PENNSTATE

Civil and Environmental ENGINEERING

Educating World-Class Engineers

WINTER 2011/2012 EDITION

On the cover: Ph.D. student Lance Larson removing a subsurface porewater sampler from Brubaker Run, Cambria County, PA

Dear Alumni and Friends:

I hope you are all well and having a great year. Although we have had to be somewhat thrifty in the current economic climate, we have had a terrific year and have prospered in many ways. Our students and faculty continue to excel, our rankings are strong, and we have seen new initiatives come to fruition. In the pages of this newsletter, you will see specific examples of the great work and progress that is being made in our department.

This year, we were very pleased to have Thomas Skibinski join our faculty. Tom has been a practicing engineer in the area of construction engineering and management for more than 30 years. At Penn State, he is coordinating and teaching in our undergraduate Construction Engineering and Management (CEM) program and is the faculty co-adviser for the ASCE concrete canoe. The undergraduate CEM program is very popular with our students and those who employ our students and Tom is working hard to make substantial improvements to this undergraduate program. In addition to our new faculty, two of our current faculty members, Mike Gooseff and Rachel Brennan, received tenure and were promoted to associate professor. Dan Linzell was promoted to full professor and was also awarded the Shaw Professorship in Civil Engineering.

Our students continue to impress and amaze us. In the 2010-2011 academic year, we graduated 225 undergraduates with B.S. degrees, 16 graduate student with M.S. or M.Eng. degrees, and another five with Ph.D. degrees. Our rankings for that same time period were 13th for the undergraduate program, 19th for the graduate program in civil engineering, and 16th for the environmental engineering graduate program. These rankings reflect the outstanding reputation that we enjoy. Our students have been active in student organizations, educational and research endeavors, and other activities and deserving of the many awards and achievements that they have attained.

In the pages of this newsletter, we highlight some of the many accomplishments of our faculty, staff, students, and alumni. I hope you enjoy reading the newsletter and please send us your news! We would love to hear from you and share your personal and professional accomplishments with all of our alumni in the next newsletter. Please send me an e-mail (paj6@psu.edu), use the form in the back of the newsletter, or call 814-863-3088 to give us an update on your career, your personal achievements, and any other significant event.

Until next year,

Peggy A Johnson

Peggy Johnson
Professor and Head

Civil engineering graduate student Kelleher wins Pathfinder fellowship

Christa Kelleher, a doctoral student in civil and environmental engineering, has won a Pathfinder Graduate Student Fellowship.

The Pathfinder fellowship is awarded by the Consortium of Universities for the Advancement of Hydrologic Science, Inc. According to the organization's website, the fellowship is designed to give graduate students travel support to conduct hydrological research at multiple sites or collaborate with other research groups. The fellowship includes up to $5,000 of support for the awardee.

Kelleher used the fellowship to travel to Montana State University to collaborate with researchers using hydrological modeling and field work to better understand headwater catchment behavior over this past summer.

Her work centers on controls on the hydrology of headwater basins across the United States under current and future conditions. Kelleher is advised by **Thorsten Wagener**, associate professor of civil and environmental engineering.

Spring 2011 Spring Marshal

Silvia Sutkowski received concurrent bachelor of science degrees in civil engineering and surveying engineering. She chose **Eric Donnell**, associate professor of civil engineering, to be her faculty escort. Sutkowski is the daughter of Joseph and Teresa Sutkowski of East Stroudsburg, PA. She graduated in 2005 from East Stroudsburg Area High School-South. During her undergraduate career, Sutkowski received numerous awards and scholarships, including the Department of Civil Engineering Class Award in Construction Engineering, Moles Scholarship, Weeden Award, and American Society of Highway Engineers Scholarship. She published a paper in the American Congress of Society & Mapping Journal and presented the paper at the Pennsylvania Society of Land Surveyors Conference. Her extracurricular activities include facilitator for the Women in Engineering Program, treasurer and president of Lambda Sigma, member of the American Society of Civil Engineers, Surveying Society and the American Congress of Surveying and Mapping. She participated in varsity tennis where she received the Academic All-Conference Award and was an active member of the Blue & White Society. Following graduation, Sutkowski plans to pursue a position as a designer in the civil engineering field with an undetermined firm.

Two engineering students, two faculty named to 2011 Homecoming court

Two students and two professors from the College of Engineering are part of the 2011 Homecoming court. Athena Abate and **William Sheehan** were both elected to the student court. Enrique Gomez and Paul Lynch were elected to the university court. Voting for the 2011 Homecoming king and queen took place Oct. 10-14 during Homecoming week.

The student court includes five male and five female students who are active members of the community and have worked to make Penn State a better place. Abate and Sheehan were both nominated by their fellow students in recognition of their contributions to the Penn State community.

Abate is a senior in electrical engineering and will graduate in December. She is involved in a number of organizations on campus including Engineering Ambassadors, Women in Engineering, Phi Sigma Rho and the College of Engineering Envoys. Abate attended Penn State Hazleton before coming to University Park. She said she hopes that her election to Homecoming court shows that there can be a seamless transition between campuses. After graduation, Abate hopes to work for a company in the space industry and get a master's degree in systems engineering.

Left to right: **Will Sheehan**, **Enrique Gomez**, the Nittany Lion, **Paul Lynch**, and **Athena Abate**.

Sheehan is a Schreyer Honors College senior majoring in civil and environmental engineering. Since his first year, he has been involved in research working on projects at Penn State and a summer project in China. He also has held leadership positions in Habitat for Humanity, the Interfraternity Council Executive Board, the University Park Undergraduate Association, Beta Theta Pi and the Penn State Student Sustainability Advisory Committee. Sheehan also has participated in THON on a finance committee. Upon graduating, he hopes to work for a company that specializes in sustainability procedures and projects in developing nations.

The university court consists of four male and four female members of the faculty or staff at the university who have inspired University students. Students nominated Lynch and Gomez for court in recognition of the impact these faculty members have made on their students.

Lynch is an instructor and academic adviser in the Harold and Inge Marcus Department of Industrial and Manufacturing Engineering. He is an alumnus, having received his bachelor of science, master of science and doctoral degrees in industrial engineering from Penn State. He serves as an adviser in the department and meets with more than 100 students each semester to assist them in their educational planning. He also involves students in his research endeavors. Lynch assists with and attends events for the department including the graduation reception, the spring banquet, the Industrial Engineering Parents Weekend, Major Night and the Spring College of Engineering Open House. Lynch also participates with the industrial engineering students as part of Team IE, the industrial engineering Relay for Life team each year.

Gomez is an assistant professor and faculty adviser in the Department of Chemical Engineering. He is a research supervisor to undergraduate and graduate students and involves students in research in his lab. He also is a mentor in the FastStart program and serves as a faculty adviser to 30 chemical engineering students.

Sharafbayani received the John W. Fisher Student Award

Mohammadreza Sharafbayani, a Ph.D. candidate in civil engineering advised by **Daniel Linzell**, Shaw Professor in Civil Engineering, received the John W. Fisher Student Award at the 2011 New York City Bridge Conference in July. The award was for a paper titled *Web Plumb Influence on Skewed I-Girder, Steel Bridges during Construction* and consisted of a plaque and cash prize. Sharafbayani's Ph.D. research focuses on the influence of horizontal curvature on distortional fatigue susceptibility in plate girder bridges.

Left to right: **John Fisher, Mohammadreza Sharafbayani**, and **Daniel Linzell.**

Palmer awarded a scholarship from the Highway Education Foundation

James Palmer, civil engineering undergraduate and Schreyer Honors student, was awarded a scholarship from the Highway Education Foundation, sponsored by the Associated Pennsylvania Constructors. His proposed solution to the intersection of SR 322 and SR 144 near Potters Mills to the Transportation Infrastructure Solution Scholarship contest was named best entry.

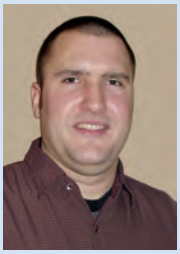
CEE student wins Society of Women Engineer honorable mention award

Civil engineering junior **Kanupriya Samarendra** received an honorable mention award at the Apr. 17, 2011, Society of Women Engineers banquet. She was awarded a $250 scholarship for holding characteristics of a "World-Class Engineer," consisting of being aware of the world, solidly grounded, technically broad, innovative, effective in teams, and successful as a leader.

Zhang selected for the American Chemical Society's Graduate Student Award

Fang Zhang, doctoral candidate in environmental engineering, has been selected as a winner of the American Chemical Society's Graduate Student Award in Environmental Chemistry for 2011.

Civil engineering's Kollat wins best dissertation award



Josh Kollat, doctoral student in the Department of Civil and Environmental Engineering, has won best dissertation in the category of natural science and engineering in the 2011 Universities Council on Water Resources (UCOWR) National Ph.D. Dissertation Award Competition.

Kollat's thesis is titled *Many-Objective Groundwater Monitoring Network Design Using Bias-Aware Ensemble Kalman Filtering, Evolutionary Optimization, and Visual Analytics.* His thesis adviser is **Patrick Reed**, associate professor of civil and environmental engineering.

Kollat was invited to present at the 2011 UCOWR/National Institute for Water Resources Conference in Boulder, CO.

Environmental engineering graduate student has been selected for the 2011 Alumni Association Dissertation Award

Douglas Call, Ph.D. student in environmental engineering has been given an Alumni Association Dissertation Award. This prestigious graduate award was made possible through a generous endowment established by the Alumni Association. Call's achievements were recognized at the 2011 Graduate School Alumni Society's Spring Social and Recognition Dinner.

Call received a $5,000 award.

His adviser is **Bruce Logan**, Kappe Professor of Environmental Engineering.

2011 Scholarship Banquet group photo

UNDERGRADUATE SCHOLARSHIPS

Student Marshal
Silvia Sutkowski

Excellence in Construction Engineering
Silvia Sutkowski

Excellence in Environmental Engineering
Casey McGraw

Excellence in Geotechnical and Materials Engineering
Matthew Chipko

Harry H. West Undergraduate Student Award for Excellence in Structural Engineering
Brandon Newpher

Excellence in Transportation Engineering
Paul Stager

Excellence in Water Resources Engineering
Joseph Mazzuca

Gert and Jean Aron
Paul Christner

Richard Austin
Justin Slusser

Beaver Trust
Victoria Kramer

Bigony Trust Scholarship
Hank Flook

Fred and Kit Bigony Scholarship in Engineering
Jon Skupien

John J. Blazosky
Eric Kaminsky

John J. and Jean M. Brennan Trustee Scholarship
Dustin Paugh

College of Engineering General Scholarship
Nicholas Craven
Ana Medina
Chung Hong Sun

College of Engineering Minority Scholarship
Ana Medina
Christian Parra

College of Engineering Excellence Scholarship
Maura Fox

Janet B. Cunningham
Melanie Perna

Robert E. Felsburg
Christian Noveral

Leonard S. Fiore
Andrew Naymick

John & Joan Gaudinsky Scholarship
Anthony Kmetz

Gary & Ralphine Gentzler Trustee Scholarship
Rebecca Edwards

Helen Fiedler Heckert
Matthew Dickey
Rebecca Edwards

Frank Holzer
Tolga Akkurt
Shruthi Baskaran
Michael Brandt
Christopher Coble
Timothy Fink
Brandy Gibbons
Steven Gibson
Jessica Greenberg
Zach Hirsch
Scott Kinney
David Leaf
Jeffrey Liu
Kevin Livengood
Scott Livengood
Zachary Mannino
Joseph Mazzuca
Amanda McCloskey
Timothy Panzigrau
Heather Salasky
Paul Stager
Timothy Vitullo

Robert & Judith Hontz
Andrew Butsick

Russell E. and Eleanor B. Horn Scholarship
Luke Minnich

Darin P. and Laura Taylor Johnson Trustee Scholarship
Christopher Coble
Romeo Gjergji
Chung Hong Sun

George W. Johnstone
Michael Barr

Stan & Flora Kappe
M. William Sheehan

Harry & Susan Kauffman Trustee Scholarship
Lance Faidley

Walter J. Kinsey
Christian Noveral

R. Rupert Kountz
Bradley Kaley

David P. and Joanne C. Kulig Engineering Scholarship
Jesse Murray

William & Wyllis Leonhard Honors Program Endowment
Kerri Smyth
Timothy Vitullo

Harold J. Light Scholarship
Bradley Kaley

Anthony Lisanti
Bryan Kukoda

Michael D. Loy
Andrew Menyo

William Marciniak Scholarship
Justin Long

James E. and Melinda L. Marley Trustee Scholarship
Jorge Arroyo

Thomas A. Mekis
Robert Armstrong
Derek Derr
William Finney
Casey McGraw

Dean Meyers Memorial Scholarship
Brian Crawford
Michael Pospisil

Arthur & Mary Miller Scholarship
Matthew Dickey

Frank Blaise/Lynne C. Shigley Modruson Scholarship
Donald Floyd

Helen Wood Morris Scholarship
Robert Armstrong

Walter K. Morris Scholarship
Christopher Barber
Kevin Gensiak
Jason Goss
Nicholas Herbert
Luke Minnich
Blaise Mordan

Oelschlager Trustee Scholarship
Thomas Monda

C. R. and Annette Pennoni Scholarship
Victoria Kramer

Robert and Sandra Poole Schreyer Honors College Scholarship
Erika Smull

John A. Pursley Trustee Scholarship
Bryan Kukoda

Joseph R. and Mary Reed Scholarship
Rebecca Edwards

Leland Rhodes
Mary Paskewicz

Rozmus Family Trustee Scholarship
John Plummer

Elizabeth A. Shattuck
Joel Gallagher

Harold B. Shattuck
Jeremy Tomchick

Charles A. & Linda E. Sorber Trustee Scholarship
Vincent Guiliani

Ralph & Eleonora Strawbridge Memorial Trustee Scholarship
Melanie Perna

Walter E. Thompson & Dr. Regina B. Thompson Scholarship
Matthew Hefelfinger

Kenneth & Marilyn Stevens Tracy
Kerri Smyth
Ashley Tracy

Triangle Fraternity Penn State Chapter Academic Excellence Endowment
William Roll

Undergraduate Teaching Intern Program
Christopher Bakey
Justin Long
Timothy Panzigrau
Scott Wonderly

John R. & Alice W. Watkins Scholarship In Engineering
Maria Snyder

Roy I. Webber
Luke Minnich

Harmer A. Weeden
Silvia Sutkowski

Paul M. Wentworth
Matthew Bachman
Nicholas Craven
Brandon Newpher
Ethan Skrzypek

Paul E. Whte & Rachel W. Whte Trustee Scholarship
Matthew Bachman
Jonathan Fleming
Hasib Hussain
Thomas McLane
Dhaval Patel
Michael Pospisil
Maria Snyder

George M. Wildasin Memorial Trustee Scholarship
Matthew Dickey
Jason Goss
Casey McGraw
Andrew Naymick
Ashley Tracy

Albert Wilson Trustee Scholarship
Amanda McCloskey

Michael & Virgina Youchak
Nathan Claycomb

GRADUATE SCHOLARSHIPS

CMT Laboratories Graduate Scholarship in Civil Engineering
Danielle Lombardi

J. Roger Glunt Graduate Fellowship In Housing
Maral Amini
Emma Leitner

George W. Johnstone Graduate Fellowship In Civil and Environmental Engineering
Timothy Byrne
Matthew Lumadue

Cecil M. Pepperman Memorial Graduate Fellowship
Michael Shreve
Rachel Wagner

Leo P. Russell Graduate Fellowship In Civil Engineering
Alireza Akhavan
Daniel Kwon

Steel bridge team earns trip to national contest

A team of 20 Penn State civil engineering students took third place this month at the Student Steel Bridge Competition at Drexel University. Twelve college teams competed.

Penn State's third-place win earned the team a spot in the national competition, held May 20-21 at Texas A&M University.

The competition primarily sponsored by the American Institute of Steel Construction, challenges civil engineering students to design, fabricate, and construct a steel bridge.

Though Penn State has a steel bridge team each year, the last time a team made it to the national contest was in 2008.

This year, the team's bridge is composed of Chromalloy and is 33 inches tall, 33 inches wide and 21 feet long. It will be judged by its display and aesthetics, the time taken to construct it, its weight and a load test with 2,500 lbs. to test how much weight it deflects.

Penn State's team was advised by **Jeffrey Laman**, professor of civil engineering, and **Daniel Linzell**, Shaw Professor of Civil Engineering.

Ecological floating islands may offer solution to Chinese water pollution

For **Rachel Brennan**, associate professor of environmental engineering, and a group of Penn State faculty and students, the sight was almost otherworldly. This past summer, a group of 38 students and faculty from Penn State and Jiangnan University journeyed to Lake Taihu in Wuxi, China, as part of an international research effort to study the country's third largest freshwater lake. The experience was part of the embedded field course, Biology 497C Global Environmental Sustainability: A Field Study in China, co-taught by Brennan and led by **Jacqueline McLaughlin**, associate professor of biology at Penn State Lehigh Valley. For the team, it was a sobering look at the price China has paid for its meteoric economic growth and expansion.

Experimental floating islands on Lake Taihu, China

"I think it was eye opening to take [the students] out of Pennsylvania," Brennan said. "It's lush here in Pennsylvania. We've got trees and water. It's relatively clean. There's biodiversity. There are lots of animals. We go there and it's just wiped completely out—much higher population, more pollution."

Lake Taihu is located in one of the country's most industrialized regions, the Jiangsu Province in eastern China.

According to Brennan, the lake was once renowned for its beauty. "It had these nicknames that implied it was a 'pearl'. It was supposedly beautiful 20 years ago." But as China became increasingly industrialized, lakes such as Taihu started to host more and more factories. "The effluents from approximately 1,300 factories, as well as domestic sewage, were essentially discharged without treatment into this huge lake," Brennan said. The lake experienced crippling algae blooms and subsequent oxygen depletion as the organisms thrived off of the water's high phosphorus and nitrogen content. Brennan said, "In 2007, the algae was half a meter thick on top of the lake." McLaughlin said the Chinese were pulling 10,000 lbs. of algae from Lake Taihu each day. The urgency to rehabilitate Taihu, which has a surface area of more than 870 square miles, is even greater as it is one of the country's few freshwater lakes.

"In 2007, everything was dying," Brennan said. "The residents had been using the water in the lake as their drinking water source. They couldn't use that anymore. They had to import all of this bottled water." McLaughlin said local officials relocated the factories, and are using algae salvage ships, lake bottom dredging, restoration of riparian buffers, and transfer of water via Yangtze River tributaries to help repair the lake. All of that effort still leaves plenty of contaminants, including nutrients and heavy metals, in the lake, however.

Another avenue of remediation the Chinese have recently started exploring is the use of simple ecological systems that clean and filter polluted water. "Using ecological systems to clean up water is really hot in China right now," Brennan stated. Ecological treatment systems use a combination of plants, bacteria, and other organisms to clean water through bioremediation, mimicking what marshes and wetlands do. For the Chinese, employing nature to clean water is relatively uncharted territory. "They're starting to develop artificial floating islands with plants like water lilies and other macrophytes that have really long, complex root structures. These roots extend down into the water and provide a huge surface area for beneficial bacteria to grow that can facilitate the removal of nitrogen and phosphorus from the lake. The plants themselves also can absorb a lot of metals, so Jiangnan University has very active research programs in this area right now." The Chinese experimental systems are essentially hydroponic plants pulled together into rafts to filter the water around them.

Brennan, whose research includes investigating advanced ecological restoration methods for cleaning wastewater, believes that using natural methods might offer the Chinese a viable solution to deal with their burgeoning pollution problem. "Ecological remediation systems may work to treat their wastewater because they can be decentralized and not require a complex infrastructure. The local government doesn't have the infrastructure in place yet to treat wastewater for the whole city."

Brennan said the Chinese are keenly interested in continuing their collaboration with Penn State beyond this summer's two-week research experience, perhaps inviting some of her graduate students back to China to continue working on the lake.

'Inexhaustible' source of hydrogen may be unlocked by salt water

Left to right: **Marta Hatzell**, **Younggy Kim**, and **Bruce Logan**.

A grain of salt or two may be all that microbial electrolysis cells need to produce hydrogen from wastewater or organic byproducts, without adding carbon dioxide to the atmosphere or using grid electricity, according to Penn State engineers.

"This system could produce hydrogen anyplace that there is wastewater near sea water," said **Bruce E. Logan**, Kappe Professor of Environmental Engineering. "It uses no grid electricity and is completely carbon neutral. It is an inexhaustible source of energy."

Microbial electrolysis cells that produce hydrogen are the basis of this recent work, but previously, to produce hydrogen, the fuel cells required some electrical input. Now, Logan, working with postdoctoral fellow **Younggy Kim**, is using the difference between river water and seawater to add the extra energy needed to produce hydrogen.

Their results, published in the Sep. 19 issue of the Proceedings of the National Academy of Sciences, "show that pure hydrogen gas can efficiently be produced from virtually limitless supplies of seawater and river water and biodegradable organic matter."

Logan's cells were between 58 and 64 percent efficient and produced between 0.8 to 1.6 cubic meters of hydrogen for every cubic meter of liquid through the cell each day. The researchers estimated that only about 1 percent of the energy produced in the cell was needed to pump water through the system.

The key to these microbial electrolysis cells is reverse-electrodialysis or RED that extracts energy from the ionic differences between salt water and fresh water. A RED stack consists of alternating ion exchange membranes—positive and negative—with each RED contributing additively to the electrical output.

"People have proposed making electricity out of RED stacks," said Logan. "But you need so many membrane pairs and are trying to drive an unfavorable reaction."

For RED technology to hydrolyze water—split it into hydrogen and oxygen—requires 1.8 volts, which would in practice require about 25 pairs of membranes and increase pumping resistance. However, combining RED technology with exoelectrogenic bacteria—bacteria that consume organic material and produce an electric current—reduced the number of RED stacks to five membrane pairs.

Previous work with microbial electrolysis cells showed that they could, by themselves, produce about 0.3 volts of electricity, but not the 0.414 volts needed to generate hydrogen in these fuel cells. Adding less than 0.2 volts of outside electricity released the hydrogen. Now, by incorporating 11 membranes—five membrane pairs that produce about 0.5 volts—the cells produce hydrogen.

"The added voltage that we need is a lot less than the 1.8 volts necessary to hydrolyze water," said Logan. "Biodegradable liquids and cellulose waste are abundant and with no energy in and hydrogen out we can get rid of wastewater and by-products. This could be an inexhaustible source of energy."

Logan and Kim's research used platinum as a catalyst on the cathode, but subsequent experimentation showed that a non-precious metal catalyst, molybdenum sulfide, had 51 percent energy efficiency.

The King Abdullah University of Science and Technology supported this work.

Brennan awarded patent for "Mine Influenced Water Remediation using Bioremediation Substrate"

Rachel Brennan, associate professor of environmental engineering, has been awarded a patent for "Mine Influenced Water Remediation using Bioremediation Substrate" (Patent No. US 7,959,806 B2). This patent describes a new and improved method for treating mine influenced water or other environmental contamination using chitin complex-containing materials. Application of these materials modifies the pH and reductive-oxidation potential of the contaminated zone to facilitate metal removal through biological, chemical, and/or physical processes.

Brennan receives prestigious Water Quality Award

Rachel Brennan, associate professor of environmental engineering, received the prestigious McKee Groundwater Protection, Restoration, or Sustainable Use Award from the Water Environment Federation (WEF), an international not-for-profit technical and educational water quality organization. The award recognizes significant contributions to groundwater science or engineering research published in a WEF or WEF member association periodical. Brennan and her co-authors, Hua Cai, Alessia Eramo, Patrick Evans, and Rodney Fricke were recognized for the article *In Situ Bioremediation of Perchlorate in Vadose Zone Soil Using Gaseous Electron Donors: Microcosm Treatability Study.* The research team was honored during WEFTEC 2011, the largest annual water quality conference and exhibition in the world.

Civil engineering bids farewell to retiring faculty and staff

Mian C. (Mark) Wang, professor of civil engineering, retired at the end of Jun. 2011 after 37 years of service at the University.

Wang started his teaching career soon after he received his Ph.D. degree from the University of California at Berkeley in 1968. Before joining the Penn State in 1974, he taught at the University of Rhode Island in Kingston, RI, from 1968 through 1974. Wang received his M.S. degree also from the University of California at Berkeley in 1966 and his B.S. degree from Cheng Kung University of Taiwan in 1959.

Wang's specialty area is geotechnical engineering. He is instrumental in reorganizing/developing the graduate geotechnical program. For graduate courses, he has taught Advanced Soil Mechanics I and II, Advanced Foundation Engineering, and Engineering Characteristics of Soils. For undergraduate courses, he has taught Engineering Mechanics of Soils, Foundation Engineering, and Geotechnical Engineering for AE Majors.

Wang's expertise areas of research include soil testing and analysis, design and analysis of infrastructures involving soil-structure interaction, and numerical analysis and modeling of complex geotechnical structures. He has conducted a large number of research projects funded by various governmental agencies and industries including National Science Foundation, U.S. Department of Transportation, U.S. Department of Interior, U.S. Department of Defense, Pennsylvania Department of Transportation, Goodyear Rubber and Tire Company, and Pittsburgh Water and Sewer Authority.

Wang has been active in professional and technical societies including the American Society of Civil Engineers, the American Society for Testing and Materials International, and the Transportation Research Board. He is a registered professional engineer and is continuously providing the National Council of Examiners for Engineering and Surveying (NCEES) with technical expertise. He has received a certificate in recognition of his 10 years service to NCEES exam development.

H. Randolph Thomas, professor of civil engineering, retired at the end of Dec. 2010 after 35 years of service at the University.

Thomas received his bachelor's degree in architectural engineering from Virginia Tech in 1968, and then continued his education at North Carolina State University where he earned his master's degree in civil engineering. Thomas received his Ph.D. degree from Vanderbilt University in May 1976. Before starting his career with Penn State, Thomas worked with Norfolk Naval Shipyard and the U.S. Army Corps of Engineers.

In 1975 Thomas began his Penn State career, where he developed a number of courses in civil engineering undergraduate and graduate programs. The courses focused on the legal aspects of civil engineering. He implemented hands on experience for students to learn many of the finer points of effective contract administration and engineering management. His guided researched, which revolved around his developed courses, involved more than 50 commercial projects and completed more than eight technical papers with Gary R. Smith about contract interpretation and administration.

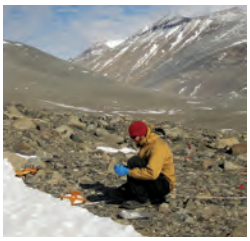
Thomas's primary research interests were in the productivity measurement, analysis, improvement and control; contracts; contract interpretation; contract administration; and real-time data collection techniques. His specific research topic was causes and quantifications of construction labor inefficiencies.

Thomas is a registered professional engineer in Tennessee. He has been an active member of the American Society of Civil Engineers (ASCE). Thomas received construction awards during his time at Penn State: the Perifoy Construction Research Award in 2000, the ASCE's Rowland Award in 1990 and the Fulbright Award in 1998.

Since retiring from Penn State in Dec. 2010, **Bobbi Leitzell** has gone from a 40-hour workweek to an 80-hour workweek. She currently works part-time at Centre Animal Hospital in State College. Leitzell has increased her assistance with transports for area dog rescues each week. She also takes her dogs to visit the residents at The Atrium Health Care Center at the Village at Penn State each month.

When not at work or doing projects around her house, Leitzell can be found walking her four beloved dogs, which enjoy the extra attention she bestows on them. Her two granddaughters keep her busy with their activities, including cheerleading and dance. Leitzell has also read over 62 books on her Kindle, a retirement gift from the CEE faculty and staff. She has done more than enough shopping, and enjoys having breakfast and lunch with many of her friends and family.

Leitzell doesn't plan to slow down anytime soon. She is planning on making morning visits to help Pets Come First in Jan. 2012 when they take over the operation of the Centre Hall SPCA.





Polar climate change may lead to ecological change

Ice and frozen ground at the North and South Poles are affected by climate-change-induced warming, but the consequences of thawing at each pole differ due to the geography and geology, according to a Penn State hydrologist.

"The polar regions, particularly the Arctic, are warming faster than the rest of the world," **Michael N. Gooseff**, associate professor of civil and environmental engineering, told attendees Aug. 11, at the 96th annual meeting of the Ecological Society of America in Austin, Texas. "As a consequence, polar ecosystems respond directly to changes in the earth systems at the poles."

These changes, though different at each pole, could be significant in their effects on not only the local environment, but also globally. While the central part of the Arctic is composed of ice over water, northern Canada, Alaska, Siberia and Greenland all have landmasses within the Arctic Circle. The associated land and water ecosystems are affected by melting ice and thawing soils, but in Antarctica, where much of the ice overlays a continent, the warming alters streams, lakes and the tiny plants and animals that live there.

"Our focus on the north is in part because it is inhabited, but it is also because the ice there is more vulnerable," said Gooseff. "Temperatures and snow and rain across the tundra shifts annually and seasonally. We know that fall is beginning later than it once did."

In the Arctic, where there is more immediate feedback from the higher temperatures, the warming is degrading permafrost, the layer of the ground that usually remains frozen during annual thawing events. This causes creation of a boggy, uneven landscape with a disturbed surface. Subsequent rain or snowmelt can erode this surface carrying silt and sediment into bodies of water, changing the paths of rivers and streams. Debris flows also are a common occurrence in degraded permafrost areas.

"Algae, insects and fish all must deal with this increased level of sediments," said Gooseff.

Extended frost-free time causes soils that do thaw annually to have longer active periods when microbes can mineralize nutrients. While the soils remain frost-free longer, plants continue their normal cycle dictated by the length and intensity of daylight, which has not changed. Microbes may continue to create nutrients, but the plants no longer use them, so that when rain or meltwater comes the nutrients leach into the rivers and streams.

"That is exactly what we are seeing," said Gooseff. "In September and October, we see a substantial increase in nutrients in the water. Concentrations increase many times for nutrients such as nitrate and ammonium."

Another problem with degrading permafrost is the release of the carbon that was permanently trapped in frozen organic materials in the frozen ground. Warming will eventually liberate carbon dioxide and methane into the atmosphere.

"It is estimated that the permafrost contains twice the amount of carbon that is currently in our atmosphere," said Gooseff.

We think of Antarctica as a vast empty place, but lakes and streams exist in several polar desert oases, including the McMurdo Dry Valleys. These bodies of water are filled with a variety of life including microbial mats, plankton and filamentous algae.

"While there are no bugs or fish in these waters, there are diverse microbial communities," said Gooseff. "Some algae in the dry valleys go dormant for nine months or more and then begin to grown when hit by meltwater."

Because there is so much permanent ice in Antarctica, the annual impact of increased temperatures on its environment is slower than in the Arctic. The huge expanse of white ice reflects some of the heat energy into the atmosphere.

"We expect in the next several decades that we will see the Antarctic start to warm up," said Gooseff.

The Antarctic permafrost is very dry with high nitrogen concentrations in some places. When water reaches some of these dry soils, it will mobilize the nutrients and increase potential habitat for freshwater aquatic communities in Antarctica. This climate change will alter the flow patterns, expand the stream networks, and change both the location of habitats and the timing of life cycles.

"Beside the information that we can obtain about climate change on Earth, understanding what happens in Antarctica is important to understand what happens on Mars," said Gooseff. "There is potential for microbial communities on Mars, and if they exist they will probably be similar to the McMurdo Dry Valley communities."

The National Science Foundation Office of Polar Programs supported this work.

Linzell named inaugural Shaw Professor in Civil Engineering

Daniel Linzell, professor of civil engineering, has been named the inaugural John A. and Harriette K. Shaw Professor of Civil Engineering.

The endowment is named in honor of Altoona, PA, natives John A. Shaw, a 1929 civil engineering alumnus, and his wife Harriette.

Linzell has been a member of the Penn State faculty for more than 11 years and directs the department's Protective Technology Center. He also oversaw the Thomas D. Larson Transportation Institute's Transportation Infrastructure Program and was an adviser to the Penn State student chapter of the American Society of Civil Engineers (ASCE). Linzell continues to serve as the ASCE student steel bridge team's co-adviser.

His main research centers on bridge engineering and force protection and structural hardening. He has taught courses in the civil engineering and architectural engineering departments focused on engineering mechanics, structural analysis, steel design and building design.

Linzell holds memberships in a number of professional organizations including the ASCE, Structural Stability Research Council (SSRC), Structural Engineering Institute and Transportation Research Board (TRB).

He is an ASCE fellow and chairs its steel bridge committee. Linzell also chairs the SSRC steel bridge task group and the TRB's Methods of Analyzing Steel Bridges Subcommittee.

Linzell is a certified professional engineer in Pennsylvania and Georgia.

He was honored with the Penn State Engineering Alumni Society's Outstanding Advising Award in 2005 and is a two-time recipient of the ASCE Committee on Student Activities Faculty Adviser Certificate of Commendation.

Linzell received his bachelor's in civil engineering from Ohio State in 1990 and his master's and doctoral degrees in civil engineering from Georgia Tech in 1995 and 1999, respectively.

In addition to their professorship, the Shaws also have a scholarship in the College of Engineering, the John A. and Harriette K. Shaw Scholarship.

As a Penn State student, John Shaw was a member of the Phi Sigma Kappa fraternity and the Chi Epsilon national engineering honor society. Following graduation, he served in the Navy, rising to the rank of lieutenant commander and remained in the active Navy Reserve for 17 years. During World War II, Shaw was an assistant professor of naval science and tactics at the University of New Mexico.

He spent 40 years with the Federal Power Commission as a specialist in hydroelectric power. Shaw received the commission's Meritorious and Special Service Awards. He retired from the commission in 1976 and worked as a private engineering consultant.

Harriette Shaw graduated from Indiana University of Pennsylvania and taught in Altoona, Virginia and Washington, D.C., for 29 years. A reading specialist, she was the director and founder of the Munson Hill School, grades K-1, in Falls Church, Va.

John Shaw died in 2008 and Harriette Shaw died in 2007.

Left to right: **Rachel Brennan** and **Dean David Wormley**

Brennan receives PSEAS Outstanding Teaching Award

On Apr. 1, **Rachel Brennan**, associate professor in environmental engineering received the Penn State Engineering Alumni Society (PSEAS) Outstanding Teaching Award. This award recognizes and rewards outstanding faculty in the College of Engineering for excellence in teaching and for contributions to the art of teaching. Award recipients are nominated by their respective departments and are selected by a panel of peers and PSEAS representatives. Those who are selected receive $500 and an engraved plaque to commemorate their achievement.

Linzell featured in Penn State Daily Buzz Podcast

Daniel Linzell, Shaw Professor of Civil Engineering and director of the Protective Technology Center, was featured in a Penn State Teaching and Learning with Technology Daily Buzz Podcast earlier this year. In the podcast, Linzell discusses the use of iPads in an undergraduate engineering classroom as a lecturing tool. He notes many advantages, as well as some disadvantages, of iPads when compared to more traditional tablet PCs. The podcast can be found at http://bit.ly/n2UNuf.

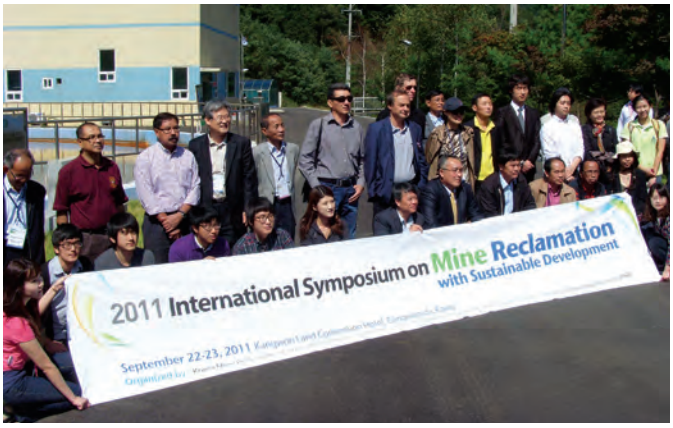
IMAGE SOURCE: http://www.scriberpublishing.com/about.html

Basu receives ICE award

Prasenjit Basu, assistant professor of civil and environmental engineering, has been awarded the Institution of Civil Engineers' (ICE) Telford Premium Award for his paper *Analysis of PVD-enhanced Consolidation with Soil Disturbance* in the Institution of Civil Engineers (ICE) *Ground Improvement* journal. The Telford Premium Award is awarded worldwide by the ICE to a maximum of the four best papers in all civil engineering journals published by ICE. This year, the award ceremony was held at ICE in London.

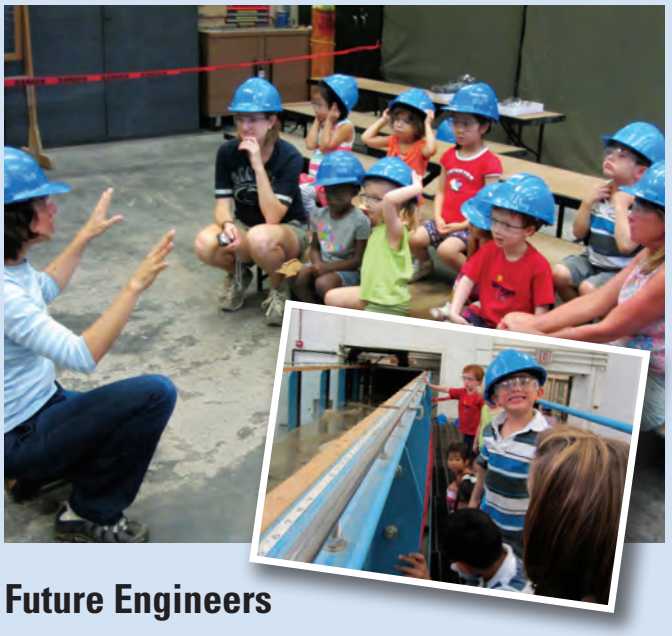
Gooseff receives the Harry West Award for the Advancement of Civil and Environmental Engineering

Michael Gooseff, associate professor of civil engineering, is the second recipient of the annual Harry West Award for the Advancement of Civil and Environmental Education. Gooseff is working with the College of Engineering Leonhard Center for Enhancement of Engineering Education to develop, apply and share the use of scaffolding techniques in teaching engineering courses. Scaffolding is a learning technique that supports student learning by providing additional resources to students as they solve problems. The goals of using scaffolding modules are to enhance student learning and indirectly enhance student problem solving skills.



Dempsey speaks at the 2011 International Symposium on Mine Reclamation with Sustainable Development

Brian Dempsey, professor in environmental engineering, presented a keynote address at the 2011 International Symposium on Mine Reclamation with Sustainable Development, held Sep. 22-23 in Gangwon-Do, Korea. The conference attracted a large international attendance and was held at a ski/casino/conference site that had been reclaimed from the largest coal mines and spoils piles in South Korea. Sustainable mining and reclamation practices are of increasing interest in Mongolia, Malaysia, Vietnam, and other Asian nations that have seen extensive recent development of mineral resources, often resulting in significant environmental pollution and land destruction. Dempsey's address was titled *How can we use the chemistry of mine drainage generation and treatment to produce valued products?*



Future Engineers

A group of 5-year-old children from Penn State's Bennett family Center visited our Sackett laboratories in July. Their visit was lead by **Maria Lopez de Murphy**, associate professor of civil engineering, and by **David Faulds** and **Matt Hassinger**, laboratory technicians. The children explored the strength of bubble wrap and how fast rubber ducks and other plastic toys can flow downstream in the hydraulic flume. They all had a wonderful time. We hope to see them back in a few years as Penn State students!

Civil engineer Gooseff selected for National Academy symposium

Michael Gooseff, associate professor of civil engineering, was one of 65 engineering educators selected to take part in the National Academy of Engineering's third Frontiers of Engineering Education symposium.

The event was held in November in Irvine, CA, is designed to allow early-career engineering faculty member who are developing and implementing innovative educational approaches to share ideas, learn from research and best practices in education and leave with a charter to bring about improvement in their home institution.

Gooseff is the Hartz Family Career Development Professor at Penn State. His research interests include groundwater-surface water interactions, ecohydraulics, stream restoration, stream tracer experiments, solute transport, watershed hydrology, response of polar regions to climate change, isotope hydrology, active layer and permafrost dynamics and snow hydrology.

To be selected for the symposium, attendees need to be nominated by a fellow engineer or dean and chosen from a highly competitive pool of applicants.

This year's program focused on teaching leading-edge engineering concepts, project-based learning, active and self-directed learning and assessment of student learning and education innovation.

Skibinski appointed to the position of instructor for construction and engineering management

Tom Skibinski was appointed to the position of instructor for the undergraduate construction and engineering management program in the civil and environmental engineering department in Aug. 2011. His educational background includes a B.S. in civil engineering from Penn State and an M.B.A. from the University of Scranton. Skibinski is also a registered professional engineer in Pennsylvania, New Jersey, and Connecticut, along with being a professional planner in New Jersey. He is a member of the American Society of Civil Engineers (ASCE), the National Society of Professional Engineers (NSPE) and the Pennsylvania Society of Professional Engineers, where he has been active on numerous National Engineers Weeks' committees. Skibinski brings to the department more than 30 years of professional engineering experience in all facets of design and construction for both public and private sector clients, in addition to business ownership experience. His engineering experience includes commercial, retail, institutional, educational, governmental, industrial, residential, and heavy civil engineering projects. Over his professional career, he has gained progressively responsible experience in project management, construction contract administration, project financing, land development, corporate and industrial park subdivisions, roadway and infrastructure, building design, residential subdivisions and general civil engineering.

Skibinski has been involved in Penn State activities for many years. He is a past president of the Penn State Engineering Alumni Society (PSEAS), and served on the Department of Civil and Environmental Engineering's Industrial Professional Advisory Committee (IPAC) for more than ten years, including serving as chairman. He is also a member, and has served as president, of the Penn State Worthington Scranton's Alumni Society and was an elected member of Penn State's Alumni Council for two terms. Skibinski has been the recipient of the Alumnus of the Year Award from the Penn State Worthington Scranton.

Skibinski's role as instructor of construction engineering and management includes teaching undergraduate courses related to construction engineering and management, and also investigating both a certificate program and a minor in construction management. He will also be developing on-line CEM courses, along with short courses and seminars for Professional Development Hours associated with continuing education to maintain professional engineering licensure. He looks forward to bringing his experiences to the classroom and helping our students understand the professional practice of construction and engineering management. Skibinski is also very excited to be the faculty adviser to the ASCE Concrete Canoe Competition. Penn State has excelled in this competition for many years and he welcomes the opportunity to work with our students to continue this tradition!

Our alumni and engineering and construction firms are welcome to contact Skibinski as a way to expand our partnerships and enhance the educational and professional experiences of our future civil engineers. The real world experiences our alumni and these firms could bring to the classroom will be invaluable to our students. Feel free to contact Skibinski at tskibinski@engr.psu.edu or via phone at 814-863-0026 if you would like to discuss our CEM program and partnership opportunities with your company.

Civil engineering's Lopez de Murphy elected ACI fellow

Maria Lopez de Murphy, associate professor of civil engineering, was elected a fellow of the American Concrete Institute (ACI).

She will be formally announced as a fellow at the opening session and award ceremony at ACI's spring convention on Mar. 18, 2012, in Dallas, TX.

Lopez de Murphy's research interests include the use of innovative materials and technology for sustainable infrastructure, the repair and retrofit of concrete structures using composite materials and the structural health monitoring of these repairs, the durability of concrete bridges and pavements, fiber-reinforced cement based composites for structural applications and the prediction of interfacial damage and crack propagation in structures.

Lopez de Murphy invited by National Science Foundation to serve as a member of a Committee of Visitors for the Office of International Science and Engineering

Maria Lopez de Murphy, associate professor of civil engineering, has been invited by the National Science Foundation to serve as a member of a Committee of Visitors for the Office of International Science and Engineering (OISE). A Committee of Visitors (COV) provides the National Science Foundation (NSF) with an independent review of the integrity of the merit-review system for evaluating proposals, as well as an assessment of program management.

A description of the NSF COV process and copies of recent OISE COV reports and management responses are provided on the following web site: http://www.nsf.gov/od/oia/activities/cov/. Information on OISE programs and activities can be found here: http://www.nsf.gov/div/index.jsp?div=OISE.

Pietrucha Named to Statewide Council

Martin Pietrucha, professor in civil engineering, has been asked to join the recently formed Pennsylvania State Transportation Innovation Council (STIC). The council, jointly chaired by Renee Sigel, Pennsylvania Federal Highway Administration (FHWA) division administrator and Penn State civil engineering alumnus, Barry Schoch ('82), secretary, Pennsylvania Department of Transportation, is an outgrowth of the FHWA "Every Day Counts" (EDC) initiative. This program serves as public information, education, and innovation program designed to identify and deploy innovation aimed at shortening project delivery, enhancing the safety of roadways, and protecting the environment. One of the goals of the initiative is to create a culture of innovation with deep roots in the Pennsylvania transportation community. To do this, the STIC will identify and help implement EDC initiatives and provide a forum for continuous discussion about opportunities for surface transportation innovation in Pennsylvania by fostering a collaborative culture for rapid implementation of meaningful innovations to efficiently deliver a high quality highway system.

Logan named Water Environment Federation fellow

Bruce Logan, Kappe Professor of Environmental Engineering, was named a fellow of the Water Environment Federation (WEF).

Logan directs Penn State's Hydrogen Energy Center and the Engineering Energy and Environmental Institute. His research focuses on developing new bioelectrochemical technologies that can be used towards an energy sustainable water infrastructure.

Established in 1928, the WEF is a nonprofit association that provides technical education and training for water quality professionals. The international group boasts more than 36,000 members.

Civil Engineering newsmakers

Bruce Logan, Kappe Professor of Environmental Engineering, was interviewed on WPSU on using wastewater and saltwater to create energy. See the interview from WPSU: http://wpsu.org/radio/single_entry/LL-3964/stories

Paul Jovanis, professor of civil engineering, had an article about his major study on driving habits in the *Centre Daily Times.* Read the full article from the Centre Daily Times: http://www.centredaily.com/2011/09/30/2933272/massive-transportation-study-to.html

Scanlon recognized for outstanding dedication to concrete industry

Andrew Scanlon, professor of civil engineering in Penn State's College of Engineering, was recognized for his exceptional dedication to the American Concrete Institute (ACI) at its 2011 spring convention.

Scanlon earned the Delmar L. Bloem Distinguished Service Award for his outstanding leadership of ACI Committee 435, Deflection of Concrete Building Structures. He became a fellow of ACI in 1999 and serves as chair of Committee 435. He is also a member of two other committees and is a past member of numerous committees and sub-committees.

Before joining Penn State 24 years ago, Scanlon was a faculty member at the University of Alberta in Canada. He also served as head of the Penn State Department of Civil and Environmental Engineering from 2001 to 2006. Prior to his career in academia, he spent 10 years practicing professionally, including four years at Construction Technology Laboratories in Skokie, Ill. Scanlon received his bachelor of science in civil engineering in 1966 from the University of Glasgow, in the United Kingdom, and his doctorate in civil engineering in 1972 from the University of Alberta, specializing in structural engineering.

Scanlon's research interests include the behavior of concrete structures with an emphasis on serviceability and safety, the evaluation of existing structures, the performance of bridge structures and the computational mechanics of concrete structures.

Palomino joins University of Tennessee

Angel Palomino, assistant professor of civil and environmental engineering, will be leaving Penn State at the end of the fall semester 2011. She will be joining the faculty in the Civil and Environmental Engineering Department at the University of Tennessee, Knoxville, beginning Jan. 2012. Palomino has been a part of the Penn State faculty since Aug. 2005, where she has taught and conducted research in the field of geotechnical engineering. She has taught Engineering Mechanics of Soils at the undergraduate level as well as Engineering Soil Characteristics, Soil Mechanics II, and the Geotechnical and Materials Graduate Seminar at the graduate level. Her research interests include micro-scale soil mechanics, engineering applications of coal combustion products, and the development of application-specific engineered soils. Palomino has greatly enjoyed her experience at Penn State and looks forward to new experiences at Tennessee.

Structural engineer for world's tallest building speaker for 2011 Kavanagh Lecture

William Baker has dedicated his career to structural innovation in the design of tall buildings. Now, the only records left to beat are his own.

Baker, the lead structural engineer of the world's tallest man-made structure, Burj Khalifa, was the speaker for the 2011 Thomas C. Kavanagh Memorial Structural Engineering Lecture. The lecture titled *Burj Khalifa: A New Paradigm.*

Baker joined Skidmore, Owings & Merrill as a structural engineering partner in 1981 and has worked on a wide scope of projects. He has designed structural systems for both supertall buildings and smaller, specialized structures. Most notably, he has spearheaded several of the world's tallest buildings using next-generation systems utilizing modern wind engineering and materials.

Burj Khalifa, a superstructure in downtown Dubai more than 2,700 feet tall with more than 160 levels, was completed in Sep. 2009. It holds seven structural records in the world: tallest building, tallest free-standing structure, highest number of stories, highest occupied floor, highest outdoor observation deck, elevator with the longest travel distance and tallest service elevator.

Before starting work on Burj Khalifa in 2004, Baker had some experience with skyscrapers under his belt. In 1999, he designed the next-generation structural system for the 7 South Dearborn in Chicago, a project that was eventually halted and would have stood at 2,000 feet tall and 118 stories.

He led the design of the AT&T Corporate Center, as well as the 92-story Trump International Hotel and Tower in Chicago, which stands as the second-tallest building in North America and the second-tallest concrete building in the world, behind Burj Khalifa.

Baker continues to design innovative structures for skyscrapers around the world. He is also committed to research and education, and his expertise is often solicited by higher-learning institutions and professional organizations. Most notably, he was engaged by the U.S. federal government in the wake of the 9/11 terrorist attacks to assist in understanding the World Trade Center collapse.

CEE Alumni News

Charles L. Kleeman (M.S. '75) retired from the U.S. Environmental Protection Agency after 32 years. He is currently a part-time adjunct professor teaching environmental remediation and critical thinking courses at Delaware Valley College.

Bob Alger (B.S. '79) was honored Jan. 26, 2011 at the annual Moles award dinner for outstanding achievement in construction. The Moles is a fraternal organization composed of individuals that currently or previously were involved in the construction of tunnel, subway, sewer, foundation, marine, sub-aqueous, or other heavy construction. Alger serves as the vice president of ARTBA's Contractors Division and is the president and CEO of the Lane Construction Company.

Jeffrey Sciullo (B.S. '83) has been named as the assistant vice president–transit for Atlas Railroad Construction Company. Sciullo previously held the title as senior vice president of Dick Corporation and has more than 27 years of experience in the construction industry. He has a broad range of experience, from bridges and highways to corrections and the military.

Douglas Thompson (B.S. '93) has been recognized by PennDOT by receiving the Star of Excellence Award, their highest honor. He was recognized for his dedication to efficiency, safety, and serving as a constant example for other employees.

Daniel Cessna (B.S. '95; M.S. '00) was named the 2011 Engineers Society of Western Pennsylvania Engineer of the Year for leading the improvement of the state highway system in Allegheny, Beaver, and Lawrence counties at a reduced cost to taxpayers. Cessna has been employed by the Pennsylvania Department of Transportation for 17 years, and currently works as the District Executive for Engineering District 11-0. He leads a team of 789 employees which are responsible for the area's large number of bridges, tunnels, and highway.

Tracy Hollida (B.S. '96) was appointed to assistant vice president at Michael Baker, Jr., Inc., a unit of Michael Baker Corporation. Hollida will serve as the client manager for the Maryland Aviation Administration for which Baker performs architectural, engineering, environment and construction management services at Baltimore Washington International Marshall and secondary airports in the state. She will continue as department manager for the Aviation Group in the Baltimore, MD, office.

Kathryn L. Weisner (B.S. '99; M.B.A. '06) is a transportation engineer for the U.S. Department of Transportation's Federal Highway Administration in Harrisburg, PA.

Richard Schoedel (B.S. '03; M.S. '03) was named the 2010 Pennsylvania Society of Professional Engineers (PSPE) Young Engineer of the Year. He is currently employed at Michael Baker Jr. Inc. working on complex bridge design projects such as a demonstration project collaboratively with Lehigh University to design and build the first ever tubular flange girder bridge. Schoedel resides with his wife and two sons, three-year-old Jaxon and newborn Roman.

2011 Outstanding Engineering Alumnus: G. John Kurgan, Civil Engineering, B.S. 1971; M.S. 1974

John Kurgan credits his adviser with helping him make one of the most important decisions of his academic career. He recalls, "Tom Larson [former head of the Pennsylvania Department of Transportation (PennDOT) and Penn State professor], who was my adviser from my freshman year through graduate school, had tremendous influence on my decision to pursue a career in transportation engineering. I took full advantage of the fact that he loved to give students advice."

After graduating with his bachelor's degree, the Skippack, PA, native accepted a position at PennDOT as a civil engineer intern. John explains, "Though I was only there one year, I learned a lot, and the experience helped me decide that I wanted to work in transportation planning, which required additional education."

Kurgan returned to Penn State, where he earned his master's degree in 1974. He immediately went to work for Michael Baker Corporation, a premier provider of professional engineering and consulting services for public and private sector clients worldwide, and he has been with the firm ever since.

Through the years, Kurgan has been involved with a variety of design projects, including Interstate 99 in Centre County and the Pittsburgh International Airport. His responsibilities have included transit development planning, traffic engineering studies, transportation economic analysis, and engineering and environmental studies.

Today, Kurgan is executive vice president of Michael Baker. In this role, he is responsible for strategic planning, marketing, and overall operational oversight for Baker's largest business sector. He has helped expand the company's transportation practice beyond the greater Pittsburgh area and now has presence throughout the U.S. and select international markets. He says, "I am pleased the transportation business segment of Michael Baker has continually grown as long as I have been here. It is now a well-respected, top transportation firm in the country."

A licensed engineer in four states, Kurgan was named 2007 Engineer of the Year by the Engineers' Society of Western Pennsylvania. He holds leadership positions in a number of national professional organizations.

Remembering his years as a student at Penn State, he notes, "Some of my best memories are of my undergraduate education and working on teams for projects and homework. Teamwork is what makes successful engineers!"

Kurgan lives in Beaver Falls, PA, with his wife, Andrea. They also spend a considerable amount of time at their home in State College. They have two children, Geoffrey ('01 CE, '04 MS) and Kate ('05 Lib).

Baker appoints G. John Kurgan chief operating officer

Michael Baker Corporation appointed **G. John Kurgan**, P.E., chief operating officer of the company. In this new position, he will be responsible for the day-to-day operations and business development of the company worldwide.

"His knowledge of the organization, focus on the client, and dedication to teamwork and cooperation in all levels of the organization will serve Baker well as we execute on our long-term growth strategy."

Kurgan has more than 36 years experience with Baker in various capacities, most recently as executive vice president and transportation business line manager. He joined Baker in 1974 and has been involved with the overall supervision of a variety of design projects during his career. His technical background covers a broad range of experience in transportation research and planning, transit development planning, traffic engineering studies, transportation and economic analysis, and engineering and environmental studies. Prior to joining Baker, Kurgan worked for the Pennsylvania Department of Transportation as a civil engineer. He is a licensed professional engineer in Pennsylvania, West Virginia, Delaware, and Arizona.

"John has demonstrated tremendous leadership in every position he has held in Baker during his career," Bradley L. Mallory, president and chief executive officer, said in announcing the appointment. "His knowledge of the organization, focus on the client, and dedication to teamwork and cooperation in all levels of the organization will serve Baker well as we execute on our long-term growth strategy."

Kurgan holds bachelor's and master's degrees in civil engineering from Penn State. Earlier this year, he was named an Outstanding Engineering Alumnus by the University.

Michael Baker Corporation (www.mbakercorp.com) provides architecture, engineering, design, planning and construction services for its clients' most complex challenges worldwide. The firm's primary business areas are architecture, aviation, defense, environmental, geospatial, homeland security, municipal and civil, pipelines and utilities, rail and transit, transportation and water. With more than 2,700 employees in nearly 90 offices across the United States, Baker is focused on creating value by delivering innovative and sustainable solutions for infrastructure and the environment.

Corbett taps civil engineering alum to head PennDOT

Newly inaugurated Pennsylvania Gov. Tom Corbett has nominated a Penn State civil engineering alumnus to head the state's Department of Transportation.

Barry Schoch is a vice president at McCormick Taylor Inc., a transportation engineering and planning company. He received his bachelor's from Penn State in 1982.

Schoch, 50, has served as a consultant to PennDOT and the Pennsylvania Turnpike for 15 years.

He began his career with the Delaware Department of Transportation and worked with two private-sector firms before joining McCormick Taylor in 1995.

The DuBois native has served as the president of the Pennsylvania Highway Information Association, chair of the American Consulting Engineering Council of Pennsylvania's transportation committee, transportation chair for the Design Professionals Coalition and a member of the Delaware Transportation Trust Fund Task Force.

He currently resides in Camp Hill.

Hendrickson talks about green design

Chris Hendrickson from Carnegie Mellon, a National Academy of Engineering member and renowned expert in environmental life-cycle assessment, gave a talk on "Green Design and Environmental Life Cycle Assessment for Sustainable Engineering" on June 24. The talk provided an overview of green design and environmental life cycle assessment approaches used by the presenter. Examples of power tool remanufacturing; solid state lighting and Marcellus Shale natural gas production were presented to illustrate the different approaches.

Hendrickson is the Duquesne Light Company Professor of Engineering and co-director of the Green Design Institute at Carnegie Mellon University. His research, teaching, and consulting are in the general area of engineering planning and management, including design for the environment, project management, transportation systems, finance, and computer applications.

Pennoni Associates promotes CE alum

Chad Lello, P.E. ('99 CE) has been promoted to division manager at Pennoni Associates' Wilkes-Barre, PA, office. He will manage the firm's civil/site/landscape architecture division. Lello's primary focus has been on the evaluation and design of civil engineering and land development projects. His experience includes the design and layout of new roads and pavements and design of stormwater conveyance and management systems for numerous projects. He is a licensed professional engineer in Pennsylvania and a certified professional in erosion and sediment control.

CE alumni receives BRAVA! Women Business Achievement Award

Janet B. Cunningham, P.E. ('80 CE), president and founder of the construction management firm, JBC Associates, Inc., has been named a BRAVA! Women Business Achievement Award winner by Philadelphia SmartCEO magazine. The BRAVA! Awards recognize the contributions of 25 female CEOs who not only grow successful companies, but also are actively involved in giving back to the community. Cunningham started her construction management firm in 1988, as its sole employee, based on her philosophy of doing your professional best and treating others with respect. Today, JBC is one of Pennsylvania's largest and most respected women-owned professional construction management firms. Her philosophy has served her well as the firm has averaged more than 20 percent growth per year for the last 23 years. Headquartered in King of Prussia, PA, JBC Associates provides project management, construction management including CPM scheduling, construction inspection, contract administration, and dispute resolution services to government, institutional, and private sector clients as well as construction and A-E consultant firms.

Penn State's student chapter of the American Society of Civil Engineers

Throughout the past year Penn State's American Society of Civil Engineers Student Chapter (ASCE) has been involved in various activities. The activities sponsored by ASCE are designed to supplement the curricular studies of student members, and students in the civil and environmental engineering major, with extracurricular activities. Various activities are also intended to be helpful to the local and regional community.

Many of the activities early this semester have involved reorganization work for the student leaders to make the organization more efficient. This has involved cleaning and reorganizing the ASCE office, reorganizing our membership files and registration system, and working to ease transfers between officer corps from year to year.

Also as part of ASCE's reorganization phase, we are planning to clean up and renovate the Jeremy Herbstritt ASCE Student Lounge, located in 105 Sackett. Goals for the renovation include aesthetic changes, as well as functionality changes that will benefit student members and hopefully make the lounge a more versatile room for different ASCE events.

Other activities that are either new for this year, or starting again this year, involve the concrete canoe team, which is being restarted under the leadership of **Thomas Skibinski** and **Jeffrey Laman**, and hopefully working with the Kiski School in Saltsburg, PA, on a bridge design project. We are hoping to see the concrete canoe team compete again this year. The bridge project involves high school students from the Kiski School contacting **Daniel Linzell** with regards to designing a small bridge to help their community. Daniel Linzell was able to forward the request to ASCE, and we are eager to help out as a learning opportunity for ASCE members and the high school students, as well as a good way to represent the university.

Other activities include activities that ASCE sponsors yearly such as the career fair and the Steel Bridge Team. Penn State ASCE is also competing in the ASCE Central Pennsylvania Section Food Drive.

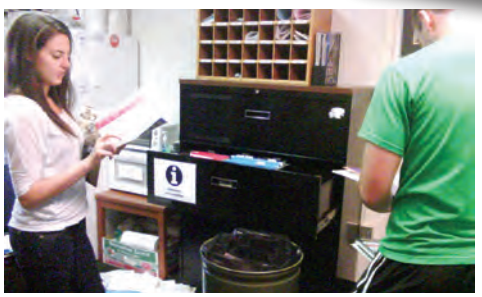
The Days Inn State College atrium filled with companies and students.

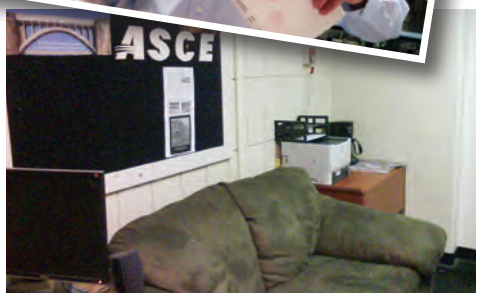
The Steel Bridge Team was very successful last year, as they competed in the national competition at Texas A&M University last spring.

This year's career fair and career fair mixer, held at the Days Inn State College, was very successful with 45 companies in attendance looking for both full time and part time positions to be filled in all of the civil engineering focuses. More than 260 students were in attendance throughout the day at the fair, including students from the mechanical engineering, environmental systems, and architectural engineering departments.

Upcoming events include social events for student members, faculty/student luncheons, and monthly general meetings featuring various speakers. As the year school year progresses ASCE is looking towards a successful year involving the department, student members, and the community.

Below, Top Row, Left to Right: American Infrastructure has been a long time patron of the career fair; Career fair chair **Brad Kaley** visiting booths at the career fair; ASCE President **Christian Noveral** managing the sign in desk at the career fair. *Bottom Row, Left to Right:* Penn State was last year's Central PA ASCE's food drive winner, will they repeat their victory? Career fair chairs **Brad Kaley** and **Jessica Greenberg** cleaning the ASCE office; The ASCE office after cleaning and reorganization.





Blansett and Heitzmann join the Pennsylvania Housing Research Center

Katie Blansett joined the Pennsylvania Housing Research Center (PHRC) full time in August as the land use and development specialist. Her work includes projects related to development design standards and the land development process, stormwater management, and water quality. She serves on several statewide committees related to the Chesapeake Bay TMDL and stormwater management practice and regulation. Blansett also teaches CE 410W Sustainable Residential Subdivision Design.

Before joining the PHRC, Blansett worked as a consulting engineer on projects including residential and commercial land development, stormwater and watershed management, floodplain analysis, hydrology and hydraulics studies, and stream restoration. She is a licensed professional engineer in Pennsylvania. Blansett holds a B.S. degree in environmental systems engineering and an M.Eng. degree in civil engineering. She recently defended her dissertation titled *Flow, Water Quality, and SWMM Model Analysis for Five Urban Karst Watersheds* and will receive her Ph.D. in December in agricultural and biological engineering from Penn State.

Bryan Heitzmann began working as the new housing program development specialist for the PHRC in Feb. 2011. After graduating from Penn State in 2001, he secured employment in the residential housing industry with NVR in the Washington, D.C., area, and held several roles that expanded his relevant knowledge base. Subsequent to the completion of an 18-month production training program consisting of classroom training as well as field proficiencies, Heitzmann worked as a project manager in the northern Virginia market, later helping to establish a new division of the company in Central Virginia. Most recently, he was employed by S&A Homes as a project manager in their western region.

Heitzmann brings extensive experience in dealing with code officials, builders, subcontractors, and homeowners, and has remained current on changes in the code, changes in the market, as well as advancements in energy efficient building practices throughout his career. He brings experience and a knowledge base that will help the PHRC in our continued mission to improve quality and to transfer appropriate technologies to the housing community. Heitzmann's major responsibilities include developing and delivering new PHRC training programs, seminars, and other educational programs, as well as researching topics relevant to the industry.

Garner joins CEE staff as department head administrative support assistant

Lindsey Garner joined the Department of Civil and Environmental Engineering as the administrative support assistant for the department head in Dec. 2010. Garner was born and raised in the Happy Valley area, so Penn State has always been a large part of her life. While staying at home to be with her three children when they were young, she earned her B.A. in letters, arts, and sciences and a minor in sociology through classes at Penn State's University Park campus and World Campus. Upon returning to the workforce in 2007, Garner was able to express her Penn State pride through employment in the College of Engineering Dean's Office and the Leonhard Center. As a firm believer in lifelong learning, she completed a post-baccalaureate certificate in summer 2009 and a M.S. in spring 2011 in human resources and employment relations at Penn State. Garner recently married an avid Penn State sports fan, Jeremy, and they currently live in Snow Shoe with her three children, Noah, Madison, and Gavin.

Weikel and Wise join the CEE staff

Heather Weikel joined the Department of Civil and Environmental Engineering as an administrative support assistant for the Engineering Energy and Environmental Institute in May 2010. She has been at Penn State since 1994, with her previous position being in the Center for Digital Transformation in the Smeal College of Business.

Weikel currently resides in Zion with her husband Douglas, son Joshua and French bulldog, Gordo. Along with spending time with family and friends, she enjoys cooking, Penn State sports, walking and reading. Weikel is also a Sustaining Life Member of the Penn State Alumni Association, the Nittany Lion Club and the State College Quarterback Club.

Karen Wise joined the Department of Civil and Environmental Engineering in May 2011, as a part-time office assistant for the Engineering Energy and Environmental Institute.

Wise relocated to State College with her husband and three children in the fall of 1998. Now that all of her children are grown and graduated from Penn State, she has rejoined the workforce. She enjoys travelling to visit family, reading and the scenery of central Pennsylvania.

Be sure to visit us online at **http://www.engr.psu.edu/ce/**

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Alumni Updates:

Also, please send the address of any Civil & Environmental Engineering alumni you know who are not receiving the newsletter.

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Top photo: University of New Hampshire graduate student collaborating with **Michael Gooseff** measuring streamflow in arctic Alaska stream. *Middle left:* Ph.D. student **Allison Truhlar** measures streamflow in a tundra stream in arctic Alaska. *Middle middle:* Wil Wollheim from University of New Hampshire measuring streamflow in a tundra stream in arctic Alaska. *Middle right:* M.S. student **Adam Wlostowski** measures stream velocities in a bedstream in arctic Alaska. *Lower left:* Student in CE 462 making a discharge measurement in Spring Creek, spring 2011. *Lower right:* Senior **Staci Tupta** in CE 475 conducting a wading survey to measure the flow rate of Spring Creek, spring 2011.

Penn State Green Teams

Greening CEE

The Department of Civil and Environmental Engineering has recently formed a Green Team. Penn State Green Teams are comprised of faculty, staff, and students who actively assist their units to operate in a more efficient, innovative, and environmentally-friendly manner. In less than four months, the CEE Green Team has already made some positive changes to the department:

- **Recycle:** In addition to the standard recycling bins in every Penn State building, CEE participates in other programs, including the Office of Physical Plant's battery recycling program and TerraCycle's chip bag, candy wrapper, and cookie packaging brigades.
- **Compost:** CEE has begun to divert food waste and organic materials to the campus' Organic Materials Processing and Education Center (OMPEC) rather than sending it to a landfill. OMPEC turns the material into compost for campus plants, which also saves the University the expense of purchasing fertilizer.
- **Reduce:** To decrease the amount of electricity used, CEE turns off lights in common areas when sufficient natural light is available and when rooms are not in use.
- **Educate:** CEE Green Team members attend meetings and events on a regular basis to continually learn about being an environmentally-friendly department.

With this dedicated group and their passion for the environment, the Department of Civil and Environmental Engineering will continue to take innovative strides to make positive changes at Penn State!

After reading the newsletter, show your support and recycle.