AEESP Newsletter

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Highlights

Need to renew your 2019 AEESP membership? Go to "Membership > Online Renewal" on the AEESP Website: AEESP.org

AEESP Newsletter Submissions

Please send news, conference announcements, job postings, letters to the editor, and other contributions to the newsletter to Laura Arias Chavez at LChavez@tntech.edu. The next newsletter will appear in October 2019.

President's Letter

BY MAYA TROTZ
University of South Florida

"If engineers who have an obligation to protect the public health act entirely on the basis of their business interest, I fear for the sustainability of our profession and its role in serving society by providing water facilities that serve to promote the public health," wrote the late Daniel Okun, University of North Carolina at Chapel Hill Kenan professor of environmental engineering in "Problems in the Pursuit of Safe Water," in the 1999 Proceedings of the Association of Environmental Engineering and Science Professors (AEESP) Research Conference. At that time he felt that "the business of engineering had superseded the profession of engineering." This observation was made after participating in a public debate for a potable water supply project where a practicing engineer's main reason for supporting the controversial project was that if he did not do it, a next firm would. Prof. Okun's engagement in a debate on the project organized by the League of Women Voters, and mention of a young professor at UNC-Asheville who debated with him against the project's engineering representatives, strike me as significant today. After attending talks and workshops on community engaged work at both the AEESP and American Society of Engineering Education (ASEE) conferences this summer, I wonder why Professor Okun's public engagement activities seem more the anomaly than the norm today.

At a distinguished panel at ASEE this year, Community Engagement Ethics – First Steps in a Conversation with Affected Communities, five community leaders spoke about their experiences with engineers and/or engineering projects. Lena Young Green, founder of the Tampa Heights Junior Civic Association and a longtime community activist working for equitable and safe transportation in Tampa, stressed that "Community people will get up and do whatever they determine has to be done to improve their communities. We may not have the money, we may not have education, we may not have research, but we see a problem and we will do it. We depend on you as engineers to be able to help and guide us. We depend on you as the teachers and instructors." Panelists said that most engineers and engineering faculty with whom they work don't live within their neighborhoods, and offered that as one reason why many of the stories they shared placed the engineer in a category separate from the community. All five panelists were underrepresented minorities; three were black women.

Earlier this summer, I started a Twitter thread to identify black women faculty in environmental engineering. Thanks to input from members of AEESP, this list now stands at 22. It just so happens that I recently participated in ChocDocs, an American Society of Engineering Education (ASEE) pre-conference workshop held on June 14, 2019 in Tampa, Florida. Led by Professor Stephanie Adams from Old Dominion University, it promoted "Intergenerational Mentoring Among African American Women in the Engineering Academy." Self care, something that should strike a cord amongst all of us in AEESP, stood out as critical for us to practice daily. After listening to the shared experiences of those in the room, Associate Dean Bevlee Watford from Virginia Tech sighed and remarked that so many of the structural challenges seemed to be the same for black women in academia as when she started almost three decades ago. She, Prof. Adams, and I are three black women leaders of our professional organizations: they as past and current president of ASEE respectively, and I as current president of AEESP. From the belly of the urban communities that surround many of our campuses to the classrooms where we train the next generation of engineers, the need for human interconnectivity is clear.

Rewinding a month to Monday, May 13th hints at the urgency for that interconnectivity to members of AEESP and how some of them are already making it happen. Lupita Montoya, assistant professor of Civil, Environmental, and Architectural

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Newsletter submissions, comments, and letters to the editor may be sent to:

Laura Arias Chavez
Newsletter Editor
c/o AEESP Business Office
1211 Connecticut Avenue, NW
Suite 650
Washington, DC 20036
Phone: 202-640-6591
LChavez@tntech.edu

Letters to the president may be sent to:

Maya Trotz
Dept. of Civil & Environmental Engineering
University of South Florida
4202 E. Fowler Avenue,
ENG 118
Tampa FL 33620
Phone: 813-974-3172
Email: matrotz@usf.edu

Please send address changes to:

Brian Schorr
AEESP Business Office
1211 Connecticut Ave NW, Suite 650
Washington, DC 20036
phone: (202) 640-6591
email: bschorr@aeesp.org

AEESP Membership Application online:

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Engineering at the University of Colorado Boulder, and Matthew Verbyla, assistant professor of Civil, Construction, and Environmental Engineering at San Diego State University, co-chaired an all-day AEESP pre-conference workshop, "Environmental Engineering for the 21st Century: Increasing Diversity and Community Participation to Achieve Environmental and Social Justice." We workshopped and witnessed presentations from a diverse group of junior faculty, post docs, students, and community members from Flint, Michigan. Three data rich presentations grounded us and guided our attention to the need to broaden participation of underrepresented minority groups in our field, many of whom are being trained at the undergraduate level by Hispanic-Serving Institutions and Historically Black Colleges and Universities. One group activity on "business as usual" vs "ideal" factors for success in academia demonstrated high valuation of societal impact and meaningful community engaged partnerships for research and education and noted that these were not ranked highly under current tenure and promotion evaluations. The energy and determination in the room to create the ideal scenario today aligns well with what's needed for us to meet future challenges in our field.

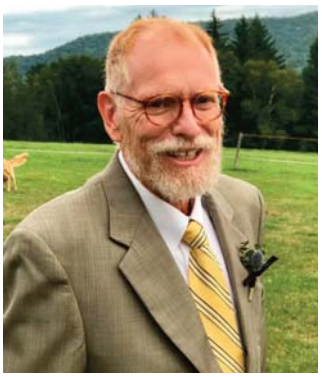
The well conceptualized and executed AEESP Research and Education conference at Arizona State University (ASU) featured a plenary where National Science Foundation (NSF) Program Director Dr. Karl Rockne presented the "Grand Challenges for Environmental Engineering in the 21st Century" based on the 2018 National Academies of Sciences, Engineering and Medicine (NASEM) report (http://nas-sites.org/dels/eechallenges/). He highlighted NSF funding opportunities (e.g. Navigating the New Arctic) and Big Ideas like Growing Convergence Research for us to consider. Past AEESP president Prof. Peter Vikesland from Virginia Tech thought the NASEM report reflected the ideas gathered from three AEESP co-sponsored workshops and recommended that we read the workshop report and presentations if more details are needed (https://aeesp.org/nsf-aeesp-grand-challenges-workshops). As a contributor to the NASEM report, past AEESP secretary Prof. Kimberly Jones from Howard University implored us to keep the report alive and proactively ensure there are funding mechanisms to meet the challenges.

The NASEM report says that for the field to address a new future, "environmental engineers need to examine the challenges and the alternative solutions using community input and considering short- and long-term consequences across local, regional, and global scales," the common threads of training being life cycle assessment and systems thinking, and genuine community engaged work and interdisciplinary collaborations. Back in 1967, according to an article in the AEESP conference proceedings on the role of social sciences in environmental engineering, conceptualization of environmental engineering training had chemistry, biology, social science, engineering systems, and planning as the core curriculum and members of our organization rejected integration with the social sciences because of logistics. According to the article, members of our organization pondered "what effect the environmental engineer has had on public attitudes toward pollution, in contrast with the effect the citizens' alarm about the state of the environment has had on engineering activities." The environmental engineering division of ASEE comes to mind as an additional resource for us to engage on training needs for our field, and I hope our AEESP education committee builds that relationship more.

During his address at the AEESP awards ceremony at ASU, our next president, Prof. Karl Linden from the University of Colorado Boulder shared that in 2020 he wants to see us honor the 50th anniversary of the US Environmental Protection Agency in the most impactful ways. Hopefully, we use his call to interconnect us to our past, to each other, to the environment, and to people with environmental justice challenges who "will get up and do whatever they determine has to be done to improve their communities."

Luckily, Charles Haas, department head and LD Betz professor of environmental engineering, civil, architectural, and environmental engineering at Drexel University, and David Freedman, professor & chair of environmental engineering and earth sciences at Clemson University independently reached out to us with their archives of our conference proceedings, some passed on from Wesley O. Pipes at Drexel and Bob Baillod at Michigan Tech. These are currently housed on our website, and I hope you see them as a resource for insight into our field from the EPA's inception.

AEESP Mourns the Passing of Professor James S. Bonner, Clarkson University



James Scott Bonner, 63, of Colton, New York peacefully passed away Wednesday afternoon, March 27, 2019 in the comfort of his home with his family and his dog by his side. A private celebration of his life was held at his home.

Jim was born August 26, 1955 in Detroit, Michigan, the second son of six to the late Phillip Ronley and Luella Francis (Craig) Bonner. He had two daughters. He studied environmental science at SUNY Plattsburgh and spent many hours doing research at the Miner Institute's Center for Earth and Environmental Science's Applied Environmental Science Program until he graduated with a BS degree in 1976. He then attended Clarkson University where he earned a Master of Science followed by a PhD in Civil and Environmental Engineering in 1985.

Jim was one of a cadre of graduate students at Clarkson in the late 70s and 80s who converted a Bachelor's degree in biology or environmental science into a PhD in Environmental Engineering by embracing a desire to quantitatively understand – through modeling and process experimentation – how the aquatic environment responds to external stimuli. During his graduate student days, Jim demonstrated the one trait that helped him become so successful in his career and to make so many important contributions to environmental protection; that is, he was extremely inquisitive about how aquatic systems behave and strove to design experimental apparatus to quantify that behavior. Both his MS thesis on phosphorus recycle from phytoplankton decay and his PhD thesis on phytoplankton vertical transport demonstrated this trait.

After his graduate studies, Jim worked for the Environmental Protection Agency at the Narraganset Laboratory as a post-doctoral researcher. He started his career in academics at SUNY Plattsburgh before accepting a position at Texas A&M University in College Station, where he would eventually become a full professor. While at TAMU the focus of his research was on remediation strategies, notably for hydrocarbon impacted environments. With his colleagues and graduate students, he began a life's work inventing remote monitoring devices which he deployed to collect data for the modeling of environmental responses to contamination and established the Shoreline Environmental Research Facility (SERF). His research led him to the Conrad Blucher Institute on the TAMU Corpus Christi campus where he served as the Director and expanded his research more broadly in the Gulf of Mexico.

After 20 years in Texas, Jim longed to return to the Adirondacks. In 2006 he accepted a position as a professor at Clarkson University in Potsdam, NY. He served as the Director of Research at the Beacon Institute for Rivers and Estuaries along the Hudson River where a strategic alliance with Clarkson University was formalized in 2011. Jim led the development and implementation of the River and Estuary Observatory Network (REON) at the Beacon Institute creating water quality monitoring sensors. Always driven to improve the technology to collect and share data broadly, Jim formed RATES (Research Applied Technology Education Service) and served as the President/CEO. Throughout his career, Jim mentored numerous undergraduate and graduate students who have further advanced the field of Environmental Engineering.

He loved the Adirondacks and could be found boating on Hannawa Pond or downhill and cross-country skiing. He is survived by his two daughters and their husbands, his two beloved granddaughters, his five brothers, and many close sisters-in-law, nieces, and nephews.

In lieu of flowers, memorial contributions may be made in his memory to the North Country Children's Museum by visiting www.northcountry childrensmuseum.org/support/ and the Adirondack Council by visiting www.adirondackcouncil.donorshops.com/products/donations.

AEESP Mourns the Passing of Joanne Mary Giroux Fetzner Frechette

Joanne Mary Giroux Fetzner Frechette passed away on February 13th, 2019 after battling peripheral artery disease. For almost two decades, Joanne was a key person in running the business of AEESP. Later on she was also critical in the creation of the AEESP Foundation.

Joanne interacted with much of the membership over a long period and in 2015 received a Distinguished Service Award for Outstanding Service in Support of AEESP Management and Formation of the AEESP Foundation.

Many do not know that for much of its existence, AEESP had no business support beyond what members provided. In 1992 the Board began to discuss if the Association (at that time, AEEP) should employ a professional management firm to aid the officers and committee chairs in running the day-to-day business of the organization. Joanne was selected in October 1994 to provide business services to the Association. At that time she wrote to the Board, "I understand the demands and priorities facing university professors.... My highest priority will be to make AEEP participation a pleasant, productive, and trouble-free experience for all members."

Working out of Champaign, Illinois, Joanne's official title was Business Office Manager, but she did so much more. She was dedicated to her work and helped make AEESP more efficient and effective. She not only maintained the membership records, received and deposited dues, responded to requests for publi-

Continued next page

Joanne Mary Giroux Fetzner Frechette *Continued*

cations, and prepared all mailings, but provided financial and management services. In fact, a lot of the Association's current financial integrity is because of her advice and policies she helped to establish.

Joanne was also one of the key players in the establishment of the AEESP Foundation. The idea of the AEESP Foundation began at the Fall Board of Directors Meeting in 2004. At that time gifts were not tax exempt. The Board determined that further investigation into the establishment of a new organization was warranted and Joanne was asked to investigate that possibility. At the subsequent spring Board Meeting, the Board passed a motion that AEESP would create and apply to create a 501(c)(3) foundation to improve the state of knowledge in environmental engineering among educators, practicing engineers, scientists and the general public and to acknowledge and encourage excellence in environmental engineering education, research and service. Joanne helped the Board draft the articles of incorporation and bylaws and oversaw the paperwork as it migrated through governmental channels for approval. Additionally, Joanne helped to establish the AEESP Foundation small grants program that supports future environmental engineers to improve K-12 instruction. There really would be no AEESP Foundation without her guidance and hard work.

Joanne is survived by two loving children, Teri and Daniel, and her granddaughter Kaitlyn. She was preceded in death by her much loved husband Paul Frechette and her grandson Cody. Folks might not know that Joanne played basketball as a young woman in Detroit. After she moved to Florida (just a short drive from the USF campus) she enjoyed going for walks with her dog, playing bridge, taking trips back to Detroit to meet with her family and hearing of current happenings of AEESP and its members.

On behalf of the current and past AEESP boards and members of AEESP, we express deep condolences to Joanne's family, friends, and colleagues. We are once again reminded of the tremendous contributions so many have made to AEESP and encourage our membership to help us document and share their stories.

AEESP Journal Environmental Engineering Science Spotlight

Baolin Deng (Member, AEESP Publications Committee), Susan J. Masten (Chair, AEESP Publications Committee), Catherine A. Peters (EES Deputy Editor), Domenico Grasso (EES Editor-in-Chief)

The "spotlight" column draws attention to selected articles in *Environmental Engineering Science (EES)*, the official journal of AEESP. Spotlight articles appear regularly in the journal as an Editor's Note, as well as in the AEESP Newsletter. Through publication of high-quality peer-reviewed research, the EES journal helps AEESP achieve its mission of developing and disseminating knowledge in environmental engineering and science. In this entry, we shine the spotlight on selected articles from the December 2018 issue through the March 2019 issue of *EES*. Congratulations to all whose work is highlighted.

One approach to minimize the discharge of nutrients (nitrogen and phosphorus) into the aquatic system is to recover ammonium, nitrogen, and phosphate from wastewater treatment effluents for reuse. Ion exchange has been applied for such a purpose; however, the presence of micro pollutants can limit their reuse potentials. **Tong et al**. (2018) evaluated the capability of biosolids-derived biochar for the adsorption of micro pollutants as a pretreatment step, using triclosan, estradiol, and sulfamethoxazole as model micropollutants. Through batch and flow-through experiments, they demonstrated an effective removal of triclosan and estradiol by the biochar, and, to a lesser extent, sulfamethoxazole. It was in the presence of ammonium, nitrogen, and phosphate that the removal occurred, suggesting that the biochar sorption could be used as pretreatment prior to use of ion exchange resin for nutrient recovery.

In parts of the developing world, many people still do not have adequate access to clean drinking water. Because conventional water supply infrastructure is too expensive to build, point-of-use systems such as ceramic water filters are often used. **Jackson et al.** (2018) studied porous ceramic filters fabricated in a pot shape similar to commercial filter units, in which silver and copper were embedded in different ways to deactivate pathogens. Their results showed that the ceramic filter prepared by mixing $AgNO_3$ with clay and sawdust, followed by firing in a kiln, had the best performance based on its ability for deactivation of E. coli and minimal silver release to the treated water.

Membrane separation has been increasingly used not only for desalination but also for drinking water and wastewater treatment. There are many types of membrane and many system configurations, so selection of the best approach for a specific application is not always easy. **Wang et al.** (2019) conducted a life cycle assessment to analyze the energy consumption and environmental impacts of the catalytic ceramic membrane system, in comparison with the polymer-based hollow-fiber membrane filtration system. Their result suggested that ceramic membrane combined with ozonation was a promising technology; further improvement could be gained by lowering cost for ozone generation and transport, and development of better catalytic coating materials.

Membrane biofouling is one of the most challenging issues that hinders the application of membrane technologies for water treatment. The challenge could be addressed by the fabrication of membranes with anti-fouling surfaces. **Fleming et al**. (2019) modified the polysulfone surface by grafting polydopamine, which, when exposed to silver nitrate solution, would reduce silver cations to form zerovalent silver nanoparticles. The modified membrane with polydopamine and silver nanoparticles was found to have better performance and antifouling properties.

Articles Referenced

Fleming, M., Bouwer, E., and Chen, K.K. (2019) Biofouling Response of Laboratory-Scale Polysulfone Membranes Modified with Bioinspired Polydopamine and Silver Nanoparticles. Environ. Eng. Sci. 36, 335.

Jackson, K.N., Smith, J.A., and Edokpayi, J.N. (2019) New Method for the Deposition of Metallic Silver and Metallic Copper on Full- Size Porous Ceramic Water Filters. Environ. Eng. Sci. 36, 2.

Tong, Y., Kimbell, L., Avila, A., McNamara, P.J., and Mayer, B. (2018) Ion exchange for nutrient recovery coupled with biosolids-derived biochar pretreatment to remove micropollutants. Environ. Eng. Sci. 35, 1340

Wang, X., Anctil, A., and Masten, S.J. (2019) Energy Consumption and Environmental Impact Analysis of Ozonation Catalytic Membrane Filtration System for Water Treatment. Environ. Eng. Sci. 36, 149.

Congratulations to the AEESP Fellows, Class of 2019

Please congratulate the new AEESP Fellows for 2019! These individuals were selected for this recognition based on their accomplishments in environmental engineering research, teaching, and professional service, with an emphasis on service within AEESP. They were formally acknowledged as new Fellows at the 2019 AEESP conference (held at Arizona State University, May 14-16, 2019). The citations below were adapted from their nominations.

Domenico Grasso, University of Michigan—Dearborn

Dr. Domenico Grasso has made sustained contributions to environmental engineering education and to STEM education more broadly. As the founder of the engineering program at Smith College, then subsequently as a Dean, Provost and now Chancellor, Dr. Grasso has strongly advocated for broadening the education of engineers and those in STEM disciplines. In particular, he has emphasized the importance of the humanities in these technical fields. Dr. Grasso has served AEESP for many years and at the highest levels, including service as President in 2001-02. As President, he was the first to suggest the creation of a Fellows program for AEESP and the adoption of an official AEESP journal. Among other contributions, he has served the profession as Vice-Chair of the EPA Science Advisory Board and recently chaired the National Academies Committee on Grand Challenges and Opportunities for Environmental Engineering for the 21st Century; formation of this committee was an outcome of a series of AEESP workshops on the topic.

Paige Novak, University of Minnesota

Dr. Paige Novak has an exemplary record of service to AEESP, research contributions in the area of microbiology, and dedication to the education of graduate and undergraduate students. She has served on three different AEESP committees and twice on the AEESP Board of Directors. Dr. Novak has served the profession beyond AEESP as an expert panelist for the National Research Council and is currently the editor-in-chief of Environmental Science: Water Research and Technology. Her research has made fundamental contributions to the understanding and application of microbiological processes for the treatment of pollutants in wastewater, soil, and sediment. Her teaching has received both internal and external awards for excellence.

Kurt Pennell, Brown University

Dr. Kurt Pennell is well-recognized for advancing fundamental knowledge related to groundwater remediation technologies, environmental toxicology, engineered nanomaterials, and fate and transport of environmental contaminants. His career is notable for its dedication to excellence in environmental engineering education and dissemination of knowledge to practicing engi-

The 2018 Class of AEESP Fellows, honored at the 2019 AEESP Research and Education Conference. From left: Dr. Karl Linden, AEESP President-Elect, Dr. Bruce Rittmann, Chair of the Fellows Steering Committee, 2018 Fellow Dr. Amy Childress, Dr. Shaily Mahendra (representing 2018 Fellow Dr. Lisa Alvarez-Cohen), Dr. Greg Characklis (representing 2018 Fellow Dr. Michael Aitken), 2018 Fellow Dr. Dionysios Dionysiou, and AEESP President Dr. Maya Trotz.

neers. Dr. Pennell has shown exceptional commitment to serve and advance the mission of the AEESP organization, as well as other professional groups.

Steven Randtke, University of Kansas

Dr. Steven Randtke has worked throughout his career to strengthen the basis of design and operation of drinking water treatment plants, as well as to translate research into engineering practice through partnerships with AEESP, the American Water Works Association (AWWA), and numerous drinking water utilities and their consultants. He served on the AEESP Board of Trustees from 1992 to 1996 and as AEESP President from 1994-1995. During this time, Dr. Randtke authored the first AEESP Administrative Handbook, which has since served to standardize procedures and provide organizational guidance for the organization. From 1997 to 2006, Dr. Randtke continued to serve as the AEESP liaison to AWWA and organized the AEESP lecture at the annual AWWA conference. While well-known for his early work in physico-chemical removal of natural organic matter, Dr. Randtke has most recently worked diligently as the technical co-editor for the 5th edition of Water Treatment Plant Design, published jointly by AWWA and ASCE. His work on this text is representative of his devotion to disseminating peer-reviewed and state of the art knowledge to the environmental engineering and science professions.

Gerald E. Speitel Jr., University of Texas —Austin

Dr. Jerry Speitel has made substantial contributions to understanding the formation of disinfection by-products in drinking water, especially when using chloramines as the disinfectant, and he has used that knowledge to delineate how that formation can be minimized. His contributions to the literature on this topic are highly regarded by both academics and practitioners. Dr. Speitel served on the Board of AEESP from 1999 to 2002, including being the Treasurer for the last two years of that term. Subsequently, he served as a member of the Audit Committee for the following four years. Dr. Speitel also contributed three of the laboratory exercises in AEESP's Environmental Engineering Processes Laboratory Manual. For the past decade, Jerry has served as the Associate Dean for Academic Affairs of the Cockrell School of Engineering at the University of Texas at Austin. Besides his service to AEESP, Jerry has been an active member of AWWA, and served on (and then chaired) their Student Activities Committee for several years.

Jeanne VanBriesen, Carnegie Mellon University

Dr. Jeanne VanBriesen is widely recognized for advancing science and engineering at the interface of water and energy systems. Specific research accomplishments concern the downstream impacts of water produced from shale gas and flue-gas desulfurization at coal-fired power plants. Dr. VanBriesen has had major impacts through here educating and mentoring students and junior faculty, those who will become the next generation of environmental engineers. Dr. VanBriesen also has provided stellar service to AEESP and the environmental engineering community. For example, she was the on the AEESP Board from 2007 – 2010, Chair of the EWRI New Professional Council, and Chair of the Faculty Senate at Carnegie Mellon University.

Nominations for AEESP Fellows for 2020 are open now through March 1, 2020. Details for the electronic application requirements are available at http://www.aeesp.org/fellows.

Questions can be addressed to Bruce Rittmann (Rittmann@asu.edu), Chair, Fellows Steering Committee.

The 2019 Class of AEESP Fellows, honored at the 2019 AEESP Research and Education Conference. From left: Dr. Karl Linden, AEESP President-Elect, Dr. Bill Arnold (representing 2019 Fellow Dr. Paige Novak), 2019 Fellow Dr. Kurt Pennell, 2019 Fellow Dr. Stephen Randtke, 2019 Fellow Dr. Jeanne VanBriesen, and Dr. Bruce Rittmann, Chair of the Fellows Steering Committee. 2019 Fellows not pictured or represented: Dr. Domenico Grasso, and Dr. Jerry Speitel.

2019 AEESP Award Recipients

Submitted by Rob Nerenberg, AEESP Awards Committee Chair (University of Notre Dame)

The 2019 AEESP Awards were presented in conjunction with the 2019 Research and Education Conference at Arizona State University, Tempe, Arizona. Below is a list of the recipients. Congratulations to all award winners!

Thank you to the members of the Awards Committee and Sub-committees for thoughtful and thorough evaluation of the nominations: Kevin Finneran (incoming Awards Chair), Caitlyn Butler, Trina McMahon, Des Lawler, Paul Bishop, David Cwiertny, Wen Zhang, Wenjie Sun, Jason He, Adam Smith, Qiong Zhang, Srijan Aggarwal, Kyle Bibby, Brooke Mayer, Teng Zeng, Lynn Katz, and Rob Nerenberg. Thanks also to American Academy of Environmental Engineers and Scientists (AAEES) members Ed Bouwer, Dick Magee, Webb Owen, and Hector Fuentes, for serving on joint AAEES/AEESP awards committees, and to Liz Pohland for assisting with the selection of the Frederick George Pohland award recipient.

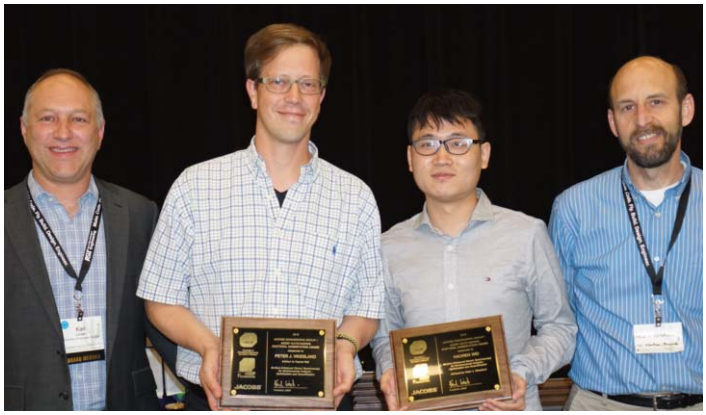
Student Awards

Jacobs Engineering Group (Formerly CH2M)/AEESP Outstanding Doctoral Dissertation Award

This award is given annually to recognize an outstanding doctoral dissertation that contributes to the advancement of environmental science and engineering.

Dr. Haoren Wei (advised by **Peter J. Vikesland**), Virginia Tech

Surface-Enhanced Raman Spectroscopy for Environmental Analysis – Optimization and Quantification



Dr. Haoren Wei (center right) accepts the Jacobs Engineering Group / AEESP Outstanding Doctoral Dissertation Award from AEESP President-Elect Dr. Karl Linden (left) with Advisor Dr. Peter Vikesland (center left) and AEESP Awards Committee Chair Dr. Rob Nerenberg (right). Photo Credit: Joel Ducoste

Paul V. Roberts/AEESP Outstanding Doctoral Dissertation Award

This award is given annually to recognize an outstanding doctoral dissertation that advances the science and practice of water quality engineering for either engineered or natural systems.

Dr. Emily Garner (advised by **Amy Pruden** and **Marc A. Edwards**), Virginia Tech

Occurrence and Control of Microbial Contaminants of Emerging Concern through the Urban Water Cycle: Molecular Profiling of Opportunistic Pathogens and Antibiotic Resistance

Dr. Emily Garner (right front) accepts the Paul V. Roberts / AEESP Outstanding Doctoral Dissertation Award from AEESP President-Elect Dr. Karl Linden (left) with Advisors Dr. Amy Pruden (center front) and Dr. Marc Edwards (center back) and AEESP Awards Committee Chair Dr. Rob Nerenberg (right back). Photo Credit: Virginia Tech

AEESP Master's Thesis Award

This award annually recognizes two most outstanding Master of Science theses that contribute to the advancement of environmental science and engineering.

Timothy R. Kent (advised by **Zhiwu "Drew" Wang**), Virginia Tech

Mechanistic Understanding of the NOB Suppression by Free Ammonia Inhibition in Continuous Flow Aerobic Granulation Bioreactors

Stephen A. Todey (advised by **William Arnold**), University of Minnesota

Neonicotinoid Insecticide Hydrolysis and Photolysis: Rates and Residual Toxicity

Timothy Kent (center right) accepts the AEESP Master's Thesis Award from AEESP President-Elect Dr. Karl Linden (left) with Advisor Dr. Zhiwu "Drew" Wang (center left) and AEESP Awards Committee Chair Dr. Rob Nerenberg (right). Photo Credit: Joel Ducoste

Stephen Todey (center right) accepts the AEESP Master's Thesis Award from AEESP President-Elect Dr. Karl Linden (left) with Advisor Dr. Bill Arnold (center left) and AEESP Awards Committee Chair Dr. Rob Nerenberg (right). Photo Credit: Joel Ducoste

W. Wesley Eckenfelder Graduate Research Award

This award, jointly administered by AEESP and AAEES, is given annually to recognize a student whose research contributes to the knowledge pool of industrial wastewater management.

Christopher Lawson (advised by **Katherine McMahon**), University of Wisconsin-Madison

Christopher Lawson is currently a PhD Candidate in Environmental Engineering at the University of Wisconsin-Madison working with Professor Katherine McMahon. His research investigates the metabolism of anaerobic ammonium-oxidizing (anammox) bacteria and the interactions they engage in with other poorly characterized nitrogen cycling microorganisms using systems biology approaches. His goal is to understand and predict how local metabolic interactions between organisms in microbiomes give rise to emergent process-level functions, such as carbon and nitrogen cycling during wastewater treatment.

Following graduation in the Fall of 2019, Chris plans to continue his career in research and teaching, focused on advancing the engineering of microbiomes for resource recovery from waste streams.

Chris completed his BS and MS degrees in Environmental Engineering at the University of British Columbia (Vancouver, Canada) and has 3 years of industry experience working as a water & wastewater process engineer in Alberta.

William Brewster Snow Award

This award, jointly administered by AEESP and AAEES, is given annually by AAEES to an outstanding environmental engineering student currently pursuing or recently completing a Master's degree in Environmental Engineering or closely related degree program.

Monica Resto-Fernandez
Mercer University

Monica C. Resto-Fernandez is currently a candidate for a Master's degree in Environmental Engineering at Mercer University with a graduate concentration in Engineering for Development. She received her Bachelor of Science in Civil Engineering from the University of South Florida in 2016 with an Environmental Engineering concentration, graduating Magna Cum Laude.

Monica's Master's thesis project involves a preliminary investigation of a 400 km^2 mountainous study area in the San Juan province of the Dominican Republic and an assessment of water resources in the area, with the overall objective to investigate how bacteriological contamination enters the domain of mountain springs in the study area. Her research and teaching interests are in global water, sanitation, and hygiene (WASH); groundwater flow, especially mountainous hydrology and hydrogeology; self-supply in water; water quality; aqueous geochemistry; geology; appropriate technologies; and sustainable international development.

During her time at Mercer University, Monica has co-led several international research-service-learning trips to the Dominican Republic, working with local communities and teaching Mercer undergraduate students diverse aspects of WASH, Latin American culture, and Spanish language.

Following completion of her Master's degree this year, she plans to pursue a PhD in environmental engineering, working on research at the intersection of international development, hydrogeology, and water systems. Her career plans include working on international development projects that focus on improving groundwater quality as a vital resource for developing communities and then returning to academia to shape engineering and geoscience student theoretical and practical knowledge learning as a university professor.

Innovyze Excellence in Computational Hydraulics & Hydrology Award

This award is given annually by AAEES and is cosponsored by Innovyze to recognize an MS or PhD student whose research contributes to knowledge in the area of computational hydraulics and hydrology.

Dylan Wood (advised by **Dr. Ethan Kubatko**)
The Ohio State University

Dylan Wood's academic career has revolved around the goal of pursuing a highly multidisciplinary skillset as often demanded of researchers in the field of computational hydrology.

In 2014, Dylan earned a BS in Physics from Austin Peay State University (APSU), where he also minored in computer science and mathematics. His independent research at APSU included developing software for atomic structure computations and initiating a near-space program for stratospheric observations by high altitude balloon.

Enrolling in a program specialized in computational science, Dylan subsequently began graduate studies at The Ohio State University (OSU) Department of Mathematics in the fall of 2014. He was awarded a Master's degree in 2016 for thesis research on time integration of unsteady convection-diffusion problems by implicit-explicit methods. This research was collaborative with Dr. Ethan Kubatko at OSU's Department of Civil, Environmental and Geodetic Engineering, and ultimately led to Dylan joining this department as a PhD student working on research in Dr. Kubatko's lab.

Accordingly, Dylan has pursued a diverse range of coursework at OSU, including work in both pure and applied mathematics, engineering (aerospace, civil, environmental, mechanical – all coursework related to hydrology or fluid dynamics), and computational science. His current research focuses on mitigation of flooding risks posed to coastal areas by tropical cyclones. Specifically, his work develops coupled storm surge/structural fragility models for forecasting of flood defense system failures during storm events.

Education, Research, Practice and Outreach Awards

AEESP Award for Outstanding Teaching in Environmental Engineering and Science

This award is given annually to recognize excellence in classroom performance and related activities.

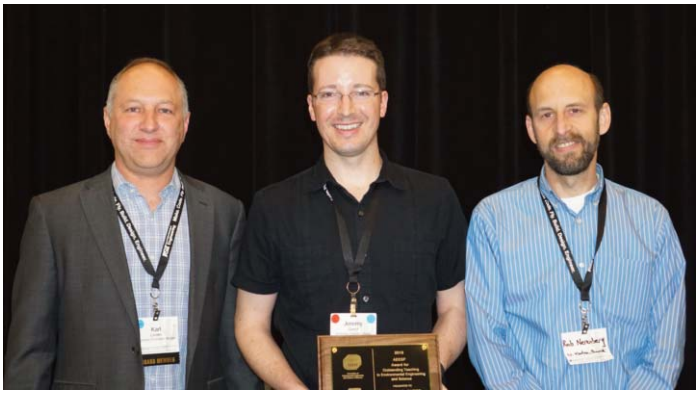
Award 1:
Caitlyn S. Butler, University of Massachusetts, Amherst

Caitlyn joined UMass in 2011, and currently is an associate professor. She has strong teaching evaluations, and was nominated by students for a university teaching award in 2016-2017. Students remarked on her attention to detail, preparedness, approachability, interest in student learning, and willingness to create a learning environment that encourages students to participate. She participated in numerous teaching training activities, including the ACSE ExCEEd Fellows program and her selection as a UMass Student Centered Teaching and Learning (SCTL) Fellow. Last year, she was awarded a Lilly Teaching Fellowship, a highly competitive honor at the university

Dr. Caitlyn Butler accepts the AEESP Outstanding Teaching in Environmental Engineering and Science Award from AEESP President-Elect Dr. Karl Linden (right) and AEESP Awards Committee Chair Dr. Rob Nerenberg (left). Photo Credit: Joel Ducoste

Award 2:
Jeremy S. Guest, University of Illinois, Urbana-Champaign

Jeremy joined the University of Illinois Urbana-Champaign in 2011 and has just been promoted from assistant to associate professor. He has taught three classes: an undergraduate Introduction to Environmental Engineering class, a graduate course on Sustainable Design and a graduate course focused on biological processes. In the classroom, Jeremy emphasizes concepts and critical thinking. He applies concepts to real engineering problems, using project-based learning. His teaching evaluations have been outstanding, and he has been recognized with additional awards for his effective mentoring and advising of students.



Dr. Jeremy Guest (center) accepts the AEESP Outstanding Teaching in Environmental Engineering and Science Award from AEESP President-Elect Dr. Karl Linden (left) and AEESP Awards Committee Chair Dr. Rob Nerenberg (right). Photo Credit: Joel Ducoste

Steven K. Dentel Award for Global Outreach

This award, established in 2014, is given annually to recognize outstanding contributions and leadership by a faculty member through involvement in environmental engineering and science outreach activities to the global community.

Monroe Weber-Shirk, Cornell University

Monroe joined Cornell in 1994, and he currently is senior lecturer and senior researcher. While Monroe excels in all his teaching, he is especially known for combining teaching, research, and service via the Agua Clara water treatment program, which he founded and directs. The Agua Clara program researches, invents, designs and disseminates technologies for municipal gravity-powered, surface-water treatment plants. He has developed a series of courses around Agua Clara, including a lab course on research and engineering design for water and wastewater treatment, a theory course on the fundamentals of drinking water treatment, and a travel course to Honduras to teach about environmental engineering in an international context. Monroe has received numerous teaching awards over his career.

Dr. Monroe Weber-Shirk (center) accepts the Steven K. Dentel AEESP Award for Global Outreach from AEESP President-Elect Dr. Karl Linden (left) and AEESP Awards Committee Chair Dr. Rob Nerenberg (right). Photo Credit: Joel Ducoste

Excellence in Environmental Engineering and Science Education (E4) Award

This award, jointly administered by AEESP and AAEES, is given annually by AAEES to an individual who has made a significant contribution to the profession in the area of educating practitioners.

Sarina Ergas, University of South Florida.

Dr. Sarina Ergas is a professor and graduate program director in the Department of Civil & Environmental Engineering at the University of South Florida, Tampa. She joined the USF faculty in 2009 after 15 years at the University of Massachusetts, Amherst. She holds a BS in environmental engineering from Humboldt State University and MS and PhD degrees in civil and environmental engineering from the University of California, Davis.

Her research interests are centered on environmental biological processes, including biological nutrient removal processes for treatment of municipal and onsite wastewater, stormwater management and anaerobic digester sidestreams. Her recent work also focuses on biological waste-to-energy technologies using anaerobic digestion and algal wastewater treatment processes.

She teaches Biological Principles in Environmental Engineering, Capstone Water Resources/Environmental Engineering Design and Mentoring Novice Researchers. She has mentored 60 graduate students, 8 postdocs, 70 undergraduates, 10 middle and high school science teachers and 15 high school students on research.

Dr. Ergas is a fellow of AEESP and a fellow of the Water Environment Federation (WEF). Dr. Ergas was a 2007 Fulbright Fellow and a 1995 Excellence in Civil Engineering Education (ExCEEd) fellow. She is a licensed civil engineer in the Commonwealth of Massachusetts and an AAEES Board Certified Environmental Engineer.

Charles R. O'Melia AEESP Distinguished Educator Award

This award recognizes the significant contributions of Professor O'Melia to environmental engineering education and is awarded to an environmental engineering or science professor who has a record of excellent classroom teaching and graduate student advising; significant research achievements; and an outstanding record in mentoring of former students and colleagues.

John E. Tobiason, University Massachusetts, Amherst

John joined UMass Amherst in 1987, and had been outstanding in teaching, graduate advising, and research, and mentoring of former students and colleagues. John's teaching ratings at UMass are always near the top of the department, and he has received four teaching awards. John has advised 54 MS students and 11 PhDs. He has made significant contributions to research in water filtration, colloidal particles and characterization, Fe and Mn chemistry and removal from water, treatment of brine wastes from membranes. He has a leadership position for the current EPA $4.1 million Water Center called the "Water Innovation Network for Sustainable Small Systems". John has mentored many graduate and undergraduate students in his 31-year academic career. John has also mentored faculty colleagues at UMass and professional colleagues at other universities and in industry through his outstanding service on the Board of AEESP, as a trustee of the Water Science and Research Division of AWWA, and in other professional committees.

Dr. John Tobiason (center) accepts the Charles R. O'Melia Distinguished Educator Award from AEESP President-Elect Dr. Karl Linden (left) and AEESP Awards Committee Chair Dr. Rob Nerenberg (right). Photo Credit: Joel Ducoste

Walter J. Weber, Jr. AEESP Frontier in Research Award

This award is given annually to recognize an environmental engineering or science professor who has advanced the environmental engineering and science field through recognized research leadership and pioneering efforts in a new and innovative research area.

Karl G. Linden, University of Colorado, Boulder

Karl's research focuses on photon-based advanced treatment technologies. He specializes in the use of UV light for non-chemical water treatment, both in disinfecting water of pathogenic microorganisms and via advanced oxidation (AOP) processes. His early work found that UV light was effective for Cryptosporidium inactivation, and he has subsequently studied the efficacy of polychromatic UV systems. His work on UV-based AOPs has also had an important impact on the field, helping to mature UV-AOP for potable reuse applications. Most recently, Karl is pioneering a large effort on UV-C LEDs for disinfection in small systems and point of use applications. Dr. Linden's research has resulted in over 175 peer-reviewed publications. He has a H-index of 41 with over 5800 citations to his work. He has received numerous awards and honors, including being named the 2014 WateReuse Association Water Reuse Person of the Year.

Dr. Karl Linden (center) accepts the Walter J. Weber, Jr. AEESP Frontier in Research Award from AEESP President Dr. Maya Trotz (right) and AEESP Awards Committee Chair Dr. Rob Nerenberg (left). Photo Credit: Joel Ducoste

AEESP Outstanding Publication Award

This award is given annually to recognize the author(s) of a "landmark environmental engineering and science paper that has withstood the test of time and significantly influenced the practice of environmental engineering and science." At least one of the authors must be living and previous winners are ineligible for a period of three years. The selected recipient will receive a plaque.

Nathalie Tufenkji
Menachem Elimelech

For their paper

"Correlation equation for predicting single-collector efficiency in physicochemical filtration in saturated porous media." *Environmental Science & Technology*, 38 (2004) pp. 529-536

Tufenkji and Elimelech (2004) presented a landmark correlation equation for the determination of the single-collector contact efficiency (η_0) in physicochemical particle filtration in saturated porous media. Earlier approaches did not consider the influence of hydrodynamic interactions and van der Waals forces. The new equation showed remarkable agreement with exact theoretical predictions of η_0 over a wide range of conditions. The impact of the Tufenkji and Elimelech (2004) paper is evidenced by the rate of citations in Web of Science: 492 citations, or about 38 per year. One year after it was published, the paper was acknowledged by Thomson ISI as one of the most cited papers in the field of Environment/Ecology.

Dr. Menachem Elimelech (center) accepts the AEESP Outstanding Publication Award from AEESP President-Elect Dr. Karl Linden (left) and AEESP Awards Committee Chair Dr. Rob Nerenberg (right). Dr. Nathalie Tufenkji not pictured. Photo Credit: Joel Ducoste

AEESP/Mary Ann Liebert Award for Publication Excellence in Environmental Engineering Science Journal

This award, established in 2017, is given annually to the authors of an outstanding paper published in *Environmental Engineering Science* during the previous calendar year. *Environmental Engineering Science* is the official journal of AEESP, and this award recognizes publication excellence among its members.

The 2019 award recipients are Heileen Hsu-Kim of the Duke University and her former doctoral student, Grace Schwartz, currently at Oak Ridge National Laboratory. Their paper is entitled 2018 paper, "Ranking Coal Ash Materials for Their Potential to Leach Arsenic and Selenium: Relative Importance of Ash Chemistry and Site Biogeochemistry."

Grace E. Schwartz, Heileen Hsu-Kim, James C. Hower, Allison L. Phillips, Nelson Rivera and **Avner Vengosh**.

Environmental Engineering Science
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Dr. Helen Hsu-Kim (center left) and Dr. Grace Schwartz (center right) accept the AEESP/Mary Ann Liebert Award for Publication Excellence in Environmental Engineering Science from AEESP President-Elect Dr. Karl Linden (left) and AEESP Awards Committee Chair Dr. Rob Nerenberg (right). Photo Credit: Joel Ducoste.

Perry L. McCarty AEESP Founders' Award

This award, established in 1991 and endowed in 2014, is given annually to recognize a member of AEESP who has made "sustained and outstanding contributions to environmental engineering education and practice."

JoAnn Silverstein, University of Colorado, Boulder

Dr. JoAnn Silverstein accepts the Perry L. McCarty AEESP Founders' Award from AEESP President-Elect Dr. Karl Linden (left) and AEESP Awards Committee Chair Dr. Rob Nerenberg (right). Photo Credit: Joel Ducoste

During her nearly forty-year career at the University of Colorado, Boulder, JoAnn Silverstein taught 20 different courses and advised 24 doctoral students, with 14 going on to careers in academia, and 43 MS students. JoAnn has also been a strong advocate for diversity and equity at UC Boulder. Her research has primarily focused on the control of nitrogen discharges to the environment, with bench-, pilot- and full-scale experimental research, and modeling. Her projects have evaluated the performance and resilience analysis of wastewater treatment systems based on degree of (de)centralization, the statistical modeling of wastewater nutrient removal, and the impacts of water conservation on wastewater treatment. She also has made significant contributions to practice. JoAnn has maintained her status as a Registered Professional Engineer and has patents for the "Biological Denitrification of Water" that have been implemented at full scale in rural communities.

Fredrick George Pohland Medal

This award honors a member of AEESP and/or AAEES who has made sustained and outstanding efforts to bridge environmental engineering research, education, and practice.

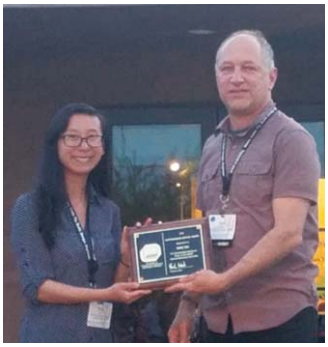
Spyros Pavlostathis, Georgia Institute of Technology

Spyros is internationally recognized for his work in the bioremediation and treatment of municipal and industrial wastewater, as well as the kinetics, modeling, and simulation of bioprocesses. Spyros has published over 150 peer-reviewed papers and authored over 200 publications, including books or book chapters. He has received numerous domestic and international awards. Throughout his academic career, Spyros has been a dedicated educator of future environmental engineers, teaching at both the undergraduate and graduate level. He has served abroad as an evaluator of engineering curricula and programs and as an external thesis reviewer. Through his research activities, he has mentored 20 post-doctoral fellows and visiting scholars, 17 PhD students, and 24 MS students, who have gone on to work in consulting, state and federal regulatory agencies, and academia.

Dr. Spyros Pavlostathis (center) accepts the Frederick George Pohland Medal from AEESP President-Elect Dr. Karl Linden (left) and AEESP Awards Committee Chair Dr. Rob Nerenberg (right). Photo Credit: Joel Ducoste

Distinguished Service Awards

AEESP Committee Chairs



Ning Dai, University of Buffalo, for Outstanding Service as Chair of the AEESP Internet Resources Committee

Rob Nerenberg, University of Notre Dame, for Outstanding Service as Chair of the AEESP Awards Committee

Ramanitharan Kandiah, Central State University, for Outstanding Service as Chair of the AEESP Membership and Demographics Committee

Susan Powers, Clarkson University, for Outstanding Service as Chair of the AEESP Fellows Committee (Andrea Ferro accepting on behalf of Dr. Powers)

John Tobiason, University of Massachusetts, Amherst, for Outstanding Service as Chair of the AEESP Sustaining Member Engagement Committee

Philip Larese-Casanova, Northeastern University, for Outstanding Service as Chair of the AEESP Foundation Investment Advisory Committee

Treavor Boyer, for Outstanding Service as AEESP Research and Education Conference Host and 2019 Conference Planning Committee Chair

David Cwiertny, AEESP for Outstanding Service as Chair of the AEESP PhD Dissertation Awards Sub-committee

AEESP Board Members

Maya Trotz, University of South Florida
Distinguished Service Award as President and AEESP Board Member

Lutgarde Raskin, University of Michigan for Outstanding Service as AEESP Chief Technology Officer, Board Member, and 2018-2019 Distinguished Lecturer

Timothy Strathmann, Colorado School of Mines, for Outstanding Service as AEESP Treasurer and Board Member

Heather Shipley, University of Texas, San Antonio, for Outstanding Service as AEESP Foundation Board Member and Secretary

Shankar Chellam, Texas A&M University, for Outstanding Service as AEESP Foundation Board Member

Others

Joel Burken, Missouri University of Science & Technology, Outstanding Service as AEESP Foundation Investment Advisory Committee Chair

AEESP Fellows

The 2018 and 2019 AEESP Fellows were also honored at the 2019 AEESP Research & Education Conference in Tempe. The 2019 Fellows are highlighted on page 6 of this newsletter; citations for the 2018 Fellows appeared in our October 2018 issue.

2018

- Michael Aitken, University of North Carolina at Chapel Hill
- Lisa Alvarez-Cohen, University of California, Berkeley
- Amy Childress, University of Southern California
- Dionysios Dionysiou, University of Cincinnati

2019

- Domenico Grasso, University of Michigan-Dearborn
- Paige Novak, University of Minnesota
- Kurt Pennell, Brown University
- Stephen Randtke, University of Kansas
- Gerald Speitel, Jr., University of Texas at Austin
- Jeanne VanBriesen, Carnegie Mellon University

The 2020 Global Conference on Environment and Sustainability: Environmental Challenges in the Developing World

Tribhuvan University and its Central Department of Environmental Science, Kathmandu Institute of Applied Sciences, together with several leading US scientists are organizing the Global Conference on Environment & Sustainability (GCES), November 22-24, 2020, in Kathmandu, Nepal. The conference has three themes: air pollution and climate change, solid waste management, and sustainable development and environmental policies. GCES will have three notable plenary speakers and up to seven keynote speakers. The GCES Organizing Committee requests you to mark your calendar and submit an abstract for an oral or a poster presentation before May 15, 2020. You may find more updates about GCES 2020 at: https://globalconferencenepal.org/. It will be an excellent venue to showcase your research to a global audience, mingle with scientists from around the world, and learn about some of the best practices in the field.

Following the conference there will be an option to hike to the famous Annapurna Circuit Trek.

Proposals for session call and side events will open soon. Please contact mdangi@csufresno.edu for updates. We sincerely welcome your participation at this important gathering and we look forward to seeing you in Nepal!

GCES 2020 Co-Chairs

John J. Boland, The Johns Hopkins University, Baltimore, MD, USA
Rejina M. Byanju, Tribhuvan University, Kirtipur, Nepal
Mohan B. Dangi, California State University, Fresno, CA, USA

Highlights of the AEESP Board of Directors May 2019 Meeting

Submitted by Joel Ducoste
(North Carolina State University, AEESP Vice President)

The AEESP Board of Directors (BOD) met on May 17 at the conclusion of AEESP's 2019 conference at Arizona State University in Tempe, AZ. The Board was joined by Brian Schorr, AEESP's manager of business operations, from Technology Transition Corporation (TTC). A summary of highlights from this BOD meeting is provided below.

New Board Members

The Board welcomed the following newly elected members from the 2019 board elections:

- Willie Harper, Air Force Institute of Technology
- Robert Nerenberg, Notre Dame University
- Allison MacKay, Ohio State University

Membership Update

In YTD 2019, 115 new members have joined AEESP (52 Regular Members, 1 Affiliate, 61 Student/PostDoc Members, and 1 Sustaining Member). Among the Regular Members: 14 Full Professors, 7 Associate Professors, and 31 Assistant Professors joined. As of April 2019, there were 803 members up to date on dues payments with an additional 218 members in arrears. Reminders will be sent for members in arrears. The Board encourages members to check their online membership profiles to determine their status, renew membership online if necessary, and consider multi-year renewal options now available at a discount. We continue to seek new sustaining members and encourage regular members that have relationships with companies to discuss joining AEESP as a sustaining member.

Building a Stronger International Bridge

The Board discussed being more engaged with the international community. The goal is to develop closer ties to organizations similar in function/operation to AEESP. Many of our members are already engaged with faculty internationally which the organization can leverage to help build stronger interactions with other members in AEESP. The plan is to develop a guidelines document that incorporates lessons learned from members already engaged in international relationships to assist new faculty.

AEESP/WEF AAAS Fellowship

The Board discussed the possibility of AEESP sponsoring an AAAS fellow. The AAAS policy fellowships program works at bringing scientific talent to government. These fellows actively contribute to policymaking in Washington and provide nonpartisan scientific advice, which is needed today more than ever. These fellowships are considered an important way to attract STEM professionals and an important way to learn about and transition to careers in a variety of sectors, including government.

The Board reviewed the financial obligation of sponsoring a congressional fellow and recognized that the cost is significantly high, whether performed alone or with equal partnership with AWWA or WEF. Currently, we are exploring if AWWA and/or WEF would provide a significant fraction of the cost. The process requires that a congressional fellow be supported first, before any fellow can be assigned to a specific organization such as WEF or AWWA.

The AEESP Board of Directors. Back Row: Maya Trotz, Heileen Hsu-Kim, Amy Pruden, April Gu, Front Row: Joel Ducoste, Brian Schorr, William Arnold, Timothy Strathmann, Shaily Mehendra, Karl Linden, Missing from picture is Lutgarde Raskin.

Honoring 50 Years of EPA

The Board discussed Fran DiGiano's idea that AEESP perform a set of activities to celebrate the EPA's 50th anniversary in 2020. The Board discussed several possibilities including: 1) A unified publication that could be placed in many environmental engineering focused journals that shares the significance and triumphs of the EPA, 2) An AEESP lecture series, 3) A student video competition around the EPA's 50th anniversary next year. Other suggestions included special letters about the significance of the Clean Air Act and Clean Water Act in the AEESP Newsletter. The Board would welcome suggestions from the membership to help place a spotlight on the important contributions of the EPA.

Gordon Research Seminar

The organizers of the Gordon Research Seminar asked sponsorship of $1,000 to support their workshop on Water Disinfection, Byproducts, and Health July 27-28, 2019 at Mount Holyoke College in South Hadley, Massachusetts. They estimate approximately 50-60 participants, of which, 20-30 are estimated to be AEESP Student members or students of AEESP Regular members. This workshop is student-run. Board members recommended they make the registration list available, as well as provide an article for the next published Newsletter following the Seminar, which is scheduled for October. The motion to approve the funding request unanimously passed.

AEESP Foundation Board Appointment

The Board developed a procedure to appoint a member of the AEESP Board annually to fill a vacancy on the Foundation Board. In keeping with the Foundation's bylaws, the appointee must currently serve on AEESP's Board of Directors at the time of appointment, but the AEESP term may expire prior to the expiration of the appointee's Foundation term. The Board recommended that on alternate years, the chief information officer (CIO) will be appointed to the Foundation board after serving a year on the AEESP board. Currently, the Treasurer of the AEESP board is nominated to serve on the Foundation Board.

AEESP Visits NSF

The Board was informed about the meeting between Maya Trotz (AEESP President), Karl Linden (AEESP President-Elect), and Joel Ducoste (AEESP Vice President) with Karl Rockne (Program Director: Environmental Engineering, CBET) at the National Science Foundation (NSF) in Alexandria, Virginia. Items discussed included: how AEESP can assist with delivering NASEM Grand Challenges, and the role NSF will play; mentoring for the next Director of the Environmental Engineering Program at NSF; pathways for funding for different types of grants available at NSF; and approaches to leveraging funding for initiatives in science communication or policy-related efforts. Karl Rockne discussed workshop proposals; outreach to AIChE, AWWA, AAAR, WEFTEC; and university-utility advancement. The Board discussed proposing a special issue in *EES*, encouraging more global outreach with tangible outcomes, publicizing grand challenges via formats like the 4-D chats from the recent conference at ASU, and the role of the Education Committee. It was a productive meeting that led to a number of action items that AEESP will be addressing in the near future.

Activities of Committees

The Board discussed the various committees that make AEESP work. Highlights from a few of our committees are presented below. A complete list of the AEESP committees and contact information for the committee chairs can be found at http://www.aeesp.org/about/committees. Please consider volunteering your time on one of these committees and getting more involved and connected with AEESP.

Conference Planning:
The Board discussed changes to the submission process for the 2021 AEESP Conference RFP. The new process will include a pre-proposal stage, with the top two respondents invited to submit full proposals. In addition, the Board is also considering the development of a conference pipeline that would allow the selection of the subsequent conference site. A description of the new process will be sent by email. We anticipate that the RFP will be sent out by August 2019.

Education Committee:
The Educational Committee has instituted a global faculty mentorship program, which consists of 19 senior faculty and 56 junior faculty. A survey was sent out to help improve the program. Overall, participants found the program helpful. Several of the participants attended the AEESP conference luncheon.

Government Affairs
Greg Lowry and Kelvin Gregory are co-chairing the new Government Affairs Committee, which formed from the merging of the former Government Affairs Committee and the Environmental Science Policy Advisory Committee. The Committee is drafting policy statements that they will share with the Board upon completion. They are also actively recruiting new members to increase diversity of the committee makeup. The Board approved a travel allowance for up to two Committee members to attend meetings like the National Water Policy Fly-In, in April, to scout out the event and determine whether it makes sense for a larger delegation to attend in subsequent years.

Lectures Committee
Debora Rodrigues chairs the Lectures Committee. They have determined that the next Distinguished Lecture Series speaker will be Dr. Diane McKnight, Professor of Civil, Environmental, and Architectural Engineering at University of Colorado, Boulder.

The 6th annual short course on Emerging Contaminants in Water and Wastewater will be held October 22-23, 2019 at Marquette University in Milwaukee, Wisconsin. Keynote speakers are Dr. Susan Glassmeyer from the EPA and Dr. John Tobiason from the University of Massachusetts-Amherst. Presentations from a variety of speakers will cover PFAS, manganese as an emerging contaminant, disinfection byproducts, viruses, nanoparticles, aquatic health effects, and more. Day 1 will conclude with a student research poster session to disseminate research and engage with speakers and attendees. Student scholarships are available to cover registration costs for students who present research posters. Please email Dr. Patrick McNamara (patrick.mcnamara@mu.edu) and Dr. Brooke Mayer (brooke.mayer@mu.edu) to apply.

2019 AEESP Research and Education Conference

Thank you to everyone who participated in the 2019 AEESP Research and Education Conference at Arizona State University (ASU), May 14–16, 2019. If you missed AEESP2019 or want to re-live the conference highlights, check out the Twitter feed: https://twitter.com/AEESP2019_ASU. The conference followed a similar schedule as previous conferences with one day of workshops and two days of technical sessions. The workshop day concluded with the first plenary talk exploring the natural environment dimension of Cities in 4-D, "Hydraulic Empires: Where Engineering, Science, Climate, and Politics Meet" by Jim Holway, Central Arizona Water Conservation District and an evening social event at the Desert Botanical Garden. The next morning started with the second plenary talk exploring the cyberspace dimension of Cities in 4-D, "Air Quality Sensor Networks of the Future and the Essential Role of Environmental Engineers" by Gayle Hagler, U.S. EPA. One change at AEESP2019 was having the poster sessions in the morning, so after the Wednesday and Thursday morning plenary talks there was a poster session. Poster presenters and attendees liked the opportunity to view posters earlier in the day when they were fresh and eager to interact. A key new feature at AEESP2019 was "Chats in 4-D" which were small group discussions that were live-streamed and recorded, see https://www.ustream.tv/ASUlive2. In addition, one technical session track each day was recorded, see https://www.ustream.tv/asutv. The final day of the conference started and ended with plenary talks featuring Karen Dannemiller, Ohio State University, exploring the human health dimension of Cities in 4-D, "The Indoor Microbiome: Implications for Children with Asthma and Astronauts on the International Space Station" and Bruce Rittmann, ASU, exploring the built environment dimension of Cities in 4-D, "From Treatment to Resource: Capturing Value from What We Now Call Waste." Planning and running AEESP2019 was a group effort by faculty, post-docs, graduate students, and undergraduate students from ASU, Northern Arizona University, and University of Arizona. Moving forward, the conference organizing committee is working on several initiatives to extend the impact of the conference including special issue in Environmental Engineering Science, publishing the conference abstracts, and promoting the recordings from the "Chats in 4D" and technical session tracks. All of this information will be available on the conference website https://aeesp-2019.engineering.asu.edu/.

Submitted by
Treavor Boyer
AEEPS2019 Conference Chair

Short Course on Industrial Waste Anaerobic Treatment: Sept. 2019

The 16th annual short course on anaerobic treatment of high-strength industrial waste will be held September 10-11, 2019 at Marquette University (Milwaukee, Wisconsin, USA). The course is designed for industry managers, operators, consulting engineers, regulators and students. Information will be presented regarding anaerobic microbiology and chemistry, anaerobic digestion operation and design, sustainability, biogas utilization, and construction/start-up guidelines. Case studies of cheese, sugar beet, dairy, organic fraction of municipal solid waste and other industrial systems will be presented. Speakers will include Dr. James Field (University of Arizona), Daniel Zitomer (Marquette University) and Dennis Totzke (Applied Technologies, Inc.). For more information, contact Dr. Dan Zitomer (daniel.zitomer@mu.edu). More information can be found at the course webpage, http://www.marquette.edu/ANT. A limited number of scholarships is available to cover the registration costs for graduate students studying anaerobic biotechnology. For more information on scholarships, please contact Dr. Zitomer.

Sustaining Member Career Fair for Students at 2019 AEESP Conference

Along with our ~800 individual members, AEESP has a diverse set of Sustaining Members: industrial, consulting and non-profit organizations that form a key network in collaboration with us. Some Sustaining Members sponsor our awards and support our events, in addition to their membership fees. We recently engaged these members to help evaluate our value proposition for Sustaining Members and re-worked our program to bring more value to them, in line with the value they provide us. One area of interest to our members is more opportunity for engagement with our students. Toward that end, AEESP Sustaining Members were invited to have a display table at the AEESP Conference Student Social, where for the first hour there was a Sustaining Member Career Fair. Students reported that they appreciated the high level of involvement from Sustaining Members. Over 300 graduate students and post-docs signed up to attend the Sustaining Member Career Fair, and there was quite the crowd.

In feedback, Tengfei Chen and Kirk Craig of Geosyntec noted, "The career fair and social night created opportunities for people to connect and build relationships. It exposed us to a lot of top students and vice versa. We received a number of excellent resumes and follow up e-mails from students around the country. As a result, I've passed a number of potential candidates' resumes along to various Geosyntec offices and have received interest and follow up. The food and drinks were also excellent. Thank you for setting this up."

Cari Maciolek of AWWA reported, "At the AWWA table we were consistently busy and were able to connect with students about how an AWWA Membership could help them in their career search."

AEESP is excited about this event that brings value to both our Sustaining Members and our Student Members and we look forward to holding this again in the future at other meetings. We would like to thank all our Sustaining Members including:

ACS, AECOM, AWWA, Black & Veatch, Brown & Caldwell, Carollo, Corona Environmental Consultants, EREF, Garver, Geosyntec, Greeley and Hansen, Hazen, HDR, IWA Publishing, Jacobs, Mary Ann Liebert, NWRI, Sanitation District of LA County, Stantec, Trussel Tech., WEF, WRF

More information about them can be found at:
http://www.aeesp.org/aeesp-sustaining-members

Submitted by Karl Linden, AEESP President-Elect and board liaison to our Sustaining Members.

Students and Sustaining Members at the Sustaining Members Career Fair during the AEESP Research and Education Conference at Arizona State University, May 14, 2019.

2019-2020 AEESP Foundation Distinguished Lecturer: Diane McKnight

The 2019-2020 Distinguished Lecturer is Dr. Diane M. McKnight. Dr. McKnight is a Professor in the Department of Civil, Environmental and Architectural Engineering, a member of the Environmental Engineering program faculty and a Fellow of the Institute of Arctic and Alpine Research at the University of Colorado. Her research focuses on the coupling of hydrology and water quality in streams and lakes, and the consequences for aquatic ecosystems and water supplies. She began her career as a research hydrologist with the U.S. Geological Survey, studying the biogeochemistry of lakes in the blast zone of Mt. St. Helens and acid mine drainage streams and pristine alpine lakes in the Rocky Mountains. She participated in designing ecological aspects of the National Water Quality Assessment Program of the USGS. Since 1992, she has conducted research on stream ecosystems as part of the McMurdo Dry Valleys Long-Term Ecological Research (MCM-LTER) project in Antarctica. She has been President of the American Society of Limnology and Oceanography and Editor of Journal of Geophysical Research-Biogeosciences. She served as the Chair of the Editorial Committee for the LTER Schoolyard Children's Book Series and authored the second book in the series. She is a fellow of the American Geophysical Union and a member of the National Academy of Engineering. She a received the John Dalton Award from the European Geophysical Union in 2015.

Dr. McKnight will be presenting two lectures during her tour, over the upcoming academic year: "A Biogeochemical Perspective on the Reactivity of Dissolved Organic Matter in Natural Waters: From Antarctica to the Arctic" and "Trouble Ahead, Trouble Behind: Acid Mine Drainage and Climate Change in the Rocky Mountains." Abstracts for these lectures appear at http://www.aeespfoundation.org/content/2019-20-aeesp-distinguished-lecturer

Information on where and when you can attend a lecture will be included in the next AEESP newsletter. For additional information, please contact Debora F. Rodrigues, PhD, Chair of the AEESP Lecturers Committee (dfrigiro@central.uh.edu).

Andreia Fonseca de Faria joins the University of Florida

Dr. Andreia Fonseca de Faria has joined the Engineering School of Sustainable Infrastructure and Environment (ESSIE), Department of Environmental Sciences at the University of Florida (UF). Before joining UF, she was a postdoctoral fellow at Yale University working with Prof. Menachem Elimelech on environmental toxicology and nano-based technologies to prevent biofouling in membrane-driven water treatment processes. She holds a PhD from the University of Campinas, São Paulo, Brazil and a BS in Chemistry. While in Brazil, her research focused on the production of biosurfactant to address problems of bioavailability and biodegradation of organic pollutants in water.

Dr. Faria's current research interests are in the use of nanotechnology to advance water treatment. She applies her multidisciplinary background in chemistry, biology, and engineering to develop nanomaterials that can help to overcome the inefficiency of conventional materials in water purification systems. Her goal is to design inorganic and organic nanomaterials that can be applied as adsorbents, water purification membranes, antimicrobial coatings, and highly sensitive sensors for water remediation and water quality monitoring. She was the recipient of the International Science without Borders Postdoctoral Scholarship (2013-2015) and was supported by Leman Foundation (2013-2014) to promote cutting-edge research and inclusion of women in STEM.

Dr. Boya Xiong will join the University of Minnesota

Dr. Boya Xiong will join the Department of Civil, Environmental and Geo-Technical Engineering at University of Minnesota as an assistant professor in August 2020. Dr. Xiong's research focuses at the interface of polymer science, environmental chemistry, and membrane material science with the goals of (i) elucidating the fundamental mechanisms of polymer degradation that dictate environmental fate and inform sustainable design and management criteria of future polymer chemicals and materials and (ii) developing novel, nature-inspired membrane material architectures to enable efficient separation and mitigate pathogenic fouling in engineered systems. Xiong brings broad experience in fracturing polymer transformation, organic fingerprinting analysis, membrane-based brine treatment, bio-based chemical separation, and sustainable drinking water treatment. Xiong earned a BS in Biotechnology from East China University of Science and Technology, when she researched marine microbiology at Flinders University of South Australia. Xiong earned an MS in Agricultural and Biological Engineering and PhD in Environmental Engineering at Pennsylvania State University. Prior to her new faculty appointment, Xiong is working as a postdoctoral associate in the Department of Civil and Environmental Engineering at MIT.

Dae-Wook Kang joins University of Toledo

Dr. Dae-Wook Kang joined the Department of Civil and Environmental Engineering at the University of Toledo as an assistant professor in January 2019. Kang received his BS and MS degrees in Civil and Environmental Engineering from Seoul National University in South Korea and a PhD degree in Civil and Environmental Engineering at the University of Wisconsin-Madison. Prior to joining the faculty at the University of Toledo, he worked at Biodesign Swette Center for Environmental Biotechnology in Arizona State University as a postdoctoral scholar and a research scientist. His research interests span biological water/wastewater treatment, environmental microbiology, and the human microbiome. Dr. Kang's most recent research in his post-doctoral appointment focused on human gut microbiota and their role on human disorders including autism, obesity, and constipation. At the University of Toledo, his research efforts are to leverage our understanding on how microbiota in engineering systems and human hosts respond to environmental stress by employing next-generation sequencing, multi-omics technologies, and bioinformatics. Potential graduate students are welcome to contact Dr. Kang at daewook.kang@utoledo.edu if they are interested in joining the group.

Dr. Guangbin Li joins the University of Maryland

Dr. Guangbin Li joined the Department of Civil and Environmental Engineering at the University of Maryland, College Park (UMD), as an assistant professor in January 2019. He completed his undergraduate study in Harbin Engineering University in China and came to University of Arizona in 2012. He earned his Masters and Doctorate in Environmental Engineering in 2014 and 2016, respectively. Prior to joining UMD, he was a research assistant professor at the Department of Chemical and Environmental Engineering of the University of Arizona. His research interests include control of nutrient pollution and persistent organic compounds, resource recovery and environmental sustainability by using environmental biological technologies with environment-friendly physical/chemical processes. Related work includes improvement of the stability and efficiency of anaerobic ammonium oxidation (Anammox) in treating nitrogen-containing wastewater, (bio)remediation of nitroaromatic compounds, and fate and transformation of per- and polyfluoroalkyl Substances (PFAS) in engineered and natural environmental systems.

Dr. Jessica Ray joins the University of Washington

Dr. Jessica Ray joined the Department of Civil and Environmental Engineering at the University of Washington as an assistant professor in January 2019. Dr. Ray received a BS degree in Chemical Engineering (2009) and a PhD in Energy, Environmental and Chemical Engineering with Dr. Young-shin Jun (2015) at Washington University in St. Louis. As a graduate student, Dr. Ray's research interests included nanomaterial fate and transport, employing advanced surface chemistry analytical techniques for which she received the Environmental Protection Agency Science to Achieve Results (EPA STAR) Fellowship to support her research. Prior to joining the University of Washington, Dr. Ray was a Miller Institute postdoctoral fellow at the University of California, Berkeley, hosted by Dr. David Sedlak. There, she was a member of the Reinventing the Nation's Urban Water Infrastructure (ReNUWIt) Engineering Research Center, where she developed low-cost engineered geomedia to treat urban stormwater during aquifer recharge. At the University of Washington, Dr. Ray's research combines materials science approaches, surface chemistry analyses and traditional water chemistry techniques to develop and apply new composites to selectively remove contaminants and recover valuable resources from wastes. Dr. Ray is interested in a holistic and fundamental understanding of mechanisms governing composite performance from conceptualization to application, as well as ways to incorporate these new composites into existing water treatment infrastructure. Specific research interests include employing low-cost molecularly-imprinted polymer composites for selective removal of perfluoroalkyl substances (PFAS) in complex aquatic systems, reductive defluorination of PFAS, and designing low-cost composites for trace contaminant removal in urban stormwater.

Dr. Kathe Todd-Brown will join the University of Florida

Dr. Kathe Todd-Brown will join the University of Florida's Department of Environmental Engineering Sciences in Fall 2019. Dr. Todd-Brown is a computational biogeochemist who uses math and computers to study how soil breathes. Soils are one of the largest natural sources of carbon dioxide, a major greenhouse gas, and are expected to release more carbon dioxide as the world warms. Dr. Todd-Brown's research combines a process-level understanding of soils with mathematical models and data to better predict how soils will respond to different climate conditions. Her current projects include soil carbon model development in ecosystems from the Namib desert to the Northwest Territory in Canada to coastal wetlands. She holds a PhD from the Department of Earth System Science at University of California Irvine, as well as a BS in Mathematics from Harvey Mudd College, and has held post-doctoral appointments at the University of Oklahoma, Pacific Northwest National Laboratory (PNNL), and Wilfrid Laurier University as well as the Distinguished Linus Pauling Fellowship from PNNL.

Sarah Bauer joins Rowan University

Dr. Sarah Bauer joined the Henry M. Rowan College of Engineering at Rowan University as an assistant professor in the Department of Civil and Environmental Engineering (CEE) in September 2018. This is an exciting endeavor, as before graduate school, Dr. Bauer received her BS in Civil Engineering from Rowan University and is the first alumna of the CEE department to return to the university as a faculty member.

Dr. Bauer's research interests are in the areas of pollution prevention, wastewater treatment, and the water-energy nexus. She has presented her research at numerous national and international conferences and has published several articles in peer-reviewed journals. Dr. Bauer is the recipient of numerous awards and scholarships as a graduate student and young professional, including the 2016 CEE Department Graduate Award for Excellence in Research from the University of Virginia (UVa).

Dr. Bauer earned her PhD (2018) and MS (2015) degrees in Civil Engineering, with a focus in Environmental Engineering, from UVa. Dr. Bauer is an active member of the Society of Women Engineers (SWE). At Rowan University, she currently serves as the Faculty Advisor for Rowan University's Student Chapter of SWE and the co-advisor for the CEE MORE (Mentoring Opportunities Reinforcing Excellence) Mentoring Program.

New Faculty Hires at the University of Kansas

The Civil, Environmental, and Architectural Engineering Department at the University of Kansas (KU) is pleased to welcome three Assistant Professors in the Environmental and Water Resources Engineering Group that started in Fall 2018.

Dr. Amy Hansen completed her PhD in Civil Engineering at the University of Minnesota, her MS at the University of Michigan – Ann Arbor, and her BS at the California Institute of Technology (Caltech). Before joining the KU faculty, Amy was at St. Anthony Falls Laboratory, University of Minnesota for six years, first as a Postdoctoral Research Associate and then as a Research Associate.

Dr. Hansen's research group studies water quality in wetlands and river networks in human impacted watersheds. One of the primary goals of the group is to identify interactions between ecological and hydrological processes that could be leveraged through restoration activities to increase rates of contam-

inant removal from wetlands, rivers, and watersheds. She uses a variety of approaches including field observations, geospatial analysis, laboratory incubations, water flume experiments, and biophysical modeling.

Dr. Admin Husic received his BS, MS, and PhD in Civil Engineering from the University of Kentucky. He leads the Ecohydraulics Research Group at KU and is motivated by the need to improve understanding of physical transport and biogeochemical fate processes and their relation to water resources, human-environment interactions, and sustainability.

Dr. Husic's research interests include sediment, carbon, and nitrogen transport and cycling in surface streams, subsurface karst environments, and reservoirs. He employs field instrumentation of high-frequency sensors and collection of stable isotope data-streams to inform numerical models, constrain fluvial budgets, determine source of contaminants, and reduce uncertainties associated with agricultural land use practices. Admin is active in academic and society organizations, such as the American Society of Civil Engineers, American Geophysical Union, and American Water Works Association.

Dr. Justin M. Hutchison completed his BA in Biology and Biochemistry from Augustana College in Rock Island, IL. He received his MS and PhD in Environmental Engineering at the University of Illinois at Urbana-Champaign with support from an NSF Graduate Research Fellowship and the AWWA LARS Scholarship. His doctoral research studied biocatalytic/enzymatic perchlorate reduction for applications in drinking water treatment.

Dr. Hutchison leads the Environmental Biocatalytics Research Group at KU. His research interests focus on novel, protein-based drinking water treatment technologies (biocatalysis) and the use of an iterative framework to select optimal research development pathways for new technologies. He utilizes fundamental experimentation to develop mechanistic models used to assess technology performance. Currently, his group is looking at biocatalytic/electrochemical treatment of perchlorate, new strategies for high throughput contaminant screening, and optimal pretreatment technology selection for produced waters.

Dr. Xitong Liu will join The George Washington University

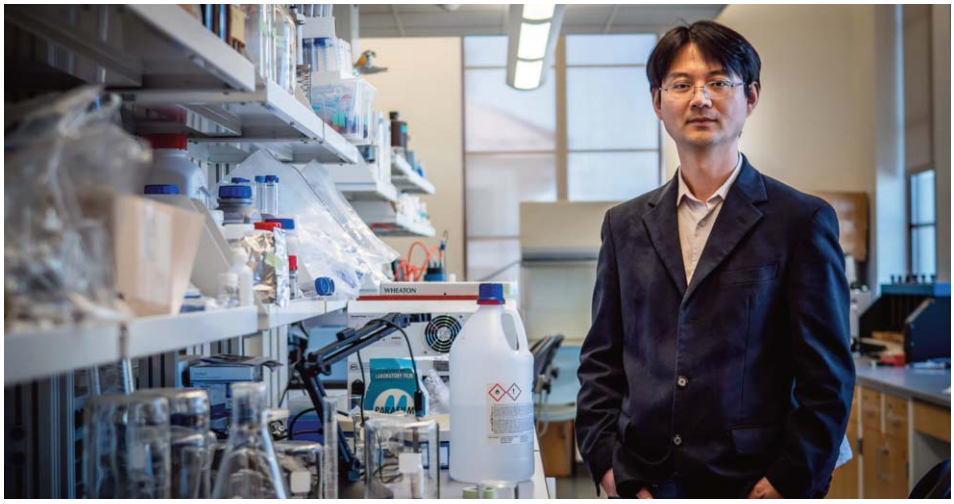
Dr. Xitong Liu will join the Department of Civil and Environmental Engineering at The George Washington University as an assistant professor in the Fall 2019 semester. He received his BS and MS from Nanjing University in 2010 and 2013, respectively, and a PhD from The Johns Hopkins University in 2017. He has been working at Carnegie Mellon University as a postdoctoral associate for two years. His research interests lie at the intersection of nanotechnology, interfacial and colloid science, and electrochemistry. His research aims to study fundamental interfacial phenomena to provide guidance for developing more efficient and cost-effective water treatment and resource recovery technologies. He is also interested in elucidating the health impacts of engineered and naturally occurring nanoparticles.

Yang Deng receives AAEES Superior Achievement Award

Yang Deng, professor of environmental engineering at Montclair State University (Montclair, New Jersey), was recently awarded the 2019 Superior Achievement Award from The American Academy of Environmental Engineers & Scientists (AAEES). This award is presented to the highest scoring project across nine categories in AAEES Excellence in Environmental Engineering and Science™ (E3S) Awards Competition. The E3S Awards Competition identifies and rewards the best of today's environmental engineering and science. Dr. Deng's nominated project is emergency water treatment with ferrate(VI) in response to natural disasters.

Dr. Deng is an environmental engineer with strong fundamental and applied research interests in the development of innovative technologies and emerging solutions for addressing various water pollution challenges. His specific research threads include: 1) new water treatment and reuse processes (e.g. ferrate(VI)-based treatment and advanced oxidation processes) for enhancing water supply; and 2) reusing water industry wastes (i.e. water treatment residuals and sewage sludge) for closing an urban water cycle through treatment and reuse of urban stormwater. Over the past fourteen years, Dr. Deng has authored more than 110 peer-reviewed journal articles in addition to 5 book chapters. He is also the recent recipient of 2018 Nanova Frontier Research Award from the Chinese-American Professors in Environmental Engineering and Science (CAPEES) Society.

Dr. Deng is a licensed environmental engineer registered in Florida. Prior to Montclair, he was a faculty at the University of Puerto Rico – Mayaguez where he received the University Distinguished Professor Award in 2010. He earned his BS in water and wastewater engineering and MS in municipal engineering from Tongji University (Shanghai, China) and his PhD in civil engineering (environmental emphasis) at the University of Miami (Coral Gables, Florida). The award was presented to Dr. Deng at 2019 AAEES Awards Luncheon and Conference on April 25, 2019 in Washington, DC, where he was invited to give an awarded project presentation.



Daniel Oerther receives Robert G. Quinn Award from ASEE

Daniel B. Oerther, professor of environmental health engineering at the Missouri University of Science and Technology has been recognized with the 2019 Robert G. Quinn Award from the American Society for Engineering Education (ASEE). Established in 2001 by Agilent Technologies, the Quinn Award recognizes outstanding contributions in providing and promoting excellence in experimentation and laboratory instruction, and consists of a $5,000 honorarium, a medal, and an inscribed plaque. The Quinn Award is one of only twelve national awards presented annually to the approximately 12,000-members of ASEE, the only engineering education society dedicated to the professional needs of engineering educators across all disciplines. Oerther was nominated by fellow AEESP member Angela Bielefeldt, professor of environmental engineering at the University of Colorado, Boulder. Oerther's scholarly activities in teaching and learning were previously recognized with the 2004 AEESP Award for Outstanding Contribution to Environmental Engineering and Science Education and the 2014 Excellence in Environmental Engineering and Science Education (E4) Award from AEESP and the American Academy of Environmental Engineers and Scientists (AAEES).

Changes to the AEESP Foundation Grant Program!

The AEESP Foundation is pleased to announce changes in its annual Grant program! The purpose of the Grant program is to allow individuals and/or organizations to utilize expertise garnered from research and teaching at the university level to improve K-12 instruction, with the goal of preparing students to be future environmental engineers and scientists (http://www.aeespfoundation.org/grants). Historically, the Foundation awarded three grants per year at $750 per grant. Beginning in 2019, AEESP Foundation has increased the maximum number of awards from three to five and increased the amount in each grant to a maximum of $2,000. This increase will allow potential grant recipients to embark on broader projects with their local schools and communities that are more closely integrated with AEESP-specific educational development and metrics and may be shared with the full AEESP community. At this time, the Foundation's application period is open through August 1 for submission of proposals. Applications will be reviewed by the Foundation Board of Directors and recipients will be notified by September 15. Visit the AEESP Foundation's website at the URL above for more information and/or to submit your application. AEESP Foundation also publishes project reports by Grant recipients on that webpage, like this one written by Dr. Mark Krzmarzick, of Oklahoma State University:

Final Project Report: "Water Treatment and Microbiology"
PI: Mark J. Krzmarzick
Organization: Civil and Environmental Engineering, Oklahoma State University
Project time period: August – October 2018

The goal of this project is to introduce kids at a young age to environmental engineering, water quality, water treatment, and microbiology. This educational module has three components: 1. Raise inquiry about how kids get clean tap water. 2. Let kids develop understanding about how engineers clean water by performing coagulation, flocculation, settling, and water filtration, 3. Have kids discover microbes using microscopy.

The educational outcomes are age dependent. For kids 5-7 years old, these outcomes are: (1) Describe very generally that water is cleaned by steps that first settle dirt out, and then poured through a filter that lets clean water come through, (2) Show awareness that bacteria are super tiny living things that live everywhere, some of which make us sick which is why we want them out of our drinking water, but most of which are perfectly fine, (3) Recall that environmental engineers do things to keep people healthy like clean water so it doesn't make us sick. For 8-10 year olds, these outcomes are more detailed: (1) Describe with some detail that a chemical is used that helps dirt stick together with mixing, and these clumps become heavy enough to fall out of solution, (2) Demonstrate that success in filtering water is design-dependent, (3) Identify broad relationships between human impacts on the environment and water quality in everyday life, (4) Describe bacteria under a microscope (i.e. distribution on particles or clumps, and differences in morphology), (5) Recall that environmental engineers identify solutions for environmental problems, including

The 5-year-old group discusses what filtration materials they want to try out next.

PI Mark Krzmarzick discussing the results, while the 10-year-olds wait in turn to view a sample in a microscope.

cleaning water in step-by-step processes to become drinkable.

The funds from the AEESP Foundation grant were used for the procurement of microscopes and activity materials (small buckets, stir rods, alum, and various filtration materials to clean water from coagulation through filtration). This outreach activity was initially carried out in the Stillwater (OK) YMCA summer camp program, during the "Wacky Water" themed week. This program contained 70 children ranging from kindergarten to fifth grade who participated in the project. The YMCA summer camp program contains a broad cross-section of the community, with approximately 30% of children from underrepresented STEM minorities, and approximately 30-40% on state or tribal assistance programs.

After a brief introduction and with the help of YMCA counselors and graduate student from the PI's lab, the elementary age students in small groups performed the processes of alum coagulation, flocculation and sedimentation (after given a scoop of alum in water, students stirred for 5 minutes, saw the floc particles form, and then let them settle). Once they had settled water, the students built their own filtration units using their choice of sand, wood chips, cotton balls, and coffee filters, and then proceeded to filter their water. Each table built at least two filtration units and were encouraged to experiment with different designs and materials. Students were quite impressed at how well these simple steps cleaned what was very dirty pond water. The visual confirmations of seeing floc particles settle out sparked further curiosity about what was happening – and students learned that a little bit "chemistry" and a little bit of "physics" are needed to clean dirt out of water. With filtration, student groups at the same table chose different materials, and most found that the type of filter built mattered. The younger groups, who were initially disappointed when their first filters did not work all too well, decided to take their water and try out new filters with better success. The older students, in the meantime, decided to build very carefully thought out, multi-layered filters that performed very well on the first try.

After treating water, student groups took turns to explore the source water (among other objects of curiosity) under the microscope. The students were very curious about the different magnification levels and what they were seeing. Most were successful at finding tiny microbes wiggling around in the water amongst giant grains of dirt and debris in the source water. The youngest group of kids took to drawing and coloring what they saw. The older kids (7-10 years old) were very interested in seeing other things under the microscope – water from the drinking fountain (to quote one kid: "There's nothing! Oh, I suppose that's good; we don't want bacteria and dirt in our drinking water"), water from a puddle outside, the detailed structure of filter paper, etc. The older students also raised many questions about how this works in the 'real world' at a water treatment plant, where else microbes are living, and many other questions about water, diseases, chlorination and science.

All age groups expressed high levels of engagement and inquiry for this activity. This module will next be incorporated into classrooms at local elementary schools with more in-depth, age-appropriate curriculum development, and it will be used again at the YMCA summer camp program during the next few years. In these later installments, formalized assessments will be used to evaluate retention, as groups of students in these later outreach groups will contain a mix of students both with and without previous exposure to the activity. This module will expand such that over time, local elementary school teachers become trained to independently provide this activity and curriculum in their classrooms, thus expanding its reach year after year.

The 5-6 year olds decide to draw and color images to reflect on what they see under the microscope.

Shaily Mahendra Wins 2019 ASCE Walter L. Huber Civil Engineering Research Prize

Shaily Mahendra, UCLA Civil and Environmental Engineering Professor and Samueli Fellow, has been selected for the 2019 Walter L. Huber Civil Engineering Research Prize from the American Society of Civil Engineers (ASCE). She is recognized for pioneering the application of enzyme-nanoparticle vaults in water treatment, significantly contributing to application of molecular biological and stable isotopic diagnostic tools in bioremediation of organic contaminants, and advancing our understanding of the impact of nanomaterials on microbial ecosystems.

Shaily Mahendra earned her PhD from University of California, Berkeley and was a post-doctoral fellow at Rice University. The overarching goals of her research are to understand and control microbial communities and functions in natural and engineered systems. Shaily also develops novel environmental applications of nanomaterials, omics-based and stable isotope-based monitoring tools, and technologies for biotransformation of water contaminants resulting from industrial, military, agricultural, and energy production activities. She has received the National Science Foundation (NSF) CAREER Award, Paul L. Busch Award, DuPont Young Professor Award, Samueli Fellowship, Hellman Fellowship, PopTech Science and Public Leadership Fellowship, Environmental Science & Technology Excellence in Review Award, Undergraduate Research Faculty Mentor Award, and Northrop Grumman Excellence in Teaching Award.

Her selection brings the number of ASCE Huber prize winners in the UCLA Civil and Environmental Engineering to 8, among the highest percentage in the country.

Retirement: Angst, Adventures and Opportunities.

Dr. William J. (Bill) Cooper

The prospect of retirement after 37 years in academia including 4 years with the National Science Foundation was a bit daunting. The thought of all that unscheduled time, while inviting in some respects, was enough to give me nightmares. But through all the angst, I was certain that I wanted to use my time in a productive and meaningful way, while still managing to have fun and enjoy my passion for nature photography.

My boyhood interest in butterfly collecting never waned, and as an adult I captured them on film at every opportunity. So it was not surprising that my first adventure in retirement was a two month stay at the Pierella Ecological Butterfly Garden in Horquetas de Sarapiqui in Costa Rica, where my goal was to film and produce a documentary to be titled " Constructed Rain Forests: Biodiversity, Ecosystem Services and Sustainability"

The Pierella was the brainchild of William Camacho, who in 1995 was at a turning point in his life and trying to figure out what his next step should be. His options were to grow bananas or pineapples or raise cattle. But none of those things really interested him. He decided that he wanted to do something for the environment. It wasn't long before he realized he could raise Blue Morpho butterflies and sell them through the Costa Rican Entomological Supply, so he purchased a small 20-meter x 20-meter plot of pasture land. He started his Blue Morpho business and put all his profits into buying more land. Eventually, he was able to expand to the five hectares he has today. His land is a secondary growth rain forest, which now has trees that are 100 feet tall, a wide variety of animals, and the food plants he needs to support them and grow 15 butterfly species, in addition to the Morpho.

After two months, I returned home to north central Florida with more than 15 terabytes of 4K video and still photography, prepared to begin the editing process. But, a new challenge has arisen that put the documentary on the back burner for the present.

William and his wife Kristal, have an opportunity to purchase 3 hectares of land adjacent to the Pierella. The additional land would allow them to add more and larger trees and plants to support, among others, the 3-toed and 2-toed sloths, Honduran White bats, Great Green Macaw, the Black Howler monkeys and my favorite bird, the While-collared Manakin. I am committed to helping them raise the funds needed for the expansion. To that end, and to draw attention to the amazing variety of flora and fauna there, I have begun uploading photos on my Instagram page –billcooper-science – and on my Facebook page. I invite and encourage you to go to both those platforms often, as I will be uploading new photos nearly every day.

I also plan to start a GoFundMe page to help raise the money for this important project. So please watch for the GoFundMe announcement and spread the word to your friends and colleagues. Together we can accomplish something pretty wonderful.

I'm beginning to believe that quote from C.S. Lewis, "you are never too old to set another goal or dream a new dream."

From top: Blue Morpho butterfly, red-eyed frog, three-toed sloth, white-collared manakin

Environmental Research & Education Foundation™

Lighting a path to sustainable waste management practices

The Environmental Research & Education Foundation (EREF) Awards Two Research Grants Thus Far in 2019

EREF's Research Grants Program is led by its Research Council, a body of volunteers consisting of technical experts in industry, academia and consulting. The work of the Council is guided by a long range strategic plan with the goal to achieve greater sustainability, good environmental stewardship, higher process efficiency and increased knowledge of the solid waste industry.

In the past, projects funded by EREF have primarily focused on landfills, but there has been a shift in funding priority in recent years to non-landfill projects that relate to sustainable solid waste management. Currently funded projects include coal ash management, anaerobic digestion, recycling, waste collection, waste diversion, organics stabilization, leachate treatment, landfill fugitive emission management and modeling and non-hazardous industrial waste management. EREF is currently funding projects across 22 institutions, and awards have been made over the past decade to more than 30 institutions.

The EREF Board of Directors approved support for the following projects funded thus far in 2019:

Effectiveness of wastewater and treatment byproduct solidification and stabilization

Maria Juenger, Ph.D., University of Texas at Austin
Lynn Katz, Ph.D., University of Texas at Austin
Zachary Grasley, Ph.D., Texas A&M University
Kirk Ellison, EPRI
Award Amount: $185,000

Recovering high-value acids from anaerobic co-digestion of municipal solid and grease interceptor waste

Douglas Call, Ph.D., North Carolina State University
Orlando Coronell, Ph.D., University of North Carolina at Chapel Hill
Award Amount: $167,000

Pre-proposals are required prior to submitting a full proposal.

The next preproposal deadline will be December 1 at 5 pm (EST)

Submission are accepted online and additional information on how to apply for a grant can be found at

https://erefdn.org/research-grants-projects/how-to-apply-for-grant/

For additional information, please contact Dr. Stephanie Bolyard (sbolyard@erefdn.org)

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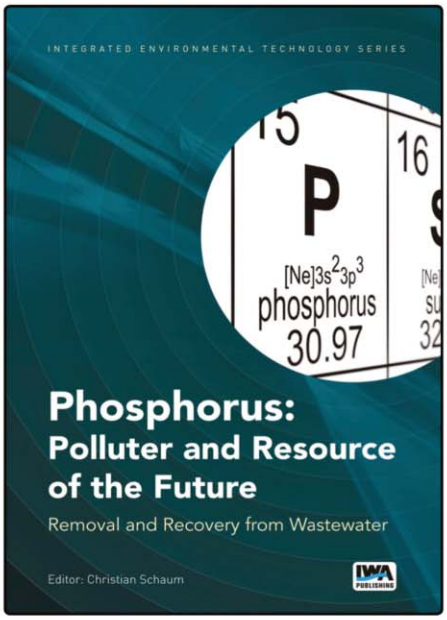

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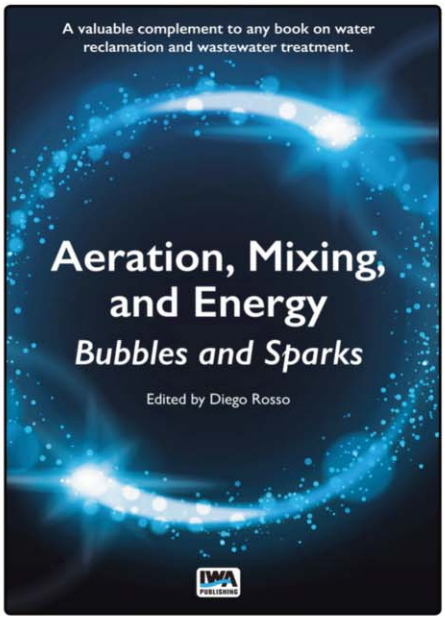

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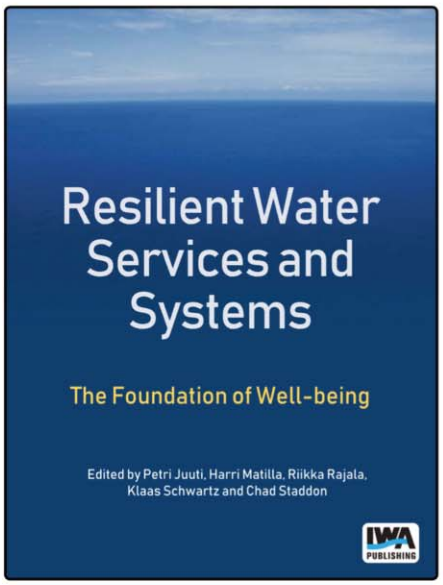

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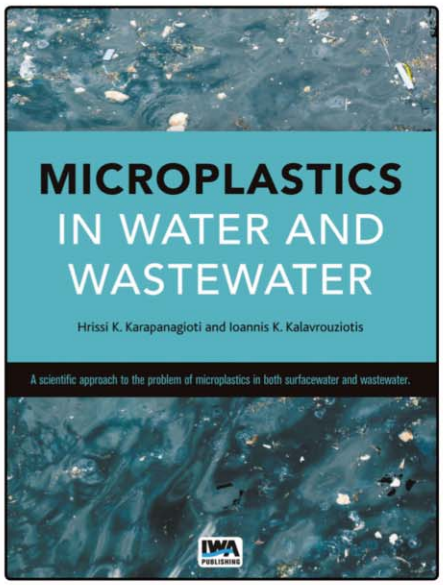

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AEESP Membership

Membership in AEESP offers important benefits to educators, researchers, students, professionals, corporations and organizations engaged in the environmental engineering and science profession. All who are eligible for membership are welcome to join the Association and to participate in the full range of benefits and opportunities. Membership categories and fees are described below, with complete definitions provided in the AEESP Bylaws. Applying online is easy! We welcome your participation!

Regular and Student Membership

Regular Membership in AEESP is open to persons of full-time faculty or instructional rank (instructors, lecturers, assistant, associate, full professors) in environmental engineering or environmental science at academic institutions that offer baccalaureate, diploma, or graduate degrees in environmental engineering, environmental science or related fields.

Rank	Annual Fee
Full Professors	$100
Associate Professors	$75
Assistant Professors	$50
Students and Post-docs	$15

**Members residing in low and middle income countries as identified by the World Bank may request a discount by contacting the Business Office.*

Applying for Regular membership is made by submitting a completed application form and a brief two page curriculum vitae online with payment. Alternatively, application materials may be mailed to the Business Office with a check enclosed.

Affiliate Membership

Affiliate Membership is open to individuals who are not eligible for regular membership including:

- Individuals primarily employed outside academia who also hold academic appointments in an environmental engineering or related academic program (e.g. adjunct faculty).
- Individuals primarily employed outside academia who have made contributions to education in environmental engineering or related fields.
- Educators in environmental engineering or related fields who are employed at junior colleges or other educational institutions that do not offer the degrees specified above.
- Individuals who were members at one time and who have retired from active teaching.

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Laura Arias Chavez
Newsletter Editor
c/o AEESP Business Office
1211 Connecticut Avenue, NW
Suite 650
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LChavez@tntech.edu

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Maya Trotz
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University of South Florida
4202 E. Fowler Avenue, ENG 118
Tampa FL 33620
Phone: 813-974-3172
Email: matrotz@usf.edu

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Karl Linden
Dept. of Civil, Environmental & Architectural Engineering
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5732J Boelter Hall
Department of Civil and Environmental Engineering
University of California
Los Angeles, CA
90095-1593
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