

# Department Newsletter



DREXEL UNIVERSITY

Civil, Architectural, and  
Environmental Engineering

College of Engineering

Civil, Architectural, and Environmental Engineering

Summer 2014

## Louis DaSaro to retire

**Professor Louis DaSaro**, Associate Teaching Professor in the Civil, Architectural, and Environmental Engineering (CAEE) Department, will be retiring from Drexel at the end of the Summer 2014 term. Professor DaSaro has been at Drexel since 2007 and has taught many undergraduate and graduate level courses, particularly those pertaining to civil and structural engineering. His passion for teaching and his extensive knowledge of structural engineering, failure analysis, and restoration of existing structures, has been tremendously valuable to the Department. The Department wishes Professor DaSaro the best for an enjoyable retirement.



Dr. DaSaro on the left

## Abi Aghayere joins the Department



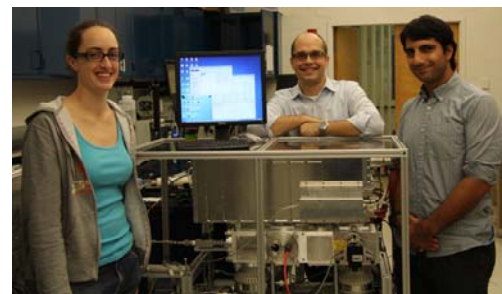
**Dr. Abi Aghayere** has joined the department as a Professor with expertise in structural design, structural failure analysis, retrofitting of existing structures, and new structural systems and materials. Dr. Aghayere was previously the Senior Associate Dean for Academic Affairs at the Goodwin College of Professional Studies. This fall, Dr. Aghayere will be teaching Senior Seminar CIVE477 and ENVE485. The Department welcomes Dr. Aghayere and looks forward to his contributions as an experienced educator, researcher, and administrator.

## Roger Marino and Michael Ryan join the Department

**Dr. Roger Marino** will join the Department as an Associate Teaching Professor. One half of his time will be spent with the CAEE Department and the other half of his appointment will remain in the MEM Department. **Dr. Michael Ryan** will join the Department as an Assistant Teaching Professor. One half of his time will be spent with the CAEE Department and the other half of his appointment will be spent teaching College of Engineering core courses. Both received doctoral degrees at Drexel and each brings a unique set of skills to the Department.

## Recent Research in Air Quality - Indoors and Outdoors

**Dr. Peter DeCarlo** has been granted an NSF award titled: *Collaborative Research: High-resolution Study of Atmosphere, Ice, and Aerosol Interactions in Coastal Antarctica*. The amount awarded is \$388,798. This fall, Dr. DeCarlo, post-doc **Michael Giordano**, and doctoral candidate **Anita Johnson** (pictured to the right) will travel to McMurdo Station in the Ross Island region in southern coastal Antarctica to collect real-time online measurements of aerosol (also known as particulate matter) composition. Dr. DeCarlo's research group intends to provide aerosol measurements which will enhance knowledge of current Antarctic atmospheric conditions and, by extension, the past Antarctic climate. Using an Aerodyne Soot-Particle Aerosol Mass Spectrometer (pictured to the right) to make extremely high resolution and sensitive real-time online measurements, the data sets created by Dr. DeCarlo and his team will be of significant value to researchers in the fields of atmospheric chemistry, climate modeling paleo-climatology, glaciology and limnology.



**Dr. DeCarlo** and co-PI **Dr. Michael Waring** have recently received an NSF award titled: *Particulate matter size and composition change in response to transport from the outdoor to indoor environment*. The amount awarded is \$331,657. This project will support collaboration between outdoor air quality and an indoor air quality research. Investigators will define a research agenda with the goal of understanding the transformations occurring when outdoor air moves indoors.



**Dr. Michael Waring** and CAEE doctoral candidates **Adams Rackes** and **Chunyi Wang** (pictured to the right) attended the Indoor Air 2014 conference in Hong Kong, China in July. Collectively, they were involved in the presentation of five well received papers on topics related to indoor organic aerosol and radical formation, office building emissions, and infiltration of outdoor aerosols into residences. For more information on research regarding these topics please visit the Indoor Environment Research Group and the Building Science & Engineering Group sites.

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## CAEE Faculty Participate in a Workshop in New Delhi

**Drs. Patrick Gurian, Charles Haas, and Mira Olson**, joined by **Drs. Arthur Frank and Shannon Marquez** from Drexel's School of Public Health and **Dr. Joan Rose**, the Homer Nowlin Chair in Water Research at Michigan State University, participated as faculty in a workshop (June 30-July 9) on quantitative microbial risk assessment at the Indian Institute of Technology (IIT), Delhi, India. The workshop was organized by CAEE alumnus and current IIT Delhi Professor **Arun Kumar**, as part of an exchange program sponsored under the **Obama-Singh Initiative**. The workshop faculty included collaborators from IIT Delhi and the Indian national research institutions for public health and the environment. Workshop participants evaluated a variety of case studies, including the microbiological risks associated with water from the Yamuna River, the principal source of Delhi's water supply, and airborne microbiological hazards in the Delhi metro.



## Patricia Gallagher works with Drexel students to build homes in Honduras

**Dr. Patricia Gallagher** and **Heidi West**, Director for the Office of International Programs, accompanied a team of 12 Drexel students to Honduras for the **Drexel Global Architecture Brigade** in June 2014. The group helped two Honduran families construct a new home and a new kitchen. The brigade constructed cinder block walls, mixed mortar and concrete by hand, assembled rebar cages for reinforced concrete beams by hand, and poured reinforced concrete by hand.



## Sabrina Spatari hosts summer student researcher from Sweden

**Dr. Sabrina Spatari** hosted visiting student researcher **Lars Bjornebo** from Linköping University in Sweden, where he is working on a master's degree in mechanical engineering. Sweden is one of the leading countries developing and implementing district heating solutions. Lars' masters research will explore the feasibility of adopting such solutions in the United States from a policy perspective. Here at Drexel, he developed life cycle models of forest residue feedstocks for fast pyrolysis to make bio-diesel, and of short-rotation forestry used for district heating in sparsely populated areas.

## Ben Yezuita wins AWRA Student Poster Award

Environmental Engineering undergraduate **Ben Yezuita** (pictured to the right), was an award recipient of the American Water Resources Association (AWRA) **Philadelphia Metropolitan Area Section Student Poster Competition** of 2014. Ben's poster is titled *Simulated Runoff Testing: Performance Testing of Green Stormwater Infrastructure in Controlled Conditions*. Ben worked on this project as a green stormwater infrastructure monitoring co-op for the Philadelphia Water Department.



## STAR Scholars

This summer the CAEE Department hosted four **STAR Scholars**: **Frank-nelson Muhande Musemate** (CIVE), **Maissoun Ksara** (CIVE), **Michael Ling** (AE), and **Charles Clift** (CIVE). Frank worked under the guidance of **Dr. Aspasia Zerva** on a project titled: *Investigation of the Effects of Earthquakes on Dams and the Impact of Damping in Instrumented Dams*, where he analyzed the impact of earthquakes on dams and the significance of structural characteristics (including damping) in their stability and response using the Pacoima dam near Los Angeles as the case study. Maissoun and Michael worked under the guidance of **Dr. A. Emin Aktan** and doctoral student **Ben Cohen** on two separate projects involving Philadelphia infrastructure: an analysis of the structural support of the Tacony-Palmyra Bridge and an assessment study of intersection ramps that must comply with the new set of standards in the Americans Disabilities Act of 1990 (ADA). Charles worked on a project titled *Lighting Optimization for Improved Health Outcomes* for the **dLUX** light lab under the guidance of **Dr. Eugenia Victoria Ellis**, AIA and **Chloe Dye**, AE BS/MS student.

## Summer Interns

**Drs. Grace Hsuan** and **Christopher Sales** each hosted a summer intern affiliated with the **Franklin Institute's STEM Scholars** program. **Thomas Shepard**, a rising senior at Boys' Latin of Philadelphia Charter School worked with Dr. Hsuan and her graduate students to learn about the behavior of infrastructure materials. Thomas participated in the lab sessions of CIVE 250 course to learn about the behavior of cement, concrete, and asphalt. Between the lab sessions, he continued his work with graduate students to learn about the basic properties of these three infrastructure materials. **Kayin Bankole**, a rising senior at George Washington Carver High School of Engineering and Science worked with Dr. Sales on research involving biological degradation of contaminants in Marcellus Shale flowback water. He assisted graduate students in studying bacteria that can degrade contaminants that are found in the briny flowback water, learned how to make media to grow the bacteria, learned how to collect and prepare samples for biological and chemical analyses, as well as learned how to grow algae on real and synthetic waste streams. **Qwaunna Thurman** of Philadelphia String Theory Charter high school (Global Academy Leadership elementary school) joined **Dr. Yared Shiffraw** and the **Sustainable Structures Computational and Experimental Research Group** as part of the **WorkReady** program of the Philadelphia Youth Network where she developed three-dimensional sketch-up model of Drexel's structure's laboratory and presented her literature review research on innovative structural systems.