Spearman Technology Building Dedicated to the College of Science and Technology

A throng of friends of the College, alumni, students, faculty, and administrators gathered on February 19, 2014 to dedicate the Leonard H. O. Spearman Technology Building, in honor of the 6th president of the University. It was a moving ceremony with many speeches from all those who had a hand in making the building a reality. The Spearman Technology Building was severely damaged and rendered unusable by the impact of Hurricane Ike on September 13, 2008. It was demolished, and replaced by a new technology building with 107,791 square feet of space and the latest technology for instruction and research. The University continued this honor by maintaining the name of the new technology building as the Leonard H. O. Spearman Technology Building.

The new and redesigned building houses six academic departments: Aviation Science

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Technology Building Dedication

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and Technology, Computer Science, Engineering Technology, Industrial Technology, Physics, and Transportation Studies.

The science and technology programs once scattered in various locations around the TSU campus were consolidated in one location. This new facility hosts 35 state-of-the-art labs such as, a full-motion flight simulator lab, a vehicle emission testing lab, an air traffic control lab, a high performance computing lab, a Mini-TranStar lab, a driving simulation lab, a construction lab, two design labs, health and nuclear physics labs, a geotechnical/material testing lab, an environmental engineering lab, a wireless sensor networks lab, and various other engineering, physics, and computer science labs. In addition, the facility is home to a new Tier 1 University Transportation Center, the Center for Transportation Training and Research, and the new National Science Foundation Center for Research on Complex Networks.

President John Rudley provided an account of the challenges the University had to overcome to achieve such a project at a time when the financial markets were under-reacting to the economy in recession. The building opened for classes in the spring semester 2014.

Ms. Kenyata Thomas, a junior in engineering technology, served along with Mrs. Eva Pickens, Associate V.P., Communications & Community Affairs as the co-mistresses of ceremonies. The platform guests included President Rudley, Board of Regents Vice Chairman Dionicio Flores, State Senator Rodney Ellis, Regent Samuel Bryant, and Regent Curtistene McCowan, Congressman Al Green, and Student Regent Faron Foy. Many community leaders and dignitaries were in attendance. The Spearman family was present, as was the family of retired Professor Naomi Ledé.

Dr. Aladdin Sleem observed that a building is simply bricks, concrete, steel and glass, but this dedication transforms it into a sacred place where students and teachers gather for scholarship. The Leonard H. O. Spearman Technology Building will be a place for study and research for years to come.

Spring Midterm Madness

On Monday, March 3, 2014, from 5:00 pm to 10:00pm, the College of Science and Technology, College of Pharmacy and Health Sciences, Student Academic Enhancement Services (SAES) Tutorial Center, and Health Occupations Students of America (HOSA) hosted the second Midterm Madness event after overwhelming response from students to host the event again. Freshmen through graduate level students attended Midterm Madness to share, learn, and form study groups to support them through midterm exams. These cohorts will continue through the end of the semester. Areas of tutoring offered were Mathematics, Biology, Chemistry, and Physics.

COST designed Midterm Madness in an effort to assist students who were having difficulty in perceived difficult subjects, as well as an opportunity for students to come together to study and learn in groups or “pacts” in order to achieve their academic goals. The event aims to improve retention by offering a relaxing and warm setting in which to study and receive assistance from both instructors and SAES peer tutors. Midterm Madness is a wonderful example of perpetuating the TSU mantra of “Excellence in Achievement.”
College of Science and Technology Receives $1M NSF RISE Grant

The National Science Foundation (NSF) announced a Research Infrastructure in Science and Engineering (RISE) award of $991,206 over 3 years to Texas Southern University to support its proposed research on Characterization of Biomolecular Response to Environmental Stress.

The multi-disciplinary team, led by Drs. Shishir Shishodia (PI), Jason Rosenzweig (Co-PI), Daniel Vrinceanu (Co-PI), and Hyun-Min Hwang (Co-PI) represent 3 different departments in the College of Science and Technology: Biology, Physics, and Environmental and Interdisciplinary Sciences.

Investigators will engage in basic research to improve our understanding of general biological principles guiding cellular responses to environmental stress. More specifically, assessing the exposure of the Houston population to platinum group elements (PGE) discharged in automobile exhaust, and developing computer models for specific stress-related molecules with the intent of predicting their associated biochemical pathways. The environmental toxicology program will be strengthened by providing financial support to minority students. A mentoring initiative for graduate students to support their course preparation, effective teaching and learning, grant writing, and research will be developed. One of the major objectives is to embrace the K-12 community and undergraduate students through summer internship programs to advance research-based learning experiences and motivate them to pursue advanced degrees in STEM fields.

The Physics Department achieved some important milestones consistent with its new capabilities in preparation of medical students. Special emphasis is being made on the relevance of physics as a major, for students interested in becoming medical doctors. The new catalogue will emphasize a Medical Health Physics concentration within the Texas Physics Consortium.

In keeping with this, a 2012 physics graduate, Mr. Hieu Nguyen (double major in physics and chemistry) was just admitted into the Tulane medical program. He has acknowledged that physics helped him achieve his dream. Another student, Mr. Zayne Belal (post-bac) who is working with Dr. Mark Harvey, was attracted to TSU-Physics because it will enhance his preparedness for the MCAT exam and for a career in radiation oncology.

Another aspect of the new image for physics was stimulated by a very productive, two year, research collaboration with Mr. Rahul Gupta, a high school senior from Missouri City. He, together with Drs. C. R. Handy and D. Vrinceanu, collaborated on a paper just submitted to the Journal of Physics A: Math. & Theor. Mr. Gupta is among the top Texas STEM high school students in physics, chemistry, and mathematics. He is applying to MIT, Stanford, and Rice University.

The success of this initial experience, in which TSU-Physics hosted one of the top Texas High School STEM students, stimulated the creation of the “High School Collaborative Research Program in the Physical Sciences,” to be hosted by TSU-Physics. Starting this Summer, TSU-Physics is inviting high achieving STEM high school students to conduct research with TSU-Physics faculty in all represented areas including: mathematical physics, computational physics, and nuclear physics.

Our graduates are continuing to make great strides in graduate academic careers. Mr. Micheal Smith, currently completing his M.S. studies in Health Physics at Texas A&M University, will complete his studies analyzing data from the Fukushima-Daiichi disaster in Japan. Ms. Cassandra Oduola, 2012 physics graduate, and an M.S. candidate in Computer Science, has been admitted into the Ph.D. program in Computer Science at Texas A & M University.
SUMMER PROGRAMS

COST Summer Undergraduate Research Program

Building on the success of last year’s summer undergraduate research program (SURP), the College of Science and Technology is planning its 2014 SURP. This program will start in June and last for ten weeks. The program aims at offering undergraduate students an opportunity to explore cutting-edge research in STEM fields and to become familiar with state-of-the-art instruments. Through this enrichment program, students will gain hands-on research experience, widen their knowledge and increase their expertise and capabilities for scholastic inquiry. This year, with the support of Dean Lei Yu, COST will provide a $2,000 fellowship to each participating student and a $1,000 stipend to each faculty mentor as reimbursement for any expenses incurred during the mentorship. A symposium is planned at the end of the program in which all participating students will present their summer research results.

For application information email Dr. Lila Ghemri at ghemri_lx@tsu.edu.

CRCN Announces STEM Enchantment III - 2014
Adventures in Serious Gaming Summer Outreach Program for Youth

The Center for Research on Complex Networks (CRCN) of Texas Southern University will sponsor its STEM Enchantment III four week summer program for middle school students on the campus of TSU. The program will run from Monday, June 23, 2014 to Friday, July, 18, 2014. This year the Center plans to enchant our students by engaging them in one of their favorite activities, computer games. These games will enhance STEM learning while students play virtual world games. The focus will be on English, Reading, Mathematics, Science, and Computing this summer, with the emphasis on problem solving. The students will attend classes where they will participate in the virtual world of building a computer while learning mathematical skills. The students will also take a major scientific field trip this summer. The program offers a learning environment which will encourage students to identify and solve problems while increasing their knowledge in STEM-related subjects. The major objective throughout the program is to educate, motivate, encourage and prepare students to start thinking seriously about pursuing a higher degree in a STEM-related field.

For application information email Dr. Oscar H Criner at criner_oh@tsu.edu.

NSF RISE Summer Research Program in COST

The newly-funded National Science Foundation Research Infrastructure in Science and Technology Program in the College of Science and Technology will recruit eight students (4 rising senior high school students and 4 undergraduate students) to work with the investigators for 10 weeks during the summer. Each student will receive hands-on training in principles, instrumentation, and techniques and participate in laboratory meetings to formally/informally discuss research and current literature related to research topics. Undergraduate students will receive career planning and guidance on how to apply to research doctoral programs. Each student will be required to prepare a written report at the end of the summer program detailing the research in which they have participated, and how the experience has affected their plans for the future. The Summer Research Program will run from Monday, May 26, 2014 to Friday, August 8, 2014.

For application information, email Dr. Shishir Shishodia at shishodias@tsu.edu or visit http://cost.tsu.edu/WebPages/Centers.php. Tel: 713 313 7912.
Dr. Mark Harvey received a B.S. in physics from Virginia State University (Petersburg, VA). He completed his graduate studies in physics at Hampton University (Hampton, VA) where he earned his M.S. in physics and Ph.D. in experimental nuclear physics. Dr. Harvey developed several detailed Monte Carlo computer simulation codes to model his Ph.D. experiment, while he was a doctoral candidate at Hampton University. Dr. Harvey’s other research tasks included operating the data acquisition system for the beam, target, and detector systems as well as data analysis. Of note is that Dr. Harvey’s doctoral research experiment in medium energy nuclear physics which was carried out at the National Institute for Nuclear and High Energy Physics in Amsterdham, The Netherlands. After completing his doctoral work, Dr. Harvey went on to become a postdoctoral research assistant in the PHENIX collaboration at the Brookhaven National Laboratory (Upton, NY) where he collaborated on research in the field of relativistic heavy ion collision physics.

After completing his tenure at Brookhaven, Dr. Mark Harvey accepted a visiting assistant professorship at the Rochester Institute of Technology (Rochester, NY) where he taught introductory physics courses for one year, before returning to research as a postdoctoral fellow at the University of Texas M. D. Anderson Cancer Center (Houston, TX). The National Institutes of Health awarded him a Ruth L. Kirschstein National Research Award grant during his fellowship in the radiation physics department for work related to secondary neutron exposure in proton radiotherapy. He used the MCNPX Monte Carlo simulation code to model both the therapeutic absorbed dose and secondary neutrons from the passive scattering treatment nozzle at the Proton Therapy Center.

Dr. Harvey’s current research focuses on radiation dose assessment in therapeutic medical physics using 1) Monte Carlo simulation techniques and 2) radiation detection apparatuses. The simulation research employs the Geant4 Monte Carlo toolkit to predict the underlying physics mechanisms produced within the biological cell volume due to irradiation. The thrust of Dr. Harvey’s experimental research interest is measurement of stray neutrons produced from either x-ray or proton treatment units. The Department of Physics at TSU received funding from the Nuclear Regulatory Commission (NRC) to start a health physics program, which began in the fall semester of 2008. Dr. Harvey currently serves as the coordinator and main instructor of the health physics program at TSU.

Research Spotlight Fengxiang Qiao

Vehicle-to-Infrastructure Wireless Communication System for Safer and More Sustainable Traffic Operations

Over decades, various countermeasures on geometric designs and control strategies have been employed in traffic operations. However, fatal vehicle related crashes continue to occur frequently. For example, in 2009, fatal crashes in construction and maintenance work zones numbered 667 in Texas, Florida, and California. Transportation incidents accounted for 72 percent of roadway work zone fatal occupational injuries in 2010. This calls for the development of innovative and advanced technologies for dynamic traffic operations. Dr. Fengxiang Qiao and his team at the Innovative Research Transportation Institute (ITRI) at TSU are developing a Person/Infrastructure to Vehicle (X2V) wireless communication system to establish an active communication between road side (workers, pedestrians, and infrastructure) and vehicles (X2V). The communication relies on an RFID device with tags on the roadside and the reader within the vehicle. Both on-road tests and simulation tests in the full-motion DriveSafety DS-600c driving simulator are conducted under two scenarios: with and without the X2V communication system. Both scenarios consider important practical factors including lane change, deceleration, and stopping distance in a work zone, stop sign controlled intersections, and signalized intersections with sun glare. Relevant vehicle emissions under different scenarios are estimated using the Environmental Protection Agency approved model, MOVES. Results illustrate that the X2V system will advance sustainability of transportation systems as it can not only enhance safety, but also improve air quality. The research paper summarizing relevant findings won the “Best Paper Award” at the 20th Intelligent Transportation Society World Congress in Tokyo, Japan, October 14-18, 2013. This research is jointly sponsored by The U.S. Department of Transportation Tier 1 University Transportation Center TranLive, and the National Science Foundation (NSF) CREST Center for Research on Complex Networks (CRCN) Sub-project II: Urban Transportation Environmental Network (UTEN), both directed by Dr. Lei Yu.
Staff Spotlight Evangeline Pearson

Evangeline Suarez Pearson has been employed with Texas Southern University since 2003 as an Academic Advisor. She has worked as an Academic Advisor, Special Projects Coordinator for New Student Orientation and instructor of Sociology 211. In 2013, she became the Director for Advisement in the College of Science and Technology Office of Student Services and Institutional Support. Originally, from Fort Lauderdale, Florida, Evangeline has been in Houston for the past 12 years. She holds an MPA from Florida Atlantic University and a BA in Political Science from Howard University. Prior to moving to Houston, Mrs. Pearson was a History teacher with the Broward County School Board and a Senior Planner/Local Emergency Planning Council Coordinator for the South Florida Regional Planning Council. In 2000, Mrs. Pearson was the recipient of the State of Florida’s Emergency Response Commission Award for Hazardous Materials Awareness and Training. Evangeline is a member of the National Academic Advising Association and Texas Academic Advising Network. It is Mrs. Pearson’s passion and dedication to serve and work with students which drives her work ethic. She believes Advisors are the biggest cheerleaders for student success. She is proud of the many accomplishments of our students here at TSU and honored to be a part of propelling TSU students toward academic and lifelong success.

Student Spotlight Kenyata Thomas

By way of Detroit, Michigan, Ms. Kenyata Thomas has found her way to Houston, Texas to further her education here at TSU. Majoring in Engineering Technology, Ms. Thomas has decided to seek a professional career within the Oil Industry. Offered internship opportunities from companies such as TransCanada, United States Navy, and NASA, her future is indeed quite promising. On campus, Ms. Thomas is known for being an outstanding leader who prides herself on promoting her university. She holds many titles on campus and is involved in seven different organizations throughout campus. Ms. Thomas is not only a Student Ambassador for College of Science and Technology, she is also an ambassador for Texas Southern University.

She serves as Student Government Association Senator, Strive for College Financial Coordinator, and a Residential Assistant. These are just a few of the many accolades that Ms. Thomas has earned. While displaying the qualities of a leader at TSU, she does not let her achievements stop here at TSU.

Kenyata is one student who believes that the community affects the way people function in their everyday lives. If the community has the support from its residents and leaders, the community shall flourish and become unified. She spends what little extra time she has volunteering at Rice Village Theatre helping with productions. She also volunteers with weekend camps for children through the National Society of Black Engineers. She always finds time to give back.

Alumni Raves Jarren Section, M.S.

Before leaving for college, I often thought of what was in store for me. Would I be involved in sports? Would I join a fraternity? The reality of these experiences began in Spring 2004 when I moved to Houston to attend Texas Southern University. From the very first moment, TSU delivered an experience that many young people could only dream of, but few would ever find. TSU had a wonderfully diverse student body with a unified sense of pride. I recall realizing that the TSU environment would indeed make a genuine, impassioned scholar of me. I took advantage of on-campus research opportunities. My extracurricular involvement with Omega Psi Phi fraternity, Beta Kappa Chi honor society, and Beta Beta Beta biological honor society supplemented my focus in the classroom.

Following my graduation with a B.S. in Biology, I entered the workforce as a laboratory technician for Pfizer Animal Genetics. I completed a Master’s program at the University of North Texas Health Science Center in Fort Worth. Subsequently, I moved to Dallas to attend the University of Texas Southwestern Medical School.

The greatest tools for success gained from my undergraduate education include a solid working knowledge of the sciences and a good attitude towards hard work. Subsequent to graduation this May, I will commence training as an orthopedic surgeon. To this very day, I strive to uphold the motto of TSU, “Excellence in Achievement.”
Student Accomplishments

TSU-Health Occupations Students of America Volunteering Activity

TSU-Health Occupations Students of America (HOSA) chapter members kicked off their year by volunteering as HOSA Area 2 Conference judges for local high school HOSA chapters. Members arrived at John Reagan High School to judge high school HOSA members as they competed in various events such as Extemporaneous Health Poster, Dental Science, CPR/First Aid, Sports Medicine, Biomedical Debate, Biotechnology, and more. TSU-HOSA cordially interacted with other local collegiate chapters such as the University of St. Thomas and the University of Houston while promoting TSU’s Early Medical School Acceptance Program to prospective high school students.

TSU Maroon Tails WAI Chapter

The TSU Maroon Tails chapter of Women in Aviation, International, participated in the 29th Annual Wings over Houston (WOH) Airshow, October 25 – 27, 2013. This is the chapter’s second year volunteering for the WOH Airshow. Duties for the TSU-Maroon Tails included assisting event organizers and the Commemorative Air Force, in their efforts in setting up the prime view area seating for the WOH Airshow. The viewing area was set up in record time and requests have been made for the chapter to assist the WOH organizers for the upcoming show in October 2014.

Emerging Researchers National Conference 2014

Faculty members and students of the Center for Research on Complex Networks (CRCN), Departments of Chemistry and Computer Science attended the 2014 Emerging Researchers National (ERN) Conference in STEM organized by NSF from February 20-22, 2014 in Washington DC. The ERN Conference is hosted by the American Association for the Advancement of Science, Education and Human Resources Programs, and the National Science Foundation Division of Human Resource Development. The conference is aimed at college and university undergraduate and graduate students who participate in programs funded by the NSF HRD Unit, including underrepresented minorities and persons with disabilities. Faculty members shared their experience and comments with NSF Program Directors and other University’s leaders in helping undergraduate and graduate students to enhance their science communication skills and to better understand how to prepare for science careers in a global workforce.

LSAMP scholars Ms. Larnesia Caulfield, chemistry major, Ms. Raven Reed, chemistry major, and Mr. Richard North, computer science major participated in the ERN oral and poster presentations. Student presentations received valuable comments from attendees. The students were accompanied by Dr. Bobby Wilson, Dr. Wei Li, Dr. Xuemin Chen and Ms. Michelle Tolbert.

Visiting Student from Australia

Mr. Sicong Zhu from University of Queensland in Australia is visiting TSU College of Science and Technology in the position of visiting Student Doctorate conducting research project sponsored by the NSF CREST. He will assist in the research on the subproject Urban Transportation Environmental Networks (UTEN) under the supervision of Dr. Lei Yu.

Intelligent Transportation Society (ITS) TSU Student Chapter participated in the 2013 “Toys for the Kids Christmas Party” organized by congresswoman Sheila Jackson Lee.
Scholarly and Creative Activities

Publications


