of their work.

"It started out as a garage shop operation," Pharr said. But that operation grew. Oliver dedicated his full attention to the project, and the successful company MTS Nanoindentation Innovation Center emerged. "Now Nanoindentation Innovation Center provides support for our UT grad students researching nanotechnology," Pharr explained.

Pharr said he had thought that he would return to Rice once a two-year sabbatical at ORNL ended in 1996, but instead he stayed at the lab to continue his work. Currently he is involved in several projects dealing with alloys.

"My work with combinatorial materials discovery touches on my metallurgical roots," Pharr said. "We're developing techniques for faster production of better alloys. We need to assess the properties of thousands of combinations, and do it quickly."



Dr. Pharr works with post-doctoral research associate Jae-il Jang to assess nanoindentation testing of materials.

The alloys project focuses on techniques. Pharr described a fully automated machine that uses nanoindentation to measure the properties of thousands of alloys. "With metals, it's the strength that counts," Pharr said. "This machine allows us to make hundreds of measurements overnight."

Pharr's research helps to find the strongest, most efficient alloys for high-temperature applications such as materials for deep space vehicles. But he's quick to share the accomplishments of others in the field, including Dr. George Easo, also a professor in materials science and engineering: "You have to give credit where credit is due—Easo is the real driver for this research. He was a key player in the materials selection of the Cassini spacecraft," Pharr commented. Cassini has been providing scientists with never-before-seen images and information about the solar system.

Pharr has also been working on the Department of Energy's Space Power Program researching the me-

chanical behavior of iridium alloys. "The work I've done on this project has been mostly fundamental research about iridium, how iridium as an alloy, and others like it, can perform in unusual ways during indentation," Pharr said.

If it sounds like Pharr keeps busy, he does. "Primarily I am affiliated with ORNL's Microscopy, Microanalysis, Microstructures Group in the Metals & Ceramics Division," Pharr explained. "But I work with a lot of different groups—folks working with alloy and behavior design, X-ray characterization, condensed matter physics, advanced machining, advanced space exploration—wherever I have something to offer."

**"I work with a lot of different groups—folks working with alloy and behavior design, X-ray characterization, condensed matter physics, advanced machining, advanced space exploration—wherever I have something to offer."**

**—Dr. George Pharr**

Like many instructors, Pharr finds his role as researcher and role as professor are tightly interwoven, "It's all *my work*—it's very hard for me to partition. Most of the work at ORNL involves graduate students from UT. Some research is solely UT in terms of funding and place. Nanoindentation supports grad students developing advanced techniques to measure materials, and all of the work is done at UT. But ORNL is also interested."

In his teaching, Pharr has an opportunity to share the latest developments in his field, "This spring I'm teaching a 600-level nanomechanical behavior course that I've reformatted to emphasize the most recent advancements."

Pharr directs the UT Small-Scale Mechanical Behavior Lab. He also oversees 10 graduate students and three post-doctoral participants who contribute to the lab efforts. "It's hectic, but you have to seize the funding opportunities when they arise, and there have been many in the past few years," Pharr added.

Of all his professional efforts, Pharr listed teaching as most rewarding, "I have to say my proudest accomplishment in my work was receiving Rice University's undergraduate teaching award. It is their most prominent award for teaching. That was an important moment for me."

Another memorable milestone for Pharr was his seminal work, *An Improved Technique for Determining Hardness and Elastic Modulus Using Load and Displacement Sensing Indentation Experiments*, co-authored by Warren Oliver. The paper has been designated a "citation classic" and has been cited more than 2,000 times, showing continued relevancy to the field.

Pharr said his greatest opportunity in life was for him and his wife to raise two sons, Matthew and Adam. Lake fishing with his sons is one of Pharr's favorite ways to relax his focus on the submicron and take in the big picture.

—Story by Betsy Saylor

## Engineering Alumni Host Receptions to Welcome Dean Kuo

Several University of Tennessee College of Engineering alumni and COE board members recently held receptions in both Knoxville and Nashville to welcome COE Dean Way Kuo to Tennessee.

Raja Jubran (BS/CEE '81), Chairman and CEO of Denark Construction, Inc; Lee Martin (BS/ME '78, PhD/ME '86), Managing Member of Clarity Resources LLC; and Mark Medley (BS/ME '69), President and CEO of Control Technology Inc., welcomed guests to Cherokee Country Club on Tuesday, November 9th. The three are also members of the COE's Board of Advisors.

Dr. Loren Crabtree, UT Chancellor, and Martin both addressed the group of Knoxville alumni, extending a personal welcome to Kuo and offering positive comments about the progress of the college under his direction.

Joe Cook Jr. (BS/IE '65), Founder and Principal, Mountain Group Capital LLC; Spruell Driver (BS/IE '87), Attorney for Miller and Martin PLLC and UT National Alumni Association President; and Ed McDougle (BS/CEE '69, MS/CEE '75), Principal, Ross Bryan Associates Inc. Engineers, hosted the Nashville event. Both Cook and McDougle are COE board members, and Driver rotated off the board last year.

Cook introduced Kuo to the Nashville guests and expressed the board's encouragement and support for the coming year.



Dean Way Kuo speaks with hosts (left to right) Spruell Driver, Joe Cook Jr. and Ed McDougle at the Nashville reception in January.

## New Plaque Pays Tribute to Ferris and Scholarship Recipients

On January 26th, college administrators, faculty and staff joined a group from the Technical Society of Knoxville (TSK) to honor Charles E. Ferris, COE dean from 1907 until 1940.

Professor Ferris devoted 50 years to developing engineering at the University of Tennessee and will long be remembered as the first dean of the College of Engineering. He also founded TSK in 1921, and the group today consists of university professionals and community technical leaders who are interested in technology and science's power to transform society.

TSK established the Ferris Engineering Endowment in September of 1987. This fund has benefited many deserving engineering students

and is a lasting tribute to an individual who made many outstanding contributions to the UT College of Engineering.

As a permanent recognition of the Charles E. Ferris Scholarship, and as an effort to strengthen the bond between TSK and UT, a plaque was recently installed by TSK in the lobby of Ferris Hall, which is named for Dean Ferris.

"We have all profited from former generations of engineers, scientists and technologists such as Charles E. Ferris," said Linda Murawski, TSK President, 2004. "As we have followed in their footsteps, our work has been built upon the foundations of their achievements."



Present for the ceremony were (left to right): Walter Wunderlich, TSK Secretary/Treasurer; Ted Lundy, TSK 1st Vice President; Allen Coggins TSK President; Linda Murawski, TSK Past President; Constance Collier, 2004-05 Charles E. Ferris Scholarship Recipient; Bob Scott, TSK Member and grandson of Charles E. Ferris; Julia Scott, Bob Scott's wife; COE Dean Way Kuo; Dr. Samir El-Ghazaly, ECE Department Head; and Cathy Dodge, Engineering Development Director.

## COE Dean Comes Out a Winner on Cotton Bowl Wager

COE Dean Way Kuo came out a winner in a "gentleman's wager" on the University of Tennessee-Texas A & M University (TAMU) match-up in the Cotton Bowl on New Year's Day.

Kuo, a former associate dean with TAMU, initiated a bet with the university's Look College of Engineering dean, G. Kemble Bennett, on the outcome of the game. If the Volunteers lost, Kuo would send Bennett a Tennessee country ham; if the TAMU Aggies lost, then Bennett was going to provide the UT College of Engineering dean with 21 pounds of Texas barbeque. Since the game was the first time that UT had faced TAMU since 1957, both deans were fired up about the event.

Bennett even managed to get in a barb at UT in his official reply to the bet, stating, "Dr. Kuo made many contributions to Texas A & M over the years, and I look forward to adding a Tennessee country ham to that list when the Aggies defeat Tennessee on New Year's Day!"

The UT Volunteers, of course, throttled the Aggies 38-7 and it looked as though the payout was in the UT COE's favor. However, a mix-up in ordering the barbeque over the holiday season resulted in a substitution. Kuo had planned a luncheon for COE staff on Monday, January 10th, to feast on the Texas barbeque. When it didn't arrive on time, Kuo stepped in and bought the barbeque for the luncheon himself from a local restaurant. It turned out that the Texas supplier was closed for the holidays and TAMU's online order didn't go through in time for the luncheon delivery.

Kuo is still delighted about the outcome of the game. "This is not easy, for UT to beat Texas A & M. To beat them in Dallas is very difficult because Dallas is Aggie territory," he said.

The COE dean also has other compensation: the 21 pounds of Texas barbeque arrived on January 12th.

—Story by Kim Cowart

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TENNESSEE  **engineer** online

<http://www.engr.utk.edu/TNengr>



## Engineering Ambassadors—Relating, Recruiting and Representing

The College of Engineering's new ambassador program offers students an opportunity to participate in college recruitment efforts, involve the COE student body in its goals and stimulate community interest in the field of engineering.

"The program is patterned after the College of Agricultural Sciences and Natural Resources Ambassador Program," said Dr. Luther Wilhelm, Associate Dean of Academic Affairs and current advisor to Engineering Ambassadors. "They have had a successful program for several years, and we are taking advantage of their experience by creating our own program."

Ambassadors make presentations at high schools, community colleges and on campus where they can provide in-depth answers to students' questions about UT and the engineering program.

To emphasize the personal element of recruitment, ambassadors also make individual contacts through campus tours, letters, phone calls and summer orientation sessions.

In March 2004, Wilhelm selected 10 undergraduate students interested in becoming ambassadors. "I tried to select the best applicants while ensuring that the ambassador group was representative of the college," said Wilhelm. "This year's group has gender and ethnic diversity. Six of the seven departments are represented."

To be eligible for ambassadorship, students must be full-time engineering undergraduates with 30 hours of course credit and overall GPA no lower than 2.5. Applicants must have good public speaking and writing skills, leadership capabilities and enthusiasm for the university and the college.

A student may remain an ambassador for one year, as long as the program requirements are maintained. Ambassadors may also reapply for continued involvement.

Next year's selection committee will consist of Wilhelm, Dr. Masood Parang, Associate Dean of Student Affairs, and several of the current ambassadors. Parang will take over as the ambassadors' permanent advisor in March 2005.

"This year's ambassadors are hard-working. They

have participated in Open House, Engineers Day, college fairs and other activities. Each ambassador has also called or written to forty or fifty prospective students," Wilhelm explained.

Robyn Davis, a sophomore in aerospace engineering and publicity supervisor for the ambassadors, applied because she wanted to contribute

to the COE. Davis added that being an ambassador provides the opportunity to combine her interest in engineering with her interest in public relations.

Lindsey Hargett, a junior in industrial engineering and this year's chair of the Engineering Ambassadors, said that she also decided to become involved with the program in order to give back to

the college while meeting more students outside of her classes. "My favorite part of being an ambassador is being able to give these prospective students information from another student's perspective," she said. "A lot of the questions I answer are the same questions I asked during my first years as an engineering student."

The Engineering Ambassadors program includes three main objectives. First and foremost, ambassadors encourage prospective students to pursue college degrees. Second, they inform audiences of the career opportunities in engineering and of the engineering majors available at UT.

The third objective involves ambassadors relating the benefits of UT Knoxville's large campus while emphasizing the role of student communities. This last objective includes dispelling the myth of UT as a big place where students will get lost, or be considered "just a number." Ambassadors describe the freshman engineering village, student organizations and their own experiences to allay the anxieties of prospective students and their parents.

Being able to reassure prospective students about UT is one of the most enjoyable ambassador responsibilities for Hargett. "I can honestly say that being a part of the engineering program was a good decision, and deciding to come to the University of Tennessee was one of the best decisions of my life," Hargett said.

Hargett plans to renew her position. "The best reward of being an Engineering Ambassador is

having parents or students tell you that they feel much more confident with their choice of UT and the engineering program," Hargett explained. "I am looking forward to being an ambassador for the rest of my college career."

Wilhelm says the ambassador program is proving to be an innovative addition to the COE's resources, and a way for current students to make a connection with the college's audiences.

"I believe the program is off to a good start. We are still learning, but this has been a great group of ambassadors. They have ideas and they have initiative," said Wilhelm.

If you would like more information about the College of Engineering Ambassadors program, please call the Office of Student Affairs, (865) 974-2454.

—Story by Betsy Saylor



Back row (left to right): Shawn Carrithers, Jeffrey Phillips, Ian Winters, Abhishek Vyas, Adam Hetzler and Dr. Masood Parang. Front row (left to right): Tiffany McDavid, Robyn Davis, Angela Mason and Stephanie Hargrove. Not pictured: Lindsey Hargett.

### Co-Op Office Renamed

The Office of Cooperative Engineering has officially changed its name to The Office of Professional Practice (OPP) to reflect recent changes in the program.

"Our new structure will compliment the long standing history—since 1926—of Cooperative Engineering as well as offering professional internships to encourage greater participation," said OPP Director Walter Odom. "The name is more appropriate to address our emphasis on quality for co-op engineering, the Diversity Engineering Scholarship Program (DESP), and internships."

Program updates include:

- A structured learning environment for co-op students and interns
- Positions are all paid positions
- Students can start work assignments as interns and then advance to cooperative engineering assignments
- Students may now work two term only co-op assignments
- College seniors receive work experience before graduating
- Work assignments can begin as early as sophomore classification

"We are excited about these new opportunities, and look forward to seeing an impressive number of students participate in our revamped program," Odom added.

For more information, visit the OPP's website at [www.coop.utk.edu](http://www.coop.utk.edu) or call the office at (865) 974-5323 for details.

## Atmospheric Glow Technologies—Research to Reality

UT researchers produce roughly 60 inventions a year, generating more than 450 patents in the past 25 years. Technology transfer is a crucial step in transporting the technology from laboratories to the real world. Spin-off companies from research provide the vehicle those inventions need to benefit society.

Dr. J. Reece Roth, professor emeritus in the Department of Electrical and Computer Engineering, is the inventor of One Atmosphere Uniform Glow Discharge Plasma (OAUGDP™) technology, a significant advance in atmospheric plasma science. His work on the OAUGDP has numerous applications, and spin-off company Atmospheric Glow Technologies is helping realize that promise through product development.

Plasma's ability to respond to electric and magnetic fields, to emit radiation and to generate energetic active chemical species make it useful in numerous applications including fluorescent lighting, microelectronics, flat-panel displays, sterilization of food and medical devices, plasma actuators for aerodynamic flow control and plasma flame spraying to increase materials' wear and temperature resistance.

The difficulty in working with plasma is sustaining the power that keeps plasma from returning to a neutral gas state. Until recently, the stable application and creation of plasma had to take place in a vacuum—an expensive and often limiting process.

Realizing that glow discharge plasmas would have greater industrial application if they could be generated at one atmosphere of pressure in air without using a vacuum, Roth and his associates at the UT Plasma Sciences Laboratory spent years developing OAUGDP.

In all, Roth has received ten patents for the OAUGDP

technology. Roth explained that OAUGDP technology is unique from other plasmas because of the ability to operate at room temperature and at one atmosphere of pressure.

Once OAUGDP technology displayed the potential to sterilize surfaces, Roth asked Dr. Thomas Montie, then on the faculty of the UT Microbiology Department, to recommend individuals who could collaborate in sterilization research. Dr. Kimberly Kelly-Wintenberg was a research professor already working with Montie, and the three led a team informally named The Sterilization Collaboration.

A key component of developing OAUGDP technology has been the support of many organizations. "Early support came from UT Textiles and

Nonwovens Development Center (TANDEC) and the Center for Materials Processing. They provided the seed money that helped to attract more funding from outside the university," Roth explained.

The support from industry can have a prolific effect. Technological advances fostered by spin-off companies in the industry carry the mark of the college as their origin.

"Mike Devine, then chancellor of the UT Office of Research, was very instrumental in making Atmospheric Glow Technologies a reality," Kelly-Wintenberg said. "He directed me to the Tennessee Center for Research and Development (TCRD), where I met Thomas Reddoch, who was serving as president of TCRD. After working for several months with Tom, TCRD made a capital investment in AGT and provided business mentoring. In fact, since AGT became a public company last year, Tom has been serving as CEO," Kelly-Wintenberg explained.

Kelly-Wintenberg added that competitive federal government awards helped fund the early stage company as well. "I also took co-founders with me from UT—Suzanne South, Daniel Sherman, and Daniel Kelly were all instrumental in various aspects of atmospheric plasma generation," she explained. "I truly enjoyed working in a team effort at UT and have successfully carried that over to AGT."

With Kelly-Wintenberg as president, the newly formed AGT obtained licenses, some exclusive, to the OAUGDP patented technology. "The best vehicle to successfully drive this technology into commercial products was the formation of a for-profit corporation," she said.

Their hard work developing the Enhanced Plasma Sterilized Air Filtration and Purification System earned

AGT recognition and the R&D 100 Award, citing the product as one of the most significant technologies of 2002 worldwide.

"After the initial discovery phase, most technologies need further development prior to productization; this is best achieved in a corporate setting," Kelly-Wintenberg said. "For many early stage technologies, it is absolutely necessary to move the commercialization effort away from research facilities to an infrastructure where the focus is getting to product, not discovery."

Dr. Fred Tompkins, Executive Director of the UT Research Foundation (UTRF) and former interim COE dean, agrees.

"Technology transfer benefits the College of Engineering in that it establishes relationships



Dr. J. Reece Roth (left), inventor of the One Atmosphere Uniform Glow Discharge Plasma and Kimberly Kelly-Wintenberg (right), president of Atmospheric Glow Technologies.

with industry that helps increase funding, and the hiring of students and graduates, as well as providing a mechanism for moving intellectual property to society," said Tompkins. "Industry understands that UT researchers have developed cutting-edge technologies."

Another benefit of technology transfer, said Tompkins, is the commitment to the region's economic development, "Successful transfer of technologies generates jobs and a stronger tax base for the state," he added.

Tompkins is enthusiastic about the new business incubator facility, made possible through \$2.5 million raised through local, state and federal grants. The facility will be located on the UT campus and will offer additional opportunities for researchers.

"The incubator is part of our strategy of commercializing technologies at UT," Tompkins said. "It will be a place where start-up companies, based primarily on technologies from UT, will be nurtured, aided with their business strategies and management teams to become viable commercial technologies."

The hi-tech business incubator is projected to open in two years. "As we increase research activity, we should have a natural increase in disclosure of intellectual property," Tompkins said.

The UT alumni directing AGT have by no means forgotten their roots. AGT supports ongoing research in the college. Dr. Roth or the UT Plasma Science Lab will be working through a subcontract with AGT on an upcoming contract with the U.S. Air Force. AGT continually develops value for UTK's initial equity position in AGT and creates an ongoing royalty stream to UTRF. The company has created local, professional level jobs, and has provided funding for graduate students in the COE Department of Electrical and Computer Engineering.

Cathy Dodge, the college's Director of Development, described AGT's success as an ideal example of technology transfer, "AGT represents a model corporate citizen of East Tennessee by participating in cutting-edge research in a university setting, bringing that research to market with products that benefit the society at large, employing local residents, and by giving back to the university where the idea was fostered."

—Story by Betsy Saylor



Allen Wintenberg (left) and Kimberly Kelly-Wintenberg (right) inspect a sample in one of AGT's laboratories in their Knoxville facility.



## Focus on Research

Continued from page 1

As a faculty member, Kihm is concerned about the misconception that many undergraduate students have about the advanced degree programs.

"I was at a National Science Foundation (NSF) seminar several months ago, and one of the topics discussed was the lack of continuity between undergraduate and graduate education," Kihm commented. "Most undergraduate students do not have sufficient knowledge about and access to what goes on in graduate school. I believe if they could discover what we are actually doing with our graduate students, the type of research that is involved, the undergraduates would be more interested."

Kihm sees his research as directly related to the success of the students. "I have to maintain good research for the students and for the future. These students need to go out into the world prepared to become leaders in generating new technology."

Kihm hopes to keep his work invigorated at UT and wants to inspire students to higher goals.

"I like the undergraduate students very much," he added. "They are very enthusiastic about their education and have a desire for success. As a teacher, I know how to look in their eyes and sense a passion for what they are learning."

### Unique Learning Opportunities

Dr. Belle Upadhyaya, a professor in the Department of Nuclear Engineering, is the recipient of the U.S. Department of Energy Nuclear Engineering Education Research (NEER) program's three-year grant for research on "Autonomous Control of Space Reactor Systems." The research is performed in collaboration with the Nuclear Science and Technology Division of ORNL, and is focused on the development of space reactor modeling, long-term degradation anticipation in critical devices and the design of an autonomous control system with self-tuning, reconfigurable and fault-tolerant features.

Upadhyaya's grant supports participation in research by both undergraduate and graduate nuclear engineering students.

"One of the objectives under NASA's Project Prometheus is to develop a fission power system for propulsion, and for powering spacecraft subsystems and science payload," Upadhyaya said. "Future deep space missions require increased power for traveling further for long-term missions, which may last up to 20 years in duration.

## Preparing for the Engineering Profession

The Air Quality Group has been a fixture at the university for almost a quarter of a century. The research group currently consists of four members from the Department of Civil and Environmental Engineering: Dr. Joshua Fu, research assistant professor; Dr. Terry Miller, associate professor; Dr. Greg Reed, professor and department head; and Dr. Wayne Davis, a former professor in the department who is now the COE Associate Dean for Research and Technology.

"We currently have 12 graduate students working with us on our research," Reed said. "One

of the benefits to the students is the fact that the research has influence on the engineering profession and they are part of that impact."

"Out of our group, nine students presented papers about their work with our projects at a recent Waste Management Association conference, and that is excellent professional exposure," Miller added.

Autonomous control has not been designed for nuclear control, so this is an entirely new research area."

Upadhyaya is excited about the prospect of involving students in such a far-reaching project.

"We will set up the students to work on very specific, different tasks as a team," Upadhyaya added. "I plan to expand the number of students as we go along, since this project provides very unique learning opportunities."

The research involves the development of system models, fault detection and isolation of critical devices, and the design of model-predictive controllers.

"It is a good experience for students to be involved in a project of this magnitude," Upadhyaya added. "Once a spacecraft is launched into outer space, you can't bring it back for repair."

The research will also give students an opportunity to write and publish papers about their work and to present at conferences and other events, Upadhyaya added.

The group is primarily funded by the EPA, and also receives grants from the Tennessee Department of Transportation (TDOT) and other state and regional agencies. The research involves the study of air quality and how it is affected by both transportation and power source emissions.

Recent national studies have shown that air quality is a serious problem both in the East Tennessee region and elsewhere.

"We have a station on Watt Road, near a large truck stop, where we monitor pollution levels that are the result of truck exhaust," Miller commented. "We've been work-

ing with the EPA and the Federal Highway Administration (FHA) to determine methods to improve air quality on the interstate, including effective truck stop electrification."

Fu works with students from both the U.S. and China to factor air quality issues on a regional, national and international basis. The Chinese students come from both the Tsinghua University in China, the leading university in that country, and from the Shanghai Academy of Environmental Science.

"We have several CEE students who are working with me on air quality issues for the 2008 Olympic Games in Beijing," Fu said. "We are studying the effects of inter-continental air pollutants that are transported to North American and Asian emission inventories."

Closer to home, the group has also recently completed a study of air quality in the Great Smoky Mountains.

"When we say that air quality is a 'quality of life issue,' we're not just talking about being able to see the mountains on a clear day," Reed commented. "We're seeing more and more studies that show air quality is frequently linked to health problems, such as asthma."

The visibility of these projects only enhances the students' involvement, Miller adds.

"Our research provides insight into an important issue," Miller said. "These students are gaining significant research experience right here at UT."



Dr. Terry Miller, CEE Associate Professor (right) and Dr. Joshua Fu, CEE Research Assistant Professor (left), work with Josh Cummins, a graduate student in environmental engineering, to take emissions readings at the testing center at Watt Road and I-40 in Knoxville.

—Story by Kim Cowart



## Trio of College of Engineering Alums Make Their Mark in Texas

The University of Tennessee's roster of high-achieving alumni reads like a who's who in business and industry, including corporate CEOs, internationally respected researchers and even a prime minister. The careers of three outstanding COE graduates, all of whom live in the Dallas-Fort Worth, Texas area, demonstrate how an engineering education can form the basis for a highly successful career in a diverse range of business environments. Each of these graduates has achieved a milestone in his career within the last few months.

Richard "Dick" Kerr (BS/IE '65) is the former Interim President and Chief Executive Officer (CEO) of IMCO Recycling Inc., the world's largest recycler of aluminum and zinc. Ralph Heath (BS/EE '70) is President of the Lockheed Martin Aeronautics Company. Richard Snead (BS/IE '73) is President and CEO of Carlson Restaurants Worldwide, the franchise owners of T.G.I. Friday's and Pick Up Stix restaurants. All three started at the same place: as undergraduates at the UT College of Engineering.

"I was born and raised in Knoxville, so attending UT was the logical choice," Kerr said. "However, it was also my 'school of choice.' As an engineering student, I had to study a lot, of course—it was a good experience, great preparation for a career."

Heath, from the Tri-Cities area in East Tennessee, bypassed attending nearby East Tennessee State University to attend UT-Knoxville.

"I looked at several different schools, and decided that UT was the place for me," Heath said. "My sister was already attending UT, and was several years ahead of me, but I also just fell in love with the place."

Snead had already determined that he wanted a career in engineering, but had decided that he did not want to attend a university in his home state of Florida. The Miami native considered Georgia Tech and Auburn before finally selecting UT-Knoxville.

"I had a good feeling about the campus and the engineering college," Snead said. "It was a nice balance between a small-town feel and a big city atmosphere."

Kerr and Snead had both decided to major in industrial engineering; Heath, however initially chose a different path, majoring in liberal arts, but after two years changed his major to electrical engineering.

After graduation, the group's lives took different directions. Kerr, who had accepted an ROTC commission in the U.S. Air Force while at UT, went into military service full-time, eventually obtaining the rank of Captain.

Heath also entered military service with the Army Corps of Engineers, and was stationed in Europe with the 3rd Infantry Division.

Snead, who said he "couldn't believe that he had graduated," received several job offers, finally returning to Miami as an engineer with a Florida construction company. He moved up the career ladder, eventually becoming a project manager, primarily constructing buildings for the restaurant industry. One of his major clients was the Burger King Corporation. The fast-food company offered Snead a job as manager of its building program, and he stayed with Burger King for over 15 years, eventually becoming involved in operations and marketing. He was named Executive

Vice-President of Operations and then became President of the International Division.

"I went from being the builder to working for the client," Snead commented. "My years at Burger King were what got me into the food business."

Snead was recruited by the T.G.I. Friday's chain to direct the restaurant's international division. After Carlson Worldwide acquired the franchise, Snead was named President and CEO of Carlson Restaurants Worldwide. He was recently selected as Operator of the Year at the 2004 Annual Multi-Unit Foodservice Operators conference, the highest honor the food industry bestows.

Kerr wanted to return to the Knoxville area after his stint in the military, so he accepted an offer with the ALCOA Corporation. After working for several years as an industrial engineer, he was promoted to division production manager for the Ingot Division and was transferred to ALCOA's Pittsburgh location.

Kerr seemed to be on track for a long-term career with the aluminum company. However, a discussion with friends led to a life-changing career decision.

"A couple of other COE graduates who were in school with me decided to establish a small recycling company," Kerr commented. "It looked to me like a 'high-risk, high-reward' situation, so I took a chance and left ALCOA to become president of the International Metal Company (IMCO). At that time, in 1984, the recycling business was good and the first plant we built was in Rockwood, outside of Knoxville."

The one plant would eventually grow to 25—with facilities located in the U.S., Europe, Mexico and South America. The company reported sales of \$892 million and had 1,627 employees when, in December of 2004, IMCO completed a merger with Commonwealth Aluminum. Kerr decided to retire at the close of the merger, but continues to work with the company as a consultant.

"I'm glad that I spent most of my career in recycling," Kerr commented. "It is the right thing to do, from an environmental and energy conservation point of view."

Heath had returned to UT to get his Master of Business Administration degree after his years in military service.

"I believe that my engineering degree made me well-prepared for business school," he said. "It seemed to be complimentary to me to balance business knowledge with my engineering skills."

Heath received his MBA in 1975, and accepted an offer from General Dynamics after graduation. Lockheed Martin eventually purchased the company and Heath was promoted to General Manager of the LM F/A Raptor Program in 2002.

On January 17, 2005, Heath was named President of LM Aeronautics Company. The business has annual sales of over \$10 billion and is comprised of 28,000 employees with major locations in Fort Worth, Texas; Marietta, Ga.; and Palmdale, Calif. LM Aeronautics' primary product line consists of military aircraft, including the F-16, F/A-22, C-1301 and F-35.

"One of the best things about working for Lockheed Martin is that all of our employees take a significant amount of pride in the fact that they are doing their part to maintain the defense of our nation," Heath commented.

What is the advice of these three high-achievers to today's students?

"I see a lot of the young people these days depending on computers, not knowledge," Kerr commented. "You must have the principles of engineering to work with, but you also have to have the basic skills for business and communication."



Continued on page 10

## 1940s

**Lester Forrest White** (BS/ME '49) retired as a professional mechanical engineer. He lives in Memphis, Tenn.

**W. Lewis Wood Jr.** (BS/EE '49) is a fellow of the National Society of Professional Engineers. Wood has a law degree from the University of Memphis and lives in Memphis, Tenn.

## 1950s

**Dr. Thomas S. Kress** (BS/ME '56, PhD/ME '71) is serving his fourth four-year term on the Advisory Committee on Reactor Safeguards. Kress is retired from Oak Ridge (Tenn.) National Laboratory, where he was head of the applied systems technology section in the Engineering Technology Division. Kress is a resident of Oak Ridge, Tenn.

## 1960s

**James E. Buchanan** (BS/EE '61) received the Northrop Grumman Electronic Systems Lifetime Achievement Award for Excellence in Engineering & Technology. He is a senior consulting engineer in the digital systems technology department in Baltimore, Md. Buchanan lives in Millersville, Md.

**David J. Leonard** (BS/ME '61) retired as CEO at the Allvan Corp. in La Vergne, Tenn. He lives in Nashville, Tenn.

**Clarence Alvin Sweet** (BS/NE '62) is a principal nuclear engineer with URS Corp. He lives in Knoxville.

**Houshang Daryabeigi** (BS/CE '63) is a project manager of a construction company in Iran. He is a member of the American Society of Civil Engineers and resides in Tehran, Iran.

**Larry A. Lacey** (BS/ME '63) received the Abbott Laboratories Engineering Lifetime Achievement Award. He is retired and lives in Austin, Texas.

**John J. Talone** (BS/IE '64) was honored with a White House ceremony to receive the prestigious Presidential Rank Award of Senior Executive for 2003. Talone is a director of international space station/payload processing at NASA's Kennedy Space Center in Florida. He lives in Indialantic, Fla.

## 1970s

**John William DeRieux** (BS/ME '70) has retired. He lives in Ooltewah, Tenn.

**John Paul Platt Jr.** (BS/ME '72) is a senior adviser with BP in Houston, Texas. Platt lives in Sealy, Texas.

**Dr. Edward Thomas Tomlinson** (BS/NE '72, MS/NE '74) is an advisory engineer with Bechtel Bettis Inc. in West Mifflin, Pa. He lives in Pittsburgh, Pa.

**Floyd E. Lancaster** (BS/MetE '76) is a sales and marketing manager for Germany-based Getras Corporation, manufacturer of high performance manual transmissions and differentials. He lives in Charleston, S.C.

**Michael Jay Croyle** (BS/ME '77) is national sales manager for Seventy-Three Mfg. Co. Inc. of Bechtelsville, Penn. He lives in Lenoir City, Tenn.

**James Richard Mills** (BS/EE '79) is the regional project manager with J&J Maintenance Inc. of Austin, Texas. He resides in Jackson, Tenn.

**Larry Ronald Wilder** (BS/CE '79) is a product engineer with Lisega Inc. in Newport, Tenn. He lives in Bulls Gap, Tenn.

## 1980s

**G. Kevin Thompson** (BS/EE '81) is serving with the U.S. Air Force as a guard adviser to the Director of Communication Air Mobility Command at Scott Air Force Base. He lives in Belleville, Ill.

**Louis E. Buck** (MS/EnvE '82) is the 2004 distinguished alumnus award winner from the College of Agricultural Sciences and Natural Resources. He is executive director of Tennessee's Farm Service Agency. He lives in Hermitage, Tenn.

**Jonathan Wade Driskill** (BS/ME '82) is a project manager for Ameresco Federal Solutions in Knoxville. Driskill lives in Knoxville.

**J. Christian Bartholomew** (BS/ES '85) is a design manager with Jabil Circuit Inc. in St. Petersburg, Fla. He lives in Clearwater, Fla.

**Dr. K. Scott Malone** (BS/ES '85) is in private practice with the Houston Orthopedic Surgery & Sports Medicine clinic in Warner Robins, Ga. He lives in Macon, Ga.

**Andrew D. Mead** (BS/ME '85) has established his law practice focusing on intellectual property law and other matters relating to small businesses. Mead lives in Brownstown, Pa.

**Russell D. Moorehead** (BS/CE '85) is a regional manager with Lamar Dunn & Associates, Inc. in Chattanooga. He lives in Ooltewah, Tenn.

**Keith M. Duckett** (BS/ME '87) is executive vice president of Hobbs Ltd. in Atlanta. He lives in Gainesville, Ga.

**Jeffrey Keith Henderson** (BS/ME '87) is Allied Testing Alliance's lead turbine test engineer for J1 test cell at Arnold Air Force Base in Tullahoma, Tenn. He lives in Manchester, Tenn.

**Dr. Suzanne D. Roat** (MS/ChE '87, PhD/ChE '91) is an optimization engineer with CHS Inc. Roat lives in Billings, Mont.

**Troy David Robinson** (BS/EE '88, MS/EE '90) is an engineer with Honeywell FM&T in Kansas City, Kan. He lives in Overland Park, Kan.

**Rae Ann Weir Meyer** (BS/EE '89) is deputy manager of the In-Space Propulsion Technology Office at NASA's Marshall Space Flight Center in Huntsville, Ala. Meyer is a resident of Madison, Ala.

**Dr. Thomas William Nipper II** (BS/IE '89) earned his medical degree from the UT Health Science Center in 2003. He lives in Yokosuka, Japan.

## 1990s

**Leo James Barnes Jr.** (BS/IE '91, MS/IE '92) is a systems analyst manager with Framework Inc. in Santa Rosa, Calif. He lives in Healdsburg, Calif.

**Wen-Shuo Cheng** (BS/EE '93) is an engineer with CHEM USA. He lives in Newark, Calif.

**Jeffrey W. "Jeff" Buck** (BS/ME '94, MS ME '96) is a project manager with Automation Nth in La Vergne, Tenn. Buck lives in Nolensville, Tenn.

**James S. Powell** (BS/ME '94) is a mechanical engineer with Joint Warfare Analysis Center in Dahlgren, Va. He lives in Fredericksburg, Va.

**Monique Kellyn Brown Tatum** (BS/IE '95) is a training manager with AT&T Wireless in Lebanon, Tenn. She earned a master's degree from the College of Education, Health, and Human Sciences in 1997. Tatum lives in Lebanon, Tenn.

**John Michael Coronati** (MS/EM '96) is a senior engineering manager with TriQuint Optoelectronics in Breinigsville, Pa. He lives in Allentown, Pa.

**William L. "Bill" Ahls Jr.** (BS/IE '97) is an industrial engineer with Norfolk Southern in Atlanta. He lives in Marietta, Ga.

**Jerry F. Becker** (BS/IE '97) was promoted to manager, original equipment supply planning, for Bridgestone/Firestone North American Tire LLC. He lives in Hendersonville, Tenn.

**Dax Douglas Jolly** (BS/NE '97, MS/NE '98) is a nuclear engineer with the Lawrence Livermore National Laboratory in Livermore, Calif. He lives in Livermore.

**Stephen Ryan Kennedy** (BS/ChE '97) is the technical manager for the Rohm and Haas plant in Kankakee, Ill. He resides in Tinley Park, Ill.

**Tanya Nicole Jackson Taylor** (BS/ChE '97) works for ExxonMobil. She lives in Friendswood, Texas.

**Katrice Malcom Branner** (BS/ChE '98) is an MBA student at the Vanderbilt Owen School of Management in Nashville. She lives in Nashville, Tenn.

**Joshua Michael Gerkin** (BS/CE '98) is a senior consultant engineer with FM Global in North Olmsted, Ohio. He resides in Marysville, Ohio.

**Tim Johnson** (BS/ME '98) is a product development engineer with Visteon in Plymouth, Mich. He lives in Novi, Mich.

**Jason Travis Spears** (BS/ME '98) is a project engineer with Aeronautical Accessories Inc. He is a resident of Mount Carmel, Tenn.

**Sany I. Aisah Ihsan** (MS/AE '99) is with the International Islamic University of Malaysia in Kuala Lumpur. He is a resident of Batu Caves, Selangor, Malaysia.

**Tobias C. Kaplan** (BS/ME '99) is a mechanical engineer II with British Aerospace Engineering. He lives in Rathdrum, Idaho.

## 2000s

**Zabin F. Rahman Mansoor** (MS/EnvE '00) is an environmental engineer/scientist with SAIC in Oak Ridge, Tenn.

**Timothy Maurice Thomas** (BS/MSE '01) is a materials evaluation technician with Continental Tire North America. He lives in Charlotte, N.C.

**Allison Marie Lockwood** (BS/CE '02) is an engineer in training at Kimley Horn Engineering Consultants. Lockwood lives in Morrisville, N.C.

**Arun Srikantaiah** (MS/ME '02) is a software quality assurance engineer with Autodesk Inc. He lives in Tualatin, Ore.

**Carter Dale Bearden** (BS/CE '03) is a bridge engineer with Florence & Hutcheson Inc. in Nashville. He lives in Murfreesboro, Tenn.

**Patrick O. Groves** (BS/ME '03) is a mechanical design engineer with Toshiba in Lebanon, Tenn. Groves lives in Cunningham, Tenn.

**Henry Stewart Lynn** (MS/NE '04) is a radiological engineer with BWXT Y-12 in Oak Ridge. He is a resident of Oliver Springs, Tenn.

**Nathanael Tate McBee** (BS/AE '04) is a technical marketing aerospace engineer with Analytical Graphics of Exton, Pa. He lives in Louisville, Tenn.



## The ECE Challenge Campaign

### Transforming Education Through Innovation and Investment

An opportunity like this arises only once in a lifetime. Recently, an alumnus of the Department of Electrical and Computer Engineering (ECE), who wishes to remain anonymous, made a tremendous pledge that has the capacity to transform engineering education at the College of Engineering.

Our alumnus has pledged \$5 million to the ECE Department as a challenge gift. And in response to this unique opportunity, the ECE Department, in collaboration with the Engineering Development Office and the UT Office of Alumni Affairs, has launched a challenge campaign to raise \$5 million in private support from individuals, corporations and foundations which will be matched—dollar for dollar—by our alumnus' generous pledge.

*The impact of \$10 million...* Dr. Samir El-Ghazaly, ECE Professor and Department Head recognizes the impor-

tance of such a remarkable gift, "The infusion of \$10 million will offer incredible opportunities for amplified expansion within the ECE department. The increased dollars for scholarships and fellowships alone will allow us to recruit a greater number of the best and brightest students to UT, and engage them within the ECE department. These critical award enhancements, coupled with faculty, programmatic and operational support to our existing awards, will enhance our department exponentially—locally, regionally and nationally."

*Meeting the challenge...* The department is indebted to two retired faculty members who have capitalized on the opportunity that the challenge campaign has provided. When asking them about their significant contribution to the campaign,



How are we doing? As of March 2005, the ECE Challenge Campaign has raised a total of \$904,000 (18% toward goal).

Dr. J. Frank Pierce, ECE Distinguished Professor Emeritus and his wife, Dr. Joan Uhl Pierce, former Dean and Professor of the College of Nursing, stated, "We are confident that by establishing the J. Frank and Joan Uhl Pierce Engineering Endowment (which will support activities of the J. Frank Pierce Electronics Laboratory—including graduate support) we can heighten awareness of former students and associates, which will, in turn bring new investments to the department."

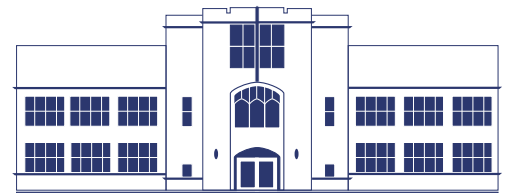
Dr. Ralph Gonzalez, Emeritus ECE Department Head and Professor, along with his wife, Connie share in this sentiment. "Connie and I are delighted to have the opportunity to invest in the department and create an endowment that will afford the college a future of great returns."

While we value every gift and pledge that we have received to date for this campaign, we still have a long way to go. We will realize this challenge—but not without the contin-

ued support of our alumni and friends! Please consider making your gift to the ECE Challenge Campaign today. If you have already given to the campaign, we thank you and are grateful for your advocacy to the campaign. If you have not yet had the opportunity to invest in our challenge, please consider joining your fellow alumni and friends, so that together we can transform the ECE educational experience through innovation and your investment.

The Engineering Development Office is pleased to answer any questions you may have with regard to the ECE Challenge Campaign or any other fundraising issues. We can be contacted via phone at (865) 974-2779, or e-mail us at engrdev@engr.utk.edu.

—Story by Patty Shea



## ECE CHALLENGE CAMPAIGN

### Gift and Pledge Criteria

Gifts to the ECE Challenge Campaign must benefit the department directly, and should be designated as follows:

- To establish new, named endowed accounts (with a \$25,000 minimum) for student or faculty support (i.e., scholarships, fellowships, named professorships); programmatic support (i.e., lecture series); or departmental operational support (i.e., equipment or technology funds); or
- To give a gift or pledge of \$1,000 or more to an existing ECE endowment named in honor of an ECE professor:
  - Vaughn Blalock Graduate Award Endowment
  - Robert E. Bodenheimer Fellowship Endowment
  - W. O. Leffell Scholarship Endowment
  - J. Frank and Joan Uhl Pierce Engineering Endowment; or
- To help establish an endowment exclusively for the ECE department's strategic expenditures and long-term financial strength, named the ECE Fund for Excellence (gifts of all amounts count).

Gifts may take the form of cash and securities (private and public) and planned gifts including charitable gift trusts and annuities, and designations in donors' wills.

Pledges must be documented in writing and can include annual gifts made over a specific period of time (e.g., \$1,000 per year for five years for a total of \$5,000).

Your contribution may be eligible for a corporate matching gift. Please check with your (or your spouse's) employer about the availability of a matching gift program today!

## Trio Make Their Mark in Texas

*Continued from page 8*

"It's obvious—get your degree—I can't emphasize that enough," Heath added. "We also need people who can communicate, both in written form and verbally."

"You must have balance in what you are doing," Snead said. "Discipline is part of it, and the learning of how to think, how to process information—that's one of the best things you take out of engineering school. You also need to be a catalyst to pull people together to work as a team."

Kerr lives with his wife, Grace Kelle, in Dallas, but the couple eventually plans to move back to Knoxville or to South Carolina. The Kerrs have three children, and Kerr continues to be an avid Big Orange football fan.

Heath and his wife, Janet, who is also a UT graduate, live in the Fort Worth area and have two daughters, both of whom attend Texas A & M University.

Snead lives with his wife, Marilyn in Plano, Texas. Both of his two sons, Adam and Eric, have attended UT. Eric graduated in 2004 and Adam

received his degree in 2002. Snead's niece Alison is currently a junior at UT, majoring in education.

Snead will be the commencement speaker for the college's 2005 ceremony in May, and looks forward to returning to his alma mater.

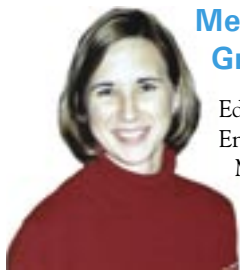
"UT has had a huge influence on me, let me tell you," Snead commented. "Everything that goes out about me from my company, every press release or article, always states that I am a University of Tennessee graduate. No question about it."

—Story by Kim Cowart



# HONORS

## & awards



### Merritt Named Top COE Graduate for Fall 2004

Edwina Booth Merritt was named the College of Engineering's top graduate for the Fall 2004 class. Merritt earned her bachelor's degree in civil engineering, graduating with the highest GPA in the college.

Active in both curricular and extracurricular activities at UT, Merritt has participated in service projects sponsored by the UT Student Chapter of the American Society of Civil Engineers, and was a member of the Beta Beta Beta National Honor Society and the Chi Epsilon National Honor Society. She also completed an internship with the City of Sevierville Department of Engineering, near her hometown of Gatlinburg, Tennessee.

Merritt recently began working for Vision Engineering and Development Services in Sevierville.

### Odom Receives CED Moderator Award

Walter Odom, Director of the Office of Professional Practice, has been selected to receive the 2004 Best Moderator Award from the Cooperative Education Division (CED) of the American Society for Engineering Education (ASEE).

Odom was chosen based on his participation as moderator in the "Diversity Scholarships—DESP" session at the 2004 Conference for Industry and Education Collaboration (CIEC) in Biloxi, Mississippi. The session involved discussion of the thirty-year-old Diversity Engineering Scholarship Program (DESP) (formerly the Minority Engineering Scholarship Program) and audience interaction to issues such as attracting, recruiting, educating and graduating engineers. Odom received the award on February 3rd at the 2005 CIEC conference in Savannah, Georgia. The theme of the 2005 conference was "Reflections and Projections on Engineering Education."



### Pippin Recognized by Tennessee Governor

Jim Pippin, the director of the COE's Engineering Diversity Programs (EDP) is currently deployed with the 278th Tennessee National Guard regiment in central Iraq. Pippin's regiment was extensively involved in planning events for the January Iraqi elections.

Pippin was recognized for his service in Iraq in Governor Phil Bredesen's recent State of the State address in Nashville. Pippin's wife, Geraldine Pippin, was an invited guest of the governor, and Bredesen lauded CSM Pippin for his service overseas and for requesting a waiver of the age limitations for deployment, since Pippin is 61 years old.

COE staff and students are currently soliciting item donations for Pippin's unit. If you would like more information, please contact Nikki Maples, Administrative Secretary, Student Affairs Office at (865) 974-2454 or e-mail slankfor@utk.edu.



Command Sergeant Major James T. Pippin outside of one of Saddam Hussein's former palaces in central Iraq. The palace was used for pre-election planning meetings.

### Dr. John Prados Receives James T. Rogers Award

Dr. John Prados, professor emeritus in chemical engineering, received the James T. Rogers Distinguished Leadership Award on December 6 at the 109th Annual Meeting of the Southern Association of Colleges and Schools in Atlanta.

The James T. Rogers Distinguished Leadership Award is the highest public recognition given by the commission and is reserved for extraordinarily distinctive and effective leadership. Prados is the sixth recipient of the award.



## College of Engineering • Board of Advisors

**Dr. Bert Ackermann, Jr.**  
(BS/NE '65, MS/NE '67, PhD/NE '71)  
CEO, SPINLAB  
Knoxville, Tenn.

**Ms. Karyl Bartlett**  
(BS/ME '84, MBA '00)  
Senior Manager for Manufacturing Operations, Commercial Airplanes Propulsion Systems Division  
The Boeing Company  
Seattle, Wash.

**Mr. Thomas R. Blose, Jr.**  
(BS/CE '70)  
President-Mid States Division  
Atmos Energy Corp.  
Franklin, Tenn.

**Dr. Tom F. Cheek, Jr.**  
(BS/EE '61, PhD/EE '69)  
President, Statistical Design Institute  
Garland, Texas

**Mr. Joe C. Cook, Jr.**  
(BS/IE '65)  
Founder and Principal  
Mountain Group Capital, LLC  
Nashville, Tenn.

**Dr. Mark E. Dean**  
(BS/EE '79)  
IBM Fellow and Vice President  
Almaden Research Center  
San Jose, Calif.

**Dr. R. G. Gilliland**  
(BS/ChE '58, MS/MetE '63)  
Associate Laboratory Director for Energy and Engineering Sciences  
Oak Ridge National Laboratory  
Oak Ridge, Tenn.

**Mr. Ron Green**  
(BS/EPh '70, MS/EPh '78)  
Senior Vice President  
USEC, Inc.  
Bethesda, Md.

**Mr. H. M. Hashemian**  
(MS/NE '77)  
President and CEO  
Analysis & Measurement Services Co.  
Knoxville, Tenn.

**Mr. Dwight N. Hutchins**  
(BS/ChE '86)  
Partner  
Accenture  
Washington, DC

**Mr. Raja J. Jubran**  
(BS/CEE '81)  
Chairman and CEO  
Denark Construction Inc.  
Knoxville, Tenn.

**Dr. H. Lee Martin**  
(BS/ME '78 PhD/ME '86)  
Managing Member  
Clarity Resources, LLC  
Knoxville, Tenn.

**Mr. Edwin A. McDougle**  
(BS/CEE '69, MS/CEE '75)  
Principal  
Ross Bryan Associates, Inc. Engineers  
Nashville, Tenn.

**Mr. Mark A. Medley**  
(BS/ME '69, MBA/Ind. Mgmt., '70)  
President and CEO  
Control Technology, Inc.  
Knoxville, Tenn.

**Mr. Andrew K. Phelps**  
Vice President and  
Deputy General Manager  
Bechtel Jacobs Company LLC  
Oak Ridge, Tenn.

**Mr. James B. Porter, Jr.**  
(BS/ChE '65)  
Vice President of Engineering and Operations  
E.I. DuPont de Nemours Corp.  
Wilmington, Del.

**Mr. Jerry R. Repass**  
(BS/ChE '65, MS/IE '72)  
Vice President and General Manager  
Tennessee Operations  
Eastman Chemical Co.  
Kingsport, Tenn.

**Mr. Dennis R. Ruddy**  
President and General Manager  
BWXT-Y12, LLC  
Oak Ridge, Tenn.

**Mr. Richard T. Snead**  
(BS/IE '73)  
President and CEO  
Carlson Restaurants Worldwide  
Dallas, Texas

**Mr. Mike Young**  
(BS/CE '71, MS/EnvE '72)  
Senior Vice President/CEO  
Allen and Hoshall, Inc.  
Memphis, Tenn.

## Calendar

### 2005

|                              |            |
|------------------------------|------------|
| Spring Break .....           | Mar. 21-24 |
| Spring Recess Day .....      | Mar. 25    |
| Classes End .....            | Apr. 27    |
| Spring Commencement .....    | May 7      |
| Fall Classes Begin .....     | Aug. 24    |
| Labor Day Holiday .....      | Sep. 5     |
| Fall Break .....             | Oct. 13-14 |
| Engineers Day .....          | Oct. 21    |
| Homecoming (tentative) ..... | Nov. 12    |
| Thanksgiving .....           | Nov. 25-26 |
| Classes End .....            | Dec. 6     |
| Fall Commencement .....      | Dec. 17    |

## Contact Information

### Senior Administration

Dr. Way Kuo, Dean of Engineering and University Distinguished Professor

Dr. Luther Wilhelm, Associate Dean for Academic Affairs

Dr. Masood Parang, Associate Dean for Student Affairs

Dr. Wayne T. Davis, Associate Dean for Research & Technology

### Administration & Programs

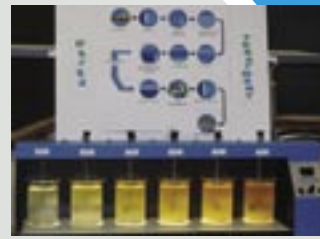
|                                   |          |
|-----------------------------------|----------|
| Academic Affairs .....            | 974-6092 |
| Communications .....              | 974-0533 |
| Co-op Engineering .....           | 974-5323 |
| Dean's Office .....               | 974-5321 |
| Development .....                 | 974-2779 |
| Engineering Diversity .....       | 974-2454 |
| Engage .....                      | 974-9810 |
| Engineering Student Affairs ..... | 974-2454 |

### Departments

|  |          |
|--|----------|
| Chemical .....                           | 974-2421 |
| Civil & Environmental .....              | 974-2503 |
| Electrical & Computer .....              | 974-3461 |
| Industrial & Information .....           | 974-3333 |
| Materials Science .....                  | 974-5336 |
| Mechanical, Aerospace & Biomedical ..... | 974-5115 |
| Nuclear .....                            | 974-2525 |

### Research Centers

|                                    |          |
|------------------------------------|----------|
| Center for Homeland Security ..... | 974-3339 |
| Materials Processing .....         | 974-0816 |
| Maintenance & Reliability .....    | 974-9625 |
| Measurement & Control .....        | 974-2375 |



## Engineers Day 2004

A very successful Engineers Day was held on October 21, 2004. Nearly 650 students from 38 different high schools traveled to UT's Knoxville campus to learn about the engineering profession.

The day began with Ms. Pamela Horning, director of the engineering division of BWXT Y-12 National Security Complex in Oak Ridge, addressing the group and providing insight to the world of engineering. The visiting students were then invited to explore the displays created by 20 different organizations representing the seven departments of the College of Engineering and to interact with current engineering students.

One of the ongoing traditions of Engineers Day is the Quiz Bowl competition. Each year, the high school students are invited to form teams of four to answer questions in a written exam format. The team of Victor Wang, Toan Vu, Matt Strom and Shimming Li of Hume-Fogg Academic High School in Nashville, Tenn. earned the 2004 Quiz Bowl Championship. The winning team received a silver trophy as recognition of their achievement.

Another highlight of the day was the Third Annual High School Balsa Wood Bridge Competition sponsored by the UT Student Chapter of the American Society of Civil Engineers (ASCE). In 2004, 11 different schools constructed 17 miniature balsa wood bridges and brought them to Engineers Day to be tested for structural efficiency. The team from Science Hill High School in Johnson City, Tenn. took top honors with a 19.1-gram bridge that supported a 16,060-gram load.



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