AEESP Newsletter

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Highlights

Need to renew your 2018 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 2018.

President's Letter

By LINDA WEAVERS
The Ohio State University

Dear AEESP Members:

Five years ago AEESP adopted *Environmental Engineering Science* (EES) as its official journal. Adopting EES to be the official journal of AEESP was not taken lightly. Prior to it being adopted, there were years of discussion by the Board of Directors, an unofficial straw poll of the membership, and an official vote and bylaws change. It culminated with the signing of a memorandum of understanding (MOU) between AEESP and Mary Ann Liebert, the publisher of EES. This MOU is effective for five years and automatically renews.

The desire to affiliate with a journal was an outcome of an AEESP strategic planning exercise as a means to increase AEESP's global presence. EES was the journal identified as it was a journal without an affiliation and has a broad scope with a breadth of interests represented by AEESP membership, including publishing educational content and articles. In the September 2011 AEESP Newsletter, Joel Burken, AEESP president at that time, discusses the potential affiliation with EES (https://aeesp.org/sites/default/files/publications/AEESPNL.46.3.2011.pdf).

The EES-AEESP relationship has resulted in many new initiatives. Most notably, Mary Ann Liebert, publisher of EES, is sponsoring a new AEESP award, the Mary Ann Liebert Award for Publication Excellence in Environmental Engineering Science. This award is given to the authors of an outstanding paper published in EES in the previous year. At least one author must be an AEESP member to receive the award. Additionally, there have been a number of special issues guest-edited by AEESP members. A recent example is the AEESP Board of Directors endorsed special issue "Environmental Engineering Science in the 21st Century" edited by Peter Vikesland. It was an outcome of the efforts to bring the AEESP community together to contemplate the changing role of our field. Another initiative has been EES Spotlights that appear in the AEESP newsletter (check out the one on p. 3 in this newsletter) and in EES as an Editor's Note. These Spotlights, authored by the EES editor-in-chief, EES deputy editor, and an AEESP publications committee member, draw attention to selected articles in EES. Approximately monthly, EES sends out an announcement to the listserv with articles that are temporarily available for free access. The articles selected are based on download rates among other indicators of their impact.

As AEESP and EES just completed the first five years in their partnership, it is a good time to find out how we are doing. A survey put together by members of the AEESP Board of Directors and Editor-in-Chief and Deputy Editor of EES is available on AEESP's website at https://aeesp.org/content/strengthening-ees-aeesp-relationship. The goal is the survey is to see how well we are getting word out and to find out what opportunities are ripe for further increasing the integration of EES with AEESP as our official journal. Your input is valuable to us, so please complete the survey when it comes out!

Summer is a nice transition for most of us, allowing us to change focus away from university teaching and service and increase our focus on other endeavors. Summer is also a time of transition for the AEESP Board of Directors. We have three incoming members: Bill Arnold from the University of Minnesota, Helen Hsu-Kim from Duke University and Amy Pruden from Virginia Tech. These incoming members will bring a wealth of knowledge and experience to the Board of Directors. They will replace the thoughtful voices of Paige Novak from the University of Minnesota and Greg Lowry from Carnegie Mellon University and me. As Board of Directors, we work to bring the voice of AEESP members with us to meetings through our interaction with committees and issues our field is facing.

The upcoming transition also means it is my final

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newsletter as president. As I look back on the year, I am impressed with the variety of activities occurring through our committees. Advocacy was a particular focus this year. With concerns over changes to the EPA Science Advisory Boards, the Board formed a new committee, the Environmental Science and Policy Advisory Committee. In addition, an ad hoc committee created an Advocacy Toolkit available as a tab on our website. Check out the committee descriptions on our website (aeesp.org/committee-descriptions) to learn about all of the great work by our committees. It is also a great start to see how you can become active in AEESP. Having served four years on the Board of Directors, I thank you for trusting me to lead this organization. I have great trust in our field, AEESP as an organization, and AEESP members!

Linda Weavers

2017-2018 AEESP/EESF Student Video Competition Announcement of Winners

AEESP's Membership and Demographics Committee hosted the third annual AEESP/EESF Student Video Competition. The theme of this year's Competition was "The Value of Water."

Each year, the Student Video Competition seeks to highlight environmental engineering and science to increase awareness about the field and encourage young people to learn more about stewardship of water, land, air, mineral, and energy resources. The Competition was open to undergraduate and graduate students studying environmental engineering and science worldwide.

Twelve teams from around the country submitted videos on a diverse set of topics. Judging was conducted by a panel of environmental engineering and science faculty, as well as practicing engineers. Videos were evaluated based on originality and creativity, content accuracy, and potential to motivate middle and high school students to pursue a career in environmental engineering and science.

The top three teams won prizes of $1,000, $750, and $500. Respectively, they were:
"UIUC Water Warriors," University of Illinois, Urbana-Champaign

"Water Access Through Education and Renewable Energy (WaterE) ," Arizona State University

"The Water Conservers," University of Illinois, Urbana-Champaign

For their videos, three teams were awarded Honorable Mentions:
"Hydro Studs," University of Texas at El Paso

"The Knowledge Drops ," University of Texas at El Paso

"UC Davis Stream Team #Video 2," University of California, Davis

AEESP will distribute the prize awards to the winning teams at our Annual AEESP Awards Ceremony on Monday, October 1st at WEFTEC in New Orleans.

The Membership and Demographics Committee would like to congratulate this year's Competition winners and thank all the teams who participated! We hope that everyone enjoys these videos, and we encourage you to share them widely to promote the general public's understanding of environmental engineering and science. They have also been uploaded to AEESP's YouTube page.

AEESP Journal Environmental Engineering Science Spotlight

Susan J. Masten (Chair of the 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,* the official journal of the Association of Environmental Engineering and Science Professors (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 2017 issue through the March 2018 issue of *EES*. Congratulations to all whose work is highlighted.

Liang, J.; Bing, C.; Xudong, Y.; Baiyu, Z. (2017) "Wastewater Treatment Plant Network Design Using a Multi-scale Two-stage Mixed Integer Stochastic (MSTMIS) Model" *Environ. Eng. Sci.* 34, 861.

The design of wastewater treatment plant (WWTP) networks can be complicated by the existence of uncertainties and the multiscale nature of the planning process. This article presents a multiscale two-stage mixed integer stochastic (MSTMIS) model for optimal design of WWTP networks under uncertainty. The model was tested on a WWTP network in a metropolitan area. The proposed MSTMIS model simultaneously addresses the challenges posed by uncertainty and multiscale nature and, thus, provide the decision makers more confidence in making economic decisions related to WWTP network design.

Ahmed, A.; Nurulkamal, M.; Hasanah, Z.Z.; Mahir, R.A. (2018) "Modeling unhealthy air pollution index Using a Peaks-Over-Threshold (POT) Method" *Environ. Eng. Sci.* 35, 101.

Values of air pollution index (API) are evaluated by the maximum value of five pollutants: sulfur dioxide, nitrogen dioxide, carbon monoxide, ozone, and suspended particulate matter (PM_{10}) at a particular hour. This study investigates the exceedance of API values and its dominants, using peaks-over-threshold method in three urban areas in Peninsular Malaysia for the period of January 2005 to December 2014. Results obtained showed that PM_{10} and ozone are the pollutants that dominate elevated API values.

Richards, C.S.; Fei, W.; Becker, W.C.; Edwards, M.A. (2018) "A 21st Century Perspective on Calcium Carbonate Formation in Potable Water Systems" *Environ. Eng. Sci.* 35, 143.

While the formation of calcium carbonate ($CaCO_3$) has long been a concern in potable water, it is re-emerging as an important issue due to climate change, higher set-point temperatures in hot water systems, use of scaling and corrosion inhibitors, and self-repair of pipeline leaks. Actions to increase the lifespan of distribution systems via reduced corrosion (i.e., adding corrosion inhibitors) may inadvertently worsen leaks and pipe lifespans, due to interference with natural self-repair from $CaCO_3$ precipitation. These changes in practice, coupled with knowledge gaps over $CaCO_3$ formation in water systems, make this an important and timely topic.

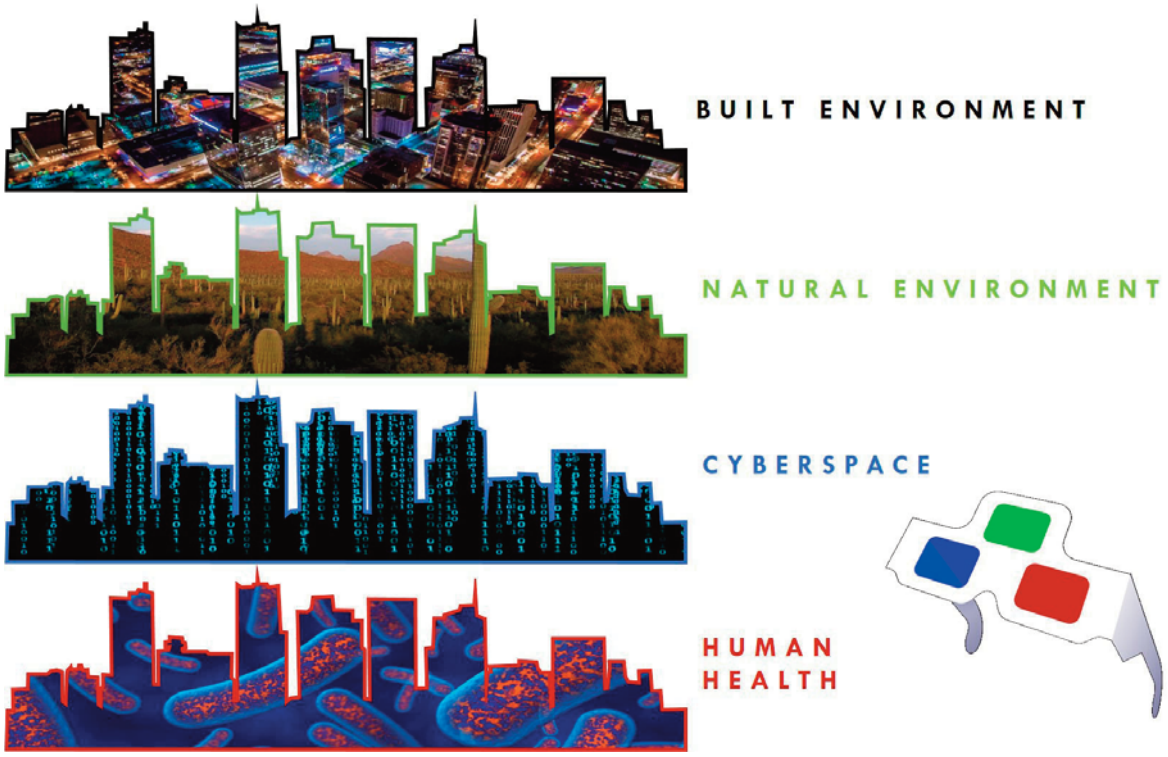
Chul, K.I.; Ramesh, R.; Kyung-Seok, K.; Biswas, P. (2018) "ZnO Nanoparticles: The effect of size on bacterial bioluminescence, seed germination, algal growth, and gene mutation" *Environ. Eng. Sci.* 35, 231.

Zinc oxide (ZnO) nanoparticles (NPs), which are widely used in cosmetics, sunscreen lotions, medicines, and as antibacterial agents, were evaluated for their effect on bacterial bioluminescence and gene mutation, seed germination, and algal growth. Under exposure conditions, the toxicity of ZnO NPs increased on seed germination, but decreased on algal growth and gene mutation. No significant differences were observed in bacterial bioluminescence over the range of particle sizes tested. These findings show that a toxicity evaluation of NPs needs to consider the different effects with respect to particle sizes and tested organisms.

2018-2019 AEESP Foundation Distinguished Lecturer: Lut Raskin

Dr. Lut Raskin, Altarum/ERIM Russell O'Neal Professor of Engineering in Department of Civil & Environmental Engineering at the University of Michigan has been selected as the 2018-19 AEESP Foundation Distinguished Lecturer. Dr. Raskin will present two lectures in her tour, both with a focus on managing complex microbiomes within the "urban water cycle." The urban water cycle consists of water and waste treatment facilities and vast networks of pipes that transport water and waste, and their associated microbiomes, between humans, the built environment, and the natural environment. Within this microbiome continuum, microbial populations play positive roles through water treatment and resource recovery, but have negative impacts by causing disease and contributing to greenhouse gas production. Dr. Raskin's presentations will argue that expanding studies of microbes beyond their specific habitats, and learning from interactions among and within microbiomes in different environments, will provide opportunities for improved management of our existing water infrastructure and development of sustainable technologies for our collective urban future.

Information on where and when you can attend a lecture will be included in the next AEESP newsletter. Talks will be scheduled between September 2018 and May 2019. For additional information, please contact Ramesh Goel, Chair of the AEESP Lecturers Committee (ram.goel@utah.edu).



ASU to Host 2019 AEESP Research and Education Conference

The Conference Organizing Committee is excited to announce that Arizona State University (ASU) will host the 2019 AEESP Research and Education Conference in Tempe, AZ in collaboration with the University of Arizona and Northern Arizona University. This is the first time that the AEESP Research and Education Conference will be held in the southwestern US, and it has been hosted in the western US only twice before. The conference dates are Tuesday, May 14 through Thursday, May 16, 2019. The conference is being held in May to avoid the hot Arizona summer, but don't worry, it will still be warm and sunny. The conference theme is "Environmental Engineers & Scientists See Cities in 4-D" with emphasis on cities and the dimensions of the built environment, the natural environment, human health, and cyberspace. The conference theme was selected to leverage ASU's place, i.e., Phoenix (the 5th largest city in the US), and balance the traditional dimensions of environmental engineering and science (emphasis on the natural and built environments) with increasing emphasis on human health (human microbiome, building microbiome, etc.) and cyber applications (e.g., Internet of Things, artificial intelligence). "Environmental Engineers & Scientists See Cities in 4-D" also provides a coherent theme for integrating research and education and will provide a venue to share advances in education research and curriculum development, such as environmental engineering programs offering minors or certificates in sustainability, data science, and other complementary and emerging fields. The conference schedule will include one day of pre-conference workshops and two days of technical sessions and other activities. The conference website is under construction and will be available this summer with details on workshop proposals, call for abstracts, travel and logistics, and much more. Conference attendees will find it very easy to travel to ASU. Phoenix Sky Harbor International Airport is just 10 minutes from ASU and connected by light rail. Finally, consider exploring Arizona before or after the conference. Examples include an assortment of excellent museums in the Phoenix area, many options for hiking, and the Grand Canyon. Follow the conference on Twitter @AEESP2019_ASU for updates.

Submitted by Treavor Boyer, Chair, Conference Organizing Committee

New Faculty Appointments

Amanda Hohner joined the Department of Civil and Environmental Engineering at Washington State University

Amanda Hohner joined the Department of Civil and Environmental Engineering at Washington State University (WSU) as an Assistant Professor in Fall 2017. Dr. Hohner received her Ph.D. and M.S. in Environmental Engineering from the University of Colorado, Boulder and B.S. in Civil Engineering from WSU. Her research focuses on watershed disturbances and the implications for source water quality and drinking water treatment. Within this area of interest, she has conducted projects studying wildfire-affected watersheds and has also examined the impact of nutrient releases on drinking water supplies. Her projects are often in collaboration with water utilities and regulatory agencies concerned about source water quality changes associated with climatic and anthropogenic pressures.

Dr. April Z. Gu joins the School of Civil and Environmental Engineering Faculty at Cornell University

April Z. Gu joined the School of Civil and Environmental Engineering faculty at Cornell University in 2018. Gu received her B.S. in Environmental Engineering and Science from Tsinghua University in Beijing, China and a Ph.D. in Civil and Environmental Engineering, jointly in Microbiology, from the University of Washington. She worked as a process engineer and research scientist for HDR Engineering before she returned to academia. Gu was a faculty member in the Department of Civil and Environmental Engineering at Northeastern University from 2006 to 2017. Gu's major research interest involves understanding and applying biological agents (e.g. microorganisms) and their functions to detect, transform or mitigate environmental pollutants in both natural and engineered systems. She currently focuses on (i) sustainable wastewater treatment and remediation processes to maximize nutrient recovery and minimize energy consumption and carbon footprint, and (ii) roles of microbial processes in phosphorus cycling at the nexus of food, energy and water systems. She stays active in both academic societies and water professional organizations and has served on various committees for IWA, WEF, ACS and AEESP.

Hamid Moradkhani joined the Department of Civil, Construction and Environmental Engineering at the University of Alabama

Hamid Moradkhani joined the Department of Civil, Construction and Environmental Engineering at the University of Alabama as the Alton N. Scott Endowed Professor of Engineering in the spring of 2018. He is also the founding director of the Center for Complex Hydrosystems Research. Before joining UA, Dr. Moradkhani was a Professor in the Department of Civil and Environmental Engineering at Portland State University, where he taught for over 11 years (2006-2017).

Moradkhani is a registered professional engineer and an expert with over 26 years of experience in design, management, and operation of large scale water resources systems. He has made significant contributions on tackling the grand challenges faced by water resources planners, stakeholders and emergency managers here and around the world: how to be sure there is enough water to meet demand and protect livelihoods and properties against extreme events as populations swell and weather patterns shift due to climate variability and change.

He is a pioneer in state-of-the-art hydrologic data assimilation, cyber innovation, uncertainty quantification and risk analysis methods used extensively in engineering, earth science and several other disciplines worldwide. He is an elected Fellow of ASCE and EWRI and Diplomat of Water Resources Engineering. He was elected as outstanding researcher at Portland State University (PSU) in 2015. In recognition of his significant contributions and demonstrated excellence in the areas of scholarship, instruction, and service to the university and the public, he received the 2017 Branford P. Millar Award at PSU. In 2016, he was also inducted to the hall of fame of Samueli College of Engineering at the University of California, Irvine.

Amit Kumar joins the Department of Civil Engineering at the National Institute of Technology (NIT) Jalandhar, India

Dr. Amit Kumar joined the Department of Civil Engineering at the National Institute of Technology (NIT) Jalandhar, India (http://www. nitj.ac.in/) as an Assistant Professor in the spring of 2018. Dr. Kumar received his Ph.D. from Indian Institute of Technology Delhi, New Delhi, India. He has two masters degrees in Environmental Engineering: one from University of Central Florida and the other from Indian Institute of Technology Delhi. His doctoral research focused on developing rating systems for hazard assessment of waste dumps in developing countries. Before joining NIT Jalandhar, he worked as a National Post-Doc-

toral Fellow at IIT Roorkee after getting a fellowship from Science and Engineering Research Board, India (http://www.serbonline.in). Prior to earning his doctoral degree, he worked in industry for three years in India and the US designing treatment plants, sewerage, and storm drainage systems for municipalities. Other research interests include material flow analysis, sustainability and natural treatment systems.

Pennell Joins Brown Engineering as 250th Anniversary Professor

Kurt D. Pennell joined Brown University in January 2018 as the 250th Anniversary Professor of Engineering. Pennell had been the chair of the Department of Civil and Environmental Engineering at Tufts University and the Bernard M. Gordon Senior Faculty Fellow in Environmental Engineering since 2009.

Prior to his work at Tufts, he was a Professor in the School of Civil and Environmental Engineering at the Georgia Institute of Technology, holding an adjunct faculty appointment in the Department of Neurology at the Emory University School of Medicine.

Pennell's research addresses three main topics: soil and groundwater remediation, engineered nanomaterial fate and transport, and environmental toxicology. His current research focuses on in-situ remediation of per- and poly-fluoroalkyl substances (PFAS), environmental exposure monitoring and metabolic responses, and the use of engineered nanomaterials for subsurface characterization. Pennell has published over 150 referred journal articles and book chapters, is a registered Professional Engineer (PE), a Board Certified Environmental Engineer (BCEE), and a Fellow in the American Society of Civil Engineers (ASCE). His work has received numerous awards, including the Strategic Environmental Research and Development Program (SERDP) Project of the Year in Environmental Restoration (2006, 2012).

Pennell served as a postdoctoral research fellow in civil and environmental engineering at the University of Michigan after earning his Ph.D. from the University of Florida in 1990.

Varun K. Kasaraneni joined the Department of Environmental Science & Engineering at Gannon University

Varun K. Kasaraneni joined the Department of Environmental Science & Engineering at Gannon University as an Assistant Professor in the fall of 2017. He previously served as a Visiting Assistant Professor in the Department of Environmental Engineering and Earth Sciences at Wilkes University. His dissertation focused on fate and removal of contaminants in urban environment. Dr. Kasaraneni's research interests include developing engineered materials for use in stormwater treatment runoff, stormwater best management practices, and fate and transport of emerging contaminants in urban environment. At Gannon, he teaches several courses within the department: Water and Wastewater Treatment, Environmental Engineering, Solid and Hazardous Waste Management, and Senior Design. Varun has a PhD in Civil and Environmental Engineering from the University of Rhode Island, a Master's degree in Civil & Environmental Engineering from Youngstown State University, and a BS in Civil Engineering from Acharya Nagarjuna University. More information about his teaching and research activities can be found at http://www.gannon.edu/FacultyProfiles.aspx?profile=kasarane001

AEESP Environmental Engineering and Science Stories: Prof. Walter J. Weber

In 2017 AEESP announced that it would endow the "Walter J. Weber, Jr. AEESP Frontier in Research Award" which recognizes an environmental engineering or science professor who has advanced the environmental engineering and science field t rough recognized research leadership and pioneering efforts in a new and innovative research area. This effort was initiated by Prof. Lynn Katz, Margaret Smith Professorship in Engineering at the University of Texas at Austin. According to Prof. Pedro Alvarez, the AEESP 2017/18 Distinguished Lecturer and George R. Brown Professor of Civil and Environmental Engineering at Rice University, "Walt Weber had a tremendous impact on academia. He was an excellent communicator, a great teacher, and of course he had a huge impact on physiochemical treatment of water. It is so deserving that we recognize his legacy. It is so appropriate to do it through the research award because he was always working on the edge of discovery rather than on the side of refinement."

Prof. Weber was actually one of the first interviewees for the AEESP Environmental Engineering and Science Stories, a video series produced by AEESP's President-Elect Dr. Maya Trotz from the University of South Florida, that is shared on the AEESP YouTube Channel. In March 2018, the AEESP board decided to transcribe these interviews with plans to release them via the newsletters. Below is the transcript of an interview conducted in 2011 at the AEESP conference held in Tampa with Prof. Walt J. Weber, The Gordon M. Fair and Earnest Boyce Distinguished University Professor of Environmental and Ecological Sciences and Engineering Professor Emeritus, University of Michigan.

AEESP: What problem did you look at as a graduate student?

Walt Weber: The problem that had arisen recently after the war, namely the appearance of detergents in waterways and streams that were receiving discharges from wastewater treatment plants. These foams that were forming on the top of the water bodies were attributable to sulfonated alkylbenzenes and they were detergents. And my thesis topic focused on how to remove those because they were not removed in traditional wastewater treatment processes, and so they did end up in streams and waterways.

I focused on a variety of means for removing sulfonated alkylbenzenes from water but principally on the utilization of activated carbon to adsorb them and therefore remove them. In terms of developing an interest in the environment, I actually did that before I went into college. I was asked in an interview while I was in high school for the football article, what I wanted to be when I went to college. And I said I would like to be a chemical engineer and I would like to focus on the application of chemical engineering principles to solving environmental problems.

AEESP: Who were your mentors as a young environmental engineer?

While at Rutgers University, I was given the opportunity to teach a course in fluid mechanics and I found it to be very rewarding even though the students in the class were only a year or so younger than me. And I decided during that course that I would like to be a teacher. That was very important and influenced my direction. I told this to Brewster Snow, who was one of my primary mentors at Rutgers University and I asked him if I could stay on at Rutgers. He said, "We would be delighted to have you come into the teaching field, but you're not going to do it at Rutgers." I said, "What do you mean?" He said, "Well, you're going to go to Harvard, where I went." And he took me to Harvard. He drove me to Harvard, and I met a person who had a remarkable influence on my career, Professor Gordon Maskew Fair, at Harvard University.

And that began a four-year stay at Harvard. Three years getting another master's degree in chemistry, in addition to the undergraduate degree in chemical engineering and a master's degree at Rutgers in what then was called sanitary engineering, which I helped later to name environmental engineering. That's where environmental engineering had its primary start. So I went to Harvard, and I was married at the time, and I had a young daughter, my first of four. And she of course went with me and with my wife, Ruth, and we spent four years in Cambridge, Massachusetts. I studied jointly between Harvard University, in their Division of Engineering and Applied Physics, and at MIT as well. I took courses in fluid mechanics, courses in chemistry and chemical engineering there as well, and courses largely studying aspects of water sciences at Harvard University. It was a very nice combination of education coming from two different sources, both of them very competent in their field, Harvard University and MIT.

WW: In 1962 my mentor for my PhD thesis was Carrell Morris. He was a physical chemist who graduated from Princeton University. And he is the one that helped me focus on the choice of a suitable project for my PhD dissertation, and that was looking at means, whatever means with possible chemical means, physicochemical means or biological means, to remove the synthetic detergents from wastewaters, and that's what I started to do. I started to do that first by reading as much as I could on the behaviors of these chemicals and their properties in water. And I decided that adsorption technology, that is the use of solid materials to which chemicals will attach themselves by physical and chemical forces, looked the most promising to me. And Carrell Morris and I made a proposal to then the US Public Health Service, which was responsible for water control, and we were awarded a grant which supported my PhD studies at Harvard, along with helping Professor Fair teach his courses at Harvard.

So, Professor Fair and Professor Morris were two very direct mentors, but a third one that played an extremely important part in that too was a young professor who had newly arrived at Harvard from Switzerland, Werner Stumm who later became the water chemist of the environmental field. He was the third of my mentors at Harvard. They played different but equivalently important roles in shaping my directions in terms of my areas of research which were physicochemical processes and then the determination to teach in the area of water resources.

To view the Walt Weber interview, click here:
https://www.youtube.com/watch?v=9-oMwJzBrtY

To make a donation towards the Walter J. Weber, Jr. AEESP Frontier in Research Award, click here:
http://www.aeespfoundation.org/awards/frontier-research

The 2018 AAEES Excellence in Environmental Engineering and Science (E3S) Awards Luncheon and Conference

The American Academy of Environmental Engineers and Scientists held its annual Excellence in Environmental Engineering and Science Awards Luncheon and Conference on Thursday, April 19, 2018.

This event celebrates the winning entries in the 2018 Excellence in Environmental Engineering and Science (E3S) and Environmental Communications awards competitions, and it honors outstanding individuals in environmental engineering and environmental science who have made significant contributions to the profession. Following is a highlight of faculty and student award recipients for 2018, which include several AEESP members.

Dr. Rita Rossi Colwell, a world-renowned scientist and educator, was installed as the 2018 Honorary Member. Dr. Colwell is the Distinguished University Professor at University of Maryland College Park and Johns Hopkins University Bloomberg School of Public Health; Global Science Officer and Chairman at CosmosID, Inc.; and Senior Advisor and Chairman Emeritus at Canon U.S. Life Sciences. She served as the 11th Director of the National Science Foundation, 1998-2004. Dr. Colwell has been awarded 61 honorary degrees from institutions of higher education, including her Alma Mater, Purdue University and is the recipient of the 2005 Order of the Rising Sun, Gold and Silver Star, bestowed by the Emperor of Japan, the 2006 National Medal of Science awarded by the President of the United States, the 2010 Stockholm Water Prize awarded by the King of Sweden, the 2017 Vannevar Bush Award from the National Science Foundation, and the 2017 International Prize for Biology from the Japan Society for the Promotion of Science. Dr. Colwell is an honorary member of the microbiological societies of the UK, Australia, France, India, Israel, Bangladesh, Czechoslovakia, and the U.S. and has held several honorary professorships, including the University of Queensland, Australia. A geological site in Antarctica, Colwell Massif, has been named in recognition of her work in the Polar Regions.

Professor Steve Burnage, PPSEE, CEng, CEnv, Hon.FSEE, FIMechE, was installed as the 2018 International Honorary Member. Professor Burnage is currently a Professor at the University of Surrey (UK) and sits on the Centre for Doctoral Training (CDT) Steering Group. He is an active member of the UK Society of Environmental Engineers (SEE) and is currently Chairman of the SEE Education and Membership Committee as well as a member of the Main Council. He is currently focusing his effort on promoting environmental engagement amongst licensed, certified and registered environmental engineers and scientists by working with their associated National and International professional bodies.

International Honorary Member Professor Steve Burnage, Honorary Member Dr. Rita Colwell, Stanley E. Kappe Award Winner Dr. Daniel B. Oerther

Dr. Daniel B. Oerther, P.E., BCEE, D.AAS, CEP, C.Eng, M.CIEH, C.Env, won the 2018 Stanley E. Kappe Award. Dr. Oerther is a Professor of Environmental Health Engineering at the Missouri University of Science and Technology in Rolla and was previously Department Chair at the University of Cincinnati. Dan uses environmental biotechnology to achieve sustainable development at the nexus of water quality and food security. He co-founded/directed: NSF GK-12 Project STEP at Cincinnati; Ohio Center for Excellence in Sustaining the Urban Environment; Environmental Research Center at Missouri; and Missouri Center for Science Diplomacy Laboratory. He served as major advisor for 14 doctoral and 22 masters students. He is a Jefferson Science Fellow of the U.S. National Academies, a Lifetime Honorary Fellow of the American Academy of Nursing (F.AAN), and both a Fellow of the Royal Society for Public Health (F.RSPH) and a Fellow of the Royal Society for Arts (F.RSA) in the United Kingdom where he is also registered as a Chartered Engineer, a Member of the Chartered Institute of Environmental Health, and as a Chartered Environmentalist.

A new award was introduced for 2018: the Science Award. The AAEES Science Award is given to an individual who is an outstanding performer in the management and implementation of environmental science programs and projects conducted under either public or private auspices and has demonstrated exemplary professional conduct, has distinguished qualities of personal leadership, originality in devising new management techniques for dealing with environmental issues, and sensitivity and responsiveness to the impact of social and political influences on the conduct of environmental programs.

This award's inaugural winner is **Dr. Joel Burken,** P.E., F.AEESP, BCEE. Dr. Burken currently serves as Chair and Curators' Distinguished Professor of the Civil, Architectural and Environmental Engineering Department and is a member of the US EPA Science Advisory Board. His research has focused upon low impact and natural treatment systems since 1991. In that time, terms of sustainable-remediation, green infrastructure, and green-remediation have evolved and now promote the same fundamental aspects surrounding water quality and water resource management.

Dr. Oerther and David Gaddis, P.E., BCEE, Master of Ceremonies, accepting Science Award on behalf of Dr. Burken

Dr. **Debra R. Reinhart**, P.E., BCEE, won the 2018 Gordon Maskew Fair. Dr. Reinhart is a Pegasus Professor and Assistant Vice President for Research and Scholarship at the University of Central Florida and a member of the Civil, Environmental and Construction Engineering Department. Her research area is solid waste management, with a focus on optimized waste collection and sustainable operation of landfills. Her research has been supported by grants from and contracts with both government agencies and private companies, with research support from the federal government (U.S. Environmental Protection Agency through subcontractor ARCADIS, and the National Science Foundation), core funding from the State of Florida (Hinkley Center for Solid and Hazardous Waste Management), and from the Environmental Research and Education Foundation.

Gordon Maskew Fair Award winner, Dr. Debra Reinhart

Ahmed Abokifa, Washington University of St. Louis, won the 2018 Innovyze Excellence in Computational Hydraulics/Hydrology Award. Ahmed is currently a Ph.D. candidate in the department of Energy, Environmental, and Chemical Engineering at Washington University in St. Louis. He is on schedule to graduate in May and afterwards, he will be joining the University of Texas at Austin as a postdoctoral fellow in the Center for Water and the Environment. He hold both a BS and MS degrees in Civil Engineering from Cairo University.

Ahmed Abokifa and Professor John E. Tobiason, Ph.D., P.E., BCEE

Lieutenant Colonel **Andrew Pfluger**, U.S. Army, won the 2018 W. Wesley Eckenfelder Graduate Research Award. Andrew Pfluger, U.S. Army, is an active duty officer and a Ph.D. candidate at the Colorado School of Mines in Golden, Colorado. His research interests revolve around microorganisms in engineered environmental systems, including biological wastewater treatment. His doctoral research has centered on the characterization of anaerobic bioreactors for treatment of domestic wastewater. Upon graduation from Mines in the summer of 2018, Andrew will serve as an Assistant Professor at the United States Military Academy in the Department of Chemistry and Life Science. He was accompanied by his Faculty Advisors, Dr. Junko Munakata-Marr and Dr. Linda Figueroa.

Maria Briones won the 2018 W. Brewster Snow Award. Maria graduated from the University of Rhode Island (URI) in the International Engineering Program (IEP) with a BS in Civil Engineering and a BA in Spanish Language. Through the IEP, she spent a year in northern Spain studying and working at a research facility, Centro de Estudios e Investigaciones, in the field of computational fluid dynamics to model aeration efficiency in wastewater treatment. She is currently a Master's candidate at University of South Florida where she will graduate in 2018 with an MS in Civil Engineering with an International

Maria Briones and John Tobiason

Lt. Colonel Pfluger with Faculty Advisors, Dr. Linda Figueroa and Dr. Junko Munakata-Marr

Development Engineering focus. Her MS thesis research, based on her time and experience as a water, sanitation, hygiene Peace Corps volunteer in Panama (RPCV '15-'17), is a validation of a gravity fed water distribution design computer program, Neatwork, against field data obtained in a rural community in Panama. Maria currently works part time at CH2M (now Jacobs Engineering Group) in the water sector while she completes her MS thesis requirement. There, she supports the project management of storm and wastewater projects.

Dr. Richard Valentine (not present) won the 2018 Excellence in Environmental Engineering and Science Education Award. Dr. Valentine has been a faculty member in Civil and Environmental Engineering at the University of Iowa since 1982, teaching courses in environmental chemistry, physical-chemical water treatment processes, and courses in engineering for freshman emphasizing strategies for creative problem solving. He is the leading authority on chloramine reaction kinetics, which governs the stability of the disinfection process. He developed a simple, practical relationship for predicting how fast chloramines decompose in the distribution system, which is used as a guide in implementing the chloramination process.

Full profiles of the AAEES Honorees can be accessed at http://www.aaees.org/aaeesawards/.

AAEES Executive Director Burk Kalweit, Dr. Robert Knox, AAEES President Hunter Nolen

For the E3S awards competition, Dr. **Robert W. Nairn,** University of Oklahoma, won the Honor Award in University Research for his project Southeast Commerce Mine Water Passive Treatment Project. Accepting the award on his behalf was Dr. Robert Knox.

Professor Chih-Ming Kao, P.E., BCEE, and Yih-Terng Sheu won the Grand Prize in University Research for their project, Remediation of Chlorinated Solvent-Contaminated Groundwater Using Long-Lasting and NZVI-Contained Colloidal Substrates with pH and Hydrogen Sulfide Control Capabilities: Innovative Substrate Development and Mechanism Studies.

Full profiles of the E3S competition winners can be found at http://www.aaees.org/e3scompetition/.

Professor Kao and AAEES President Hunter C. Nolen, P.E., BCEE

Graduate Student Scholarships for 2-Day Marquette Anaerobic Treatment Course

The 15th annual short course on anaerobic treatment of high-strength industrial waste will be held September 11-12, 2018 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 and a tour of an operating anaerobic treatment system will be included. Speakers will include Dr. Jules van Lier (Delft University of Technology – The Netherlands), Daniel Zitomer (Marquette University) and Dennis Totzke (Applied Technologies, Inc.). Several scholarships are available to cover the registration fee of graduate students from other universities studying anaerobic biotechnology. To apply for a scholarship, students should contact Dr. Daniel Zitomer (daniel.zitomer@mu.edu). The course webpage can be accessed for more information at http://www.marquette.edu/ANT.

Congratulations to Dr. Bruce Rittmann, co-recipient of 2018 Stockholm Water Prize

As a pioneer of environmental biotechnology, Bruce Rittmann has spent his career forming alliances with the tiny creatures that make human society sustainable. Recently, Rittmann's career-long work with microorganisms was recognized internationally when he was named a co-recipient of the world's most prestigious water research award, and honored as the 2018 Stockholm Water Prize Laureate.

Rittmann shares the 2018 Stockholm Water Prize Laureate title with his counterpart Mark van Loosdrecht, a professor of environmental biotechnology at Delft University of Technology in the Netherlands. Rittmann and van Loosdrecht have collaborated over the years. For instance, they were members of a task group that wrote the book "Mathematical Modeling of Biofilms," and they are organizers of the annual Leading Edge Technology conferences, flagship events of the International Water Association. Both have been AEESP Distinguished Lecturers – Rittman in 2004, and van Loosdrecht in 2013.

The enormous body of work that led to Rittmann winning the prestigious award dubbed by some as the "Nobel Prize of the water world" started with the smallest of organisms. His research focuses on managing microbial communities of microorganisms that have an amazing range of different metabolisms. Unlike humans — large, complex beings requiring an immense amount of energy — microorganisms are tiny, simple and capable of living on small amounts of energy extracted from the environment.

Because these microorganisms can live on very little energy, they are capable of a vast array of metabolisms, or services to society, such as cleaning up pollution, treating water and wastewater, capturing renewable energy and improving human health. These microscopic organisms can play a big role in making society more sustainable in terms of the environment and the economy.

By revolutionizing microbiological-based technologies in water and wastewater treatment, Professors Mark van Loosdrecht and Bruce Rittmann have demonstrated the possibilities to remove harmful contaminants from water, cut wastewater treatment costs, reduce energy consumption, and even recover chemicals and nutrients for recycling.

Their pioneering research and innovations have led to a new generation of energy-efficient water treatment processes that can effectively extract nutrients and other chemicals - both valuable and harmful - from wastewater.

Mark van Loosdrecht is Professor in Environmental Biotechnology at Delft University of Technology, The Netherlands. Bruce Rittmann is Regents' Professor of Environmental Engineering and Director of the Biodesign Swette Center for Environmental Biotechnology at the Biodesign Institute, Arizona State University, USA.

Rittmann has received numerous accolades throughout his career. He won the first Clarke Prize for Outstanding Achievement in Water Science and Technology from the National Water Research Institute, as well as the inaugural Bio Cluster Award from the International Water Association and the International Society for Microbial Ecology.

He was also named a fellow of the International Water Association, National Academy of Inventors and American Association for the Advancement of Science. He is a member of the U.S. National Academy of Engineering and a Distinguished Member of the American Society of Civil Engineers.

Rittmann has written more than 650 peer-reviewed scientific papers. Together with his research mentor Perry McCarty, he is the author of the textbook "Environmental Biotechnology: Principles and Applications."

Rittmann and van Loosdrecht will accept the Stockholm Water Prize in Stockholm, Sweden on August 29.

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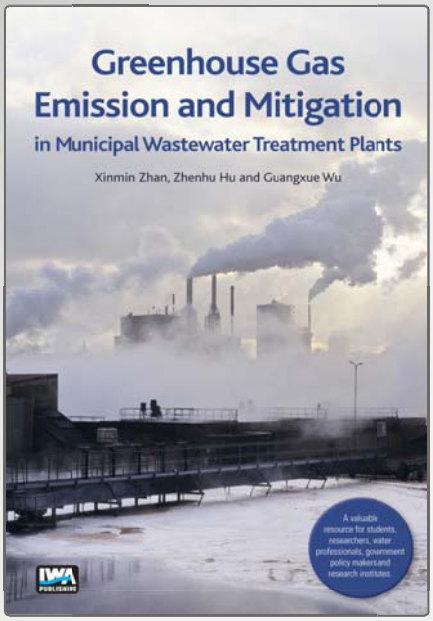

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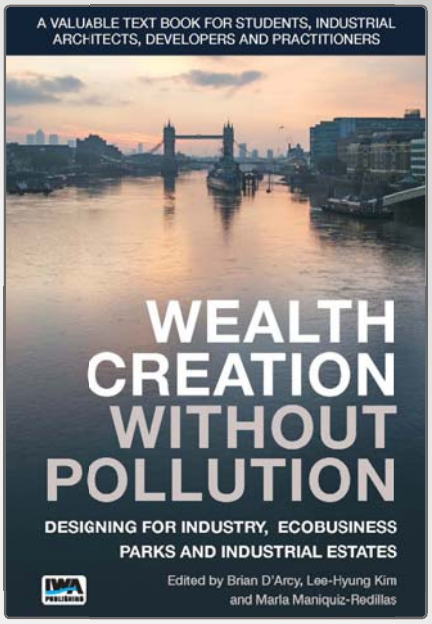

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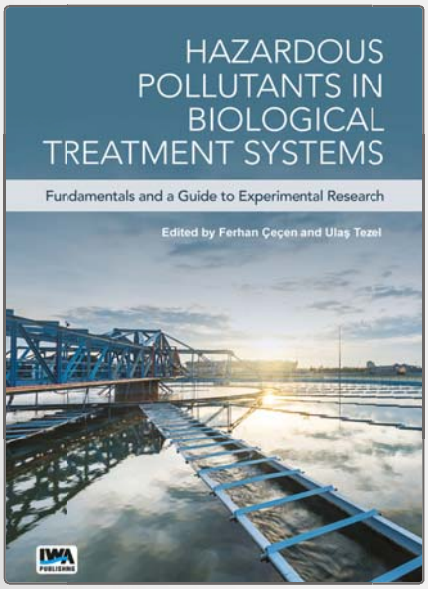

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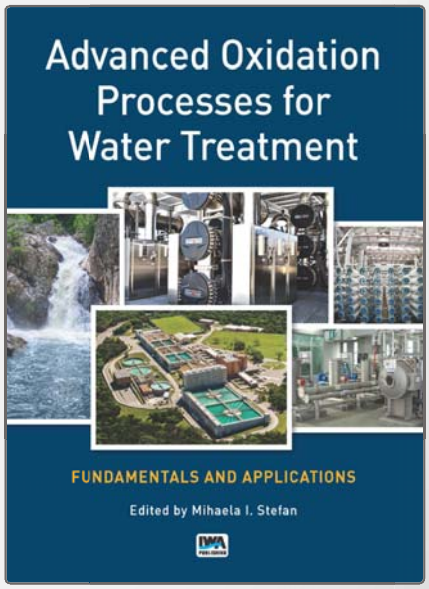

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