

Letter from CEE Department Chair



The past six months have been remarkably successful for the Department of Civil and Environmental Engineering at UNC Charlotte. Our success contributes to countless students and the taxpayers of North Carolina and beyond. During the most recent quarter, our research expenditures

were the highest in the College of Engineering and third highest on campus. And we continue to receive national recognition for our work with structural health monitoring, use of industrial byproducts, wastewater treatment, as well as transportation safety and optimization.

Publications and patents follow this activity, as with **Professor Shen-En Chen** who secured three new patents for his work with **carbon dioxide sequestration**. Our department is getting larger: we added three world-class members to our faculty, as you'll see in this newsletter: **Dr. Nicole Braxtan** (Ph.D. Lehigh University), **Dr. Mariya Munir** (Ph.D. Michigan State University) and **Dr. Mei Sun** (Ph.D. Carnegie Mellon University). These faculty are excellent examples of how we pride ourselves on both teaching and research with an emphasis on graduating students with a practice-ready orientation and extraordinary character. To that end, I'm pleased to announce that **Dr. Kimberly Warren** has been promoted to the position of Director of Student Learning and Assessment in the CEE Department. Dr. Warren has previously received educational research

funding from the U.S. National Science Foundation to promote classroom engagement and innovations in our Department. She will continue to pursue engineering education research and practice opportunities, will work with resources on campus to improve departmental advising, and will take the lead on all aspects of undergraduate assessment in the CEE Department.

Our department is especially strong because of its link with the Charlotte metropolitan region. The role of civil and environmental engineering is inextricably linked to the quality of life we all hold so dear. So, I'm proud to announce **a new board member, Ms. Maggie Will from the Charlotte Chamber of Commerce**. Together we will continue to strengthen opportunities and relationships. One example is Jack Christine, an aviation expert and Chief Operating Officer of the Charlotte Douglas Airport, who will be co-teaching Airport Planning and Design this fall semester. What a great opportunity for our students and faculty!

Our alumni are critical to our success through advocacy and financial support. Our alumni work together, expanding their own professional network while raising the bar for the department. Consider volunteering (or at least cheering on the students) at the next **Carolinas Conference**, to be hosted by our department **March 30-April 1, 2017**. That would be great time to come back to campus, reconnect and recommit! **Go 49ers!**

John L. Daniels
Professor and CEE Department Chair

AT A GLANCE: CEE @ UNC Charlotte

Undergraduate Students: 419

MS Students: 40

PhD Students: 39

Faculty Members: 25

New Research Lab: Pg. 2

in this issue



DEPARTMENT NEWS
CEE Job Fair



AWARDS & HONORS
Dr. Tempest, Outstanding
Young Alumnus Award



STUDENT ORGANIZATIONS
ASCE Student Chapter



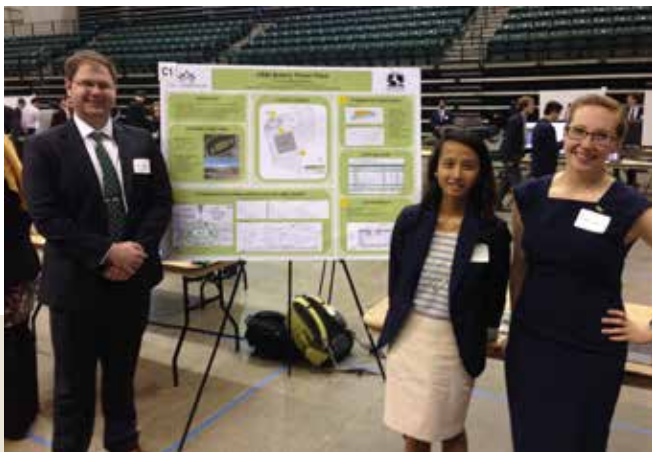
NEW State-of-the-Art Environmental Microbiology Lab New faculty to address microbial pollutants with cutting-edge technology

The new Environmental Microbiology Laboratory space is being established within the existing environmental engineering laboratory housed in EPIC building in the CEE Department with the hiring of Dr. Mariya Munir. Dr. Munir has expertise in the field of emerging biological contaminants in water and wastewater environments.

The CEE Environmental Microbiology research group will use modern molecular, genomic, and computational approaches to investigate microbial pollutants. This new collaboration will help CEE engineers solve acute environmental challenges in the changing world. ♦



Spring Senior Design Engineering Expo



"Team Awesome", from l-to-r: Alexander McMillan, Riska Zahro, and Kaitlyn Chapman

The Lee College of Engineering Senior Design Expo is an excellent way to showcase the bridge between the university and our industry partners. But it is also a venue for the innovative and comprehensive engineering design education afforded our students.

The design team shown to the left, dubbed "Team Awesome" was approached by CB&I to design stormwater management and rainwater harvesting systems for a battery storage facility. The team designed the drainage areas and drainage network to move water from the developed site to the wet pond. The rooftop rainwater harvesting system is based on one of Contech Engineered Solution's cistern designs. Team Awesome was mentored by **Dr. Bill Saunders** during their design project.

These three seniors started jobs in civil and environmental fields immediately after graduation in May. We're proud of their successes and wish them well. ♦

CEE Visiting Faculty

Dr. Qiang Sun is visiting from China University of Mining Technology for one year. He holds a Ph.D. in Geosciences and is working on research with our **Dr. Shen-En Chen** on the evaluation of thermal conductivity for sedimentary rocks and correlation to wave speed.

Dr. Jin Dan is also visiting from China University of Mining Technology for one year. An Associate Professor in Management Science, Dr. Dan will be studying the impact of coal mining activities on the environment from an atmospheric carbon dioxide perspective with Dr. Chen.

Dr. Sunyoung Bae, visiting us from Korea Women University in Seoul, is a chemist who specializes in geoenvironmental characterization. She is working with **Dr. Vincent Ogunro** on the stabilization of wastewater with coal combustion residuals.

Professor Guillermo Zavala, a civil engineer from Catholic University in Peru, is working on liquefaction of sands using cyclic simple shear testing as part of his doctoral dissertation. **Dr. Miguel Pando** is his CEE advisor. His co-advisor is Dr. Rafael Aguilar from Catholic University. (continued on page 5)

Exposure
Engagement
Success



Local companies and organizations interfacing with CEE undergraduate and graduate students.

CEE Job Expo

Approximately 30 employers came to recruit our students for internships and full-time positions at the department's first CEE expo in 30 years. The **first** expo was organized in 1985 by **Professor Rajaram Janardhanam**. Mr. Rick Priori, the CEO of Duke Power at that time was the chief guest for the evening ceremony. The expo was inaugurated by the then Vice-Chancellor for Academic Affairs, Dr. James Werntz.

Our latest expo was a bit more informal, organized from 11 am to 2 pm on **Wednesday, March 16**. It was a great

opportunity to network with CEE firms and to connect with alumni. These employers and alumni also reviewed our Program Educational Objectives, which are broad statements that describe what graduates are expected to attain within a few years after graduation. These statements include such expectations as "graduates will be demonstrating ethical behavior and professionalism by nearing/obtaining professional licensure..." and indeed a number of newly minted P.E.s were in attendance! ♦

A History Moment

The first CEE job expo was organized in 1985 by **Professor Rajaram Janardhanam**.

If you have a bit of CEE historical trivia to share, please send it to us at cee.dept@uncc.edu.



"Dr. J"



Dr. Tempest with Chancellor Dubois

University Recognition

Dr. Brett Tempest, CEE Assistant Professor, was recently awarded the Outstanding Young Alumnus Award by the UNC Charlotte Alumni Association.

Dr. Tempest teaches core courses throughout our curriculum and has also developed new and innovative courses, including Sustainable Design, Engineering for Development Workers, and Green Building. He serves as advisor to the campus chapter of Engineers Without Borders.

In 2015 our department had more faculty with industrial byproducts expertise than any other department in the country. Dr. Tempest is one of those experts.

Dr. Tempest holds a Bachelor's degree in International Studies from UNC Chapel Hill and three degrees in civil engineering from UNC Charlotte, including his doctorate (2010). ♦



Graduate Research Symposium Winners
[Praveena is second from the left]

Graduate Students Honored

Doctoral student **Praveena Penmetsa** placed second in the engineering oral presentation category at the Graduate Research Symposium in April. More than 100 students presented their research works.

Praveena's presentation title was "Risk drivers pose to themselves by violating traffic rules". She is working with Dr. Srinivas Pulugurtha on traffic safety, modeling and transportation system reliability related research topics.

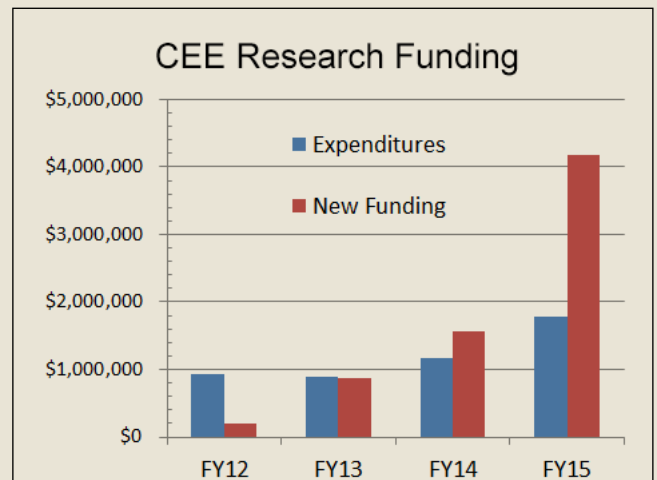
Also in April, **Venu Kukkapalli** was a speaker at the Southern District Institute of Transportation Engineers, SDITE, for short. He presented his paper entitled "Effectiveness of Pedestrian Hybrid Beacon Signals in Reducing Crashes in Charlotte". SDITE has over 1,500 members in nine southeastern states with best experts in transportation engineering, transportation planning, and traffic safety related fields.

It was a great honor for Venu to speak there. Venu is also doing his graduate work under Dr. Pulugurtha and anticipates completing his studies in May 2018. ♦

CEE Research Activity

The Department's research funding has been increasing steadily since fiscal year (FY) 2012. In FY15, we experienced our greatest amount of growth in new funding ever.

Support has come from a diverse array of sponsors, including the Federal Highway Administration, Environmental Research and Education Foundation, Electric Power Research Institute, Southern Company, American Electric Power, North Carolina Water Resources Research Institute, Waste Management, North Carolina Department of Environmental Quality and the University of the Holy Land. (continued on p. 5)



Seed Funding for Research

EPIC seed funding is an opportunity to **seed innovative projects in energy and infrastructure**. This type of research funding increases the chance of getting sustainable federal or industrial funding.

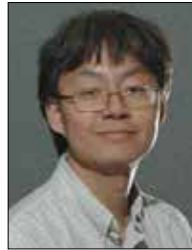
Four proposals were chosen to be funded for fiscal year 2016. **Dr. Shen-En Chen** in collaboration with **Drs. Martin Kane and Keith Baarson** received seed monies for their proposal addressing rail energy.

In the environmental and energy research cluster, **Dr. Olya Keen** in collaboration with **Dr. Milind Khire** and **Mr. Chris Hardin** will also be funded. Their proposal addresses energy production in wastewater handling strategies.

EPIC awards seed monies each fiscal year. For FY2016 several 'very worthy research topics were submitted, according to EPIC Director Dr. Johan Enslin.

With over 75 faculty members working in energy-related disciplines, EPIC is quickly becoming a national leader in energy research and development, as evidenced by the growing support from utilities and government agencies. ♦

Seed funding for transportation research



Chen



Kane



Baarson

Seed funding for environmental research



Keen



Khire



Hardin

ALUMNI: Share Your News

Please send us news of your latest accomplishments, awards, or recognition.

Email your announcement to the department at cee.dept@uncc.edu.

Be sure to include your: Name, mailing address (if updated), company name, degree, major and class.



Follow us on Twitter (@UNCC_CEE)

CEE Research Activity [continued from page 4]

This support follows our expertise in non-destructive testing, blast resistance, liquefaction, surface and groundwater quality and waste management, among other areas.

If you want more information about our research endeavors or perhaps want to join us in our work, contact Dr. John Daniels, our Department Chair, at jodaniel@uncc.edu. ♦

Visiting Faculty [continued from page 2]

Dr. Honghai Zhang is visiting from the Nanjing University of Aeronautics and Astronautics for one year. An Associate Professor in Air Traffic, Dr. Zhang will be studying the optimal air traffic flow management with guidance information in terminal areas with **Dr. Wei Fan**. ♦

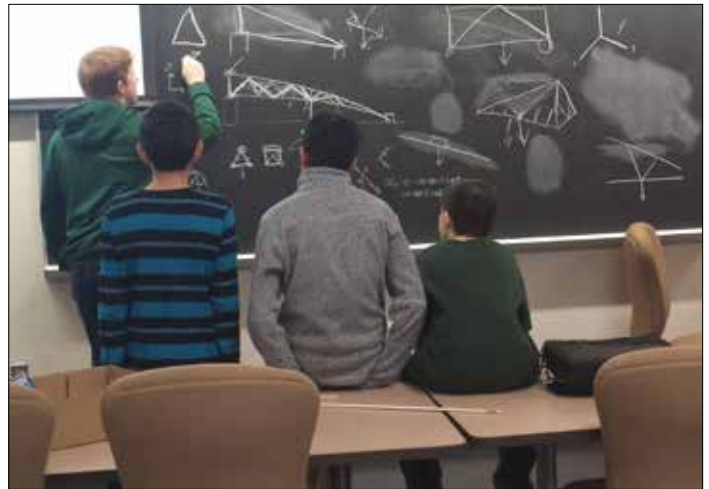
Interested in being a CEE Donor? Email us: cee.dept@uncc.edu.

Undergraduate Students Give Back

This past February, six CEE undergraduate students helped half a dozen Charlotte Mecklenburg School students prepare for the NC Science Olympiad Balsa Wood Bridge design competition. Five of the students were from Randolph Middle School and one was from the East Mecklenburg High School design team. One of the middle school dads, alumnus Chad Anderson, was also in attendance.

“We were in the EPIC building for approximately two and a half hours this past Saturday,” said Anderson. “[We] could have kept going for hours. The excitement and fun that the students (including the UNCC students) had was unbelievable. They learned a lot and got some great pointers on their designs. It was great to see the level of knowledge the UNCC students had and to see them pass that knowledge on to the younger generation.”

Chad Anderson is with Terracon, a local engineering firm that provides environmental, facilities, geotechnical, and materials consulting engineering services. Special thanks to Sierra Mondin (who was instrumental in setting up the event), Kyle McGee, Robby Lankford, Geena Merkel, Luke Johnson, and Matthew Sylvain. Keep up the good work. ♦



Top right: CEE undergrad ‘teaching’ a captive audience. | Above: CEE undergrads helping middle school students perfect their balsa wood bridge designs.

New Faculty



Dr. Nicole Braxtan joined the Structures Group in January 2016. She received her Ph.D. in structural engineering from Lehigh in 2010. Her current research interests include analysis and design of buildings, bridges, and energy infrastructure. She has expertise in finite element modeling of steel and concrete members in fire. ♦



Dr. Mariya Munir joined the department as an Assistant Professor in Fall 2015. She received her Ph.D. in environmental engineering from Michigan State University. Her research focuses on the application of environmental microbiology techniques in studying antibiotic resistance in wastewater treatment plants. She has expertise in emerging biological contaminants in water. ♦



Dr. Mei Sun joined the department in Spring 2016 as an Assistant Professor. She holds a Ph.D. in civil and environmental engineering from Carnegie Mellon University. Her research focuses on innovative and sustainable technologies in water and wastewater treatment. ♦



Linda Hargrove joined the department in Spring 2016 as a Faculty Associate. Her duties include working as a contributing engineer with the National Ash Management Advisory Board. She holds a MS in Biological and Agricultural Engineering from North Carolina State University. ♦



ASCE Conference Winnings

UNC Charlotte Student Chapter

[CONTINUED FROM BACK COVER]

The Student Chapter placed 3rd overall and received the following awards:

Freshmore Challenge

1st Place

Surveying

1st Place: Pacing
2nd Place: Overall

Geotechnical

1st Place

Concrete Canoe

2nd Place: Men's Endurance
3rd Place: Women's Sprint
1st Place: Men's Sprint
2nd Place: Co-ed

Steel Bridge

3rd place: Construction
3rd place: Stiffness
1st Place: Display
3rd Place: Economy
3rd Place: Efficiency

Overall Steel Bridge

3rd Place



ASCE Student Chapter: Year in Review

Submitted by Darin Basso, Chapter President

The UNC Charlotte ASCE student chapter had another busy and productive year. We had speakers from different companies such as Charlotte Water Works, Terracon, The US Navy CECs, and CB&I come talk to our chapter about their companies and what they do. As a chapter we received a letter of honorable mention from the ASCE Director of Student and Younger Member Programs for the “outstanding activities recorded in the 2015 Chapter annual report”. For our annual chili cook off, Sara Watson won the coveted first place trophy by the closest margin in chili cook off history.



Students at Conference 2016

The ASCE Student Chapter had a blast at the 2016 Carolinas Conference. Hosted by North Carolina A & T University, the theme was Building a Sustainable Legacy and incorporated the methods of the ancient Egyptians regarding their accomplishments in design and construction. A special thanks to the conference chair, Darvin Wilson, for his work organizing the UNCC contingent to the event. Wilson received the Dr. Martin Kane Student Inspiration Award on behalf of his work. We were highly successful in the competitions, coming in 3rd place overall.

We are looking forward to hosting the conference here at UNC Charlotte next year. ASCE would like to send a huge thank you to our advisor **Dr. Gergely**, all faculty and staff in the CEE Department, alumni and all students at UNC Charlotte for your continuous support. [CONTINUED ON PAGE 7]