



AEESP Newsletter

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*Need to renew your
2009 AEESP membership?
Go to "Join > membership renewal"
on the AEESP website:
AEESP.org*

AEESP e-Newsletters

Want to go paperless for the AEESP Newsletter? If you wish to receive only the link for obtaining an electronic copy of the Newsletter, send a brief message to Joanne Fetzner at joanne@aeesp.org and we will remove you from the mailing list beginning with the May 2009 issue.

President's Letter

Dear AEESP Members,

During my tenure as Newsletter editor (January 2002 through January 2006), I always wondered why the president's letter was often the last contribution I received when assembling the Newsletter. Now, in late December 2008, I know why...these letters are a challenge to write—especially in a time with so few certainties.

So, let's start with the knowns. First, our colleagues at the University of Iowa will be hosting the AEESP 2009 Research and Education Conference from July 26 to 29. The topic "Grand Challenges in Environmental Engineering and Science" will be explored in carefully planned sessions, workshops, and informal gatherings. This is certain to be an outstanding conference which will create inspiration and enthusiasm—and hopefully, insight into the grand environmental challenges that face our profession.

Another certainty—which has already taken place—was the 2009 Presidential Inauguration on January 20. This day represented the start of a new administration, new policies, and new approaches. It is certain that issues central to our profession will be addressed; however, uncertainties exist in the priorities and timeframes for action on these issues. For example, can education and environment concerns be brought to the forefront quickly when we as a profession and a nation have become accustomed to their existence in the background? And, can the new administration provide the needed leadership and impetus for education and environment issues when other domestic and international challenges could appear to warrant more urgent attention?

While these broader uncertainties merit our attention, a more direct uncertainty within our profession is the number of

research opportunities and whether these opportunities will have changed dimensions. We are certain that larger scope, interdisciplinary projects are being increasingly solicited by our funding agencies as opposed to

smaller scope, single principal investigator (PI) projects. But how to form the necessary collaborations is an interesting question for both single PIs and our discipline as a whole. Probably the best current example of this is the WATERS Network—a collaboration between environmental engineers and scientists, hydrologists, and social scientists (www.watersnet.org). Numerous AEESP members have given much time to this initiative—from the days when it was known as CLEANER to the present—but the outcome is still uncertain. Also uncertain is the role that non-hypothesis driven research will play in the WATERS Network, as well as other environmental engineering and science funding. Without non-hypothesis driven research, we would not have the 50 years of continuous measurements in Mauna Loa as the first compelling evidence of increasing carbon dioxide in the atmosphere. Non-hypothesis driven research is also a terminology being used by venture capitalists and angel investors who are providing additional opportunities for research funding. We know that many of the solutions we are developing in our laboratories need to be brought to application on a shorter timeframe than research usually allows. This illustrates the need for and value of incorporating business principles into the organization and operation of our research groups. However, uncertainties exist with how



Amy E. Childress

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www.aeesp.org/publications_newsletter.php

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AEESP Membership Application online:

www.aeesp.org/membership/AEESP_member_app.pdf



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Fall 2008 AEESP Board Meeting Highlights

Submitted by NANCY LOVE

The AEESP board of directors met at the University of Illinois-Chicago campus on October 19 and 20, 2008.

1. AEESP retains a very high renewal rate among its members and added 39 new members this year. Despite this good news, we still have a large number of non-renewals. The board encourages the AEESP membership to talk with their colleagues and new faculty about joining, renewing, and participating in AEESP.
2. The 2009 AEESP Awards nomination deadline will remain March 16, 2009. However, the committee will work more quickly to identify award winners so that all 2009 award recipients can be given their award at the AEESP biennial education and research conference to be held from July 26–29 in Iowa this summer. Please consider nominating your colleagues and students and plan to be in Iowa for what is sure to be an informative and exciting event!
3. The education committee is making an effort to improve the AEESP website so that more documents can be posted for both award submissions and for shared courseware.
4. The spanish language translation of the popular AEESP lab manual is complete. AEESP will charge \$50 for the CD unless a hardship request is submitted.
5. We received some insight into how environmental engineering is funded at NSF today. It turns out that the environmental engineering program at NSF receives the most proposals of all NSF programs throughout the organization. Unfortunately, funding is not commensurate with this higher level of interest.
6. The next board meeting will take place in Tampa, Florida on March 19 and 20, 2009.

President's Letter, continued

best to cultivate these business partnerships and the impact that participation in business ventures will have on our teaching, research, and service responsibilities.

The strength of our Association provides assurances that we can fully meet the challenges ahead of us. With over 800 members and a strong financial status, we are in a prime position to have substantial influence on the uncertainties ahead of us. The continued growth and dynamic nature of AEESP as well as our enthusiasm to meet the challenges that have come before us in the past is inspiring. And as your president, I am looking forward to continuing to work with the Board, committees, and individual members. Please do not hesitate to contact me if there are matters or issues that you want to discuss.

Best wishes for a happy and healthy new year,

Amy E. Childress



Dear Colleagues:

We are happy to report that the AEESP 2009 conference on Grand Challenges in Environmental Engineering and Science is shaping up nicely. The conference will be held at The University of Iowa in Iowa City on July 26–29, 2009.

In October we posted a call for sessions and the AEESP community responded with lots of exciting ideas. The conference will have eight sessions focused on the **Grand Environmental Challenges** identified by all of you. Each session will be a mix of both research and education talks. Given the recent events along the Mississippi, we are also planning a special session on the Flood of 2008 to be organized by IIHR—Hydroscience & Engineering.

We have also finalized six workshops for the Sunday before the conference including a workshop organized by the AEESP Student

Services Committee focused on helping graduate students navigate the academic job search. Two of the workshops will discuss strategies for pursuing funding from the NSF CAREER Program and NIEHS Superfund Program. Additional workshops will focus on educational assessment techniques and fun and effective ways to get your stuff done (based on the *Getting Things Done* book by David Allen). Finally, we will also offer a workshop specifically geared toward Environmental Engineering Program Chairs.

We would like to thank our current sponsors including Strand Associates, Inc., Hazen and Sawyer, and the Environmental Research and Education Foundation. We are still looking for additional sponsors in an effort to reduce the cost for participants (particularly students) and attract exceptional speakers from around the world. If you are interested in sponsoring the conference, please contact Michelle Scherer (michelle-scherer@uiowa.edu / (319) 335-5654) or Craig Just (craig-just@uiowa.edu / (319) 335-5051).

AEESP 2009 Grand Environmental Challenge Sessions

- Water Sustainability
- International Environmental Education & Research
- Managing the Nitrogen Cycle
- Carbon Capture and Storage
- Renewable Energy
- Waterborne Disease
- Economics in Environmental Education & Research
- Nanotechnology

AEESP 2009 Dates to Remember

- Friday, Jan. 16: Call for abstracts posted
- Friday, Jan. 30: Registration opens
- Friday, April 3: Abstracts due
- Friday, May 1: Final sessions posted
- Friday, June 5: Early registration ends
(\$325 early, \$375 late)
- www.aeespiowa.org

AEESP 2009 Organizing Committee

Michelle Scherer (chair), Craig Just (co-chair), Tim Mattes (co-chair), Keri Hornbuckle, Gene Parkin, Jerry Schnoor, and Rich Valentine



AEESP Awards Announced at WEFTEC.08

CH2M Hill/AEESP Outstanding Doctoral Dissertation Awards

Hyeok Choi¹, Dionysios D. Dionysiou²
(University of Cincinnati)

“Novel Preparation of Nanostructured TiO₂ Photocatalytic Particles, Films, Membranes, and Devices for Environmental Applications”

Shaily Mahendra¹, Lisa Alvarez-Cohen²
(University of California, Berkeley)

“Biodegradation of 1,4-Dioxane by Aerobic Bacteria: Experimental Studies and Modeling of Oxidation Kinetics, Co-contaminant Effects, and Biochemical Pathways”

Montgomery-Watson-Harza Consulting Engineers / AEESP Master's Thesis Awards

Erin Seyfried¹, Katherine McMahon² – 1st place (University of Wisconsin)

“Tetracycline Resistance Genes in Aquaculture Environments: Genotypic Diversity and Potential Resistance Reservoirs”

Venkatraman Srinivasan¹, Prabhakar Clement² – 2nd place (Auburn University)

“Analytical Solutions for Sequentially Coupled Multi-Species Reactive Transport Problems”

¹ Student; ² Advisor



Hyeok Choi (left) accepts the CH2M Hill/AEESP Doctoral Dissertation Award from CH2M Hill Senior VP Glen Daigger (right).

McGraw-Hill/AEESP Award for Outstanding Teaching in Environmental Engineering & Science

Anna M. Michalak

Wiley Interscience/AEESP Award for Outstanding Contributions to Environmental Engineering & Science Education

David A. Sabatini

AEESP Outstanding Publication Award

David L. Freedman & James M. Gossett

Biological Reductive Dechlorination of Tetrachloroethylene and Trichloroethylene to Ethylene under Methanogenic Conditions. *Appl. Environ. Microbiol.* 55:2144-2151, 1989.

Malcolm Pirnie / AEESP Frontier in Research Award

Pedro J. Alvarez

Founders' Award

Clifford W. Randall

Frederick George Pohland Medal

Makram Suidan



Erin Seyfried (left) accepts the MWH Consulting Engineers/AEESP Master's Thesis Award from MWH Senior VP Rudy Tekippe (right).



Pedro Alvarez (center) accepts the Malcolm Pirnie/AEESP Frontier in Research Award from Amy Childress (left) and Peter Adriaens (right).



Clifford Randall (center) accepts the AEESP Founders' Award from Amy Childress (left) and Peter Adriaens (right).



Makram Suidan (center-right) accepts the Frederick George Pohland Medal from Amy Childress (left), Charles Willis (center-left, Chair of the Environmental Engineering Foundation of AAEE), and Peter Adriaens (right).

Individuals not accepting their award at WEFTEC will be recognized at the AEESP conference in Iowa.

2009 AEESP Award Nominations

The AEESP Foundation (www.aeespfoundation.org) manages the numerous awards that our community presents for outstanding contributions to environmental engineering and science education and research. Nominations for these awards are now being accepted.

Award descriptions and nomination instructions are presented below. Please note that the submission procedures and guidelines have changed this year. Instructions can also be found on the AEESP Foundation webpage (www.aeespfoundation.org), which also provides lists of prior award winners. All awards will be presented by the AEESP President or by a representative of the corporate sponsor for each award at the 2009 AEESP Research and Education Conference in Iowa City (July 26–29, 2009).

All nominations are due March 16, 2009. Supporting documentation is required at the time of nomination. All award nominations must be submitted electronically as PDF files. Award nominations (except Ph.D. and M.S. theses awards*) should be sent to: AEEESP.Awards@gmail.com. Please indicate the name of the award for which you are submitting a nomination (Founders, Outstanding Publication, Frontier in Research, Outstanding Teaching, Outstanding Contribution to Education, or Pohland Medal) in the subject line of your e-mail. Questions about award nominations or the submission process should be directed to the chair of the Awards Committee: Professor Jennifer Becker, Environmental Science and Technology Department, University of Maryland, College Park; e-mail: jgbecker@umd.edu; Tel: (301) 405-1179 [*Submission instructions for Ph.D. and M.S. theses nominations are provided separately below.].

AEESP Founders' Award

This award is given annually to recognize an environmental engineering or science professor who has made “sustained and outstanding contributions to environmental engineering education and practice.” Nominees must be members of AEESP.

Nomination packages should include: (1) a cover letter from the nominator; (2) full curriculum vitae for the nominee; and (3) at least two, but no more than five, additional letters of recommendation. Past nominations will be carried over and considered for a total of three years and may be modified during this period.

AEESP Outstanding Publication Award

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

Nominations must be made by individuals who are not authors or co-authors of the paper. Nomination packages should include: (1) a nomination letter (2-page maximum) that gives the full citation of the paper, the reasons why the paper is considered a landmark, and a description of the influence the paper has had on environmental engineering and science; (2) a clear electronic copy of the publication; and (3) at least two, but no more than five, additional letters of support. Past nominations will be carried over and considered for a total of three years and may be modified during this period.

Malcolm Pirnie/AEESP Frontier in Research Award

This award is given annually to recognize an environmental engineering or science professor who has advanced the environmental engineering and science field through recognized research leadership and pioneering efforts in a new and innovative research area. The selected recipient will receive a plaque and a cash prize of \$4,000. Malcolm Pirnie, Inc. also provides a \$750 travel allotment that may be used by the recipient to attend the awards ceremony. Nominees must be members of AEESP.

Nomination packages should include: (1) a cover letter from the nominator; (2) a supporting statement plus selected literature citations that clearly detail the nominee’s contribution to the new and innovative research achievement for which the nominee is being honored; (3) a full curriculum vitae for the nominee; and (4) at least two, but no more than five, additional letters of recommendation describing the pioneering efforts and innovative nature of the nominee’s work. Past nominations will be carried over and considered for a total of three years and may be modified during this period.

AEESP thanks Malcolm Pirnie, Inc., for their generosity in sponsoring this award.

CH2M Hill/AEESP Outstanding Doctoral Dissertation Awards

These awards annually recognize two outstanding doctoral dissertations that contribute to the advancement of environmental science and engineering. The awards will each consist of a plaque and a cash prize of \$1,500 for the student, and a plaque and a cash prize of \$500 for the faculty advisor. CH2M Hill, Inc. also provides \$750 as a travel allotment to recipients who attend the awards ceremony. A selection committee of five AEESP members will read and judge each dissertation on the basis of 100 points allocated as follows: scientific and technical merit of the research (30 pts), originality of the research (30 pts), contribution to advancement of environmental engineering (30 pts), and clarity of presentation (10 pts).

Faculty advisors are encouraged to nominate a dissertation completed under their supervision but must limit themselves to a single

2009 AEESP Award Nominations, continued

entry. Self nominations by students will not be accepted. Nominated dissertations must have been submitted to the student's graduate institution in 2008. The nominated dissertation should be submitted as a PDF file and sent by e-mail to: AEESP.PhD.Dissertation.Award@gmail.com. Nominations should include a simple letter of transmittal stating: (1) the e-mail and mailing addresses and telephone numbers for the student and advisor, (2) an indication as to when the dissertation was completed, and (3) a concise statement defining the student's intellectual contribution to the work. The latter statement is especially important if multiple authors contributed to the work under consideration.

The chair of the doctoral thesis review panel is:

Professor John Regan
Department of Civil and Environmental Engineering
The Pennsylvania State University
231N Sackett Building
University Park, PA 16802-1408
e-mail: jregan@engr.psu.edu; Tel: (814) 865-9436

AEESP thanks CH2M Hill, Inc. for their generosity in sponsoring these awards.

Montgomery Watson Harza Consulting Engineers/AEESP Master's Thesis Awards

This award annually recognizes the first and second most outstanding M.S. theses that contribute to the advancement of environmental science and engineering. Each award consists of a plaque and a cash prize for the student and a plaque for the faculty advisor. The prize for the first place award consists of a plaque and \$1,500 for the student and a plaque for the faculty advisor. The second place award consists of a plaque and a cash prize of \$500 for the student and a plaque for the faculty advisor. Montgomery Watson Harza also provides \$750 as a travel allotment to all recipients who attend the awards ceremony. A selection committee of three AEESP members will read and judge each thesis. Each thesis will be evaluated based on 100 points allocated to the following major categories: scientific and technical merit (30 pts), originality of research (30 pts), contribution to the advancement of environmental engineering (30 pts), and clarity of presentation (10 pts).

Faculty advisors are encouraged to nominate a thesis completed under their supervision but must limit themselves to a single entry. Self nominations by students will not be accepted. Nominated theses must have been submitted to the student's graduate institution in 2008. The nominated thesis should be submitted (as a PDF file) via e-mail to: AEESP.MS.Thesis.Award@gmail.com. The submission should be accompanied by a simple letter of transmittal stating (1) the mailing and e-mail addresses and phone numbers for the student and advisor, (2) an indication as to when the thesis was completed, and (3) a concise statement defining the student's intellectual contribution

to the work. The latter statement is especially important if multiple authors contributed to the work under consideration.

The chair of the master's thesis review panel is:

Professor William Burgos
Department of Civil and Environmental Engineering
The Pennsylvania State University
115 Sackett Building
University Park, PA 16802-1408
e-mail: bburgos@psu.edu; Tel: (814) 863-0578

AEESP thanks Montgomery Watson Harza for their generosity in sponsoring these awards.

AEESP Outstanding Educator Awards

Two Outstanding Educator Awards are given, one for "Outstanding Teaching in Environmental Engineering and Science" and one for "Outstanding Contributions to Environmental Engineering and Science Education." These awards are given annually to recognize environmental engineering or science professors who are making outstanding contributions to the teaching of environmental engineering, both at the individual's home institution and beyond. A cash award of \$500 is supported in each category. Previous winners are ineligible for the same category.

The award for "Outstanding Teaching in Environmental Engineering and Science" is given annually to "honor a faculty member who has made substantive contributions directly through class-oriented teaching, as enhanced through the development of new pedagogical techniques." Although open to nomination at any rank, the award is intended primarily to recognize a demonstrated commitment to teaching early in a person's career. Preference is usually given to nominees who are at the assistant or associate level and have demonstrated success with the application of innovative teaching techniques, especially to undergraduate classes. The award is sponsored by McGraw-Hill, Inc.

The award for "Outstanding Contributions to Environmental Engineering and Science Education" is given annually to "recognize and honor the development of innovative teaching methods, including the application of these methods in the classroom and the dissemination of methods to the academic community." Preference is usually given to nominees who have both (1) developed and applied innovative and improved teaching techniques and (2) disseminated these contributions to the educational community through appropriate and widely accessible means. This award is open to nomination at any rank. The award is sponsored by John Wiley & Sons, Inc.

Nomination packages should include: (1) a cover letter from the nominator; (2) brief curriculum vitae (10-page maximum) for the nominee, and (3) at least two, but no more than five, additional letters of support. Additional documents that provide evidence of

outstanding teaching or contributions to environmental engineering and science (such as development and implementation of innovative teaching approaches, mentoring, and/or other significant contributions) are helpful but not essential and should not exceed 30 pages in total length. Past nominations will be carried over and considered for a total of three years and may be modified during this period.

The Frederick George Pohland Medal

This award honors an individual who has made sustained and outstanding efforts to bridging environmental engineering research, education, and practice. Only members of AEESP and/or the American Academy of Environmental Engineers (AAEE) are eligible to receive this award. The award will consist of a medal, a \$1,000 cash award, and reimbursement of travel costs of up to \$1,000 for travel to the award ceremony.

Nominations must be made by members of AEESP and/or the AAEE. Nomination packages should include: (1) a cover letter from the nominator; (2) a full curriculum vitae for the nominee; and (3) at least two, but not more than five, additional letters of recommendation. Past nominations will be carried over and considered for a total of three years and may be modified during this period.

AAEE and AEESP thank the Pohland family and other donors to the Frederick George Pohland Memorial Fund for their generosity in establishing this award.

Introducing the New Editor of the AEESP Newsletter



Joe Ryan

Beginning with the May 2009 issue, Joe Ryan of the University of Colorado at Boulder will become the editor of the AEESP Newsletter. Joe has been a professor in the University of Colorado Department of Civil, Environmental, and Architectural Engineering since 1993, where he and his students research the fate and transport of contaminants in natural waters. He hopes to continue the conscientious stewardship of the Newsletter provided by Eric Marchand and to use the Newsletter to recruit new members to AEESP. All submissions should be sent to Joe at joseph.ryan@colorado.edu. Joe can also be reached at (303) 492-0772.

AEESP Lab Manual—Spanish Language Edition

The Publications Committee of the AEESP is pleased to announce that the Spanish Language Edition of the AEESP Laboratory Manual is now available on CD. The committee appreciates the assistance of Dr. Mabel Vaca Mier, Universidad Autónoma Metropolitana-Azcapotzalco, for successfully completing the task of translating the manual. Thanks to Dr. Angela Lindner and Dr. David Freedman for their efforts with this project.

The CD may be ordered from the AEESP Business Office by contacting:

Joanne Fetzner (jfetzner@illinois.edu)
2303 Naples Court
Champaign, IL 61822-3510



Sabatini Named co-Editor-in-Chief for Journal of Contaminant Hydrology

Professor **David A. Sabatini** has been named a co-editor-in-chief for the *Journal of Contaminant Hydrology (JCH)*. *JCH* is an international journal publishing scientific articles on the physical, chemical and biological processes influencing the behavior of organic and inorganic contaminants in the subsurface. Sabatini served as associate editor for ten years prior to his appointment as a co-editor-in-chief.



David A. Sabatini

Sabatini is a David Ross Boyd Professor and holds the Sun Oil Company Endowed Chair in Civil Engineering and Environmental Science at the University of Oklahoma (OU). He is also the director of Water Technologies for Emerging Regions (WaTER) Center and associate director of the Institute for Applied Surfactant Research at OU. He received his B.S. in civil engineering from the University of Illinois, M.S. in civil engineering from the University of Memphis, and Ph.D. from Iowa State University.

Sabatini currently serves on the environmental advisory board for subsurface remediation for DuPont Chemical Company and the Science Advisory Board of the Superfund Research Center at the University of Arizona. In AY 1997/98 he was a senior Fulbright scholar at the Universität Tübingen in Tübingen, Germany. His research interests include: transport, fate and treatment of emerging contaminants; surfactant-based microemulsions for environmental, consumer and energy products; and sustainable water treatment technologies for remote villages in developing countries.

Deadline for submitting material for the May issue: Wednesday, April 1, 2009.

Send news items to Joe Ryan, AEESP Newsletter editor, at joseph.ryan@colorado.edu.

Colorado School of Mines

Dr. **Christopher P. Higgins** has been appointed as a new assistant professor of environmental science and engineering at the Colorado School of Mines as of January 2009. Dr. Higgins received his Ph.D. in Civil and Environmental Engineering from Stanford University in January 2007. His dissertation focused on the role of sediments in the fate, transport, and bioaccumulation of perfluorochemicals (PFCs). Prior to Stanford, Dr. Higgins earned his A.B. in chemistry and chemical biology at Harvard University in 1998, after which he worked as an analyst for three years with The Cadmus Group, Inc., providing science and engineering research support for U.S. EPA. Prior to joining the faculty at CSM, Dr. Higgins was an NIEHS postdoctoral fellow at the Johns Hopkins Bloomberg School of Public Health where he investigated the *in vitro* bio-uptake of organic contaminants as well as the bioaccumulation of antimicrobials from sediments and soils. Dr. Higgins' research and teaching interests encompass environmental chemistry and bioaccumulation processes governing the fate and transport of chemical contaminants in natural and engineered aquatic systems. He is particularly interested in evaluating and modeling the fate and bioaccumulation of ionogenic organic contaminants. For more information, please see: <http://ese.mines.edu> and <http://ese.mines.edu/people/faculty/higgins.html>.



Christopher P. Higgins

Dr. **Jonathan O. Sharp** has been appointed as a new assistant professor of environmental science and engineering at the Colorado School of Mines starting in January 2009. Dr. Sharp conducted his postdoctoral research at the Ecole Polytechnic Federal in Lausanne, Switzerland where he investigated biogeochemical questions associated with uranium immobilization in the subsurface. Dr. Sharp earned his B.A. in Geosciences from Princeton in 1998. He then worked as a petroleum field engineer for Schlumberger International and a staff hydrologist for the U.S. Geological Survey. He completed his Ph.D. in civil and environmental engineering from the University of California at Berkeley where his dissertation focused on the role of bacteria in the attenuation of a water micropollutant, *n*-nitrosodimethylamine. Dr. Sharp's research and teaching interests address applied microbiology and biotechnology for *in-situ* degradation of emerging organic chemicals and the bioattenuation of metals and radionuclides. For more information please see: <http://ese.mines.edu> and <http://ese.mines.edu/people/faculty/sharp.html>.



Jonathan O. Sharp

Logan Receives \$10 million KAUST award

Bruce Logan, the Kappe professor of environmental engineering at Penn State, and director of the Penn State Hydrogen Energy Center, is one of 12 scientists worldwide to receive a Global Research Partnership (GRP) Investigator award from the King Abdullah University of Science and Technology (KAUST). Other key investigators on the project team are John Regan, Mike Janik, and Shaoan Cheng. KAUST, a new graduate-level research institution currently under development in Saudi Arabia, is providing individual research assistance to a group of highly accomplished scientists and engineers who are dedicated to a wide range of research topics of global significance with particular importance to Saudi Arabia and the region. Logan and his team will receive up to \$10 million over five years to investigate microbial fuel cell technologies. Logan's research project on "Energy for a Sustainable Water Infrastructure and Agriculture" aims to produce electricity or hydrogen gas directly from organic matter using either wastewater or agricultural cellulosic wastes. Electricity is produced using a microbial fuel cell, while a modified version of this device (a microbial electrolysis cell) produces hydrogen from current produced by the bacteria. Each investigator is expected to spend three weeks or more on the KAUST campus in Saudi Arabia. Logan's website is at: <http://www.engr.psu.edu/ce/enve/logan/>.



Bruce Logan

University of Florida

Dr. **Treavor Boyer** joined the faculty of the Department of Environmental Engineering Sciences at the University of Florida in August 2008. Treavor received his Ph.D. in environmental engineering at the University of North Carolina at Chapel Hill under the guidance of professor Philip Singer. His dissertation was titled "Removal of Natural Organic Matter by Anion Exchange: Multi-scale Experimentation and Mathematical Modeling." Treavor completed his M.S. in environmental engineering at the University of North Carolina at Chapel Hill, and his B.S. in chemical engineering at the University of Florida. Treavor's research interests include physical-chemical processes in natural and engineered aquatic systems, with a focus on studying the impact of natural organic matter.



Treavor Boyer

Duke to Lead Nanotechnology Environmental Implication Initiative Funded by NSF and EPA

The National Science Foundation (NSF) and the Environmental Protection Agency (EPA) have awarded \$14.4 million over five years to create the Center for Environmental Implications of Nanotechnology (CEINT) to explore the environmental implications of nanomaterials.

Composed of four core institutions and headquartered at Duke University, the CEINT research team will define the relationship between a vast array of nanomaterials from natural to manmade to incidental, byproduct nanoparticles and their potential environmental exposure, biological effects, and ecological consequences.

Mark Wiesner, the James L. Meriam Professor of Civil and Environmental Engineering at Duke will serve as director for CEINT with co-Principal Investigators Greg Lowry (deputy director) from Carnegie Mellon University, Kimberly Jones from Howard University (both environmental engineers), Mike Hochella, a nanogeochemist from Virginia Tech, and Rich Di Giulio, an ecotoxicologist from Duke. CEINT collaborators also include Gordon Brown, a geochemist from Stanford University, and Paul Bertsch, a soil scientist from the University of Kentucky.

CEINT research will address the influence of nanomaterials on processes ranging in scale from the subcellular to whole ecosystems, examining factors that control nanomaterial exposure, persistence, bioavailability, toxicity, metabolism, transfer through the food chain, and impacts on population evolution and critical ecosystem functions. One activity for the research team over the coming year is to develop 32 tightly controlled and highly instrumented ecosystems, or mesocosms, in the Duke Forest to be used to study nanoparticle transport and effects on plants, fish, bacteria, and other organisms. This information will be synthesized in a rigorous risk assessment framework, the results of which will be transferred to policy-makers and society at large.

CEINT research will involve several international collaborations, most notably an allied French international research group (GDRI) funded by the French National Scientific Research Center (CNRS) and French Atomic Energy Commission (CEA). Additional collaborations, including researchers from Clemson and North Carolina State Universities as well as U.S. government labs, will coordinate their own resources to bolster the CEINT effort. These partners include the Environmental Protection Agency, Pacific Northwest National Laboratory, National Institute of Environmental Health Sciences, Army Corps of Engineers, and the National Institute of Standards and Technology.

Virginia Tech

The Charles E. Via, Jr. Department of Civil and Environmental Engineering at Virginia Tech has recently hired three new faculty members in the Environmental and Water Resources Engineering (EWR) program. In addition, the department would like to highlight its growing activities in the Washington, D.C. metropolitan area with an emphasis on issues in water treatment, water supply, and urban hydrology. These new hires both on the main Blacksburg campus and in the National Capital Region emphasize the department's continuing commitment to environmental and water resources issues within the Commonwealth of Virginia, nationally, and internationally.

The new faculty members are: Erich Hester, Glenn Moglen, and Amy Pruden. Additionally, Adil Godrej and Thomas Grizzard along with Dr. Moglen form the foundation of Virginia Tech's research and educational program in the D.C. metropolitan area as members of the Occoquan Watershed Monitoring Laboratory (OWML), a research facility located in the Virginia suburbs of the National Capital Region. Brief biographies of each of these faculty members appear below.

Dr. **Erich T. Hester**, P.E., completed his Ph.D. in 2008 in ecology at the University of North Carolina at Chapel Hill. He previously received an M.S. in civil and environmental engineering from Stanford University and an A.B. from Dartmouth College in biology. His research focuses on how hydrology, hydraulics, and geomorphology influence ecological health in stream, river, and wetland systems, with the goal of advancing process-based knowledge to allow better informed land use planning, ecological restoration design, and preservation of aquatic ecosystems. His doctoral research utilized field experiments and numerical hydraulic models to investigate how in-stream geomorphic structures like log dams and steps, which are common in natural streams and stream restoration projects, drive surface water-groundwater (hyporheic) exchange, impact stream temperature, and affect stream organisms. His current research interests include evaluating how channel morphology, hydraulics, and vegetation patterns control inundation patterns, hyporheic exchange, light, and temperature in streams and rivers; evaluating the impact of climate change on river organisms; and developing techniques to reduce climate impacts. Dr. Hester is also a registered professional engineer with design experience in stream and wetland ecological restoration, flood and stormwater control, hazardous materials remediation, and watershed planning. Dr. Hester is located at the Blacksburg campus.



Erich T. Hester

Dr. **Glenn E. Moglen** joins the Department of Civil and Environmental Engineering at the rank of professor after 12 years on the faculty at the University of Maryland. Dr. Moglen holds a Ph.D. in CEE from the Massachusetts Institute of Technology, an M.S. from Colorado State University, and a B.S. (with honors in engineering) from the University of Maryland. Dr. Moglen's research focuses on issues of land use change, urban hydrology, flood/drought modeling, nutrient loading, runoff mitigation with best management practices, all with an emphasis on spatial issues and the use of geographic information systems (GIS). His current research projects include development of flood estimates for the FEMA map modernization effort in Maryland, the development of GIS-enabled tools to estimate floods, drought, nutrient loading, and stream biodiversity in the mid-Atlantic, and the application of operations research tools to optimize future land development plans to minimize hydrologic impacts. Dr. Moglen is the chairman of the American Society of Civil Engineers (ASCE) Watershed Management technical committee and is a member of the State of Maryland Hydrology Panel. Dr. Moglen is located at the National Capital Region campus.



Glenn E. Moglen

Dr. **Amy J. Pruden**, E.I.T., served on the civil and environmental engineering faculty at Colorado State University for six years as an assistant and then associate professor. She earned her Ph.D. in CEE/Environmental Science in 2002 and her B.S. in Biological Sciences in 1997, both from the University of Cincinnati. Pruden received an NSF CAREER Award from the National Science Foundation in 2006 and was further honored with the Presidential Early Career Award in Science and Engineering (PECASE) by the Executive Office of the President. Her research focus is on applied environmental microbiology of engineered systems with applications including remediation of petroleum hydrocarbons and gasoline oxygenates, passive treatment of acid mine drainage, bacterial inactivation with atmospheric-pressure non-thermal plasmas, and developing engineered strategies to mitigate antibiotic resistance. Pruden's current work examines the role of antibiotic resistance genes (ARG) as environmental contaminants and advancing genome-enabled tools for guiding inoculum design in engineered treatment systems. Additional honors she has received include 2nd runner-up to the 2006 Editor's Choice Award for her



Amy J. Pruden

AEESP Members Recognized by AIChE

paper published in *Environmental Science and Technology* and write-ups of her work in *Science News*, *Scientific American*, and *Discover* magazines. Dr. Pruden is located at the Blacksburg campus.

Dr. **Adil N. Godrej** is associate director of the Occoquan Watershed Monitoring Laboratory and holds the rank of research associate professor. He obtained a Ph.D. in civil engineering from Virginia Tech in 1989. His M.S. in sanitary engineering (air resources emphasis) was also from Virginia Tech, and he has a B.Eng. (honors) degree in chemical engineering from the Birla Institute of Technology and Science (BITS), in Pilani, India. Research projects in which he has been involved include watershed and reservoir modeling, watershed monitoring, river input monitoring, the study of BMP performance, combined sewer overflow monitoring, the evaluation of constructed wetlands performance, tidal dye dispersion and thermal plume tracing studies, among others. As part of his outreach and advisory activities at OWML, he also provides advice and input to local, regional, and state bodies on many aspects of water quality and water quality management. He has particular interests in the areas of water quality modeling and the management of environmental databases. One of the areas of current interest to him is the development of web-enabled tools to allow stakeholders to use water quality models online (for example, to assess the impact of alternative land use scenarios). Dr. Godrej is located at the National Capital Region campus.



Adil N. Godrej

Dr. **Thomas J. Grizzard** holds the rank of professor in the Charles E. Via, Jr. Department of Civil and Environmental Engineering at Virginia Tech. For nearly 35 years, he has also served as the director of the Occoquan Watershed Monitoring Laboratory. Dr. Grizzard holds three degrees from Virginia Tech, and is a registered professional engineer in the Commonwealth of Virginia. He has nearly 40 years of experience in environmental engineering and water resources management.

Dr. Grizzard's research interest areas include nonpoint and urban runoff pollution characterization and control; watershed-constituent export relationships; water reuse, particularly indirect potable reuse; sediment-water interactions in deep impoundments; and the management of water quality in surface water impoundments subjected to multiple uses. Dr. Grizzard is located at the National Capital Region campus.



Thomas J. Grizzard

The American Institute of Chemical Engineers (AIChE) during 2008 embarked on its second century. Earlier in the year the Institute identified and honored 100 chemical engineers who had most significantly influenced the direction and shaping of the profession during its first 50 years, or the "Founding Era." In the October issue of *Chemical Engineering Progress*, and again in November at its National Meeting and Centennial Celebration in Philadelphia, AIChE further identified and honored 100 "Modern Era" chemical engineers who have most significantly advanced the profession over the past 50 years.

Three specific areas of advancement were identified: "achievements" in chemical engineering, Institute "leadership," and participation in "new frontiers" of development. Fifty-three of the 100 were recognized for their "Achievements," twenty-four for their roles in AIChE "Leadership," and twenty-three for their roles in chemical engineering's "New Frontiers."

Two long-term members of AEESP are among the 100 "Modern Era" chemical engineers. **Walter J. Weber, Jr.**, the Gordon M. Fair and Earnest Boyce Distinguished University Professor of Environmental Sciences and Engineering in the Departments of Chemical Engineering and Civil and Environmental Engineering at Michigan, and an AEESP member since 1965, was recognized in the "achievements" category for his contributions to advancing water management, separation technologies, free-radical oxidations, organic macromolecules in aquatic systems, and supercritical water systems. **John C. Crittenden**, newly on the faculty at Georgia Institute of Technology (see related article in this issue of the Newsletter) and an AEESP member since 1979, was recognized in the "new frontiers" category for his role in AIChE's National Center for Clean Industrial and Treatment Technologies.

Georgia Institute of Technology

The School of Civil and Environmental Engineering (CEE) at the Georgia Institute of Technology is pleased to announce the appointment of Dr. **John C. Crittenden** as professor and director of Georgia Tech's Brook Byers Institute for Sustainable Systems. In this position, he will lead the creation of an integrated initiative in sustainable urban systems and conduct research in related nanotechnology and computational science. He is a Georgia Research Alliance (GRA) Eminent Scholar in Sustainable Systems and occupies the Hightower Chair for Environmental Technologies.



John C. Crittenden

Dr. Crittenden is an accomplished expert in sustainability, pollution prevention, physical-chemical treatment processes, nanotechnology, air and water treatment, mass transfer, numerical methods, and modeling of air, wastewater, and water treatment processes. He has been involved as a principal and co-principal investigator in more than fifty-two funded research projects in these areas, totaling more than \$25 million dollars in funding. He has received multiple awards for his research in the treatment and removal of hazardous materials from drinking water and groundwater. He also has four copyrighted software products and three patents in the areas of pollution prevention, stripping, ion exchange, advanced oxidation/catalysis, adsorption, and groundwater transport. The American Institute of Chemical Engineers' (AIChE) Centennial Celebration Committee recently named Crittenden as one of the top 100 chemical engineers of the modern era at their 100th annual meeting held earlier this year. This recognition is based, in part, on his leadership as director of the National Center for Clean Industrial and Treatment Technologies, one of four exploratory environmental research centers funded primarily by the U.S. Environmental Protection Agency.

Currently, Dr. Crittenden is working with a group of academic institutions on sustainable urban engineering. The goal of this effort is to connect social decision making, regional development, material flows, energy use, and the local, regional, and global environmental impacts of various urban development scenarios. He has acted as a consultant to more than 150 utilities, companies, and universities worldwide on air and water treatment, sustainability science and engineering, and pollution prevention since 1975.

Crittenden is active in an array of national organizations. He serves on the Environmental Protection Agencies' Science Advisory Board as well as the Engineering Advisory Board for the National Science Foundation. He is a member of the National Academy of Engineering and has received the AEESP Outstanding Publication Award and the ASCE Huber Research Prize. He is also an associate editor for the *Environmental Science and Technology* journal. He has authored more than 120 publications in refereed journals, 135 reports or contributions to proceedings, and has garnered more than 2,300 citations. In 2005, he co-authored *Water Treatment Principles and Design*, a book recognized as the most authoritative text on theory and practice of water treatment.

Prior to coming to Georgia Tech, Crittenden was the Richard Snell Presidential Professor in the Department of Civil and Environmental Engineering at Arizona State University. He received his bachelor's degree in chemical engineering and his Ph.D. in civil and environmental engineering from the University of Michigan, Ann Arbor.

Established in 1896, the School of Civil and Environmental Engineering at Georgia Tech is consistently ranked as one of the country's best programs by *U.S. News & World Report*. The School has graduated more than 10,000 students and directs three degree-awarding programs in civil engineering, environmental engineering, and engineering science and mechanics. It offers courses and conducts research across five disciplines: environmental engineering; geosystems engineering; structural engineering, mechanics and materials; transportation systems engineering; and environmental fluid mechanics and water resources.

The Georgia Institute of Technology is one of the nation's premier research universities. Ranked seventh among *U.S. News & World Report's* top public universities, Georgia Tech's more than 19,000 students are enrolled in its Colleges of Architecture, Computing, Engineering, Liberal Arts, Management, and Sciences. Tech is among the nation's top producers of women and minority engineers. The Institute offers research opportunities to both undergraduate and graduate students and is home to more than 100 interdisciplinary units plus the Georgia Tech Research Institute.

Everyday Engineering Ethics

by P. AARNE VESILIND, BUCKNELL UNIVERSITY

When we teach about engineering ethics in our classrooms we often use case studies such as the Pinto case, or the DC-10, or the Challenger. But making wide use of such well-worn cases may give the students the impression that only the occasional engineer is confronted with ethical problems during his or her professional career, and therefore there really is no point in understanding ethical reasoning because the chances of having to make a value-laden decision are remote. The fact is that most stories of ethical decision-making in engineering are seldom made public. To illustrate, let me tell the stories of three engineers whom I have known personally who have had to make ethical decisions. I choose these three simply to illustrate that engineers have to make ethical decisions almost on an everyday basis and essentially none of these decisions are publicized or documented.

Some years ago when I was chair of our department one of my colleagues had a visitor from Sandia Labs who was brought to my office for a courtesy call. After the usual pleasantries, our visitor started to talk about his work at Sandia. His job, it turned out, was to develop an improved triggering mechanism for bombs. He explained that plunder-type triggers can fail, and thus make the bombs inefficient. His work had been to design sonic triggers that would be more likely to cause the bomb to explode. This engineer had worked on this problem for twenty years and he spoke with enthusiasm and fascination about the new triggering mechanisms. I longed to ask him how he felt, having spent his professional career designing things that more effectively killed people, but decided that this would have been unseemly and inappropriate. I still don't know if he had ever thought of his job as requiring an ethical decision.

A second engineer is a friend who started his own consulting engineering firm. I recently talked to him about his work and he told me of a job he almost had. A developer was converting a large apartment building into luxury apartments and wanted this engineer to do the structures and utilities drawings for the conversion. The engineer asked what was to become of the low and middle income families who were presently living in the apartment building. The developer had no idea, nor did he care. It was not his problem. He had bought the building, it was now his, and he wanted to convert it to luxury condominiums. My friend the engineer told me that he thought about it a long time and finally decided that he could not accept the job and be party to the displacement of these people from their homes. There were of course many engineers who did not have such concerns and, as you might imagine, the job got done and the building has since been converted to condominiums. There is no record of what happened to the people who were living in the building.

The third engineer is also in private practice. Some years ago I asked him to come to my engineering design class and talk about what it is like being a real engineer. The conversation went well, and encouraged by the interest and responsiveness of the students his presentation got increasingly personal. Finally he said that there was one incident that he had not told anyone about and that he wanted to share with us. It seems that his firm had been working with a local developer who had greatly overextended himself and was in deep financial trouble. One day the developer asked the engineer to meet him at the bank for a conference. It turned out that the developer had found some local people, known to both the developer and the engineer, who were willing to invest \$250,000 in the development company. As they were transferring the money to the developer the engineer knew that the financial situation of the developer was grave and that he owed millions of dollars and was without doubt going into bankruptcy. A mere \$250,000 was a drop in the bucket and would not have made any difference in the eventual success or failure of the development corporation. The investors were almost certainly going to lose their money. The code of ethics, however, required the engineer to keep quiet. But he had not forgotten the incident and worried about it. After he had finished his story, he asked our engineering students, "What should I have done?"

In all three of these cases the engineers were out of their technical fields. Should the Sandia engineer have been concerned with his single-minded approach to a technical problem that would result in the killing of more people? Or did he believe that he was building "the arsenal of democracy?" If he believed that the "public" in the first canon of the engineering code of ethics that entrusts the engineer to hold paramount the health, safety, and welfare of the public was inclusive of all people, then maybe he would have had second thoughts about his work. On the other hand, perhaps he believed that it was his civic and patriotic duty (as an engineer) to work on armaments development. Most likely, however, it probably never even occurred to him that working on the bomb triggers required an ethical decision.

If the engineer who refused to work on the apartment house conversion had thought that the "public" was the displaced families, then he certainly had a moral right to refuse the work. But the owner of the building, and the people who would buy the condominiums were also the "public." Did he have any moral justification for not accepting the job?



P. Arne Vesilind

Finally, the third engineer could not prevent the loss of the life savings of his friends because of his commitment to be a faithful representative of his client. But what about his personal moral concerns? Can those override his professional responsibilities? How could he have justified his actions to the local investors after they had lost their money?

None of these stories will ever make the local newspaper, much less become case studies for students to ponder over, and yet these engineers all made ethical decisions that affected their clients, the public, and no doubt themselves. We as educators have a responsibility to bring such everyday ethics into our classrooms in order to illustrate that ethical reasoning is a valued engineering skill for all engineers.

P. S. If you have knowledge of instructive stories having to do with everyday engineering ethics, I would very much appreciate your sending them to me at vesilind@bucknell.edu

Invitation to Join the Association for Environmental Studies and Sciences

Faculty, students, and education-minded environmental professionals are encouraged to join the newly formed Association for Environmental Studies and Sciences (AEES; <http://aess.info>). The annual membership fee is \$30; \$15 for students. A major aim of AEES will be to fill an important gap in our ability to facilitate interdisciplinary understanding of environmental science, policy, management, ethics, and history, by providing a professional association that supports the identity, collective voice and continuing education of individuals involved in interdisciplinary environmental research, teaching, and problem-solving. A quarterly electronic newsletter has already been established, and a flagship journal will be launched in 2009. The next annual meeting will take place this year in Madison, Wisconsin (Oct 8–11, 2009), and a call for proposals will be available on our website this spring.

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, Joe Ryan: joseph.ryan@colorado.edu.

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.

Individual member advertising policy: Any advertisement, including faculty, post-doc, or student ads, or other types of announcements submitted by an AEESP individual 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 high-resolution JPG format. (Photos downloaded from the Web are low-res and will not print well.) Also, please include captions with names, locations, and dates.

Faculty Position in Environmental Microbiology

Johns Hopkins University

The Department of Geography and Environmental Engineering at Johns Hopkins University invites applications for a tenure-track position in environmental microbiology beginning in fall 2009. We seek applicants with strong scientific foundations who are interested in the application of microbial, molecular, biological, or biochemical techniques to environmental systems. Examples of relevant research activities include the use of molecular biology to probe microbial communities and organism-organism interactions, transformations of contaminants, response to available electron acceptors and other ambient chemicals; and studies of the physical aspects of microbial activity, such as chemotaxis and biofilm development. The department is focused on understanding the dynamics and sustainability of natural and engineered systems and the design of strategies, technologies, and policies to address critical environmental issues. Information about the department can be found at: <http://www.engineering.jhu.edu/~dogee/>. The department is multidisciplinary and encourages collaborative research.

Candidates should have a doctoral degree in environmental microbiology, environmental engineering, or a closely related field; demonstrate potential to establish an externally funded research program; and have a strong commitment to undergraduate and graduate teaching. The successful candidate is expected to teach both undergraduate and graduate courses and to lead a team of graduate students in Ph.D. research. Preference is given to applicants at the assistant professor level although exceptional candidates at a higher rank will be considered. Send a letter of interest, curriculum vitae, a one or two-page summary of research and teaching interests, relevant papers and publications, and names of five references in a single PDF file to: dogee@jhu.edu. Review of applications will begin on January 16, 2009. Applications will be accepted until the position is filled. For additional information, contact Professor Edward Bouwer (bouwer@jhu.edu). The Whiting School of Engineering is committed to building a diverse educational environment; women and minorities are strongly encouraged to apply. The Johns Hopkins University is an EEO/AA employer.

UNIVERSITY OF GUELPH FACULTY POSITION IN WASTEWATER TREATMENT

The School of Engineering at the University of Guelph, Ontario, Canada invites applications for a tenure-track position at the Assistant Professor level. The successful applicant will participate in research complementary to an Industrial Research Chair established in the area of advanced technologies in the wastewater industry. The successful applicant will be expected to develop his/her own independent research program separate from the existing programs with externally-derived funding. Full participation in undergraduate and graduate teaching within the core of the engineering program is expected. Registration as a Professional Engineer in the Province of Ontario, or the ability to obtain registration is a requirement of the position.

The University of Guelph has well-established and accredited undergraduate and graduate degree programs in Environmental Engineering, Water Resources Engineering, Biological Engineering, and Engineering Systems and Computing and will introduce a program in Mechanical Engineering in 2009. The School of Engineering comprises over 30 faculty, 650 undergraduate and 120 graduate students, with water and environment as major thrusts. The water and environmental themes run throughout the University, and provide many opportunities for collaborative research on the campus.

The successful applicant will have a broad engineering background and demonstrated research accomplishments in one or more of the following areas: **aquatic chemistry, environmental biotechnology, water quality monitoring and modeling, water reuse, and environmental processes of emerging organic micropollutants in water.**

Further information may be found at the following sites:

www.uoguelph.ca

www.soe.uoguelph.ca

APPLICATION DEADLINE: March 1, 2009, or until the position is filled

Interested applicants should send a CV, statement of research and teaching interests and the names and contact points of five references to the address below. Referees will only be contacted with permission of the applicant.

Susan Lewis, Administrative Assistant
School of Engineering, University of Guelph
Guelph, Ontario, Canada, N1G 2W1
sjlewis@uoguelph.ca

**UNIVERSITY
OF GUELPH**

The University of Guelph is committed to an employment equity program that includes special measures to achieve diversity among its faculty and staff. We therefore particularly encourage applications from qualified aboriginal Canadians, persons with disabilities, members of visible minorities and women.

All qualified candidates are encouraged to apply; however, Canadians and permanent residents will be given priority.

Executive Director for Research and Policy Translation

Center for the Environmental Implications of NanoTechnology (CEINT), Duke University

The Center for the Environmental Implications of NanoTechnology (CEINT) fosters an interdisciplinary program of education, research, and outreach addressing the implications of nanomaterials for environmental systems. Research in the center elucidates the relationship between a vast array of nanomaterials from natural, to manufactured, to those produced incidentally by human activities and their potential environmental exposure, biological effects, and ecological consequences. Headquartered at Duke University, CEINT is a NSF/EPA-funded collaboration between Duke, Carnegie Mellon University, Howard University, and Virginia Tech and investigators from the University of Kentucky and Stanford University. CEINT members also include international partners and researchers at several U.S. government labs and user facilities. Additional information on CEINT can be found on the center's website: www.ceint.duke.edu.

Responsibilities of the CEINT executive director will include synthesizing CEINT research in reports and external communications, representing the CEINT in public forums, and coordinating research activities with outreach and education programs in the U.S. and abroad. The executive director reports to the center director. Applicants for the position of executive director of CEINT should hold a doctoral degree in a science or engineering-related field and have

excellent communication skills in English. Experience and familiarity with nanoscience is desirable. Preference will be given to individuals with at least 1–3 years of organizational experience in academia, the private sector, government, or NGO's. Duke University is an Equal Opportunity and Affirmative Action Employer.

Candidates for this position should submit a full curriculum vitae including at least five references to the center's business manager, Rebecca Dupré, at: rld3@duke.edu. Review of applicants will begin immediately and continue until the position is filled.

About Duke University —Duke University is regularly ranked as one of the world's top research universities, with particular strengths in the areas of environmental science, engineering, and policy. In 2008, *U.S. News and World Report* ranked Duke's environmental programs among the best in the U.S., including programs in environmental policy and management (#3), environmental law (#5), ecology (#5), and environmental engineering (#20). Located on the central east coast in Durham, NC, Duke is within 15 minutes of the laboratories of the U.S. Environmental Protection Agency in RTP and the laboratories of the National Institute for Environmental Health and Science.

Faculty Position in Biotechnology and Biomolecular Engineering

The Ohio State University

The Department of Civil & Environmental Engineering & Geodetic Science invites applications for a tenure-track position in the area of biotechnology and biomolecular engineering for the development and application of renewable and sustainable energy technologies. The department, college, and university are making significant investments in the areas of sustainability, energy, the environment, mobility, and transportation. Particularly, the new college Center for Energy, Sustainability and the Environment and the university Institute for Energy and the Environment offer exciting interdisciplinary research opportunities. Successful candidates will have the ability to effectively teach undergraduate and graduate courses, develop an active research program, and form interdisciplinary connections with other areas of the department and university. It is anticipated that the position will be filled at the assistant professor level; however, exceptionally qualified candidates at the associate professor level are also encouraged to apply. The appointment will be effective October 1, 2009. An earned doctoral degree in civil engineering, environmental engineering, or closely-related field is required and the potential to

obtain professional registration is desirable. The Ohio State University has recently been named one of the best places to work in academia and is currently ranked 9th in the country among public universities in total research expenditures. Ohio State is ranked second in the nation among all universities and colleges in industry-financed research expenditures, with nearly half of this research conducted in the College of Engineering. The department currently has 21 faculty members, 450 students, and \$10M in research contracts. Review of applications will begin on February 15, 2009, and continue until the position is filled. Please submit by regular mail a cover letter, statement of teaching and research interests, detailed resume, copies of no more than two publications or manuscripts, and the names and contact information for four references to: Professor Linda Weavers, Search Committee Chair, Department of Civil & Environmental Engineering & Geodetic Science, 2070 Neil Avenue, The Ohio State University, Columbus, OH 43210. Alternatively, PDF files of these items can be submitted by e-mail to: biosearch@ceegs.ohio-state.edu. The Ohio State University is an EEO/AA employer.

Faculty Position in Environmental Engineering

University of Delaware

One of the oldest institutions of higher education in this country, the University of Delaware today combines tradition and innovation, offering students a rich heritage along with the latest in instructional and research technology. The University of Delaware is a Land-Grant, Sea-Grant, Urban-Grant, and Space-Grant institution with its main campus in Newark, DE, located halfway between Washington, D.C. and New York City. Please visit our website at: www.udel.edu.

The Department of Civil and Environmental Engineering invites applications for a tenure-track faculty position in environmental engineering starting fall 2009. While it is anticipated that the position will be filled at the assistant professor level, exceptional candidates will be considered for appointment at higher ranks. An earned doctoral degree in environmental engineering or related fields is required. Successful candidates must have exceptional qualifications and be capable of developing outstanding teaching and research programs. Environmental areas of particular interest include molecular biotechnology and environmental nanotechnology, but may include other areas of expertise on the frontiers of environmental science and engineering. The promise of the candidate's research is of higher priority than the specific area of research.

The Civil and Environmental Engineering Department (www.ce.udel.edu) has 26 faculty members, approximately 450 undergraduate students, and 100 graduate students. The department has active research programs in environmental, coastal, structural, geotechnical,

infrastructure systems, and transportation engineering. Faculty conduct multi-disciplinary research at the Delaware Biotechnology Institute, a 72,000 square foot facility with 35 research laboratories and core instrumentation in areas including bioimaging, bioinformatics, and proteomics. In addition to this institute, the university is forming environmental and energy institutes to provide new opportunities for collaborative and multi-disciplinary research. Faculty also participate in multi-disciplinary research and education as part of six department research centers, including the Center for Study of Metals in the Environment and the Disaster Research Center. The department has state-of-the-art facilities and instruments for laboratory and field experiments and computing.

Applicants should submit a cover letter summarizing the applicant's experience and teaching and research plans, curriculum vitae, and names and contact information of three references by e-mail in PDF format to search@ce.udel.edu; or by mail to Dr. Paul T. Imhoff, Search Committee Chair, Department of Civil and Environmental Engineering, University of Delaware, Newark, DE 19716. PDF submissions are strongly encouraged. Review of applications will begin January 16, 2009. The curriculum vitae and application materials will be shared with departmental faculty.

The University of Delaware is an Equal Opportunity Employer which encourages applications from minority group members and women.

Faculty Positions in Environmental and Water Resources/Hydrology

The University of Texas at Arlington

The Department of Civil Engineering at the University of Texas at Arlington (UT Arlington) invites applications for two tenure-track or tenured faculty positions starting in fall 2009. The environmental position will be filled at the assistant, associate or full professor level, while the water resources/hydrology position will be filled at the assistant or associate professor level. Environmental candidates with superior qualifications will be considered for the Syed R. Qasim Endowed Professorship. UT Arlington is located at the center of the Dallas-Fort Worth (DFW) Metroplex, the largest non-port metropolitan area in the U.S. with a population exceeding 5 million people.

Further information on specific positions available, the department, UT Arlington, the Dallas-Fort Worth Metroplex opportunities, and the application procedure can be found at: <http://www-ce.uta.edu/positions.php>. Applications will be accepted until the positions are filled. Screening of applications will initiate on November 1, 2008. This is a security sensitive position, and a criminal background check will be conducted on finalists. Underrepresented groups are especially encouraged to apply. UT Arlington is an equal opportunity/affirmative action employer.

Sustainable Engineering Workshop

The Center for Sustainable Engineering, consisting of faculty from Carnegie Mellon University, the University of Texas at Austin, and Arizona State University, is pleased to invite applications for 2-day workshops in Pittsburgh, PA in summer 2009. Supported by NSF and EPA, these workshops are designed to help faculty members enrich their courses by adding material on sustainable engineering applicable to all engineering fields. The workshops also help faculty to improve their courses, obtain funding for educational innovations, and become part of a growing network of educators in sustainable engineering. Workshop 1 is intended for participants with little prior experience in teaching sustainable engineering, and will begin at 9:00 am Monday, July 13 and conclude by 4:00 pm Tuesday, July 14. Workshop 2 is intended for participants with some experience in



Center for Sustainable Engineering

teaching sustainable engineering, and will begin at 9:00 am Thursday, July 16 and conclude by 4:00 pm Friday, July 17. Each workshop will accommodate 30 participants; all tenure track faculty members from engineering departments at four-year colleges and universities in the U.S. are eligible to apply. Participants will be chosen based on a competitive application process. All participants are expected to pay their own travel costs to the workshop and attend all activities of the workshop. NSF will cover the expenses of participants at the workshop, including food, lodging for up to two nights, and workshop materials. Application information will be available in early January 2009 on the CSE website at: <http://www.cseengin.org>. Application deadline: February 14, 2009. Contact: Ms. Gloria Dadowski (dadowski@andrew.cmu.edu).

Anaerobic Biotechnology for Bioenergy Production

Principles and Applications

By **SAMIR KUMAR KHANAL**

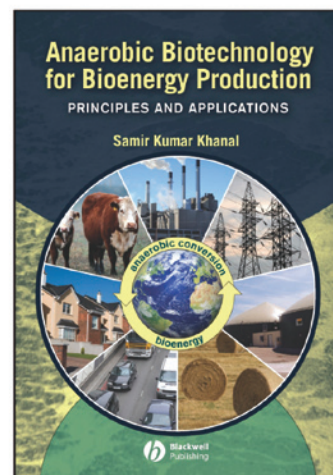
Anaerobic biotechnology is a cost-effective and sustainable means of treating waste and wastewaters that couples treatment processes with the reclamation of useful by-products and renewable biofuels. This means of treating municipal, agricultural, and industrial wastes allows waste products to be converted to value-added products such as biofuels, biofertilizers, and other chemicals.

Anaerobic Biotechnology for Bioenergy Production: Principles and Applications provides the reader with basic principles of anaerobic processes alongside practical uses of anaerobic biotechnology options. This book will be a valuable reference to any professional currently considering or working with anaerobic biotechnology options.

- Coverage of basic Anaerobic Biotechnology principles
- Practical applications of principles and processes
- Thorough coverage of cost-effective and sustainable means of converting biowastes/wastewater into bioenergy



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