

## SCHOOL OF SUSTAINABLE ENGINEERING AND THE BUILT ENVIRONMENT

### Civil, Environmental and Sustainable Engineering

## CESE students test their engineering knowledge



The **Pacific Southwest Regional Conference (PSWRC)**, held annually for ASCE student chapters, tests their knowledge of engineering subjects. The competition involved a wide range of events such as concrete canoe, steel bridge, bridge design, surveying, and environmental design. This year's conference was held at California State University, Los Angeles on March 23-26, 2011. Participants included teams of civil engineering students from major colleges and universities in Arizona, Nevada, Hawaii and Southern California.

Fifty-six CESE students ranging from freshmen to seniors plus grad students had a chance to compete in a variety of competitive events. The ASU group showed tremendous improvement over previous years bringing home five trophies

and a special recognition. Trophies were awarded as follows:

- 1st place for the Dog House Design Report
- 1st place for the Overall Dog House
- 2nd place for Flag Design
- 3rd place for Balsa Bridge
- 3rd place for Concrete Canoe Male Sprint Race

Special recognition was awarded for Team Spirit during the Concrete Canoe competition. **Go Devils!**

The students would like to thank the **Friends of Civil Engineering (FOCE)** for their consistent support. For the past several years, FOCE have supported ASCE at ASU by sponsoring transportation to the annual conference. **Thank you FOCE for your generous support!**

### Greetings from CESE



The Civil, Environmental and Sustainable Engineering (CESE) program at ASU continues to progress and enhance its image among its peers thanks to the effort of our dedicated faculty, staff and students. This past year, CESE graduated 91

BSE students and 23 Master and Ph.D. students. We have been expanding our summer teaching program to meet the increased enrollment. In addition, our research in various areas of civil, environmental and sustainability has been growing. We recently added several faculty members to support our program in the areas of sustainability, concrete and smart materials, and environmental fluid dynamics. We are also adding a new lecturer in the area of Freshman Education to help enhance hands-on experience of our freshmen. Dr. Matt Witczak retired after many years of excellent contribution to research, teaching and service, and we will definitely miss him. We are looking forward to another successful academic year.

*Michael S. Mamlouk, PhD, PE, CESE Program Chair*

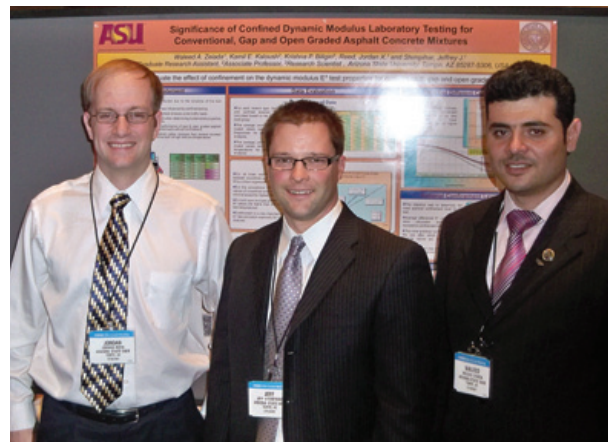


## Students attend TRB Conference

In January 2011, 21 graduate students from the Transportation group in SSEBE attended the **Transportation Research Board Annual Meeting** in Washington, D.C. Attendance at this conference provided a unique opportunity for students to gain exposure to cutting edge transportation research from around the world. ASU students also were able to interact with students working in similar fields and also with professionals from academia and industry.

Seven research papers authored by SSEBE students and faculty were selected for podium or poster presentation at the conference. Of these research papers, five were selected for publication in the Transportation Research Record, an internationally recognized journal.

In addition, **Matild Dosa** and **Waleed Zeiada** were of a select few students invited to participate in the International Road Federation (IRF) program. IRF is an international organization dedicated to promoting maintenance and development of better, safer and more sustainable roads around the globe.



Poster Presentation (left to right) Jordan Reed, Jeff Stempihar and Waleed Zeiada

### Student Honors

**Dean's Fellowships** provide tuition and \$25,000 of annual support for a first-year doctoral student who has demonstrated a strong academic record and potential for advancement in research. U.S. citizenship is required. The fellowship covers two years with the department supporting the recipient at the same level for the rest of his/her academic career. Five of SSEBE's nominees were awarded Dean's Fellowships and four have accepted the award. They are **Kirk Vance** (structural engineering), **Trevor Ghylin** (environmental engineering), **David Hanigan** (environmental engineering), and **Levi Straka** (environmental engineering).

**Fulton Fellowships** provide a \$5,000 stipend to first-year doctoral students. Four of SSEBE's nominees have been awarded a Fulton Fellowship: **Trevor Ghylin** (environmental engineering), **David Hanigan** (environmental engineering), **Levi Straka** (environmental engineering), and **Ben Rehder** (structural engineering).

Funding for the **Science Foundation Arizona (SFAz) Graduate Research Fellowship** is provided by Arizona Science Foundation (this year's funds are courtesy of the federal government's American Recovery and Reinvesting Act) with matching funds provided by the student's advisor. This fellowship is \$30,000 and an additional \$10,000 for tuition remission and health insurance benefits. Three SSEBE doctoral students were selected for this award: **Daniel Rosenbalm** (geotechnical engineering), **Bridget Cavanagh** (environmental engineering) and **Isaac Roll** (environmental engineering).



**Michelle Barry**, a PhD student of Dr. Paul Westerhoff, has been selected as this year's **Fresh Ideas winner at the AZ Water 2011 Conference**. Michelle will travel to Washington DC for the AWWA's national conference ACE 11, June 12th-16th, and present her work in the form of a poster contest. Conference fees including travel and hotel expenses will be paid for by AWWA. Michelle

is also the recipient of the **AZ Water Scholarship for 2011** in the amount of \$750.

**Vanessa Chavez** has been selected to receive a **Ford Graduate Engineering Fellowship** for \$5,000. This award recognizes graduate students who excel in the study of engineering. Vanessa is one of six recipients in the IAFSE to receive this fellowship.

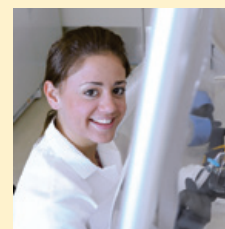
**Chao-An Chiu**, a PhD student of Dr. Paul Westerhoff, has won a **\$250 AZ Water Scholarship for 2011**.

**Kyle Doudrick** has won 3rd place for his paper entitled "Photocatalytic Reduction for Nitrate in Water using Titanium Dioxide Loaded with Silver" in the **Geosyntec's student paper competition 2011**.

**Elham Bani Hashem**, a PhD student in Geotechnics/Pavement Materials working under the supervision of Dr. Claudia Zapata, won the **2010/11 Helene M. Overly Memorial/Esther Kmetty Scholarship** awarded by WTS Phoenix Metropolitan Chapter. The scholarship is awarded to women pursuing graduate studies in transportation or a related field. The scholarship is very competitive as it is passed on the applicant's specific transportation accomplishments, goals, job skills and academic record.



**John M. Kondziolka**, a junior studying civil & environmental engineering with a focus in water resources, has been selected as one of the **2011 Udall Scholars**. The Scholars are selected on the basis of commitment to careers in the environment, health care or tribal public policy; leadership potential; and academic achievement. Each scholarship provides up to \$5,000 for the Scholar's junior or senior year. John is active in the Engineers Without Borders chapter, serving as the Project Education Lead for a water distribution project in Ecuador and an in-progress water supply project in Kenya. During the academic year he conducts research on the application of a quaternary ammonium compound to filtration media in a laboratory.



**Alexandra Polasko**, a student in Dr. Rosa Krajmalnik-Brown's environmental biodesign lab, has won four awards and will go on to compete at the next level for the **Stockholm Junior Water Prize**. Her awards included: **Arizona Stockholm Junior Water Prize, Regional Water Prize Award Ricoh Sustainable Development Award, Excellence Award for Biological Sciences, and Association for Women in Science Silver Medal, Microbiology Division**. Alexandra's mentor in the lab was PhD student Michal Ziv-El.

**Amie Stockwell**, an undergraduate civil engineering student, is the SSEBE awardee of the **Graduate College Reach for the Stars Fellowship (\$15,000)**. This fellowship supports new and regularly-admitted first-year students who demonstrate academic excellence and are underrepresented in their field of study. Stockwell has been admitted to the 4+1 MS degree program in structural engineering.

**Arjun Krishna Venkatesan**, an environmental engineering doctoral student, has been awarded the **Phoenix/Scottsdale Groundwater Contamination Scholarship for Environmental Science for the academic year 2011-12**. The \$13,560 fellowship is offered in recognition of his solid history of achievement and research in groundwater remediation.



## Engineering Student Wins Prestigious Tau Beta Pi Scholarship



**Joy Marsalla** has been awarded one of the most highly prized fellowships to support students seeking graduate degrees in engineering. Tau Beta Pi, the national engineering honor society, this year bestowed its fellowships on only 35 of the more than 200 top engineering students from throughout the country vying for the awards.

Marsalla, a student in ASU's Barrett, The Honors College, maintained a perfect grade point average in recently earning a bachelor's degree in the civil and environmental engineering program of the School of Sustainable Engineering and the Built Environment.



Her combined academic and research performance got her into leading engineering societies and organizations – Tau Beta Pi, Chi Epsilon and the Arizona Society of Environmental Professionals – and

earned her a more than year-long internship with a leading Phoenix-based civil engineering company, plus the 2011 Engineering Student of the Year Award from the Phoenix chapter of the national Engineers Week Foundation.

Marsalla has also been selected as the Ira A. Fulton Schools of Engineering Outstanding Graduate for 2011. She will pursue a master's degree at ASU in sustainable engineering focusing on water-quality challenges.

## Outstanding performance earns top national fellowship award



**Keith Christian's** view on the value of transportation engineering goes beyond its contributions to providing data and designs to improve travel efficiency. It's a vital tool for improving our quality of life, for shaping our built environment in ways that can foster a sense of community cohesion.

It's that outlook that gives him a passion for this branch of engineering. And it's that passion, says his ASU faculty mentor, professor Ram Pendyala, that has motivated Christian to do "work of superior quality" in the classroom and the research lab. That track record has led to Christian recently earning one of the most prized national fellowship awards for transportation engineering students. An award from the Dwight David Eisenhower Transportation Fellowship Program will cover Christian's tuition and support his research as he pursues a master's degree. It also includes funds for him to attend the annual meeting of the Transportation Research Board, one of the most prominent conferences in the profession.

Christian earned his undergraduate degree in civil engineering at ASU last year. As an undergrad, Christian also began work that will shape his graduate-level research pursuits: an extensive study of ways in which engineering design could effectively promote more fuel-efficient, less-polluting travel, as well as other steps toward establishing environmentally and economically sustainable transportation systems.

## Graduate students display their research work



The first **SSEBE Graduate Student Research Symposium** was held on Thursday evening, March 10, 2011, in the Memorial Union (MU). The symposium was co-sponsored by **SSEBE, the Friends of Civil Engineering (FOCE), and the Arizona Pavements and Materials Conference.**

Over 50 SSEBE graduate students presented posters describing a diverse array of research work conducted here at ASU, including work on transportation planning, transportation materials, geotechnology, structural materials, construction, water resources, water quality, environmental microbiology, and sustainable design.

New SSEBE Director Edd Gibson hosted the event, welcoming over 100 attendees including SSEBE graduate students, faculty and staff, and SSEBE industry supporters. The symposium included brief oral presentations from students chosen to represent the eight specialty areas within SSEBE. Based upon ballots submitted by attendees at the symposium and post-symposium review by a panel of judges, seven graduate students were selected as medalists for their posters and awarded \$100 prizes.

### The seven medalists included:

- Mehdi Bakshi**, *Testing and Modeling the Drying of Cement Based Materials*
- Chao-An Chiu**, *In-situ Regenerable Granular Activated Carbon Technique-Better Solution for Climate Change-Impacted Waters in the Future*
- Nasser Hamdan**, *Microbially-Induced Carbonate Precipitation for Soil Improvement*
- Jordan Reed**, *Evaluation of the Effects of Aging on Asphalt Rubber*
- Isaac Roll**, *Rationale and Theory for a New In Situ Sampling (IS2) Device*
- Waleed Zeiada**, *Significance of Confined Dynamic Modulus Laboratory Testing for Conventional, Gap and Open Graded Asphalt Concrete Mixtures*
- Chen Zhou**, *Investigating the versatile contributions of Desulfovibrio vulgaris strain, a Sulfate-Reducing Bacteria, to Uranium Bioremediation*

We plan on making the graduate research symposium an annual event – next year's symposium is scheduled for **Thursday, March 15, 2012** at the MU and will once again be open to the public.



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## Friends of Civil Engineering (FOCE)

Hear what our students are saying about the Friends of Civil Engineering (FOCE)...

*"Thank you for your consistent support. For the past several years, FOCE have supported ASCE at ASU by sponsoring transportation to the annual Pacific Southwest Regional Conference (PSWRC)."*  
*American Society of Civil Engineers*



*"ASU's EngineersWithout Borders Chapter has used FOCE's funding to purchase supplies for a 5K run the chapter held as a fundraiser for their water resources program in rural western Kenya. Additionally, EWB-ASU has utilized funds from FOCE to create and install a basic roof water catchment system on a member's house as a learning experience for the similar work anticipated on the Kenya Project. Thanks to Friends of Civil Engineering for also supporting our water distribution project in Ecuador!"*

*EngineersWithout Borders*



*"In the past projects, FOCE funds have helped us finalize the construction of the pedestrian bridges we have built in Honduras and Guatemala. Without their funding, we would have had to postpone the construction of these life-lines for the people of those rural communities. Their generous contributions helped us fulfill our motto: 'Changing Lives, One Bridge at a Time.'"*

*Bridges to Prosperity*



### 2010/11 Friends of Civil Engineering:

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**Would you like to join the Friends of Civil Engineering?**

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