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News highlights...

Coming soon: Books of interest

Have you read any good "round you out" books that you would like to share with colleagues in the AEESP community? We are looking for some general interest books (not textbooks) to include in a new section in the newsletter. If you have a good suggestion, please send a message to Eric Marchand (marchand@unr.edu) including the book title, author, and a 1-2 sentence "catchy" description to be included in the next AEESP Newsletter.

Download the AEESP membership application:

www.aeesp.org/membership/AEESP_member_app.pdf

AEESP on the Web:

 AEESP.org

President's Letter

Dear AEESP Members,



Phil Singer

Having just stepped down as President of AEESP, I am pleased to inform you that our organization is in excellent health. Jim Mihelcic is the new President; having worked with Jim these past 3 years and having an opportunity to observe his commitment to AEESP and to our profession, I am confident that he will take our organization in exciting new directions and to new heights. Amy Childress is our President-Elect who will succeed Jim, and Peter Adriaens is our Vice-President. We have a very capable group of new Board members in Nancy Love, Dan Oerther, and Jeanne VanBriesen, all of whom have already made substantial contributions to our organization.

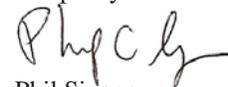
The Association has 868 members, a 4% increase since last year. There are 77 new members in 2007; we have experienced a 20% increase in membership since 1998. We had a 96.6% renewal rate in our membership this past year, suggesting that we are meeting the needs of our members. There are 17 sustaining members from industry, a number of which sponsor various of our activities.

Some of the highlights of our activities this past year include: a new design for our website (www.aeesp.org); a successful Distinguished Lecturer tour by Joan Rose; selection of David Allen of the University of Texas as our 2007/2008 Distinguished Lecturer; initiation of an AEESP-sponsored plenary lecture at the Association for Atmospheric Aerosol Research annual conference; and development of a new Industrial Lecture program for our sustaining members.

The AEESP Foundation, which was created on April 18, 2006, has received approval from the Internal Revenue Service as a 501(c)(3) tax exempt organization. All donations to the Foundation since its date of creation can be considered tax exempt. Among other things, the Foundation is responsible for the financial aspects of the Distinguished Lecturer program and for our various sponsored awards. For further details about the Foundation's mission and its plans for the future, see the letter to members from the Foundation Board of Directors on page 2 of this newsletter, and visit the new Foundation website at www.aeespfoundation.org.

We just sponsored our second biennial AEESP conference which was held at Virginia Tech in Blacksburg, VA at the end of July. With more than 270 attendees, 4 workshops, 8 plenary presentations, and 2 days of four concurrent oral presentations and posters, the conference was a resounding success. Special thanks are extended to Greg Boardman and his colleagues at Virginia Tech for their heroic efforts in making the conference a success. A Request for Proposals will be released some time this fall soliciting proposals from institutions wishing to host the next AEESP Education and Research Conference in 2009.

AEESP is an organization that depends on volunteers to conduct its business for the benefit of its members and for environmental engineering and science education and research. Thanks to all for volunteering to make this such a fine organization. It has been my pleasure to serve as your President this past year.



Phil Singer
Past President, AEESP

Newsletter submissions

Submissions may be sent electronically to:

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AEESP Newsletter online:

www.aeesp.org/publications_newsletter.php

AEESP Membership Application online:

www.aeesp.org/membership/AEESP_member_app.pdf



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AEESP Board Highlights

Submitted by Amy E. Childress

The board met on August 1st and 2nd after the biennial Research and Education Conference on the Virginia Tech campus in Blacksburg, Virginia.

The presidential gavel was passed from Phil Singer to new president Jim Mihelcic. Elections for new board officers were held; Amy Childress will be the 2007-2008 president-elect, Peter Adriaens will be the 2007-2008 vice president, Angela Bielefeldt will be the 2007-2009 treasurer, and Keri Hornbuckle will be the 2008-2009 chief information officer. Bill Ball and Meny Elimelech completed their 3-year terms on the board.

In follow up to the very successful Virginia Tech Conference, the Conference Planning Committee for the next biennial AEESP conference in 2009 will send out a Request for Proposals as soon as possible. The RFP will require inclusion of a plan for carbon offset and inclusion of plans to solicit teaching sessions.

The board was visited by Mike Penn, chair of the ad hoc committee that is evaluating how well AEESP serves its members at schools that grant primarily B.S. degrees. The goal of this committee is to determine what percentage of our membership comes from B.S.-granting (and other underrepresented) schools and also, how AEESP can better serve these schools.

The board is continuing to work on advancing the AEESP Foundation. An administrative handbook is being developed and an external audit agency is being solicited. The board is also continuing to work with NSF and the CLEANER project office to further develop the WATERS Network. A WATERS Network advisory board committee is being developed.

The board discussed the desire of some members of the environmental engineering and science community to develop a body of knowledge. It was determined that if a body of knowledge will be developed, AEESP members should play a

strong role in it and that the resulting body of knowledge should be used for guidance purposes.

In other discussions, the Board agreed that development of a new professional society would be a good way to address identity and visibility issues, so the Board approved the creation of an implementation committee that will work on the development of the new professional society. Also, an ad hoc sustainability committee was created and plans are being made to provide a three-year payment option for AEESP dues.

New Board Members

The board is pleased to announce the results of the election for three new members of the AEESP Board of Directors. Serving three-year terms beginning August 2007 are: Nancy Love, Virginia Tech; Dan Oerther, University of Cincinnati; and Jeanne VanBriesen, Carnegie Mellon University. The board extends congratulations to all of them! The board also extends appreciation to all of the candidates for their willingness to serve the association.

AEESP Foundation

Dear AEESP Members,

Many of you are aware that the AEESP Board of Directors recently established the AEESP Foundation (effective April 18, 2006), with the primary goal of improving the state of knowledge in environmental engineering and science through the support and encouragement of excellent education, outreach, and scientific research. Tax exempt status as a 501(c)(3) organization was applied for in June, and recently approved. One of the primary missions of the Foundation is to build endowments for awards in environmental engineering and science. Consequently, all awards formerly administered by AEESP are now administered by the AEESP Foundation, and all award donations are non-taxable.

Board members for the AEESP Foundation are elected from the AEESP Board of Directors. Initial Board members are Lynn Katz (Chair), Bill Ball (Treasurer), and Charlie Werth (Secretary). Recent additions are

Peter Adriaens (Spring 2007), Phil Singer (Summer 2007), and Angela Bielefeldt (Summer 2007). The maximum length of any Board member's term is three years, and Board terms are renewed annually. The current bylaws can be found on the AEESP Foundation website (<http://www.aeespfoundation.org/>).

Lynn Katz is presently taking the lead to develop operating procedures for the Foundation, and all Board members are helping to develop strategies to raise endowments and create new award and funding opportunities to help recognize excellence in our field and energize our community. We encourage you to contact Lynn Katz if you have ideas toward achieving these goals, or if you would like to create an endowed award. For more information regarding goals and activities of the AEESP Foundation, we encourage you to visit the new website.

At this time we are soliciting donations for the first endowed award of the AEESP Foundation, the Virginia Tech Student Travel Award. This award was created in memory of students and faculty who lost their lives in the recent tragedy at Virginia Tech, and will fund one student from this institution to travel to the biennial AEESP conference. Partial support for this award has been committed by AEESP (from excess operating funds), and contributions are being sought from AEESP members in order to establish a permanent endowment.

We are very excited about the potential opportunities that exist with the AEESP Foundation. This represents another stage of growth for AEESP, and one that we feel will bring us closer together, more effective, and more relevant. We thank all AEESP members for the support you've given to the establishment of the AEESP Foundation, and we wish you a great academic year.

Best regards,
The Board of Directors of the AEESP Foundation

AEESP at Congressional Visits Day 2007

Submitted by Allen P. Davis, AEESP Government Affairs Committee

On May 2, 2007, Kimberly Jones, Bill Ball, Allen Davis, and AEESP President Phil Singer visited the offices of 14 members of U.S Congress as part of the official Congressional Visits Day. Included in these visits were several key members of Congressional appropriations. Our primary goal was to request support for the increases in budget for the National Science Foundation and EPA extramural research, including the STAR fellowship program. Generally, all staff expressed full support for this initiative. In several cases, the NSF WATERS initiative was also brought to the staffer's attention. As a closing statement, the expertise of AEESP was offered as a resource to assist with complex environmental issues.

Congressional Visits Days is sponsored by the Science, Engineering, and Technology Group, of which AEESP is a member (www.aas.org/policy/cvd/index.html).

With these visits, AEESP works for support for our most important funding agency, the NSF. We also strive to develop a working relationship to offer our expertise to our legislators on environmental issues important to the nation.

Senate offices visited were those of Senators Burr (NC) and Cardin (MD). House offices included Congressmen and Congresswomen Bartlett (6th MD), Cummings (7th MD), Gilchrest (1st MD), Hoyer (5th MD), Norton (DC), Miller (13th NC), Myrick (9th NC), Price (4th NC), Ruppertsberger (2nd MD), Schuler (11th NC), Sarbanes (3rd MD), and Wynn (4th MD). We had short personal visits with Senator Cardin and Reps. Price and Ruppertsberger. We had a fruitful visit with Rep. Gilchrest, who showed great interest in the WATERS project.

Newsletter policies

AEESP welcomes AEESP members to submit items such as letters to the editor, letters to the president, news, ads, and announcements to the Newsletter. The decision to publish is subject to the discretion of the Editor and the AEESP Board of Directors. All submissions for the AEESP Newsletter should be sent electronically as an attached file to the Newsletter editor, Eric Marchand.

Submissions deadline

The AEESP Newsletter is published three times a year in January, May, and September. The deadline for Newsletter submissions is one month prior to the publication date (e.g., the deadline for the January Newsletter is December 1). Please keep in mind when submitting items with deadline dates that members receive issues four to six weeks after the submissions deadline.

Regular member advertising policy

Any advertisement, including faculty, post-doc, or student ads, or other types of announcements submitted by an AEESP member, will be free for the first 250 words (approximately 1/4 page) and then charged at \$1 per word for additional content, if formatted to fit in a column. Non-members will be charged at the per word rate for any size column-formatted ad. Full page formatted advertisements will be charged at \$500 for members and \$1,000 for non-members. All formatted full page ads will be accompanied by a free web ad. Programs will be limited to one full page of ads and/or announcements per issue.

Photo submissions

Photo submissions to the AEESP Newsletter are encouraged. Please submit your photos electronically in JPG format at the highest dimension for downsizing to print resolution (preferably less than 750 KB). Also, please include captions with names, locations, and dates.

Thank your Congressman

AEESP is encouraging its members to send off a short note to their members of Congress after receiving a federal research award. In the letter, let him or her know that federal dollars are returning to your state for research and education, and thank him for the opportunity to assist in the mission of the nation. This small effort can lead to greater visibility for you and the association. A template letter is available; please contact Allen Davis (apdavis@umd.edu). We hope to have this on the AEESP website soon.

AEESP sponsored activities at WEFTEC.07

The Water Environment Federation has approved reduced prices for members of AEESP to attend WEFTEC.07 in San Diego, CA, from October 13-17, 2007. The reduced costs will include: \$50 for the AEESP/WEF Scientist Luncheon; \$50 for the AEESP/WEF Keynote Research Presentation; and \$300 for attending WEFTEC Research Sessions throughout the week. A special registration form has been prepared and posted on the AEESP website (<http://www.aeesp.org/postings/WEFTEC07AEESP.pdf>). If you have any questions, contact Daniel Oerther at Daniel.Oerther@uc.edu. Events on Monday, October 15, 2007 include:

AEESP/WEF Luncheon

Jörg E. Drewes, Colorado School of Mines, "Drinking Water Augmentation with Impaired Water Sources—Technologies and Water Quality Issues"
11:30-1:30 p.m., San Diego Convention Center

AEESP/WEF Keynote Research Presentation

David Jenkins, University of California, Berkeley, Session 020 Leading Edge Research Program, "From TSS to FISH—A Personal View of Biological Wastewater Treatment Population Dynamics"
1:30-2:30 p.m., San Diego Convention Center, Room 6C

AEESP Meet-and-Greet Reception

5:00-7:00 p.m., Manchester Grand Hyatt San Diego

Session on point-of-use water treatment technologies for developing global communities a success at AEESP Conference

by James A. Smith

The point-of-use water treatment technologies for developing global communities session was a great success at the recent AEESP conference in Blacksburg, Virginia. We were very encouraged by the number of abstracts submitted to our session (over twenty). We were equally pleased by the high quality of papers presented in the session and the overwhelming interest by conference participants. The conference organizers were kind to allow us two sessions, allowing us to accommodate eleven of the papers submitted; to maximize the number of oral presentations, additional papers were integrated into other sessions (e.g., sustainability), with the remaining papers presented in the poster session. A list of the papers submitted to our session is available on the Web at <http://www.cce.virginia.edu/aeesppou.html>.

Our motivation for organizing the session was in response to World Health Organization estimates that over 1 billion people lack access to safe drinking water, with a significant fraction of these people living in remote villages in developing countries. Because these communities lack the infrastructure for centralized water treatment and distribution, the need exists for simple and sustainable point-of-use water treatment systems. Papers presented at the conference focused on understanding and improving existing technologies and developing new technologies for water treatment in global developing communities. Papers addressed pathogen and turbidity removal as well as removal of dissolved constituents of concern in remote villages such as arsenic and fluoride. The papers reported on mechanistic laboratory-based studies, field implementation case studies,

and regional efforts to develop sustainable point-of-use water treatment programs.

We came away from the session with several impressions. We were overwhelmed by the number of people doing publishable research in this area. This is all the more impressive given that the work is "grass roots" in nature – the work is motivated by the faculty themselves rather than being driven by a funding agency. Due to the grass roots nature of the work, the researchers have little opportunity to interact with others doing similar work, making this AEESP session all the more valuable. The researchers are very resourceful in conducting this work due to very limited funding opportunities. Conference participants not specifically focused on emerging global communities were able to provide valuable insight and guidance, making this a good venue for the session. There does seem to be a need for additional outlets for this work, both in terms of conferences and journals. So the closing question is – where do we go from here? Stay tuned!

Emergence of Environmental Engineering as a formal NSF Program

by Edward H. Bryan

President Phil Singer's letter in the May issue of the Newsletter noted the consistent support the National Science Foundation (NSF) has provided for activities of the AEESP and credited me for having initiated them. Initiation and consistency of support by NSF of environmental engineering and science was inherent in the process that created NSF and may be more fundamentally credited to the sanitary engineering professors who conceived and conducted what became known as the First Conference on Graduate Education of Sanitary Engineers held at Harvard University in 1960. NSF's programs had already been successfully approached by professors of sanitary engineering for support of their research. Dan Okun's segment on Sanitary Engineering Research in the December 1958 issue of *Public Works* had an article

by Gene Nordby, who served in NSF as a Program Director for Engineering Sciences. He cited Vaughn Behn's research as "typical of the few projects in the field of sanitary engineering" that have been supported by NSF and suggested that "the Foundation would like to receive more proposals in this area to balance its program better." When I was a Professor and the Director of Undergraduate Studies in Civil Engineering at Duke, one of my graduate students was an NSF Trainee and my department chairman's NSF award for support of undergraduate participation in research provided significant assistance to me in my research supported by Duke, the City of Durham, the U.S. Public Health Service, and the North Carolina's Water Resources Research Institute.

While I was with the Ecology Division of Rex Chainbelt, I visited NSF in 1972 to explore the potential that its new program of Research Applied to National Needs (RANN) could be approached for support of Rex's applied research and development projects. This led to my joining NSF in December of that year to direct the Residuals Management Element of the Regional Environmental Systems (RES) Program in the RANN Directorate's Division of Environmental Systems and Resources. In addition to program management responsibilities for the next five years, I served as an adviser on a staff committee to assist the Director on a project in his role as Science Adviser to the President and in assisting NSF's Office of its General Counsel in a trademark certification matter involving the abbreviation NSF that was used by both the National Sanitation and the National Science Foundations.

By 1977, reorganization of the approaches NSF took to support problem focused research led to changing the RES program to one that addressed Community Water Management (CWM). It jointly supported with NSF's Water Resources, Urban and Environmental Engineering Program AEEP's first conference on Fundamental Research Needs for Water and Wastewater Treatment Systems. During further progress toward a formal

environmental engineering program, my additional responsibilities included management of NSF's Appropriate Technology Program and the process that led to NSF's 1980 Report on Flood Hazard Mitigation. By 1988 when AEEP held its third conference on Fundamental Research Directions, Environmental Engineering had become a formal program in the Directorate for Engineering's Division of Critical Engineering Systems and in 1993, Environmental Engineering became an element in the Environmental and Ocean Systems Program of the Engineering Directorate's Division of Bioengineering and Environmental Systems where it continued to be until I retired in January of 2000.

Member/Program News

Imperial College London



Dr. Michael Templeton joined the Environmental and Water Resources Engineering section of the Department of Civil and Environmental Engineering at Imperial College London as a Lecturer in Environmental Engineering in September 2006. Dr. Templeton has a B.A.Sc. degree in Engineering Science and a Ph.D. in Civil-Environmental Engineering, both from the University of Toronto. His research interests include chemical contaminants of public health relevance in drinking water (e.g., emerging disinfection by-products), water treatment process engineering (e.g., UV disinfection), drinking water microbiology, computational modeling of treatment processes, and water supply and management in developing countries. For more information, please refer to: www.imperial.ac.uk/people/m.templeton.

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University of New Mexico

Andrew J. Schuler, Ph.D., P.E., will be joining the faculty of the Department of



Civil Engineering at the University of New Mexico in the fall of 2007. Dr. Schuler received his Ph.D. from the University of California at Berkeley, and has previous ex-

perience as a consulting engineer with CH2M HILL and as an Assistant Professor with Duke University. Dr. Schuler is a recipient of the NSF CAREER Award and the AEEP Outstanding Doctoral Thesis Award, and brings his expertise in biological wastewater treatment, nutrient removal, agent-based modeling, sedimentation, and the application of molecular methods to the expanding UNM Environmental Engineering faculty. The UNM Civil Engineering Department will soon be moving into new state-of-the-art research and teaching facilities into the new 140,000 square foot Centennial Engineering Center. Dr. Schuler will also be an important contributor to the new National Science Foundation funded UNM Center for Biomedical Engineering.

Colorado School of Mines

On August 29, 2007, the Colorado School of Mines held a ribbon-cutting ceremony for the new Advanced Water Technology Center (AQWATEC). AQWATEC will be instrumental in supporting two major research thrust areas at CSM in environment and renewable energy. The Center will provide many research opportunities for students in the Environmental Science and Engineering, Hydrologic Sciences and Engineering, and the other campus engineering programs. AQWATEC brings together state-of-the-art infrastructure, an interdisciplinary faculty, and a wide network of industry supporters and collaborative academic institutions, setting the stage for developing solutions for the pressing water and energy problems across the nation.

AQWATEC currently focuses on advanced natural systems for elimination of emerging contaminants from the environ-

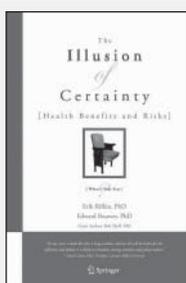
Program News / Books

ment; traditional and novel membrane separation processes for water purification, reuse, and desalination, including zero-liquid discharge systems; development of multiple-barrier hybrid processes to provide more efficient water treatment systems; advanced concepts in decentralized water treatment facilities; and development of more efficient water treatment systems for the industrial and renewable energy sectors. The Center is directed by Professors Jörg Drewes and Tzahi Cath from the Environmental Science and Engineering Division. The opening ceremony was held in the new pilot facility that was established earlier this year. The ribbon-cutting event was led by CSM's President Bill Scoggins, Congressman Ed Perlmutter, and Robert Renner, the Executive Director of the Awwa Research Foundation, who also delivered the keynote speech in front of more than 100 guests in the Geology Museum of the Colorado

School of Mines. For more information about AQWATEC, go to www.aqwatec.org.

Yale University

This was a banner year for national awards for Yale's senior environmental engineering undergraduate class. **Katherine Rostkowski** received a National Science Foundation Graduate Fellowship, which she will use to pursue a Ph.D. in Environmental Engineering at Stanford University this fall. **Caroline Howe** and **Betsy Scherzer** received Morris K. Udall Undergraduate Scholarships for their environmental leadership. Betsy Scherzer also received a Marshall Scholarship, which she will use to pursue a M.S. degree in Climate Change and Sustainable Business at Oxford University this fall.



The Illusion of Certainty: Health Benefits and Risks

Authors: Erik Rifkin & Edward Bouwer
This new book reveals the truth about health benefits and risks. Risks are borne voluntarily, as in the case of medical tests or elective surgery, or thrust upon us, as in the case of exposure to environmental contamination. How can the average person be confident that he or she has the in-

formation and analytical tools needed to make an informed judgment as to what action to take? Do certain actions pose greater risks than not acting at all? All too often, health benefits and risk statements are presented as if they were authoritative, definitive, and based on compelling evidence. However, all they provide is the illusion of certainty. This book provides guidance to citizens when confronting critical questions about the environment and helps patients and their families get more involved in making medical decisions. The basic concepts necessary to adequately analyze the deluge of data being discussed and published are presented. The authors use the Risk Characterization Theater (RCT) as a tool to turn statistical numbers that are difficult to comprehend into clear, visual examples. Topics addressed are the benefits and risks from chlorinating drinking water, the risks from exposure to environmental contaminants such as dioxin, radon, and chromium, and ecological risk assessment. Case studies from medicine describe the true benefits of screening tests for breast cancer, prostate cancer, and colorectal cancer; the benefits from taking statins and the real risks of elevated blood serum cholesterol; the risks from taking drugs such as Vioxx™; and the risks from smoking. By putting the complexities of risk analysis in terms the general reader can identify with, *The Illusion of Certainty* will empower people to make well-informed decisions. In the book's Foreword, Dr. Jared Cohon, President of Carnegie Mellon University, says, "In my view, a book like this is long overdue, and we all will be better for the reflection and debate it is likely to stimulate among scientists and policymakers." For an in-depth description of the book, table of contents, and ordering, go to: www.springer.com. Publishing details: ISBN 978-0-387-48570-6, 244 pages, hard cover: \$79.95; a paperback edition is forthcoming.

ADVERTISEMENT



New from IWA Publishing

Institutional Governance and Regulation of Water Services

The Essential Elements

Author: Michael John Rouse

Institutional Governance and Regulation of Water Services provides the key elements of policy, governance, and regu-

lation necessary for sustainable water and sanitation services. On policy matters, it covers important aspects of separation of policy and delivery, integrated planning, sustainable cost recovery, provisions for the poor, and transparency. Regulations and regulatory bodies are presented in their various forms, with discussion of why some form of independent scrutiny is essential for sustainability. There is a separate chapter on drinking water quality regulation including setting standards and discussion on how to incorporate managing risk in regulatory approaches.

It is the first book to give a comprehensive review of the key elements of policy, governance, and regulation for sustainable water services, based on experience from around the world. The focus is on what works and what does not, based on consideration of basic principles and on case studies in both developing and developed countries.

Institutional Governance and Regulation of Water Services is an invaluable information source for national and local governments responsible for water policy, for water utility managers, and for students who will be the policy makers of tomorrow. It should also be of value to all those concerned with water policy matters in donor agencies and international banks as well as for academics involved in the teaching of water policy, governance, and regulation.

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Empathy

by P. Aarne Vesilind, Bucknell University

I used to include a section on environmental ethics in my professional ethics course, and one of the activities was a video of a coyote hunt in Wyoming. The point of the film was that there was no economic or environmental reason for shooting these animals. It was just “sport.” The collection of carcasses at the end of the day’s hunt was to me obscene and this was my reason for showing the film. But at the conclusion of the video there was an inevitable bifurcation of opinion. About half of the class believed that it was morally wrong to participate in such a “sport,” and the other half of the class could see nothing wrong with it. These were just coyotes, for heaven’s sake! Why would anyone care if we killed some of them?

This difference of opinion was crisp and deep. They either did or did not care for the welfare of these animals. They either did or did not believe that people owed any moral consideration toward them. In short, they either did or did not have empathy for the coyotes.

And what exactly is empathy? Empathy is a complex notion and is poorly understood in moral philosophy. The word “empathy” has an interesting beginning, originating from the German word *emfühlung*, which means the ability to project oneself into a work of art, like a painting. Psychologists at the beginning of the 1900s searched for a word that meant the projection of oneself into another person, and chose the German word, translated into English as empathy. The concept itself was known, such as the Native Americans’ admonition to walk in another’s moccasins, but it simply needed a construction. The early meaning of empathy was thus the ability to project oneself into another person, to imitate the emotions of that person by physical actions. For example, watching someone prick a finger would result in a visible winching on the part of the observer because the observer would know how this feels. Some observers actually feel the pain, similar to the pain of the person having the finger pricked, although often not as intensely.

Some experiments have shown that the state of mind of a person is very important in that person’s ability to empathize. Small gifts or compliments apparently significantly increase the likelihood that a person will show empathy toward third parties. A person in a good mood tends to be more understanding of others. If this is true, then empathy is (at least partly) independent of the object of the empathy, and empathy becomes simply a characteristic of the individual.

Moral psychologists define empathy like this:

“The arousal of an emotion in an observer that is a vicarious response to the other person’s situation....Empathy depends not only on one’s ability to identify someone else’s emotions but also on one’s capacity to put oneself in the other person’s place and to experience an appropriate emotional response. Just as sensitivity to non-verbal cues increases with age, so does empathy: The cognitive and perceptual abilities required for empathy develop on as a child matures.” (Morris)

Such definitions of empathy, however, present some serious problems.

First, we have no way of knowing if the emotion triggered

in the observer is an accurate representation of the stress in the subject. We presume that a pin prick would be felt in a similar way because we have had this done to us and we know what it feels like. But what about the stress caused by a broken promise? How can an observer know that he or she is on the same wavelength as the subject when the stress is emotional?

If a subject reports being sad, the observer would know what it is like to be sad, and would share in the sadness. That is, the observer would empathize with the subject’s sadness and be able to tell the subject what is being felt. But is the observer really feeling what the subject is feeling? There is no way to define or measure “sadness”, and thus there is no way to prove that the observer is actually feeling the same sadness that the subject is feeling. Thus, there is always built-in reporting error with empathy.

The second problem relates to non-human animals. Many people have great empathy for pain felt in animals, such as physical pain suffered when animals are trapped, or emotional pain, such as that suffered by mother seals when their cubs are clubbed to death by seal hunters. But what about lower animals and plants? There is some evidence that trees respond physiologically when they are damaged, but this is far from certain. The response may not be pain at all, but some other sensation (if we can even suggest that trees have sensations). And yet many people are loathe to cut down a tree, believing that the tree ought to be respected for what it is, a center of life. This idea was best articulated by Albert Schweitzer in his discussions on the “reverence for life,” or the notion that all life is sacred. When a person does not want to cut down a tree because of caring for the tree, this is certainly some form of empathy, but it does not come close to the definitions used by the moral psychologists.

The third problem with this definition of empathy is that there is a huge disconnect between empathy and sympathy. If an observer watches a subject getting a finger pricked, the observer may know exactly what it feels like, having had a similar experience in the past. So there might be great empathy. But there might be little or no sympathy for the subject. The observer might actually be glad that the subject is being hurt, or it might be funny to the observer to watch the subject suffer.

We could argue that a lack of sympathy might indicate that there must also be a lack of empathy. How is it possible for someone to empathize with another person getting a finger pricked, but think it to be humorous? Perhaps there is no empathy there at all. Or perhaps we have conditioned ourselves so that our laughter when others are hurt is a defense mechanism and somehow separate the violence from our own experience. Or, we have learned from and have become desensitized by video games and foreign wars that reward us for destroying others without regret.

Empathy is not a moral value in the same way that loyalty, truthfulness, and honesty are moral values. One chooses to tell the truth or to lie in any particular circumstance, and a moral person will tell the truth (unless there is an overwhelming reason not to, such as to save a life). But it is not possible to choose to have or to not have empathy. One either has empathy or one does not. One either cares for those in need, or one does not. One either cares for the welfare of wild

Employment Opportunities

animals such as the coyotes, or one does not. And if one does not, showing a film of the coyote hunt will have little effect on their sensibilities.

[Note: A fuller discussion of empathy and how it applies to engineering may be found in *Socially Responsible Engineering*, D. A. Valero and P. A. Vesilind, John Wiley & Sons.]

University of Hawaii

ASSISTANT PROFESSOR IN BIOPROCESS ENGINEERING, TWO POSITIONS: University of Hawaii at Manoa, College of Tropical Agriculture and Human Resources, Department of Molecular Biosciences and Bioengineering (MBBE), tenure track, 75% research and 25% teaching, 9-month appointment, salary commensurate with qualifications, to begin approximately January 1, 2008.

Primary Duties: Establish a strong research program in bioprocess engineering and teach undergraduate and graduate courses in biological engineering.

Minimum Qualifications: Ph.D. in biological or chemical engineering or closely allied disciplines, with formal experience in bioprocess engineering. The position requires a solid background in engineering fundamentals as well as working knowledge of modern biological sciences. Priority will be given to applicants with research expertise related to bioenergy and value-added processing, including, but not limited to: 1) design of engineering systems for production and separation of biologically derived materials; and 2) metabolic engineering of microorganisms or protein engineering of enzymes for more efficient bioconversion. Desirable Qualifications: Post-doctoral training; proven grant and/or publication records; strong communication skills and demonstrated ability to collaborate with others; engineering licensure; and demonstrated experience in teaching.

Application Procedure: Send cover letter, curriculum vitae, statement of research and teaching interests, two or more representative reprints, copies of university transcripts, and arrange to have three

confidential letters of recommendation directly sent to: Search Committee Chair, Department of Molecular Biosciences and Bioengineering, College of Tropical Agriculture & Human Resources, University of Hawaii at Manoa, 1955 East West Road, Honolulu, HI 96822. Inquiries: (808) 956-8384.

Application Deadline: Review of applications will begin on Aug. 15, 2007 and will continue until the position is filled.

Further information on the position and the department can be viewed at <http://www.ctahr.hawaii.edu/mbbe/job.html>.

Cranfield University

ASSISTANT/ASSOCIATE PROFESSORS, TWO POSITIONS: Cranfield University (www.cranfield.ac.uk) is the largest postgraduate-only academic institution in Europe, providing world-class science, technology, and management expertise relevant to industry and wider society. For both positions you should possess a demonstrable track record in research, a willingness to teach, and an eagerness to convert practical ideas into business solutions.

Resource Efficiency: The Centre for Resource Management and Efficiency undertakes research, consultancy, and teaching across waste and resource management. We are particularly interested in candidates with experience in sustainable consumption and production practices and the application of resource efficiency principles. For an informal discussion, please contact Phil Longhurst. Tel: + 44 1234 754953; email: p.j.longhurst@cranfield.ac.uk.

Energy Systems Engineering: The Energy Technology Centre is active in power generation, renewable energy systems, including offshore wind power and bio-energy, and CO₂ capture and storage. We are particularly interested in candidates with experience in the process engineering of coal/oil/gas energy technologies. For an informal discussion, contact John Oakey. Tel: +44 1234 754253; email: j.e.oakey@cranfield.ac.uk.

Application forms and further details

are available from the Human Resources Department, Cranfield University, Cranfield, Bedford MK43 0AL; email: hr@cranfield.ac.uk. Alternatively, telephone our 24-hour Recruitment Line at +44 (0)1234 750111, extension 2000, www.cranfield.ac.uk/hr, quoting reference number C/7069J for Resource Efficiency and C/6144B for Energy Systems Engineering.

UW-Madison

FACULTY POSITIONS, DEPARTMENT OF CIVIL AND ENVIRONMENTAL ENGINEERING: The Department of Civil and Environmental Engineering of the University of Wisconsin-Madison invites applications for faculty positions in the following specific area:

- Environmental Science and Engineering (particularly Environmental Chemistry)

Information on the Civil and Environmental Engineering Department and the positions available can be found at <http://www.engr.wisc.edu/cee/> and http://www.ohr.wisc.edu/pv1/pv_056540.html.

Apply by November 15, 2007 to ensure consideration. UW-Madison is an equal opportunity/affirmative action employer. We promote excellence through diversity and encourage all qualified individuals to apply.

University of Utah

ENVIRONMENTAL ENGINEERING FACULTY POSITION: The Department of Civil and Environmental Engineering at the University of Utah invites applications for a tenure track faculty position at the Assistant or Associate Professor level in Environmental Engineering. The successful applicant must hold an undergraduate degree in engineering and will be expected to teach undergraduate and graduate courses in environmental engineering and develop a strong externally funded research program that contributes to the overall growth of the department. Areas of interest and interaction include sustainable environmental systems, sen-

sors in water and wastewater applications, research at the interface of nanotechnology and environmental engineering, and water reuse. The Department's Environmental Engineering laboratories are equipped with necessary instrumentation required for environmental engineering research. The University of Utah houses other research facilities (e.g., www.cores.utah.edu) that support research in biostatistics, cell imaging, DNA sequencing, electron microscopy, flow cytometry, genomics, mass spectrometry and proteomics, microarray, bioinformatics, NMR, and others. Initial screening of applications will begin November 30, 2007 and will continue until the position is filled. Electronic application materials (PDF format only) should include a cover letter stating your teaching and research interests and a list of five references with contact information, curriculum vitae, and two of your most important publications.

Email materials (PDF format) to Ms. Adrienne Call, Adri.Call@utah.edu; (801) 581-6931. Verification or receipt will be emailed within three days. The University of Utah is an equal opportunity, affirmative action employer, and encourages nominations and applications from women and minorities, and provides reasonable accommodation to the known disabilities of applicants and employees.

Clemson University

PROFESSOR AND DEPARTMENT CHAIR: The Department of Environmental Engineering and Earth Sciences (EEES) at Clemson University is seeking applications for a department chair position. Applicants must have an earned doctorate in environmental engineering, earth sciences, or a closely related field; an outstanding record of scholarly research and publication; a commitment to excellence in teaching; and strong leadership and communication skills. Consideration will be given only to those who merit appointment as a Full Professor with tenure.

EEES was recently created through a merger of the Departments of Environmental Engineering & Science and Geological Sciences. EEES is a vibrant academic community with 21 full-time faculty members and over 60 graduate students. The graduate program is consistently ranked among the top 25 environmental engineering and science programs nationwide. Research areas include environmental process engineering, hydrogeology, environmental health physics and radiochemistry, environmental chemistry, and sustainable systems and environmental assessment. The undergraduate program offers B.A. and B.S. degrees in Geology. Details are available at <http://www.ces.clemson.edu/eees>.

EEES is looking for an energetic chair who will coordinate efforts to acquire research funding that draws upon the diverse capabilities of EEES faculty and demonstrates leadership in advancing the department's educational missions. Candidates with a compelling vision will be encouraged to fill additional faculty appointments. Applicants should submit a curriculum vitae, a list of at least five references with complete contact information, and a statement of research interests. Electronic submissions (PDF files) to eeesChair@eng.clemson.edu are preferred, but applications and nominations may also be mailed to EEES Chair Search, Box 340919, Clemson University, Clemson, SC 29634-0919. Application material should be received by November 16, 2007 to receive full consideration, though the search will remain open until the position is filled.

Clemson University is an AA/EEO employer and does not discriminate against any person or group on the basis of age, color, disability, gender, national origin, race, religion, sexual orientation, or veteran status.

AAEE Scholarships

STUDENT FELLOWSHIP AND SCHOLARSHIP: Administered by the American Society for Engineering

Education (ASEE) (www.asee.org). The National Science Foundation's Graduate Research Fellowship Program 2007-2008 Competition will open for applications in early August 2007. This fellowship program provides students with three years of financial support including a \$30,000 annual stipend and \$10,500 cost-of-education allowance. U.S. citizens, nationals, or permanent residents at or near the beginning of research-based graduate studies in the Chemistry, Computer and Information Science and Engineering, Engineering, Geosciences, Life Sciences, Mathematical Sciences, Physics and Astronomy, Psychology, and Social Sciences fields are eligible to apply. For additional information and deadlines, please go to <https://www.fastlane.nsf.gov/grfp/>.

The National Defense Science and Engineering Graduate Fellowship Program (NDSEG): Sponsored by the Department of Defense, this fellowship program is intended for U.S. citizens at or near the beginning of their graduate studies in science and/or engineering programs. The fellowships are for three-year tenures and provide an annual stipend of over \$30,000. Full tuition and fees and a health insurance allowance are included as part of the program. For additional information, please go to <http://www.asee.org/ndseg>.

Science, Mathematics and Research for Transformation (SMART) Defense Scholarship for Service Program: This Department of Defense Program is open to undergraduate and graduate students studying in the Science, Mathematics and Engineering fields and provides an annual salary, full tuition, and other normal educational expenses including health insurance and a book allowance. Applicants must be U.S. citizens or nationals, and at least 18 years of age. There is an employment obligation to the Department of Defense with this education program. For additional information, please go to <http://www.asee.org/smart>.

Conferences / Call for Papers

CALL FOR PAPERS

Co-sponsored by:

ACS Division of Environmental Chemistry

American Institute of Chemical Engineers

NSF Science and Technology Center of Advanced Materials for the Purification of Water with Systems (WaterCAMPWS)

235th American Chemical Society (ACS)

National Meeting

New Orleans, LA

April 6-10, 2008

Abstract submissions are invited for the following six symposia that will be part of the Energy and the Environment theme for the ACS/AICHE National Meetings in New Orleans, Louisiana on April 6-10, 2008.

Abstract Submission: Presenters are required to submit a short abstract to the ACS/AICHE by October 28, 2007 using the ACS online system (OASYS - <http://oasys2.confex.com/acs/235nm/jointcfp.htm>) and click on the link for the Environmental symposia. The ACS Division of Environmental Chemistry also requires an extended abstract of two or more pages that must be submitted to the symposium organizer after the abstract has been accepted.

Understanding the Water Footprint of Energy Production from Conventional and Alternative Sources:

Energy production already uses significant quantities of water in developed countries. As global energy demand increases to meet the basic needs of expanding populations and economies, decision makers will need to select the appropriate mix of conventional and alternative energy sources to meet this demand while minimizing the environmental impact of energy production. This symposium will present research characterizing the water footprint of the energy sector and energy-related processes, and the challenges/opportunities for reducing this footprint through process optimization, water conservation, and reuse.

Symposium Organizers:

Eberhard Morgenroth, University of Illinois at Urbana-Champaign, emorgenr@uiuc.edu

Richard Sustich, University of Illinois at Urbana-Champaign, sustich@uiuc.edu

Michael Hightower, Sandia National Laboratories, mmhight@sandia.gov

James E. McMahon, Lawrence Berkeley National Laboratory, jemcmahon@lbl.gov

Mark Shannon, University of Illinois at Urbana-Champaign, mshannon@uiuc.edu

Advances in Drinking Water Disinfection and Disinfection

Byproduct Management: An increasing practice of water reuse is resulting in increasing exposure to waterborne patho-

gens. Existing disinfection technologies do not generally protect against all pathogens. Consequently, there is a need for new, safe, and sustainable disinfection approaches providing universal barriers against pathogens. This symposium will present advances in the development of new disinfection materials, novel chemical and physical disinfection processes, disinfection mechanisms and modeling, and sustainable water reuse and developing countries applications.

Symposium Organizers:

Eberhard Morgenroth, University of Illinois at Urbana-Champaign, emorgenr@uiuc.edu

Benito Mariñas, University of Illinois at Urbana-Champaign, marinas@uiuc.edu

Daniele Lantagne, Centers for Disease Control and Prevention, dlantagne@cdc.gov

Lebone Moeti, Clark Atlanta University, lmoeti@cau.edu

Eric A. Mintz, Clark Atlanta University, emintz@cau.edu

Membrane Technology for Water Treatment and Reuse:

There is a need for the development of sustainable approaches, including water reuse, that minimize water resource competition by expanding water supplies. The emphasis of this symposium is on the fabrication, characterization and implementation of new membranes and systems and will bring together a diverse group of scientists and engineers who are advancing the science of membrane technology and investigating the application of membrane processes to water treatment and reuse.

Symposium Organizers:

Eberhard Morgenroth, University of Illinois at Urbana-Champaign, emorgenr@uiuc.edu

David Cahill, University of Illinois at Urbana-Champaign, dcahill@uiuc.edu

Slawomir W. Hermanowicz, University of California, Berkeley, hermanowicz@ce.berkeley.edu

John Georgiadis, University of Illinois at Urbana-Champaign, georgia@uiuc.edu

Dibakar Bhattacharyya, University of Kentucky, db@engr.uky.edu

Advances in Abiotic Transformation Processes for Micropollutants in Drinking Water and for Sourcewater Protection:

This symposium will bring together researchers who are advancing the science of abiotic transformation processes and investigating the application of these processes to drinking water treatment and sourcewater protection. Topics of interest include catalytic and non-catalytic treatment, oxidation and reduction mechanisms, photochemical/photocatalytic transformation, novel materials and nanostructures, process modeling, water reuse, and sustainability.

Symposium Organizers:

Eberhard Morgenroth, University of Illinois at Urbana-Champaign, emorgenr@uiuc.edu

Timothy J. Strathmann, University of Illinois at Urbana-Champaign, strthmnn@uiuc.edu

James Farrell, University of Arizona, farrellj@enr.arizona.edu

Charles J. Werth, University of Illinois at Urbana-Champaign, werth@uiuc.edu

Advances in Adsorption Processes for Drinking Water Treatment and Source Water Protection: Compounding effects of increasingly stringent public health regulations and adsorption competition by co-contaminants and/or background compounds require the development of more effective adsorbent materials and systems incorporating such new materials. Topics of interest include, but are not limited to: novel adsorbent materials, adsorbent regeneration, adsorption reactor design, competitive adsorption, adsorption for water reuse, and sustainability of adsorption processes.

Symposium Organizers:

Eberhard Morgenroth, University of Illinois at Urbana-Champaign, emorgenr@uiuc.edu

Thanh H. (Helen) Nguyen, University of Illinois at Urbana-Champaign, thn@uiuc.edu

Detlef Knappe, North Carolina State University, knappe@eos.ncsu.edu

Sensors for Detection and Quantification of Contaminants in Drinking Water and the Environment: The myriad demands of agricultural, industrial, mining, and municipal applications have resulted in sourcewater adulteration by both chemical and microbial contaminants. This symposium will focus on the development of new, especially in situ, approaches for the chemical/microbial characterization of water. Topics of interest include novel materials, microfluidic devices, detection and quantitation of waterborne pathogens and chemicals, sensor networks in drinking water distribution systems, sensor application to water infrastructure security, and sustainability issues.

Symposium Organizers:

Eberhard Morgenroth, University of Illinois at Urbana-Champaign, emorgenr@uiuc.edu

Paul Bohn, University of Notre Dame, pbohn@nd.edu

Daniel T. Chiu, University of Washington, chiu@chem.washington.edu

2008 IWA North American Membrane Research Conference University of Massachusetts, Amherst August 10-13, 2008

The University of Massachusetts, Amherst will host the 2008 IWA Membrane Research Conference August 10-13, 2008. The conference will showcase advances in membrane technologies for water and wastewater treatment as well as novel membrane materials and processes. The conference will provide a forum for discussion of these issues; all sessions will be 30-45 minute plenary sessions with time for questions and discussion. Opportunities will also be provided for networking and group recreational activities. Abstracts for posters and oral presentations are due January 11, 2008.

Conference Themes:

- ~ Advances in Membrane Materials and Modeling
- ~ Drinking Water Treatment
- ~ Wastewater Treatment and Reuse
- ~ Gas Transfer Applications
- ~ Desalination
- ~ Fouling Mechanisms and Control

The 2008 IWA North American Membrane Research Conference is co-sponsored by AWWA and WEF. For more information, go to www.ecs.umass.edu/membrane/.

News submissions deadline

The submissions deadline for the January 2008 AEESP Newsletter is **December 1, 2007**. Send news items to:

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