

the EXPLORER *Newsletter*

QUARTERLY PUBLICATION OF THE COLLEGE OF SCIENCE AND TECHNOLOGY AT TEXAS SOUTHERN UNIVERSITY

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MIDTERM MADNESS FALL 2013

In efforts to increase persistence and completion rates among students, the College of Science and Technology (COST) in collaboration with the Health Occupations Students of America (HOSA) student organization and the College of Pharmacy and Health Sciences (COPHS) hosted the first Midterm Madness event on Monday, October 7, for students focused in the areas of Math, Biology, and Chemistry.

The purpose of the event was to encourage COST and COPHS students to study for midterms, receive extra help with perceived difficult subject

areas, as well as to offer an extended/additional quiet time and place for studying within a warm and inviting atmosphere. Over 96 students ranging from freshmen to seniors participated in the Midterm Madness study session in the Atrium of the New Science Building from 6:00 pm to 11:00 pm. SGA President and student leaders Leon Spencer, Fred Carter, and HOSA President, Chi-Tam Nguyen, were on hand to assist students and offer support.

Students were engaged as they studied and shared information while they

prepared for mid-term examinations. Instructors and tutors shared their knowledge through individual and group sessions designed to help students become better prepared for their midterm examinations all while enjoying generous refreshments and coffee.

Encouraged by the success of the program, COST hosted a "Final Frenzy" study session for students on December 4, 2013 in collaboration with HOSA and COPHS to finish out the semester on a positive and successful note.



COST 101

Mandatory Freshmen Academic Information Meetings

Beginning in the Fall 2013 semester, the College of Science and Technology (COST) Office of Student Services and Instructional Support (OSSIS) developed a COST 101: Freshmen Meeting as a part of the college's goal to promote student success, persistence and retention. Because many students enter college not fully knowing all it entails to be successful in college, this course was designed to help bridge the gap between the skills the student brings to college and what they need to know to be successful (academic skills vs. the non-academic skills.)

On the fourth Wednesday

of each month, the OSSIS team hosted the COST 101: Freshmen Meeting focusing on different topics that entering students need to be aware of in order to be successful. Topics included adjusting to college life; time management; how to study / note-taking strategies; creating a study pact; general education requirements; career planning; and other campus resources to name a few. This project was spearheaded by Ms. Evangeline Pearson, Dr. Desirée Jackson and Dr. Oscar Criner. The team tailored COST 101 topics to meet students' needs keeping in



mind each stage of a freshman's first semester experience and coupled with academic issues of importance within a particular month, for example, preparing for midterm examinations.

Over the course of the fall semester, OSSIS held three COST 101 meetings with more than 120 students in attendance. As an incentive, the COST offered Barnes and Nobles Bookstore gift cards to encourage the 299 first time freshmen to attend. During the meetings students were encouraged to share their experiences and challenges. Students who were doing

well at midterm were commended for their efforts. As the meetings grew in popularity, more than just the incoming freshmen attended. Topics were expanded to include topics of interest not just relevant to first time freshmen, but also to first time transfer students, and new post-baccalaureate students studying in COST.

OSSIS will continue to offer the COST 101 Freshmen meeting during the spring 2014 semester as a continuation for freshmen and other students. Meetings will begin on the fourth Wednesday in January.

Port Commissioner Theldon Branch Visits TSU

Port Commissioner Theldon Branch, III visited students in the Maritime 424: Containerization and Modern Cargo Storage class to talk about his life as an entrepreneur and the opportunities for students who pursue careers in the Maritime industry.

During his talk, Commissioner Branch talked about growing up across the street in the Cuney Homes Apartments and always being on the TSU campus, either in the library or just running around the campus.

After the presentation,

the Maritime Student Association hosted a reception in the Commissioner's honor in the President's Lounge on the 4th floor of the Sterling Student Center. In addition to TSU Maritime students and faculty in attendance at the reception, other attendees included TSU President Dr. John Rudley, COST Dean Dr. Lei Yu, Department of Transportation Studies Chair Dr. Yi Qi, TSU Associate VP for Communications and Community Affairs Eva Pickens, TSU Executive



Director for Development Carolynne Oliver, Port of Houston Authority VP for Small Business Gilda Ramirez, and Port of Houston Authority Maritime Program Coordinator Linda

Clary.

Established in Fall 2010, the Department of Transportation Studies offers a Bachelor of Science degree in Maritime Transportation Management and Security.

COST Open House

AN EXCITING COMMUNITY AFFAIR

The COST community gathered for the 5th Annual Open House: Alumni and Partnership Luncheon on Thursday October 17, 2013. The atrium of the TSU Science Center was brightly decorated in the spirit of Homecoming for the gathering of alumni, partners, friends, students, faculty and staff for our annual College Show and Tell program. Guests reviewed research posters and networked with students, faculty, and alumni before settling down to lunch.

Dr. Oscar H. Criner opened the program with a talk on the theme of the program, "Creating the Successful STEM Student," where he discussed the activities of the College in helping students adjust to college life. There was a major orientation for freshmen, pointing out to students the challenges and pitfalls for those attending college for the first time.

Dean Lei Yu gave a "State of the College of Science and Technology" presentation that was a report of annual activities. He highlighted the new Technology Building that will soon be occupied.

This year the Partner of the Year was the Houston Airport System (HAS), which has been actively involved in the COST Airway Science program for many years. In the 1985-1986 academic year, the COST established the Airway Science program with the assistance of a grant from the Federal Aviation Administration. The primary thrust of the programs

was to provide skilled persons to the workforce that manages the airport systems of the nation. The environment of airports has its own operating modality that exists in no other part of the transportation sector. Hence, there existed a very specialized area of education and training that TSU sought to satisfy. Thirty six students have participated in the HAS-TSU internship program up to the present. Sixteen TSU graduates have professional positions with the HAS. Mario Diaz, the director of HAS, accepted the College's Partner of the Year Award on behalf of the HAS.

COST students described their personal experiences as to the path that led them to study in the College. The COST Board of Advisors perspective was delivered by the Chairman, Mr. Paul Simmons, who gave remarks as to the activities of the Board of Advisors in its advocacy for the College. Similarly, the COST Alumni Association Chapter's activities were described by their Acting President, Mr. Perry Miller.

Dean Yu introduced the Keynote speaker Dr. Mark Dean, who is Fisher Distinguished Professor at the University of Tennessee, College of Engineering. Dr. Dean was formerly Chief Technology Officer for IBM and an IBM Fellow. His presentation surveyed "Emerging Areas of Innovation and Opportunity."



Reaccreditation of Technology Programs

The Departments of Engineering Technology, Industrial Technology, and Aviation Science and Technology went through re-accreditation process this year. The Department of Engineering Technology has received full re-accreditation for 6 years from the Accreditation Board for Engineering and Technology (ABET) for its Electronics Engineering Technology program. Simultaneously, the Construction and Design

programs in the Industrial Technology Department and Aviation Science Management program in the Department of Aviation Science and Technology received re-accreditation with a 2-year report by the Association of Technology, Management, and Applied Engineering (ATMAE).

The reaccreditation culminates a process of evaluation by faculty and staff that started six years ago. The

final 18 months of that process included the preparation and submittal of a comprehensive self-study report for the program under evaluation. This was followed by a campus visit by both ATMAE and ABET Program Evaluators. The re-accreditation extends for another 6 years.

Accreditation is a peer-review process that requires comprehensive, periodic evaluations; a key element

being the requirement that programs continuously improve the quality of education. Programs must set specific, measurable goals for students and graduates, assess their success at reaching those goals, and improve based on the results. The accreditation criteria are developed by technical professionals to assure every program meets the demanding standards that prepare graduates to enter their engineering professions.

Homecoming 2013 Proud of our Stripes



The Homecoming Alumni Activities were organized from Wednesday, October 16 through Saturday, October 19, 2013. The Grand Tiger Parade was held on October 19 in Downtown Houston.

The College of Science and Technology is quite excited to report that it placed in every division of competition it entered in the 2013 Homecoming at Texas Southern University. This year's theme was "Proud of

our Stripes."

In the campus-wide Decorating Competition COST Dean's Office received First Place award in Office Suite and Door decorations and COST Student Service Office received Second Place award in Office decorations.

In the Parade Competition COST received First Place award in the Float competition and Third Place award in the Walking Unit competition.

New Research Grant from Texas Department of Transportation

The College of Science and Technology received a new research project from Texas Department of Transportation (TxDOT) to quantify the vehicle emissions associated with different pavement conditions of flexible pavement, continuously reinforced concrete pavement, and jointed concrete pavement. The project

will be jointly conducted by researchers from the University of Texas at El Paso and Texas Southern University. Dr. Lei Yu and Dr. Fengxiang Qiao will lead the effort at TSU for this two year project. The product from this project will assist TxDOT in improving maintenance strategies to reduce emissions.

TSU Seed Grants to COST Faculty Members

Dr. Maruthi Sridhar Bhaskar (Environmental and Interdisciplinary Sciences), Geospatial Models to Map Mercury Dynamics at Watershed Scale, \$7,500.

Dr. Nancy Glenn (Mathematics), Some Algorithmic Aspects of Linear Quantile Mixed Models and Other Longitudinal Data Analysis Methods, \$4,000.

Dr. Mario Hollomon (Biology), Assessment of the Impact of Autophagy Inhibition and Anticancer Drug Treatment on Ras Driven Cancer Cells, \$10,000.

Dr. Yaqi Wanyan (Engineering Technology), An Expert System to Rationally Select Appropriate Artificial Intelligence Tools for Civil Engineering Problems, \$8,000.

Faculty Spotlight Sonya Good

Dr. Sonya L. Good joined the Texas Southern University faculty as a tenure-track Associate Professor of Chemistry in the College of Science and Technology in the Fall of 2013. She is a native of Jackson, MS. Dr. Good received her PhD in Chemistry from Louisiana State University in 2001 and BS from Jackson State University in 1993. Her

research involves electrochemical methods to detect trace levels of metals and develop biosensors to detect proteinases levels in chronic wounds.

In 2013, Dr. Good along with Dr. Edwards (USDA) authored a publication in the Journal of Functional Biomaterials entitled Citrate-Linked Keto- and Aldo-Hexose Monosaccharide Cellulose Conjugates

Demonstrate Selective Human Neutrophil Elastase-Lowering Activity in Cotton Dressings Volume 4, pages 59-73. She is a member of the American Chemical Society and National Organization for the Professional Advancement of Black Chemists and Chemical Engineers (NOBCChE). Dr. Good currently serves as Advisor for the Chemistry Club.



Research Spotlight Miao Pan

Making Cellular Networks More Flexible

The exploding growth and popularity of wireless devices such as smart phones have resulted in the surge of various applications, such as anywhere anytime online social networking, mobile gaming, and mobile video services, which have exacerbated the congestion over cellular spectrum. On the other hand, many licensed spectrum blocks are left unused. Although cognitive radio (CR) technology has emerged to enable unlicensed users to opportunistically access the unused licensed spectrum, most previous works commonly assume that each user is equipped with a CR which can operate across a wide spectrum range. This may be possible in theory, but may not be practical for light-weight radios such as cell phones. How to effectively take advantage of the CR technology to build more flexible networks so that the non-CR capable devices can gain benefit from the opportunistic access to the

unused spectrum is therefore in dire need. This study is to address this important issue.

The study outlines an exciting four-year research plan focusing on fundamental challenges associated with the development of a novel cognitive mesh assisted cellular network (CMCN). We plan to lay the algorithmic foundation, develop systematic design, and experimentally evaluate our design geared towards spectrum and energy efficiency in cellular networks. In particular, we first plan to investigate the architectural design of CMCNs so that unoccupied licensed spectrum can be collected and effectively utilized, traditional cellular spectrum can be efficiently reused spatially, and cellular system capacity can be significantly increased with better user experience. We will then explore spectrum and energy efficient CR mesh router placement



under uncertain spectrum availability. To facilitate efficient spectrum allocation and intelligent traffic delivery by utilizing the CR mesh routers, we will also study how to construct a fine-grained spectrum map. Finally, we intend to thoroughly conduct experimental validation and implementation for the proposed design by implementing them on our CMCN testbeds.

The developed technologies in this study

will advance the state of the art in future cellular technologies, enrich the scientific knowledge of network theory and design, and thus can be used to find novel solutions to supporting more diversified applications, such as smart environments, smart cities, smart grids, mobile health systems, mobile social networks, and public safety systems, which will then create more business opportunities, jobs, and economic growth.

Staff Spotlight Denita LaShore

Denita LaShore currently serves as the Sr. Administrative Assistant in the Center for Transportation Training and Research (CTTR). She has served in the CTTR for the past 16 years. She attended the University of Houston and Houston Community College, respectively, prior to her employment at Texas Southern University. She considers herself an integral part of the Center for

Transportation staff, as well as a willing team member of the COST family as a whole. Although she has had her share of challenges and growing pains within her capacity as a Sr. Administrative Assistant over the years, she prides herself on having been able to meet those inevitable, as well as unexpected challenges. She has a quiet, reserved personality yet she is always responsive when the needs of her office arise. Her

position has also afforded her the opportunity to meet some of the most interesting people from various parts of the world, both students and professionals alike. Very few can say they've gotten to know her, but the few who have, find her friendly and unassuming with a lively sense of humor.

Denita is very happily married and lives in Northwest Houston with her husband of 18 years. In her



leisure time she enjoys walks around Memorial park, visiting antique furniture shops, watching Korean dramas and foreign films. To stay active, Denita takes in a Zumba fitness class and also enjoys cycling on the weekends.

Student Spotlight Shonna Gaskins

Shonna is indeed one of the few students who has distinguished herself from the class through academically performing above and beyond. A biology major, she is a Joint Admissions Medical Program (JAMP) Scholar and has been accepted to the University of Texas Health Science Center-Houston to pursue a MD program. Shonna is also an academic scholar being a part of the Thomas F. Freeman Honors College and the

Science and Technology Enhancement Program. She has also completed research here on campus partnered with the NASA space station.

Shonna shows characteristics of creativity, reasoning, and service which she expresses so vividly in her everyday activities. She is very active in numerous campus organizations including the Pre-Health Profession Club, National Association for the Advancement of Colored

People (NAACP), Student Government Association, and Alpha Kappa Alpha Sorority Incorporated.

Outside of school Shonna shows her leadership qualities within her youth group at church and summer league sports. She is the performing arts coordinator, and spends her spare time teaching kids of all ages' music, dance, and drama. She has been the leader of this youth group since she was 13 and has nourished and



matured it into the strong program that it is today.

Shonna has volunteered at Memorial Hermann Hospital as a child life volunteer where she spent her time assisting the patients during their stay at the hospital.

Alumni Raves Pearl Wright

Mrs. Pearl M. Wright is a 1986 graduate of the Department of Computer Science. She is President and CEO of 4W Solutions, a human capital outsourcing and staff augmentation company. Mrs. Wright has over 30 years of experience in the aerospace industry working and running business units for small businesses contracted to the NASA Johnson Space Center and its prime contractors. She

successfully participated in the NASA Johnson Space Center's ISO 9000, 9001, and VPP initiatives. During her career, Mrs. Wright has successfully managed contracts which resulted in the company receiving the Minority Contractor of the Year Award two of the three times it was nominated: 1) NASA Minority Contractor of the Year and 2) Air Force Minority Contractor of the Year. She was regional

director for DUAL and Associates, a prime contractor for Johnson Space Center. In that capacity she sought to provide opportunities for the faculty, graduates and former students of the Department of Computer Science. She has employed approximately 20 computer science students during her career in aerospace. Several persons from the TSU computer science program, including a professor, received Space Act Awards. In 2001,



Mrs. Wright established 4W Solutions to provide technical, professional and administrative services. Mrs. Wright was also instrumental in implementing Radio Frequency Identification (RFID) for a small business.

Student Accomplishments



Intelligent Transportation Society Texas Annual Meeting

Led by faculty advisor Dr. Fengxiang Qiao, 14 graduate students from Intelligent Transportation Society (ITS) TSU student chapter actively attended the ITS Texas annual meeting from November 19-20, 2013 in Houston, and undertook assigned volunteer work for the event. Four members (President Qing Li, Enyu Li, Jie Liu, and Qun Zhao) received the annual

scholarships (\$1,000 each), and the ITS Chapter receives a \$500 stipend from ITS Texas. TSU Chapter is one of the two student chapters in Texas, another one is in University of Texas at Austin. The picture shows TSU attendees with ITS Texas board of directors during the award luncheon on November 20, 2013.

Training on use of MOVES

Dr. Mehdi Azimi, a post doctoral research associate in the Department of Transportation Studies, conducted a series of trainings to graduate students on the use of the Environment

Protection Agency (EPA) approved new emission estimation model MOVES. The trainings include three lectures on the estimations of emissions at national, county, and project levels, respectively.



Technical Training on Smart Eyes and MAPPS

Faculty and graduate students in the Department of Transportation Studies conducted a technical training from the manufacturer on the use of Smart Eye system during the week of October 22, 2013. The Smart Eye system can be

easily embedded into the Driving Simulator or even a real vehicle to capture the gaze positions, pupil movements, and even eye blinking while driving. The obtained data can be promptly processed by using the software MAPPS.



AXION Upgraded Emission Measurement Equipment: The vehicle emission measurement Axion was newly upgraded in the Department of Transportation Studies and a weekly technical training was conducted from the manufacturer to faculty and graduate students in early November, 2013. The newly upgraded functions enable easier and more accurate detection of vehicle parameters, and can report Particulate Materials 2.5 and 10 (i.e. PM2.5 and PM10) for diesel vehicles and many non-road equipments.

Scholarly and Creative Activities

Publications

Fang J, Wei X, Sapp JB, Deng Y. Novel platinum(II) complexes containing diaminocyclohexane and thiourea derivative ligands: Synthesis and X-ray crystal structure of (trans-1,2-diaminocyclohexane) dithiourea platinum(II) nitrate monohydrate. *Inorg. Chim. Acta*, 2014, 411, 5-10.

Godazi K, Goodwin R, Qiao F, Miller A (2013). Exposing Minority Students to Transportation and STEM-related Careers through Summer Education Programs. Publication in *Transportation Research Record: Journal of Transportation Research Record*, No. 2328, pp. 16-24.

Lai J, Yu L, and Song G. Emission Characteristics of Heavy-Duty Diesel Transit Buses at Bus Stops in Beijing. *Air & Waste Management Association Environmental Management Magazine*, pp. 30-33, Aug 2013.

Perotti L, Vrinceanu D, Bessis D.

Enhanced Frequency Resolution in Data Analysis. *American Journal of Computational Mathematics*, 2013, 3, 242-251.

Qiao F, Jia J, Yu L. (2013). A Short Range Vehicle to Infrastructure System at Work Zones and Intersections (paper # 1027). Publication in the proceedings of and win the "Best Paper Award" in the 2013 Intelligent Transportation Society (ITS) World Congress in Tokyo, Japan. October 14-18, 2013.

Hollomon MG, Gordon N, Santiago-O Farrill JM, Kleinerman ES. Knockdown of autophagy-related protein 5, ATG5, decreases oxidative stress and has an opposing effect on camptothecin-induced cytotoxicity in osteosarcoma cells. *BMC Cancer*. 2013 Oct 26;13(1):500.

Vrinceanu D, Onofrio D and Sadeghpour HR. Comprehensive rate coefficients for electron collision induced transitions in hydrogen. *Astrophysical Journal* 780, 2 (2014).

Presentations

Handy C, Vrinceanu D, Gupta R, Kouri R, Killeen B, Patel K. The Orthogonal Polynomial Projection Quantization Method and Exactly Solvable Quantum Systems: A Moment Representation Shortcut to the Nikiforov-Uvarov Approach. Fall 2013 meeting of the Joint APS-AAAPT Texas Section of the American Physical Society, UT-Brownsville, Brownsville, TX.

Fang J, Nguyen M, Phan J, Deng Y, Thomas RL, Wilson BL, Wei X.

Electro-polymerization of Polypyrrole on Single-Walled Carbon Nanotubes, 69th Southwest Regional Meeting of the American Chemical Society, Waco, TX. November 16-20, 2013.

Fang J, Wei X, Sapp JB, Deng Y, Synthesis and Characterization of Platinum(II) Complexes Containing Diaminocyclohexane and Thiourea Ligands, 69th Southwest Regional Meeting of the American Chemical Society, Waco, TX. November 16-20, 2013.

Theses and Dissertations

Chelse Hoover, "Exploring the Affects of Alternative Origin-Destination Routes on Emission

Output in the Houston Area," M.S. Research Thesis, Completed in October 2013 (Advisor: Lei Yu).

ITS World Congress 2013 Best Paper Award

Dr. Fengxiang Qiao, received the Best Paper Award at the 20th Intelligent Transportation Society (ITS) World Congress in Tokyo, Japan from October 12-18, 2013. The paper entitled "A Short Range Vehicle to Infrastructure System at Work Zones and Intersections" is co-authored with graduate student Jing Jia and Dr. Lei Yu. ITS world congress is the biggest conference in the world, attracting 16,700 attendees in 2013.



TSU
TEXAS SOUTHERN UNIVERSITY

DEDICATION CEREMONY

Leonard H. O. Spearman
Technology Building

COLLEGE OF SCIENCE AND TECHNOLOGY

FEBRUARY 19, 2014, 3:00 PM

PROGRAM * LABORATORY TOUR * RECEPTION

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