As department head, I am pleased to present the first BCEE newsletter of the 2014-2015 academic year. Thus far, this has been an exciting year, filled with new faces and many impressive accomplishments. We are fortunate to welcome three new faculty members whose research specialties range from bone tissue engineering to wastewater treatment. You can read more about Dr. James Lin (BME), Dr. Ryan Chae (EnvE), and Dr. Sivaraman Balachandran (EnvE) below. Our faculty’s research continues to bring esteem and recognition to our department, reaching approximately $7,311,000 in total research expenditures this past fiscal year. Our BCEE students have been particularly impressive lately. As you will read, Biomedical Engineering welcomed six national merit scholars to the program, and a group of Chemical Engineering students created a pneumatically powered car that took first place at the regional AIChE Chem-E-Car competition. Congratulations to all of our faculty and students for their hard work and accomplishments. I look forward to seeing the department continue this excellence through the remainder of the semester and into 2015.

George Sorial Ph.D., Department Head BCEE

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**BCEE Faculty News**

The Department Welcomes Three New Faculty Members

BCEE is excited to welcome three new faculty members this 2014-2015 academic year: Dr. Chia-Ying (James) Lin, Dr. Soryong (Ryan) Chae, and Dr. Sivaraman “Siv” Balachandran.

**Dr. Chia-Ying (James) Lin** joined the Biomedical Engineering faculty as an Associate Professor at the beginning of the Fall 2014 semester. Previously, he served as Assistant Professor of Neurosurgery, Orthopaedic Surgery, and Biomedical Engineering at the University of Michigan in Ann Arbor. Dr. Lin received his B.S. in Civil Engineering from the National Taiwan University, and his M.S. and Ph.D. in Biomedical Engineering from the University of Michigan. His research interests include bone tissue engineering, primary and metastatic spine tumors, and intervertebral disc degeneration and regeneration. Welcome, Dr. Lin!

**Dr. Soryong (Ryan) Chae** will join the Environmental Engineering faculty as an Assistant Professor in January, 2015. Dr. Chae was previously a Lecturer at the University of Sydney in Australia. He received his B.S. in Environmental Engineering from INHA University in Incheon, South Korea and his Ph.D. and M.S. in Civil and Environmental Engineering from the Korea Advanced Institute of Science and Technology. Dr. Chae’s research interests are in the areas of wastewater treatment and resource recovery. Welcome, Dr. Chae!

**Dr. Sivaraman “Siv” Balachandran, P.E.** will also join the Environmental Engineering faculty as an Assistant Professor in January, 2015. He was previously a Research Mentor at the Georgia Institute of Technology in Atlanta and worked as a professional engineer for the Washington State Department of Transportation for nearly ten years. Dr. Balachandran received his B.S. in Civil Engineering from Carnegie Mellon and his M.S. and Ph.D. in Environmental Engineering from Georgia Institute of Technology. His research interests are in the areas of urban air, water, and energy systems. Welcome, Dr. Balachandran!
Dr. Angelopoulos Becomes Program Chair of Chemical Engineering

Dr. Anastasios Angelopoulos has taken over as program chair of the Chemical Engineering program, beginning in the Fall 2014 semester. Dr. Angelopoulos is an Associate Professor of Chemical Engineering who specializes in the field of colloid and surface chemistry. He holds numerous patents in these areas. His current research interests include how nanotechnology interfaces with electrocatalysis for sustainable energy products and the development of membrane catalysts for medical diagnostics. Dr. Angelopoulos’ teaching at UC has been recognized by a Research Experiences for Undergraduates Mentor Award from the National Science Foundation as well as the prestigious Neil Wandmacher Teaching Award for Young Faculty in 2012. Congratulations on this new role!

Dr. Smirniotis Receives the Cecil Award for Environmental Work

Congratulations to Dr. Peter Smirniotis for receiving the 2014 Lawrence K. Cecil Award from the American Institute of Chemical Engineers (AIChE)! The Cecil Award is AIChE’s highest recognition for achievements in the environmental area. Dr. Smirniotis was selected for his contributions to environmental protection, specifically his work on photocatalytic cleaning, titled “Protecting our Environment with Catalysis and Reaction Engineering.” He will receive the award during the annual AIChE meeting in November 2014. Read more here: http://ceas.uc.edu/news-1415/lawrence-k-cecil-award.html

Dr. Yeghiazarian Participates in “UC Women Lead”

Dr. Lilit Yeghiazarian was one of 20 women selected to participate in “UC Women Lead,” an eight-month leadership development program for women at UC. This year, the program received a record number of applicants from faculty and staff across all campus branches. As a participant, Dr. Yeghiazarian will receive career coaching and participate in a one-day retreat. The program, previously called the Women’s Initiative for Leadership Development, is sponsored by the Office of the Senior Vice President and Provost. Read more here: http://www.uc.edu/News/NR.aspx?id=20429

Dr. Dong’s Sensor Project Wins Funding from DoE

The U.S. Department of Energy (DoE) awarded Dr. Junhang Dong and his group $399,666 for their project on developing sensors for coal-based power plants. Dr. Dong’s project was one of six selected by the DoE’s University Coal Research Program (UCR), which supports long-term, high-risk fundamental research projects that advance the science of coal technologies. Their 36-month project will focus on developing a new type of low-cost, robust metal-ceramic sensor for high-temperature applications. The sensors will be tested for real-time distributed monitoring of temperatures up to 1000°C in gases relevant to coal-based power plants. Read more here: http://www.netl.doe.gov/newsroom/news-releases/news-details?id=12cc8d90-5971-4113-b300-d06bdd6c046d

Drs. Chia-Chi Ho and Carlos Co Receive NIH Funding for Cell Motility Project

Drs. Chia-Chi Ho and Carlos Co received funding from the National Institute of Health (NIH) for their project investigating cell motility with engineered biomaterials. Cell motility plays a central role in tissue morphogenesis, embryonic development, angiogenesis, and wound healing. For this project, they will partner with four collaborators from UC’s College of Medicine and Children’s Hospital. Click here to read more about their project.
Dr. Ho Promoted, Selected for ELATE Fellowship, Elected VP for Local Society of Women Engineers
1.) Congratulations to Dr. Chia-Chi Ho who was recently promoted from Associate Professor to Professor in Chemical Engineering, effective August 15, 2014. 2.) In addition, Dr. Ho was selected to participate in the ELATE fellowship, a prestigious professional development program for women in the STEM fields. She was one of 21 women from across the country chosen based on nominations from their institutions’ dean or provost. ELATE at Drexel University is a one-year, part-time program that focuses on developing personal and professional leadership skills, promoting change initiatives at universities, and managing resources and finances to enhance organizations. The program began in May 2014 and will end in March 2015. 3.) Moreover, Dr. Ho was recently elected to be Vice President for the South Ohio Society of Women Engineers. The SWE is an inclusive organization that supports women in science, technology, engineering (STEM). Read more about the SWE here: http://southohio.swe.org/

Dr. Angelopoulos’ Company Named Innovation Award Finalist
The company that Dr. Anastasios Angelopoulos co-owns with Dr. Jonathan Bernstein, A&B Sensor Technologies, was recently named a finalist in the 2014 Business Courier Innovation Awards. Their company, founded in 2009, brings unique catalyst-based optical sensing devices to the market. They were nominated for a novel breath analysis method that measures blood-glucose in people with diabetes non-invasively. The honorees include 15 local companies whose new ideas and approaches are bringing significant changes in the areas of bioscience, engineering, information technology, and marketing. Read more here: http://ceas.uc.edu/news-1314/2014-innovation-award-series-a-b-sensor-technologies.html

Dr. Dionysiou Wins the Frontier in Research Award, Receives “Editor’s Choice” Selection
In honor of his leadership and innovation in environmental engineering research, Dr. Dion Dionysiou has won the Frontier in Research Award from the Association of Environmental Engineering and Science Professors (AEESP). He received several nominations for the award, which recognizes an individual’s pioneering efforts and leadership in the field. Dr. Dionysiou received a plaque along with a financial award of $4,000 at the Water Environment Federation Technical Exhibition and Conference (WEFTEC) in New Orleans, LA in September.

In addition, Dr. Dionysiou’s article, published in the Journal of Physical Chemistry Letters, was selected as the “Choice of the Editor” by Professor Prashant Kamat of the University of Notre Dame. The article is titled “New Insights Into the Mechanism of Visible Light Photocatalysis.” They also created a video based on the article, which is featured on youtube here: https://www.youtube.com/watch?v=cFFbfjMwJgg

Dr. Joo-Youp Lee’s Clean-Coal Project Recognized
Dr. Joo-Youp Lee was recently recognized for the technology he developed to clean emissions from coal-fired power plants. His technology specifically focuses on cleaning mercury from factory emissions, a very difficult element to clean. “It’s very difficult to capture elemental mercury vapor. However, once elemental mercury is converted into oxidized mercury, it can be readily separated within the plant,” he explains. Dr. Lee’s technology uses a catalyst to convert this hard-to-reach elemental mercury vapor into benign oxidized mercury. Read the full article here: http://ceas.uc.edu/news-1415/joo-youp-coal.html
BCEE Student News

UC’s Chem-E-Car Team Places First at Regional AIChE Competition
A team of UC Chemical Engineering students took first place in the Chem-E-Car competition at the regional conference for the American Institute of Chemical Engineers (AIChE) in April. The Chem-E-Car is AIChE’s annual competition that challenges college students to design and construct a car powered by a chemical energy source that will safely carry a specified load over a given distance and stop. The UC team’s pneumatically powered car—called the Shake n’ Bake—beat 12 other teams, coming within 3 cm of the target distance (17.5 meters) and winning $200. As a result, they have qualified for the national competition in Atlanta, GA in November, where first place is worth $2,000. A second hydrogen fuel cell / calcium oxide car placed 7th in the competition, and the UC AIChE chapter also won the “Spirit of the Competition” award for their enthusiasm at the conference. Read more here: http://www.aiche.org/community/students/chem-e-car

Biomedical Engineering Welcomes Six National Merit Scholars
The biomedical engineering program welcomed a prestigious group of new undergraduates this Fall 2014 semester, including six National Merit Scholars. Of the six national merit scholars, two earned a perfect score on the SAT—a rare feat. The department is excited to continue its tradition of excellence by welcoming such an accomplished group of incoming freshman. Read more about the students here: http://ceas.uc.edu/news-1415/incoming-class-biomed.html

MDIEP Hosts Annual Medical Device Design Competition
The UC Medical Device Innovation & Entrepreneurship Program (MDIEP) hosted their annual medical device competition, the “Do it or mDIEp Day,” on March 14, 2014. MDIEP, a student program in biomedical engineering, works with clinicians to solve real clinical problems by developing real medical device solutions. Eleven teams competed by pitching their ideas to mock investors from UC and local industry, with millions of “Bearcash” dollars as the prize. Read more about their projects here: http://ceas.uc.edu/news-1314/mdiep-day-showcases-newly-minted-biomedical-engineering-innovati.html

Undergraduate Women Complete the REWU Summer Program
This summer, 23 talented undergraduate women completed the 12-week Research Experience for Women Undergraduates (REWU). REWU is a program started by Women in Science and Engineering (WISE) that pairs undergraduate women with faculty members, with whom they conduct full-length research projects over the summer. The students also receive a $4,500 stipend. On July 31, the 2014 participants gave their final presentations on subjects ranging from nutrition to astrophysics. Dean Teik Lim and Provost Beverly Davenport attended the ceremony, which was led by Dr. Urmila Ghia, the chair of WISE. Read more about the projects here: http://ceas.uc.edu/news-1415/wise-rewu-2014.html
Brad Theilman (BME, 2014, Advisor: Dr. Jeff Johnson) was one of five UC students to win the 2014 Presidential Leadership Medal of Excellence (PLME), UC’s highest award for undergraduate students. The PLME recognizes five seniors’ excellence in scholarship, leadership, community service, and the ideals of the university. Currently, Theilman is pursuing his Ph.D. in neuroscience at the University of California, San Diego. Read more about Theilman and the award here: http://www.uc.edu/news/nr.aspx?id=19532

Changseok Han (Ph.D. EnvEng, Advisor: Dr. Dion Dionysiou) was nominated by the UC Graduate School for the national Council of Graduate Schools / Proquest Distinguished Dissertation Award. Changseok Han received his Ph.D. in the Spring of 2014. He was one of two UC students nominated for the award based on the originality of his dissertation work and its contribution to his discipline. Han’s dissertation is titled Monitoring and Removal of Water Contaminants of Emerging Concern: Development of a Multi-Walled Carbon Nanotube Based-Biosensor and Highly Tailor-Designed Titanium Dioxide Photocatalysts. Read more here: http://grad.uc.edu/student-life/news/summer14-award-winners.html

Jennifer Liggett (M.S. EnvSci, Advisor: Dr. Dion Dionysiou) was recently named the 2014 recipient of the American Water Works Association-Holly A. Cornell Scholarship, worth $7,500. Sponsored by CH2M Hill, Inc., this scholarship encourages and supports outstanding female and/or minority masters’ students in their pursuit of advanced training in the field of water supply and treatment. Read more here: http://www.awwa.org/membership/get-involved/student-center/awwa-scholarships/scholarship-awardees.aspx

Greg Saylor (Ph.D. EnvEng, Advisor: Dr. Margaret Kupferle) was named the 2014 recipient of the American Water Works Association-ARCADIS Scholarship. The award provides $5,000 in support to graduate students who show potential in leading the water service industry and who are pursuing graduate work that advances the science and engineering of drinking water. Read more here: http://www.awwa.org/membership/get-involved/student-center/awwa-scholarships/scholarship-awardees.aspx

Alexandra Maddox (BME, 2016) received the Leo Beranek Student Medal for Excellence in the Study of Noise Control. She was nominated by Dr. Effie Gutmark in Aerospace Engineering for her work with him. The award, given by the Institute of Noise Control (INC) Foundation, included a medal and recognition at the NoiseCon 2014 ceremony in September.

Siva Nagi Reddy Inturi, (Ph.D. ChE, Advisor: Dr. Peter Smirniotis), received the Catalysis and Reaction Engineering (CRE) Travel award from the American Institute of Chemical Engineers (AIChE). He was selected for his work titled “Novel One-Step Synthesis of N-doped TiO2 by Liquid Flame Aerosol Method (LFSP) for Visible Light Photocatalysis of Organic Pollutants.” This impressive accomplishment includes a $400 award and an invitation to the AIChE Annual Meeting in Atlanta, November 16-20, 2014.

Kyle Stewart (BME, 2016) was awarded an Academic-Year Research Experience for Undergraduates by the National Science Foundation. He is working with Dr. Kevin Haworth, conducting therapeutic studies involving ultrasound-triggered phase-shift emulsions using perfluoropentane droplets. At the end of this twelve-week, paid research experience, Stewart will write a technical report and present his research at the UC Undergraduate Research Forum in Spring 2015. Read more here: http://ceas.uc.edu/content/dam/seebme/docs/Bio/Kevin.pdf