



# College of Engineering Today

December 2006 Edition

## WELCOME TO THE COLLEGE OF ENGINEERING E-NEWSLETTER!

### News

#### Faculty Awards

#### Donations

#### Grants and Contracts

#### Student Accomplishments

#### Alumni Recognition

#### Events of Interest

#### Published

#### Calendar of Events

#### Is Your News Listed Here?

### NEWS

Texas Tech University is launching an initiative in applied nanophotonics to expand the already successful optoelectronics research in the Nano Tech Center into the cutting-edge field of nanophotonics. The university will receive \$2 million from the **Texas Emerging Technology Fund** that will be matched by \$2 million from Texas Tech University and \$2 raised from private funds. The \$6 million total package will allow Texas Tech to attract three world-class researchers in nanophotonics. This initiative in nanophotonics will establish unique research capabilities, along with commensurate commercialization opportunities, within the state of Texas. More details will be forthcoming.

<http://www.governor.state.tx.us/divisions/ecodev/etf/>

College of Engineering **Fall 2006 enrollment** increased by 116 students, or 3.3 percent. Dean Pamela Eibeck attributes the increase to professional recruitment brochures, strong outreach activities, and positive messages to visiting potential students and their parents. University enrollment as a whole remained static.

The **Center for Engineering Outreach** hosted the second annual South Plains Math & Science Competition on November 11. The event is held in partnership with the Texas Alliance for Minorities in Engineering (TAME), a nonprofit agency celebrating 30 years of encouraging Texas students to pursue careers in science, technology, engineering, and math. Over 250 sixth through 12th grade students from 26 schools participated in the competition where 21 individual and team contests were held. One challenge was to design and construct a flotation device for a bowling ball out of supplies such as cardboard, Styrofoam, bubble wrap, and duct tape. College of Engineering faculty served as judges. The team taking first place in the middle school segment was represented by Shelby Boone, Archer City; Poonam Bhakta, Estacado Junior High School; Aaron Gibson, Roosevelt; and Nate Hardin, Sweetwater. The first place high school team included Taylor Anderson and Andrew Bogart, Crosbyton High School; Rodney Fuentez, Balmorhea High School; and Traci Hise, Dumas High School.

<http://www.engineeringoutreach.ttu.edu/spmsc/>

Officials with the Texas Land Office and the Lone Star Wind Alliance, a Texas-led coalition of universities, government agencies, and corporate partners, announced this week they will seek an \$80 million federally-funded turbine **wind research and development facility**. Texas Tech University is a member of the coalition. The U.S. Department of Energy has specified that the research project will test turbines with blades 70 meters long.

<http://sanantonio.bizjournals.com/sanantonio/stories/2006/11/13/daily23.html>



Thomas Young '06; Stacey  
Nelson Young '76

The **Iron Ring Ceremony** for engineering students was held on November 30. Forty-nine graduating seniors were inducted into the society. The Iron Ring Society serves as a reminder of the engineer's duty to serve society, similar to the Hippocratic Oath in medicine. Wearing the engineer's ring symbolizes pride in being an engineer, and a moral and ethical responsibility to society. This ceremony was unique in that Stacey Nelson Young '76 chemical engineering, was invested alongside her son, Thomas Young '06 civil and environmental engineering.



**Shelli Crockett** has joined the College of Engineering as the director of Cooperative Education. She was formerly the engineering liaison and assistant director at the TTU Career Center. Delores Ludwig, the former Co-Op director, retired on October 31.



**Karlene Hoo** has been named associate vice president for research by Dr. Dean Smith, TTU vice president for research. Hoo is a chemical engineering professor and formerly associate dean for research in the College of Engineering. In her new position, Hoo will act as a liaison with faculty overseeing grant applications, coordinating research start-up packages, and heading a research council comprised of associate research deans from TTU colleges. She will continue to teach and conduct research while working to increase collaborative research efforts with the TTU Health Sciences Center.



**Phil Nash**, research associate and lecturer in the Civil and Environmental Engineering department, will serve as director of the Center for Multidisciplinary Research in Transportation (TechMRT) on an interim basis during a national search for a new director. TechMRT is one of the leading research centers in the College of Engineering, generating approximately \$1 million in research funds each year. Dean Pamela Eibeck, on behalf of the college, expressed gratefulness for Dr. Priyantha Jayawickrama's leadership of TechMRT over the past several years.



**Dr. Milton Smith**, industrial engineering professor, has been appointed site director of the Texas Tech University at Amarillo recognized higher education teaching site. He was chairman of the Industrial Engineering department from 2001 to 2006, and has been a faculty member since 1968. Smith will travel to Amarillo one day a week to recruit engineers in area companies for the master of science and doctor of philosophy in systems and engineering management programs.

Factoid: The College of Engineering has an alumnus on every continent except Antarctica, and recently we had a short-term visitor there (see Alumni News below).

[Back to Top](#)

## FACULTY AWARDS

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**Dr. Daniel Cooke**, professor of computer science, received the Technical Achievement Award from the Institute of Electrical and Electronics Engineers Computer Society at their awards banquet in San Diego on October 31. He was chosen to receive the honor for his advances in computer language research leading to computer language used in developing NASA's new crew exploration vehicle.



**Dr. Gregory B. McKenna**, Horn Professor of Chemical Engineering, has been awarded the 2007 Foundersâ€™™ Award from the Society of Plastics, Engineers Polymer Analysis Division.

[Back to Top](#)

## GRANTS AND CONTRACTS

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Electrical and computer engineering associate professors **Drs. James Dickens** and **Andreas Neuber** were awarded a grant by the Air Force Office of Scientific Research for "Switching for Explosive Driven Pulsed Power."



**Dr. Clifford Fedler** of the Civil and Environmental Engineering department was awarded a grant by the Texas On-Site Wastewater Treatment Research Council for the project, "Design and Operation of Land Application Systems from a Water, Nitrogen, and Salt Balance Approach."



McKenna

Weeks

Chemical engineering faculty **Drs. Greg McKenna** and **Brandon Weeks** have been funded by the Office of Naval Research for research on "Nanoscale Features in the Mechano-Chemistry of Energetic Materials: Novel Thermal and Force Scanning Probe Measurements."

The Department of Defense has funded "Phase IX - Continuation of an Integrated Field and Laboratory Investigation with Wildlife: Ecological Risk Assessment of Military Energetics Residues Associated with Life Fire Training Ranges." Faculty include Civil and Environmental Engineering **Drs. Andrew Jackson** and **Ken Rainwater**.



Computer Science's **Dr. Eric Sinzinger's** proposal, "Infrared and Laser Analysis," was funded by Spicola Tool.



The Texas Department of Transportation funded **Dr. David B. Thompson's** (Civil and Environmental Engineering department) proposal to develop "Statewide Regression Equations for Improved Flood Peak Estimation."

"Depth from Stereo Disparity, Phase II-SBIR," was funded by National Institutes of Health/Kestrel Corp. Principal investigators are **Drs. Sunanda Mitra**, **Brian S. Nutter**, and **Shu-Yu Yang** from the Electrical and Computer Engineering department.

EarthCo Building Systems has funded **Drs. Atila Ertas**, **Timothy T. Maxwell**, and **Derrick E. Tate's** proposal for "Compressed Earth Block (CEB) Building System," on behalf of the Mechanical Engineering department.



NASA made a three-year award for "Novel Nanoparticle-Filled Matrices for Thermal Stress Reduction in Polymer Matrix Composites: Multiscale Modeling and Experimental Validation." TTU chemical engineering professor **Dr. Sindee Simon** is the PI. Co-PIs are Drs. Greg McKenna, Raj Khare, and Jeremy Leggoe, along with Igor Sevostianov, a theoretician from New Mexico State University.

[Back to Top](#)

## STUDENT ACCOMPLISHMENTS

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Congratulations to **Carolyn Holden**, graduating senior from the Mechanical Engineering department. She is the December graduate with the highest GPA in the College of Engineering.

Please take note of a special program designed specifically for management and engineering students: **Certificate in Entrepreneurship Studies**. This is a study abroad program under the auspices of the College of Business Administration, encompassing six weeks of study in Norway. For more details, contact [intl.business@ttu.edu](mailto:intl.business@ttu.edu), or call 806.742.2041.

Students in the **Society of Hispanic Professional Engineers** entertained children at the annual Halloween Bash at the Maggie Trejo Center in Lubbock. Opportunities for elementary school-age children to spend time with college students in a community setting helps instill that, "From here, it's possible."

**Daniel McGrath**, a PhD student studying systems and engineering management through the Industrial Engineering department, received third place in the Student Best Paper contest in conjunction with the American Society for Engineering Management annual conference held in Huntsville, Alabama, October 25-28. The title of his paper is, "Addressing Independent Natural Variables for Production Modeling: A Case Study Involving Lightning Warnings."

**Kenneth S. Furr** is the recipient of the Fall 2006 Engineering Technology Outstanding Student Award. Other students in contention for the award were: James Cole, Ryan Cook, Daniel Izzard, and Ryan Oliver. The award recognizes a student's contribution to the Engineering Technology department, assistance to fellow students, leadership, and scholastic achievement. Furr's name will be added to a plaque in the Engineering Technology office that honors all those who have received the award since 1981. Members of the Industrial Advisory Board (IAB) interviewed outstanding graduating seniors for the honor, and IAB chair Kenneth Johnson presented the award at a celebration ceremony.

Engineering students who received a **graduate school fellowship** were honored at a recent reception for donors and recipients. They are: Chemical Engineering - Lameck Banda, Huan Ma, Suma Peri; Civil and Environmental Engineering - Runbin Duan, Spandana Tummuri, Tang Wang; Computer Science - Yana Todorova; Electrical and Computer Engineering - Enrique Corona, Jie Yin; Industrial Engineering - Gerardo De la O-Serna, Christopher Jensen; Mechanical Engineering - Steven Dean, Oliver Harrison, Dana Rosenblatt.

**Bobby Mojica** (mechanical engineering) and **Didiana Rojas** (chemical engineering) were awarded scholarships from Raiders Rojos, a chapter of the Texas Tech Alumni Association, at a recent ceremony. Both students are also officers in the Society of Hispanic Professional Engineers.

[Back to Top](#)

## ALUMNI RECOGNITION

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Grasz

**Erna L. Grasz**, '85, and her husband **Mark Newton**, MSEE '79, went to Tanzania to climb Mt. Kilimanjaro last year and in the process, their hearts were touched by the desperate need for the most basic health and education for the neighboring children and their families. During their visit to Africa, they met a local woman who was personally funding several schools in a village near the national safari parks. Erna and Mark felt compelled to investigate options to assist these efforts, and soon the Asante Africa Foundation, Inc. was born. The foundation works directly with local African communities to fund projects such as building infrastructure as well as aiding

teachers by providing necessary supplies and sponsorship. One hundred percent of all donations go directly to the children, schools, and villages of Tanzania and Kenya. For more details about the projects and progress, visit the Web site (<http://www.asanteafrica.org>) for more details. You can also email at [info@asanteafrica.org](mailto:info@asanteafrica.org), or telephone Erna and Mark at 925-292-0245.

**Jerry Drew**, engineering technology '82, was awarded the 2006 Frost & Sullivan Entrepreneurial Company of the Year in the North American thermostat market, on behalf of XCI Corporation where he is president. XCI was cited for its ability to "combine its enterprising attributes with sound business strategies and decisive action to achieve success."

**Dr. Pilar Pazos**, MSI '01, PhD '05, was a finalist and received honorable mention in the Best Dissertation contest held by the American Society for Engineering Management at their October meeting in Huntsville, Alabama. The title of her dissertation is, "Effects of Repeated Use of a Group Support System on Performance Patterns." Dr. Pazos is currently a researcher at the Searle Center for Teaching Excellence at Northwestern University in Chicago.



**Rhyme Rundell**, BS'99, MSI '00, was working recently on behalf of Raytheon in Antarctica when he had the opportunity to bring a little Raider Pride to Mt. Erebus, the most active volcano in Antarctica.

[Back to Top](#)

## EVENTS OF INTEREST

University Libraries and the Southwest Collection/Special Collections Library have partnered to create an exhibit celebrating Texas Tech's **Horn Professors**. The exhibit is on display through January in the Croslin Room of the University Library. Named in honor of Paul Whitfield Horn, Texas Technological College's founding father and first president, the Horn Professors exemplify the ideals of research, teaching excellence, and scholarly contribution. College of Engineering Horn Professors are: Richard A. Dudek (industrial, 1970); Dan Moody Wells (civil, 1972); Magne Kristiansen (electrical, 1977); M. M. Ayoub (industrial, 1978); Joseph E. Minor (civil, 1984); John F. Walkup (electrical, 1985); Kishor C. Mehta (civil, 1991); Henryk Temkin (electrical, 2000); Greg McKenna (chemical, 2005); and Sunanda Mitra (electrical, 2005).

[http://swco.ttu.edu/university\\_archive/uacollections11.html](http://swco.ttu.edu/university_archive/uacollections11.html)

The Electrical and Computer Engineering department partnered with the physics department to offer a colloquium where Sanjay Banerjee, director of the Microelectronics Research Center at the University of Texas at Austin, gave a presentation on "Microelectronics: The Beginning of the End, of the End of the Beginning?" on November 10.

Civil and environmental engineers Drs. Jamie Chapman, Clifford B. Fedler, Andrew Jackson, Audra Morse, Ken Rainwater, Andy Swift, and Dave Thompson, along with industrial engineer Dr. Mario Beruvides, participated in the "Water in Arid and Semiarid Lands" conference sponsored by TTU's International Center for Arid & Semiarid Land Studies, November 15-17 on the TTU campus.

Mechanical engineering faculty sponsored a "PhD Workshop on Transdisciplinary Design Process and Systems: A Team Approach to Success and Education for Changing Technology" on November 17, in conjunction with The Academy of Transdisciplinary Learning & Advanced Studies (TheATLAS). One purpose of the event was to develop collaborative research efforts between Raytheon Company engineers and TTU faculty and students.



Photo credit -  
Sam Grenadier  
*The Daily  
Toreador*

**NASA astronaut** Joseph M. Acaba was hosted by members of the Society of Hispanic Professional Engineers, the National Society of Black Engineers, and the Society of Women Engineers on November 17. He gave an address about "New Trends for Educational Excellence" to a group of students and other guests. Acaba is assigned to the Hardware Integration Team in the Space Station Branch to work on technical issues with the European Space Agency. His college major was geology, and he is a former Marine as well as former math and science middle school teacher. Acaba's talk emphasized the diversity of his background, including a stint in the Peace Corps, and how circumstances led him to successfully complete the NASA application and interview process even though the possibility of being an astronaut was never in his thoughts as a college student. His first love is teaching and he expects to return to that field after his astronaut career. Acaba is also the first astronaut from Puerto Rico.

Engineers from the Texas Department of Transportation's (TxDOT) Abilene District made their customary presentation as part of a civil engineering seminar class on November 17. Representatives from the Odessa and Lubbock Districts participated as well and while on campus, they toured the TechMRT laboratory facilities to observe TxDOT research, and they also visited the Civil and Environmental Engineering geotech, asphalt, structures, materials, and environmental labs.



[Back to Top](#)

## PUBLISHED

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Mechanical engineering graduate students **Emre Selvi** and **Resul Aksoy** have papers listed on the Carnegie/Department of Energy Alliance Center Web site: <http://cdac.gl.ciw.edu/content/view/13/42/> Co-authors include Drs. Ertas, Chyu, and Ma. "High Pressure X-Ray Diffract Study of Tungsten Disulfide," J. Phys. Chem Solids, 67, 2183-2186 (2006) and "Equation of State Measurements Molybdenum Disulfide," J. Phys. Chem. Solids, 67, 1914-1917 (2006).

The ISI Web of Knowledge<sup>SM</sup> database (<http://scientific.thomson.com/webofknowledge/>) included in its list of Highly Cited Papers research done by faculty from the College of Engineering's Chemical and Mechanical Engineering departments along with faculty from TTU's Institute of Environmental and Human Health (TIEHH) and the Materials Science and Engineering department at the University of Tennessee-Knoxville. The paper on "Electrospinning of Nanofibers," was published in an April 2005 issue of the *Journal of Applied Polymer Science*. Mechanical engineering professor Dr. Siva Parameswaran, Chemical engineering *emeritus* professor Dr. Richard Tock, former chemical engineering graduate student Thandavamoorthy Subbiah, and University of Tennessee-Knoxville Professor Gajanan Bhat are co-authors of the paper along with lead author, Dr. Seshadri Ramkumar of TIEHH.

**Dr. Andreas Neuber**, associate professor of electrical and computer engineering, will present at the German Physics Society in Duesseldorf, Germany March 19-23, 2007. He is part of a very distinguished panel of speakers. There will be more information (in English) posted on the Web site in January. <http://duesseldorf07.dpg-tagungen.de/information/plenar.html>

[Back to Top](#)

## CALENDAR OF EVENTS

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As part of the College of Engineering Special Lecture Series, Dr. Susan K. Wolcott, an educational consultant with Wolcott Lynch Associates, gave two presentations on November 8: "Introduction to Students' Thinking Patterns" and "Improving Students' Thinking Patterns: Tips for the Classroom."

Technical University of Denmark Professor Rafiqul Gani gave a presentation on "Systematic Computer Aided Approach to Product-Process Analysis and Design" on November 10 in conjunction with the Chemical Engineering department's seminar series: New Frontiers of Chemical Engineering.

Mr. Jim McMillan from the National Renewable Energy Laboratory presented "Technical Advances in Cellulosic Ethanol Research and Development" on December 1 at the invitation of the Chemical Engineering department.

- December 7: College of Engineering Holiday Open House
- December 16: Commencement

[Back to Top](#)

## IS YOUR NEWS LISTED HERE?

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If not, submit it through your department's editor:

Civil and Environmental	Andrews, Glenna
Petroleum	Blackmon, Joan
Computer Science	Digby, Mysti
Mechanical	Hernandez, Carmen
Chemical	Hudson, Jan
Engineering Technology	McMurray, Jodi
Electrical and Computer	Willingham, Sandi

Industrial	Wilson, Terry
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The COE e-newsletter will be posted online on the first week of the month. News submission deadline is the 28th of the month for inclusion in the following month's e-newsletter.

[Back to Top](#)

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