

the EXPLORER

NEWSLETTER OF THE COLLEGE OF SCIENCE AND TECHNOLOGY AT TEXAS SOUTHERN UNIVERSITY

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Dean Lei Yu addressing guests at the COST Partnership Luncheon and Open House

College of Science and Technology Open House and Partnership Luncheon

On February 24, 2010 the Open House and Partnership Luncheon held by the College of Science and Technology was well attended by the college's corporate partners, students, faculty, and friends. The event was held in the beautiful atrium of the New Science Building. The faculty and student researchers displayed posters describing their work. The main hall was filled with more than 30 posters featuring research results. This is a demonstration of the intensive research atmosphere existing at the College.

Dean Lei Yu opened the proceedings with a statement of the plans for the College in teaching, research and service. Recruitment of students and funding of scholarships were important objectives.

The participation of the community was very encouraging as the presentation of talks by the students and faculty was well attended. Presenters included Dr. Wei who is working on nano-materials such as metalized carbon nanotubes, conducting polymer-functionalized carbon nanotubes, and polymeric composites. The

research project is sponsored by US Air Force Research Laboratory and the research results led to an international patent (pending), which has been successfully licensed and transferred to NanoRidge, Inc. for further product development and commercialization.

Dr. Rosenzweig and his student described the essentials of the experiment to determine the effects of reduced gravity on bacterial species. This experiment flew on the NASA STS-129 mission.

Tioka Freeman presided

Continued on page 2



COST Open House...

Continued from page 1

over awarding door prizes. A competition to design a logo for the college was held. We thank Robert Goady, National Account Manager of Sony Electronics, Inc. for providing the prizes for the competition.

Chris Hudson, Chairman of the College of Science and Technology Advisory Board gave an impassioned account of the need for more participation in the industry university partnership. Dean Yu gave closing remarks and thanked the participants.

*Prof. Oscar H. Criner
Interim Associate Dean for
Administration and Development*



KBR Awarded Company of the Year for 2010

TSU College of Science and Technology awarded KBR a recognition as Company of the Year for the long term support given to the college by the firm. KBR has been associated with TSU since it was known as Brown and Root Construction Company. In its evolution to KBR, the company has remained deeply involved with the College of Science and Technology.

Dr. Jim Johnson, National Director of Government and Infrastructure Management and Engineering accepted the award for KBR presented by Associate Dean Criner and responded to the luncheon audience.

Other industry partners

and members of the advisory board include: The Linbeck Group, Raytheon Technical Systems, STOA Architects, The Greater Houston Port Bureau, Schlumberger, Houston Works, and Morris Architects. The College looks forward to other companies becoming so engaged with COST that there are many "Companies of the Year" to follow.

*Prof. Oscar H. Criner
Interim Associate Dean for
Administration and Development*



College of Science and Technology Welcomes NASA Astronauts Leland Melvin and Robert Satcher

On Tuesday February 16, 2010, Astronauts Leland Melvin and Robert Satcher Jr. visited the College of Science and Technology and inspired the students. The NASA Astronauts and other NASA officials were welcomed by Associate Dean, Dr. Oscar Criner.

The University Research Center Project Manager Katrina Emery gave a brief overview of the URC project and words of encouragement to the students. Center for Bio-nanotechnology and Environmental Research (CBER) students provided an overview of their respective research thrust areas and highlighted their research findings from the URC Microbial 1 Space Flight Experiment. The CBER Scholars and Fellows also shared information about their outreach efforts.

The Astronauts delivered a talk entitled “Living your Dreams,” a message to encourage the pursuit of education, belief in self, and not letting others tell you that you can’t when you can! They shared their career path and an overview of the STS 129 mission narrated by the crew.

The NASA team met with Provost Ohia and TSU College Deans during their visit. At least three major news channels covered the event (Channels 2, 13, 26).

Congresswoman Sheila Jackson-Lee presented each Astronaut with a flag that had been flown over the Capital in recognition of the outstanding NASA program and she commended NASA and Ms. Katrina Emery.

*Dr. Ohufisayo Fejelowo
Project Director, TSU CBER*



From the Office of Student Services and Instructional Support

The Office of Student Services and Instructional Support is actively engaged in student registration, distribution of curriculum information, referrals for advisement, financial aid, scholarships, internships, summer programs and other student opportunities.

This Office has represented the College at a number of recruitment events including the TSU Transfer Days held at Houston Community College and San Jacinto College in an

effort to increase enrollment of transfer students, and at events hosting high school counselors geared towards recruiting freshmen.

The first large recruitment event hosted by the Office of Student Services and Instructional Support was done in collaboration with the TSU Office of Recruitment and COST departments on March 5, 2010 when over 1500 area high school students visited TSU for Tiger Day. Students interested in STEM fields



visited the TSU Science Center where they were given information on admissions and financial aid. The students attended a COST Department Fair held in the Atrium of the Science Center where they received information from the departments of the College and won door prizes.

The Office of Student Services and Instructional Support is pleased to announce that Yinan Zhu has been hired as the new Technical Services Specialist for the COST. Ms. Zhu will serve the college by providing oversight for classroom audiovisual teaching aids.

*Dr. Desirée Jackson
Interim Assistant Dean*

TSU Research Week at College of Science and Technology

As part of the college activity during TSU Research Week, the College of Science and Technology Research Committee organized keynote lectures and panel discussions at the TSU Science Center. The theme of this year's TSU Research Week was "Improving Research Initiatives Through Collaborations." Dr. Lei Yu, Dean of College of Science and Technology welcomed the participants that included guests from Rice University and the University of Houston. Dr. Wei Li, Chair of the COST Research Committee presented the program overview and hosted the activities.

Below: Dr. Oscar Criner presenting the second keynote lecture



Dr. Ronald L. Sass, Harry C. and Olga Keith Weiss Professor of Natural Sciences at Rice University, presented the first keynote lecture titled "Climate Change, Energy, and Public Opinion." His talk was followed by a panel discussion on "How to enhance the College Research Capabilities?" The panelists were from TSU: Dr. Daniel Bessis, Department of Physics at TSU; Dr. Adebato Oyekan, Associate Provost for Research; Dr. Lalita Sen from Department of Urban Planning and Environmental Policy; Dr. Sass from Rice University and Dr. Gongbing Song from University of Houston. The panel discussed, the research environment and life at TSU.

The overall emphasis was placed on increasing opportunities for researchers to develop relationships amongst themselves, to develop collaborations with other research intensive universities, mentoring of

junior faculties, release time for research, and persistence in the pursuit of grants. Dr. David Olowokere from Department of Engineering Technology moderated the panel discussion.

Dr. Oscar Criner from Department of Computer Science at TSU presented the second keynote lecture titled "Priming the pump: creating a new generation of scientist for the 21st Century." He advised the students of the exponential increase in job opportunities in the area of software development over the next decade. This issue was discussed during the second panel discussion titled "How to utilize your education in the advanced information based society?" Dr. Khaled Kamel from Department of Computer Science moderated the panel: Remi Ademola, TSU Center for Online Education and Instructional Technology; Dr. Bobby Wilson, L. Lloyd



Top to bottom: Dr. Ronald Sass presenting the first keynote lecture; the panelists at panel discussion; the audience engaged in discussion.

Woods Distinguished Professor of Chemistry; Dr. Criner, and Dr. Jerome Freiberg of the University of Houston.

The questions from the audience covered the various challenges including the legal and social implications. The program ended with concluding remarks by Dr. Shishir Shishodia from the Department of Biology.

SUMMER PROGRAMS

TSU Summer Academy Program in Math

Dr. Della Bell and Dr. Joan Evans of the TSU Mathematics Department are participating in the planning, development, and implementation of the Mathematics component of the Texas Southern University Summer Academy Program. The Summer Academy is designed to enhance the preparation of recent high school graduates in Mathematics, English, and Reading. A Counseling and

Advising component is also included in the Summer Academy. The Summer Academy I is to be held June 7- July 9, 2010. The Summer Academy II is scheduled for July 12- August 13, 2010. After completion, students should be eligible for College Admission and prepared to do college level work. Improving the Recruitment and Retention efforts are the primary focus of the program.

Houston National Summer Transportation Institute (HNSTI) 713-313-7925, Godazi_kx@tsu.edu
Houston Works STEM Summer Camp 713-313-7593, fordrl@tsu.edu
Pre-College Engineering Summer Program 713-313-7995, olowokeredo@tsu.edu
Space, Engineering and Science Internship Program (SESIP) 713-313-4259, Mcdaniels_va@tsu.edu
STEM Teacher Quality and Retention Institute 713-313-7593, fordrl@tsu.edu
Summer Maritime Academy (SMA) 713-313-4394, williamsua@tsu.edu
TSU Summer Academy, Mathematics 713-313-7839, bell_dd@tsu.edu

FACULTY SPOTLIGHT

Dr. Yi Qi Assistant Professor and interim Chair, Department of Transportation Studies received her M.S. and Ph.D. degrees in transportation planning and engineering from the Polytechnic University of New York.

As the Director of the Center for Driver Behavior (CDB) at TSU, she has performed cutting-edge researches in the areas of transportation safety analysis, traffic signal design, and Intelligent Transportation Systems (ITS). During the past four years working at TSU,

she has served as the Principle Investigator on many research projects and has successfully secured more than \$750,000 in external research funding from various national, state, and local transportation agencies. Dr. Qi's research is original and she has published more than 20 research papers in peer-reviewed scientific journals, including the Journal of Transportation Research, the American Society of Civil Engineers's Journal of Transportation Engineering,

Transportation Research Record, and Journal of Advanced Transportation.

Dr. Qi has presented at the most influential international Transportation conferences such as the Transportation Research Board Annual Meetings. Due to her significant research in ITS and transportation modeling, Dr. Qi has been invited by Elsevier Science to write a chapter for a book about the economic impacts of ITS.

Further, she has supervised a number of graduate students in pursuing



Dr. Yi Qi

investigations which have already been presented and published. Recently, Dr. Qi was appointed to two Transportation Research Board committees, which is regarded as a reflection of her most recognized achievements among top transportation scholars.

DEPARTMENT SPOTLIGHT ENGINEERING TECHNOLOGY

The Department of Engineering Technology received NSF funding to develop a virtual and remotely accessible laboratory framework for a wide variety of engineering labs. Ongoing efforts are focused mainly on the DC circuit and Electronics Lab within the Electronic Engineering Technology Program; and the Data Communication Lab in the Computer Engineering Technology Program.

This NSF-Funded project will dramatically improve the undergraduate laboratory environment and the distance teaching and learning practices. Engineering and Technology students will have improved state-of-the-art educational experiences. Students hands-on skills in

both hardware and software will be greatly enhanced, and this will translate into making our students highly competitive in the job market. Moreover, the project will provide faculty members with a platform to develop high quality courses using the latest technology.

Other on-going funded research projects include:

- Systems Analysis of Solar-Powered Lunar Oxygen Production funded by the United Negro College Fund Special Project in collaboration with NASA.
- With funding from the Department of Defense, the department is one of the eight centers selected by the Department of Defense for a summer pre-college engineering program for 9th – 12th graders. This is the 4th

year of this program which has assisted the department in recruitment of students.

•In collaboration with University of Houston (UH), and with funding from the NSF, the department is conducting a parallel study focused on the development of a next generation of unified framework for a remote laboratory.

•Civil Engineering Technology is working on the production of biodiesel using algae as the feedstock. This project is funded by UNCFSP.

The entire faculty remains active in writing proposals to several funding agencies and organizations. Over a dozen publications had been generated from the department within the current academic year. These publications have appeared

in conference proceedings and peer-reviewed journals.

The department has recently submitted a proposal to the Provost seeking a conversion from its present engineering technology program to that of pure engineering. This proposal stems from the demands and wishes of many prospective students in the past.

Other activities include a collaboration with the firm of Evolution Solar for the establishment of a TSU Green Technology Center. As part of its community service program, the department also provides weekend training on energy auditing for displaced workers under the ARRA program.

Dr. David Olowokere
Chair, Engineering Technology

STUDENT SPOTLIGHT

Jerry Garcia is a graduating senior and a Houston native. His interests in Aviation brought him to Texas Southern University. Mr. Garcia has already received his Associates degree in Arts and is now pursuing his Bachelor of Science in Airway Science. He is also a United States Navy Veteran where he was an Electronic Warfare Operator during tactical Missions. He taught sailors who were learning to become Information Systems Technicians. During his time in the Navy, Mr. Garcia received several medals, including: The National Defense Service Medal, the Armed Forces Expeditionary Medal, and the Global War

on Terrorism Expeditionary Medal, and the Global War on Terrorism Service Medal.

While at Texas Southern University, he has been recognized for his academic accomplishments: President's List Honoree, Dean's List Honoree, and Honor Roll Honoree. He is active within the Aviation Science and Technology Department and Texas Southern University.

He is currently a student ambassador of NASA and COST. Mr. Garcia is a Texas Southern University NASA C-BER Scholar and is on Texas Southern University's Advisory Board for the Aviation Science program. He has many accomplishments that extend

beyond Texas Southern University. This past summer Mr. Garcia was an intern at the Johnson Space Center. Students were recruited from all over the country and he was the only intern of one hundred and six applicants to be chosen to participate.

Recently, Mr. Garcia was awarded a Washington Center summer internship where he will be participating in the Science, Technology and Society Program. After graduation, Mr. Garcia hopes to pursue a career in air traffic control and later pursue a Masters degree in Aeronautic Engineering. He is interested in conducting research related to air traffic control in order to improve



Mr. Jerry Garcia

the efficiency and safety of Federal Aviation Administration systems. Mr. Garcia lives by the philosophy "with education there are no limits to what one can achieve."

Zuma Ikharo
Aviation Graduate Assistant

ALUMNI RAVES BY WILLIAM F. BRYANT

Obtaining a Bachelor of Science in Mathematics from Texas Southern University has been one of the most rewarding choices I have made in my life. This choice has shaped my life in ways I would have never thought, both academically and socially.

It was in the Mathematics department where my mind was molded by individuals who are some of the world's best educators. It was there where I learned essential problem solving skills that make me a valued asset in my career today. At TSU, I was privileged to be guided by individuals within the

department who were focused on my success during and beyond the undergraduate level. I was taught how to market myself as a scholar and leader in today's society. Out of all the guidance given, having the invaluable one-on-one guidance of a seasoned professor, Dr. Willie E. Taylor, has impacted me the most.

I attended Texas Southern University from 2002-2006. Some of my memorable experiences at Texas Southern University include: serving as a teaching assistant in the Mathematics Department; participating as an intern in

a summer program from June, 2004-August, 2004 in the Dwight Look School of Engineering. Undergraduate Summer Research Program at Texas A & M University, College Station, Texas; participating in a summer internship program May, 2005-July, 2005 in the Rice University Summer Institute of Statistics. I also attended various conferences while at Texas Southern University.

I am currently employed as a Biostatistician for the City of Houston Department of Health and Human Services- Bureau of Epidemiology.

"Destiny is not matter of chance. It is a matter of choice. It is not a thing to be waited for; it is a thing to be achieved."

William Jennings Bryan

STUDENT ACCOMPLISHMENTS

Mr. Daniel Osakue and Mr. André Seals, students of Computer Engineering Technology program in the Engineering Technologies department, won the third prize in the Undergraduate Active Vibration Control Competition. This activity was organized by the ASCE Earth and Space 2010 conference which was held in Honolulu, Hawaii, from March 14 to March 17. It was an international competition that included two teams from China. The TSU team was the only team which implemented an advanced Fuzzy Logic controller to control a complex flexible beam system. With just a short training in Smart Materials and Structure Laboratory at University of Houston, the TSU team successfully developed the Fuzzy Logic controller. The



Dr. Gangbing Song, Mr. Daniel Osakue, and Mr. André Seals with ASCE President Blaine Leonard

Matlab simulation results showed that beam vibration could be stopped in less than 2 seconds which is close to the best performance that can be achieved. Encouraged by the superior simulation results, the TSU team implemented the advanced control algorithm in a real system that has a flexible beam with a piezoceramic sensor and actuator attached.

Due to the very limited hands-on training time, the

TSU team could not completely filter out the high frequency excitation existing in the real control system.

The TSU team was recognized by student competition organizers and the conference general chair, Dr. Gangbing Song for their creativity and hard work. Mr. Osakue and Mr. Seals were mentored by Dr. Xuemin Chen. Thanks to the National Science Foundation grants which made the students' trip possible.

NEW ACADEMIC DEPARTMENT ENVIRONMENTAL SCIENCE AND TECHNOLOGY

The College of Science and Technology is pleased to announce the establishment of a new academic department: Department of Environmental Science and Technology. With this new addition, the College now is home to 10 academic departments that provide diverse educational and research opportunities to our students and faculty. The Department of Environmental Science and Technology has become the permanent academic home

for the College's existing Master of Science (M.S.) and Doctorate of Philosophy (Ph.D.) degrees in Environmental Toxicology and is currently developing new degree program(s). The purpose of establishing this new department is to provide academic curricula that are structured in a multiple disciplinary fashion and to equip students with the knowledge and skills needed to address challenging and emerging issues, such as

global warming and climate change. Students who study in and graduate from this department will be able to pursue careers in industry or governmental agencies in the areas of environmental impact, risk assessments, hazard mitigation, alternative energy, and environmental toxicology. Dr. James DuMond, Jr. is serving as the Chair of the Department on an interim basis. He can be contacted at 713-313-7095 or email at dumond_jw@tsu.edu.

DOCTORAL DISSERTATION

Epps, Bernethia (Advisory Committee Member: Della Bell) The Achievement of African American and Hispanic Students in Mathematics, 2010.

Ray-Polk, Barbara (Advisory Committee Member: Della Bell) The Influence of Teacher Training and Teacher Attitude on the Academic Achievement of African American and Hispanic Students in Mathematics, 2009.

MS THESIS

Abdin, Shaunte (Advisor: Hector Miranda) Phylogenetic analysis of *Aspergillus* and related fungi based on mitochondrial cytochrome oxidase I, 2010.

Pollard, Leighann (Advisor: Hector Miranda) Molecular phylogeny of asian passerine birds using mitochondrial cytochrome oxidase I DNA sequences, 2009.

Wang, Hui (Advisor: Fengxiang Qiao) Transportation Planning and Management, 2010.

Zhang, Rong (Advisor: Fengxiang Qiao) Transportation Planning and Management, 2010.

TSU RESEARCH WEEK AWARDS

Lewis, Anita (Advisor: Shishir Shishodia) 1st Place, Student Oral Presentation, 2010.

Li, Ying (Advisor: Fengxiang Qiao) 1st Place, Staff Poster Presentation, 2010.

Polina, Korzhova (Advisor: Fengxiang Qiao) 3rd Place, Staff Poster Presentation, 2010.

Qiao, Fengxiang 3rd Place, Faculty Poster Presentation, 2010.

Zhu, Qing (Advisor: Fengxiang Qiao) 2nd Place, Staff Poster Presentation, 2010.

PUBLICATIONS RESEARCH ARTICLES

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