2004 Summary of Activities

Department of Civil & Environmental Engineering
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This Summary of Activities describes and celebrates the 2004-calendar-year accomplishments of The University of Iowa’s Department of Civil and Environmental Engineering (CEE). The Summary lists CEE’s graduating classes of undergraduate students and graduate students. It also lists CEE’s current body of graduate students, faculty, research professionals, staff, adjunct faculty, and CEE’s Advisory Board. Further, it lists papers, books, and reports published in 2004, as well as briefly mentioning sundry professional service activities conducted by faculty.

Besides the inventorying people and their accomplishments, the Summary is an occasion to thank the people and organizations that have supported CEE and its students during 2004. That support significantly enhances the quality of the education that CEE offers students. My colleagues and I very much appreciate the support given to CEE.

The CEE department gained two new faculty colleagues this year. Assistant Professor George Constantininescu joined CEE in January 2004, after four years working as a Research Engineer and Post-doctoral Fellow at Stanford University. George earlier had attained the PhD degree at The University of Iowa. His expertise is in the area of computational fluid dynamics applied to problems in hydraulic engineering and environmental engineering. Assistant Professor Tim Mattes joined CEE in August 2004, shortly after attaining the PhD degree at Cornell University. Tim’s expertise is in environmental engineering, especially aspects of biotechnology, microbiology, molecular biology, and bacterial genetics and physiology.

This year, CEE underwent yet a further formal review. The review, termed an Academic Review, was the regular (but, by no means routine) six-yearly checkup required of the University’s departments by the Board of Regents. For various reasons, including the timing of the recent ABET\(^1\) accreditation review, and changes in College leadership, CEE had skipped its prior review, and had not gone through an Academic Review for the past twelve years. This year’s Academic Review entailed writing a detailed Self-study Report that comprised two parts, one part focused on graduate programs and research, whereas the other part looked at undergraduate education. The latter part utilized, with minor updates, the report prepared for CEE’s ABET accreditation review, which was completed in 2003. Inevitably, the review entailed the tallying of outcomes and incomes: e.g. 285 journal papers published between 1997 and 2002, and the growth of annual grant expenditures from about $3.5M in 1997 to $5.3M in 2002 (for 2003 and 2004 the expenditures rose to $8.2M and $8.0M, respectively). Of importance in the review was the identification of opportunities for CEE to further enhance its programs of graduate education and research. The Review also entailed an evaluative visit and series of interviews conducted by an External Review Committee, which consisted of Professor Nicho-

\(^1\) Accreditation Board for Engineering and Technology
las Jones (DEO of Civil and Environmental Engineering at The University of Illinois-Urbana Champaign), Professor Heather MacDonald (Head of the Urban & Regional Planning Program, at The University of Iowa), and Professor Alec Scranton (Professor of Chemical & Biochemical Engineering, and Associate Dean for Academic Programs, at The University of Iowa). The Committee’s evaluation was documented in a letter report.

Besides confirming the overall quality and productivity of CEE’s programs of education and research, the Academic Review led to ideas and recommendations that will be included in modifications to CEE’s Strategic Plan. The Plan will be modified during 2005.

The Summary briefly describes other notable events of the past year. They include – on-going progress with implementing CEE’s new undergraduate curriculum; the appointment of Professor Larry Weber as the Director of IIHR-Hydroscience and Engineering; faculty, staff and student awards and recognitions, the appointment of faculty members to leadership positions in significant national and international efforts; the publication of books by three faculty members; the spirited performance of the ASCE Student Chapter during the Steel Bridge and Concrete Canoe Contests; not to mention various picnics and parties.

Thanks are owed to CEE Administrative Assistant Ginny Miller and CEE Secretary Judy Holland for their smooth running of CEE’s office and overall support provided to everyone. Thanks also are owed to Barbara Booth for her work as Assistant editor (aiding Editor Jerry Schnoor) for the Journal *Environmental Science & Technology*, and to Collin Just for his work in support of the environmental-engineering labs associated with CEE.

Kudos to Ginny Miller, aided by Tara Stevens (CEE’s Student Office Assistant, who graduated in 2004), for preparing the present Summary of Activities.

Robert Ettema
Department Executive Officer
Advisory Board

**Jane Carlson**: Senior Engineer, Strand Consultants, Madison, Wisconsin

**John Meyer**: Area Environmental Manager, Tyson Foods, Inc., Dakota Dunes, South Dakota

**Richard Fosse**: Director of Public Works and Engineering, City of Iowa City, Iowa City, Iowa

**Sherri McIntyre**: Assistant City Engineer, Public Works Department, City of Kansas City, Kansas City, Missouri

**Rebecca Svatos**: Senior Environmental Engineer, Stanley Consultants, Inc., Coralville, Iowa

**Larbi Sennour**: Principal Engineer, Consulting Engineers Group, San Antonio, Texas

**Doug Bottorff**: Senior Consultant - Engineering Services, Principal Real Estate Investors, Des Moines, Iowa

**Dan Johnson**: Chief, Environmental Section of Design Branch, Corps of Engineers, Rock Island District, Rock Island, Illinois

**Mark Nahra**: County Engineer, Delaware County, Delaware, Iowa

**Michael J. Kennerly**: Office of Design Director, Iowa DOT, Ames, Iowa

**Michael A. Vander Wert**: Vice President, Calhoun & Associates, West Des Moines Iowa

**Ian McAlister**, Principal Civil Engineer, Stanley Consultants, Muscatine, Iowa

CEE’s Advisory Board, now in its fifth year, met twice this year. The Board provided important guidance and feedback evaluation on matters pertaining to curriculum development and to the qualities of CEE’s bachelor-degree and master-degree graduates. In November this year, CEE’s Board held a joint meeting with the Advisory Board of Iowa State University’s Department of Civil, Construction and Environmental Engineering (CC&EE). The meeting was held at ISU, and was hosted by CC&EE’s DEO, Professor Lowell Greimann. The meeting was a stimulating opportunity for both Boards to gain insight into Iowa’s “other” department of civil and environmental engineering, to compare the different emphases of each department, as well as to get a sense of Iowa's overall education efforts devoted to civil and environmental engineering.

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1 Department Executive Officer
2004 Field Trip

Field Trip

Field Trip

Field Trip
The spring 2004 Civil Engineering field trip involved tours of facilities and sites in Des Moines, Iowa, and Buchanan County, Iowa. The first morning consisted of a tour of the Iowa Precast Concrete plant in Des Moines. The company makes concrete panels of various types for exterior paneling on buildings and flooring in parking garages.

The students walked through the long tunnel-like building where cable is stretched and then covered with concrete to form long, continuous panels before curing and being cut into sectional panels. The company was also kind enough to treat the students to a pizza lunch while giving a presentation that detailed the many uses of precast concrete in building construction. While near the center of Des Moines, the students visited the state capital building. The afternoon activities centered on environmental-engineering related facilities with a tour of the large Des Moines water treatment plant and the city landfill.

At the treatment plant, the students split into groups and were shown the entire plant, from the water testing lab to water softening units and the many filter beds where the water is cleaned prior to distribution to the city. At the landfill, the tour bus was allowed to drive up onto the mountain of garbage and over to a constructed wetlands area where leachate from the landfill is treated. Supper that night at an Italian restaurant was enjoyed by everyone. The next morning involved a trip to Ames to visit the National Soil Tilth Laboratory and the Department of Transportation labs. Students saw some of the efforts that go into the evaluation of soil types and the many instruments and procedures used to evaluate the many materials used to make roads.

The bus then headed to north-eastern Iowa and Buchanan County where the county engineer boarded the bus and gave the students a tour of the county and the many projects and activities there including a small bridge made from flatbed railway cars and one of the largest wood-beam bridges in the country.
2004 Field Trip
Field Trip
New CEE Course: Civil Infrastructure

As Civil Engineering education is being directed towards rehabilitating the existing infrastructure rather than new construction, it has become necessary to teach maintenance and rehabilitation as part of civil engineering curriculum. Many civil engineers are now managing (rather than designing new) infrastructure at the state and municipal levels. This new (and still experimental) course is an undergraduate required course which discusses various elements involved in managing civil infrastructure assets. This course is intended to provide students with fundamental infrastructure management techniques. Modern techniques and procedures of evaluating civil infrastructure such as ground penetrating radar (GPR) and digital image processing (DIP) are discussed as an input to Infrastructure Asset Management System (IAMS). Analysis methodologies such as decision tree and optimization for selecting the most appropriate maintenance and rehabilitation strategies for infrastructure are discussed as infrastructure asset management tools. Students are required to develop a prototype IAMS using the Visual Basic 6 programming language. Upon completion of this course, the student should be able to evaluate infrastructure condition, predict the performance, determine the optimum strategies for rehabilitation, and develop a long-term budget program.

Professor David Lee
Senior Projects Class

PROJECT DESIGN AND MANAGEMENT

Jonathan Bhar
Shawn Benson
Matthew Buerger
Andrew Burke
Justin Campbell
Nicholas Campney
Nathan Carhoff
David Carpenter
Erik Danielson
Peter Hansen
Ashley Haskins
Martin Jones
Daniel Katt
Katrina Keck
Michael Kelly

Shoji Kondo
Laura Konz
Nathan Miller
Mark Moeller
Nirupama Narayan
Jonathan Nelson
Kristopher Olson
Jed Schnoor
Ori Sivan
Lee Strait
Eric Tott
Michael Turner
Lisa Ulrich
Meghan Walter
Christopher Weber
Brett Woods
Undergraduate Student Awards and Achievements

Robert Allen
Fritz W. Louis Scholarship

Zach Brownson
Joseph B. Summers Scholarship

David Carpenter
Fritz W. Louis Scholarship

Michael Cloos
Koch Pavement Solution Marketing Scholarship/APAI
James L. Shive Memorial Fellowship

Amber Jansen
B. J. Lambert Scholarship
Society of Women Engineers Chevron Texaco Corporations’ Scholarship

Dan Kimball
Concrete Pipe Association Scholarship

Anne Limmer
Archie N. Carter Civil Engineering Scholarship

Stephanie Petrie
B. J. Lambert Scholarship

Eldon Schneider
Harold W. Hunt Civil & Environmental Engineering Scholarship

Kyle Van Dyke
Archie N. Carter Civil Engineering Scholarship

Adam Wilhelm
ASCE Scholarship

Lindsey Woehlk
ASCE Scholarship

Ross McWhirter
County Engineers Association
B.S. Degrees Conferred

**MAY 2004**
Matthew Buerger  
Andrew Burke  
Justin Campbell  
Nicholas Campney  
Peter Hansen  
Ashley Haskins  
Daniel Katt  
Katrina Keck  
Shoji Kondo  
Mark Moeller  
Nirupama Narayan  
Kristopher Olson  
Jed Schnoor  
Lee Strait  
Eric Tott  
Lisa Ulrich  
Meghan Walter  
Christopher Weber  
Brett Woods

**AUGUST 2004**
Laura Konz  
Huy Luong  
Nathan Miller  
Ori Sivan

**DECEMBER 2004**
Jonathan Bahr  
Shawn Benson  
David Carpenter  
Michael Kelly  
Christopher Schultz  
Michael Turner

*pictured above:*  
*May 2004 B.S. Graduates*
Chi Epsilon Engineering Honor Society members dedicate themselves to maintaining and promoting the status of Civil Engineering and recognize fundamental characteristics of individual Civil Engineers pursuing engineering careers. Chi Epsilon aims to develop fundamental characteristics in Civil Engineering students. Chi Epsilon requires personal qualities of its members such as practicality and sociability. Members must achieve success in academic work, which can help prepare them for positions of responsibility and leadership.

FALL 2004 OFFICERS
Nathan Carhoff, President
Angela Barsic, Vice President
Anne Limmer, Treasurer
Eldon Schneider, Secretary
Brian Bonebrake, Associate Editor
Robert Allen, Marshal

SPRING 2004 INITIATES
Robert Allen
Zachariah Brownson
Nicholas Schaefer
Eldon Schaefer
Lisa Ulrich

FALL 2004 INITIATES
William Wombacher
Pieter Beyer
Stephanie Petrie
Andrea Untrauer
Tyler Vanderlinden
Tim Fredregill
Lindsey Woehlk

FACULTY ADVISER
Professor Richard Valentine
Activities in 2004 for the ASCE (American Society of Civil Engineers) Student Chapter include steel bridge and concrete canoe teams in the regional competitions. The canoe race was held in Ames and the steel bridge competition took place at the University of Minnesota.

ASCE also organized several Iowa football tailgates, golf outings, the spring and fall road clean up, and a picnic. They also assisted with IIHR’s holiday party casino night. The UI Student chapter has strong ties to the YMG professionals in the area and continue to involve YMG in their meetings and social events. The chapter is continuing outreach to the community with the road cleanup and the regional Future City Competition. As a fundraiser, ASCE sold fleece vests and jackets.
Concrete Canoe Team

Steel Bridge
2004 Graduate Students Enrolled

Ozan Abaci
Maria Anaya De Yeats
Amy Ashbacher
Jason Assouline
Laura Brentner
Bryan Boulanger
Elliott Campbell
Li-Chuan Chen
Xiaobei Chen
Zhuo Chen
Andrew Craig
Heather Cross
Erik Danielson
Joseph Daraio
Dimitrios Dermisis
Africa Espina
Claudia Espinosa
Benjamin Fennelly
Brittany Flokstra
James Fox
Robert Handler
Peter Hansen
Md Manjurul Haque
Justine Harrison
Brandon Hobbs
Jennifer Holman Dodds
Shae Hoschek
Mei-Chih Huang
Korey Hutchinson
Pelin Idil
Andrea Kalafut
Roopa Kamath
Dongsu Kim
Jung Yong Kim
Younjoo Kim
Youngsung Kim
Gokhan Kirkil
Mete Koken
Recept Korkut
Casey Kramer
Philip Larese-Casanova
Haegyun Lee
Emily Linebaugh
Haitao Liu
John Loperfido
Nanh Lovan
Xiaolin Man
Venkata Mandapaka
Tao Mao
Andrew McCoy
Matthew McConville
Brady McDaniel
Heather McDonald
Forrest Meggers
Marcelo Mena
Melissa Mezzari
Richard Nickel
Eftymios Nikolopoulos
Alexandros Ntelekos
Chaves Yenora Morales
Reinaldo Morales
Ashley Mordasky
Christopher Mutel
Nirupama Narayan
Taizo Nishiyama
Jaime Nivala
Seng-Keat Ooi
Celalettin Ozdemir
Tim Pasakarnis
Aaron Peck
Carolyn Persoon
Ceyda Polatel
Ju Qiu
Lin Qiu
Salam Rahmatalla
Jeremy Rentz
Michal Rysz
Johnthomas Sanford
Russell Sawvel
Maja Seppanen
Mehmet Serdaroglu
Sharon Smith-Tembe
Kyle Strom
Garrett Struckhoff
Sultan Abdul Rassaq Sultan
Brett Sutton
Enhui Tan
Sachiyo Tanaka
Talia Tokay
Cagri Turan
Gabriele Villarini
Lydia Wagner
Qian Wang
Zhiguo Wang
Mark Weldon
Joseph Welter
Tim Wilkey
Aaron Williams
Robert Williams
Mekonnen Woldemariam
Brett Woods
Jing Xiong
Jun Yang
Su Seon Yang
Huiming Yin
Jong Moon Yoon
Atsuhiro Yorozuya
Nathan Young
Kwonkyu Yu
Jie Zeng
Graduate Student Awards and Achievements

Claudia Espinosa
Neil Fisher Fellowship

Robert Handler
Neil Fisher Fellowship

Jason Assouline
William W. Kersten
IWPCA Scholarship

Youngjoo Kim
Koch Pavement Solution Marketing Scholarship/APAI

Ori Sivan
and Michelle Von Arb
BX 2002 civil engineering, received Honorable Mentions for the 2004-2005 National Science Foundation Graduate Fellowship Award
Civil & Environmental Engineering Graduate Students Claudia Espinosa and Pelin Idil attended the International Conference on Civil and Environmental Engineering (ICCEE) in July 27-28 at Hiroshima University, Higashi-Hiroshima, Japan. Pelin Idil made her presentation about “Scour at exposed stub and wingwall bridge abutments”. Claudia Espinosa presented her study about “Sustainable watershed management: Impacts on a 30 year historical record of water quality of the Iowa River. The students also explored the rich culture and history of Japan during their visit. The photo shows Claudia on the right, and Pelin on the left, dressed as Geisha in Kyoto, Japan.
2004 Student Publications, Papers, and Presentations

Ozan Abacci

Bryan Boulanger

Brittany Flokstra

James Fox

Maxwell, A, Papanicolaou, A., Fox, J.F. and Strom, K. B. “An Experimental Investigation of the Parameters Affecting the Erosion Strength of Cohesive Soil Mixtures;” GSA, meeting, Boise, ID.

Brad Hoos

Roopa Kamath

Gokhan Kirkil

Mete Koken
Constantinescu, S.G. and Mete, K., “Large Eddy Simulation study of horseshoe vortex system and wake for flow past a surface mounted cylinder,” 57th Meeting of the American Physical Society, Division of Fluid Dynamics, Seattle, WA, November.

Recept Korkut

Casey Kramer
Kramer, C., Papanicolaou, A. “The role of relative submergence on cluster formation,” GSA, meeting, Boise, ID.

Phil Larese-Casanova


**Haitao Liu**


**Xiaolin Man**


**Melissa Mezzari**


**Matt McConville**


**Andrew McCoy**


**Ashley Mordasky**

“N-nitrosodimethylamine (NDMA) Formation in Chloramination Natural Waters,” presented at Ground Water Association in Coralville, IA.

**Jaime Nivala**


**S.K. Ooi**


IIHR Limited Distribution Report, IIHR Hydroscience and Engineering, The University of Iowa, Iowa City, IA.

Aaron Peck

Ju Qiu
Nixon, W.A., Kochumman, G., Qiu, J., Qiu, L., and Xiong, J., “Role of Performance Specifications in Developing a Quality Control System for Winter Maintenance,” in Transportation Research Circular Number E-C063, Proceedings of the Sixth International Symposium on Snow Removal and Ice Control Technology, pp. 555-563, June 7-9, Spokane, WA.

Lin Qiu
Nixon, W.A., Kochumman, G., Qiu, J., Qiu, L., and Xiong, J., “Role of Performance Specifications in Developing a Quality Control System for Winter Maintenance,” in Transportation Research Circular Number E-C063, Proceedings of the Sixth International Symposium on Snow Removal and Ice Control Technology, pp. 555-563, June 7-9, Spokane, WA.

Salam Rahmatalla


Jeremy Rentz


Sharon Smith-Tembe

Kyle Strom

Maxwell, A, Papanicolaou, A., Fox, J. F. and Strom, K. B., “An Experimental Investigation of the Parameters Affecting the Erosion
Strength of Cohesive Soil Mixtures,” GSA, meeting, Boise, ID.


Hendricks, R, Ely, L., Papanicolaou, A., Strom, K. The role of geomorphic and hydrologic features on sediment clusters in gravel-bed streams, Washington: a field-based approach,” GSA, meeting, Boise, ID.

Sachiyo Tanaka

Enhui Tan

Gabriele Villarini


Qian Wang

Aaron Williams

Williams, A., Scherer, M., Workshop on rock Magnetism, “Mossbauer Spectroscopy as a Tool for Studying Fe Oxides”, Sante Fe, New Mexico, June.


Jin Xiong
Nixon, W.A., Kochumman, G., Qiu, J., Qiu, L., and Xiong, J., “Role of Performance Specifications in Developing a Quality Control System for Winter Maintenance,” in Transportation Research Circular Number E-C063, Proceedings of the Sixth International Symposium on Snow Removal and Ice Control Technology, 555-563, June 7-9, Spokane, WA.

Huiming Yin


**Jong Yoon**


**Atsuhiro Yorozuya**

2004 Graduate Student Degrees

PH.D. DEGREES CONFERRED

Bryan Boulanger
Advisors: Keri Hornbuckle & Jerry Schnoor
Thesis: Environmental Analytical Techniques and Fate of Perfluorooctane Surfactants

Roopa Kamath
Advisor: Pedro Alvarez
Thesis: Rhizosphere Effect on Biodegradation of Polyaromatic Hydrocarbons (PAHS) in Contaminated Soils

Haitao Liu
Advisor: Lizhi Sun
Thesis: Effects of Damage and Thermal Residual Stresses on the Overall Elastoplastic Behavior or Particle-Reinforced Metal Matrix Composites

Nahn Lovanh
Advisor: Pedro Alvarez
Thesis: The Effect of Ethanol on Aerobic BTEX Biodegradation: The Metabolic Flux Dilution Model and Continuous Culture Experiments

Melissa Mezzari
Advisory: Jerry Schnoor
Thesis: Enzymatic Transformations of Chloroacetanilide Herbicides and Explosive Chemicals by Plants: In Vivo and In Vitro Studies

Chaves Yenora Morales
Advisor: Larry Weber
Thesis: Analysis of Mussel Population Dynamics in the Mississippi River

Salam Rahmatalla
Advisor: Colby Swan
Thesis: Continuum Topology Design of Sparse Structures and Compliant Mechanisms

Aaron Peck
Advisor: Keri Hornbuckle
Thesis: Atmospheric Concentrations and Deposition of Synthetic Musk Fragrances, Current-use Pesticides, and Polycyclic Aromatic Hydrocarbons in Iowa and the Great Lakes

Jeremy Rentz
Advisor: Jerry Schnoor
Thesis: Degradative Repression and Co-Metabolism, plant-microbe Interactions Affecting Polycyclic Aromatic Hydrocarbon Phytoremediation

Aaron Williams
Advisor: Michelle Scherer
Thesis: Contaminant Reduction by Adsorbed and Structural Ferrous Iron

Mekonnen Woldemariam
Advisor: Witold Krajewski

Huiming Yin
Advisor: Lizhi Sun
Thesis: Micromechanics-Based Constitutive Modeling of Magnetic Particle-Filled Composites

Jong Moon Yoon
Advisor: Jerry Schnoor
Thesis: The Fate of Explosive Chemicals (HMX, TNT, RDX) in Plants and Water Following Uptake by Hybrid Poplar

Kwonkyu Yu
Advisor: Robert Ettema and Marian Muste
Thesis: Particle Tracking of Suspended-Sediment Velocities in Open-Channel Flow
2004 Graduate Student Degrees

M.S. DEGREES CONFERRED

THESIS

Jason Assouline
Advisor: Richard Valentine
Thesis: An Exploratory Study of N-nitrosodimethylamine (NDMA) Formation in Chloraminated Natural Waters

Xiaobei Chen
Advisor: James Stoner
Thesis: Prototyping a Web-GIS Framework Using an Agent-Based Model for Transportation Planning

Africa Espina
Advisor: Jerry Schnoor
Thesis: Oxygen Addition to Stimulate Hybrid Poplar Root Growth in Petroleum Contaminated Soils

Mei-Chih Huang
Advisor: James Stoner
Thesis: Commuters’ Mode Choice Between Bus Transit Systems in the City of Iowa City

Pelin Idil
Advisors: Robert Ettema & Tatsuaki Nakato
Thesis: Local Scour at Exposed Stub and Wingwall Bridge Abutments

Andrea Kalafut
Advisor: Pedro Alvarez
Thesis: Evaluation & Enhancement of New Biofilter Technology Used to Treat Gaseous Xylene Emitted From Paint Used at the Iowa Army Ammunition Plant

Gokhan Kirkil
Advisors: Robert Ettema & Marian Muste
Thesis: Similitude of Coherent Eddies in Flume Experiments on Bridge Scour

Recept Korkut
Advisor: Robert Ettema
Thesis: Geobags as Abutment-Scour Countermeasure

Emily Linebaugh
Advisor: Keri Hornbuckle
Thesis: Accumulation of Synthetic Musk Fragrances in Great Lakes Sediment

Efthymios Nikolopoulos
Advisor: Wiltold Krajewski
Thesis: Analysis of High Resolution Data of Vertical Structure of Rainfall

Alexandros Ntelekos
Advisor: Witold Krajewski
Thesis: On the Uncertainties of the Flash Flood Guidance System (FFGS): Towards Probabilistic Forecasting of Flash Floods

Russell Sawvel
Advisor: Pedro Alvarez
Thesis: Pilot-Scale Evaluation of a Rotating Drum Biofilter for Voc Removal at the Iowa Army Ammunition Plant

Maija Seppanen
Advisor: Jerry Schnoor
Thesis: Microbial-FE (0) Interactions During Treatment of Groundwater Contaminant Mixtures

Mehmet Serdaroglu
Advisor: Colby Swan
Thesis: Mechanical Properties & Analysis of Crushed Limestone Aggregate as a Physical Termite Barrier & Multifunctional Foundation System
Brett Sutton  
Advisor: Pedro Alvarez  
Thesis: Transformation of Hexahydo-1, 3, 5-Trinitro-1,3,5-Triazine (RDX) by Shewanella Algae Strain Bry & its Biologically Produced Ferrous Iron Precipitate

NON-THESIS

Maria Anaya De Yeats  
Advisor: Wilfrid Nixon

Richard Nickel  
Advisor: Larry Weber

Michal Rysz  
Advisor: Pedro Alvarez

Sultan Sultan  
Advisor: M. A. Bhatti

Joseph Welter  
Advisor: Larry Weber

Robert Williams  
Advisor: Colby Swan

Jing Xiong  
Advisor: Wilfrid Nixon
CEE Staff Members

Barbara Booth
Assistant Editor, Environmental Science & Technology

Thomas Cook
CEE Office Assistant

Judy Holland
Department Secretary

Ginny Miller
Administrative Assistant

Pat Noeth
Editorial Assistant, Environmental Science & Technology

Sheila Patel
Office Assistant, Environmental Science & Technology

Tara Stevens
CEE Office Assistant
CEE Research Professionals

Craig Just

Collin Just

Benoit VanAken
New Faculty Members

George Constatinescu

joined Civil & Environmental Engineering in January 2004 as an Assistant Professor and Assistant Research Engineer at IIHR- Hydrosience and Engineering. He earned his M.S. degree at Bucharest, Romania and Ph.D. from the University of Iowa. His special fields of knowledge are environmental engineering; fluid mechanics; computational fluid dynamics; parallel computing.

Tim Mattes

joined Civil & Environmental Engineering in August 2004 as an Assistant Professor in Environmental Science and Engineering. He received his M.S.E. from The Johns Hopkins University and Ph.D. from Cornell University. His special fields of knowledge are engineering; microbiology; biochemistry; molecular biology.
Civil & Environmental Engineering
Faculty Members

Environmental Engineering & Science

Keri Hornbuckle
Associate Professor

Gene Parkin
Professor

Tim Mattes
Assistant Professor

Patrick O'Shaughnessy
Associate Professor

Michelle Scherer
Associate Professor

Jerald Schnoor
Professor

Richard Valentine
Professor
Civil & Environmental Engineering
Faculty Members

Hydraulics & Water Resources

Allen Bradley
Associate Professor

George Constantinescu
Assistant Professor

Witold Krajewski
Professor

Thanos Papanicolaou
Associate Professor

Bill Eichinger
Professor

Jacob Odgaard
Professor

Robert Ettema
Professor and DEO

Larry Weber
Associate Professor

Walter Illman
Assistant Professor
Civil & Environmental Engineering
Faculty Members

Structures, Mechanics & Materials

Jasbir Arora
Professor

M. Asghar Bhatti
Associate Professor

Lizhi Sun
Associate Professor

Colby Swan
Associate Professor

Han-Chin Wu
Professor
Civil & Environmental Engineering
Faculty Members

Transportation

Hosin "David" Lee
Associate Professor

Wilfrid Nixon
Professor

James Stoner
Associate Professor
# Civil & Environmental Engineering Faculty Members

## Emeritus Faculty
- Dan Branson
- Forrest Holly
- Subhash Jain
- Harrison Kane
- Wayne L. Paulson

## Visiting Faculty
- Ashok Govil
- Mike Sizer
Civil & Environmental Engineering Faculty Members

Adjunct Faculty Members

Pedro Alvarez, Professor
Rice University

Konstantine Georgakakos, Professor
Hydrologic Research Center – San Diego, CA

Don Guckert, Lecturer
University of Iowa - Facilities Management

Craig Just, Associate Research Scientist
University of Iowa – Civil & Environmental Engineering

Anton Kruger, Associate Research Engineer
University of Iowa - IIHR-Hydroscience and Engineering

Lou Licht, Associate Professor
Ecolotree – Iowa City, IA

Ken Lloyd, Associate Professor
University of Iowa – Water Plant

Marian Muste, Associate Professor
University of Iowa - IIHR-Hydroscience and Engineering

Tatsuaki Nakato, Professor
University of Iowa - IIHR-Hydroscience and Engineering

John Nestler, Associate Professor
U.S. Army Engineer – Vicksburg, MS

Doug Schnoebelen, Assistant Professor
USGS – Iowa City, IA

Benoit Van Aken, Associate Research Scientist
University of Iowa – Civil & Environmental Engineering
Civil & Environmental Engineering
Faculty Members

Secondary Faculty Members

**Greg Charmichael**, Professor
Chemical & Biochemical Engineering

**David Forkenbrock**, Professor
Public Policy Center

**Paul Hanley**, Associate Professor
Urban and Regional Planning

**V. C. Patel**, Professor
IIHR-Hydroscience and Engineering and Mechanical Engineering

**Peter Thorne**, Professor
Preventive Medicine

**Frank Weirich**, Associate Professor
Geoscience

**Ge Wang**, Professor
Radiology

**You-Kuan Zhang**, Associate Professor
Geology
Faculty Awards and Recognitions

Forrest Holly, Professor Emeritus
Outstanding Civil Engineer by the Iowa Section of the American Society of Civil Engineers

Colby C. Swan, Associate Professor
Appointed Robert and Virginia Wheeler Faculty Fellow of Engineering

Jerald Schnoor, Professor
U.S. EPA Office of Research and Development, Special Service Award
Best Paper Award, Agronomy Society (with Louis Licht and G. Pierzynski)

Jasbir Arora, Professor
The State-of-the-Art Award for contribution to the book, Recent Advances in Optimal Structural Design, published by American Society of Civil Engineers

Michelle Scherer, Associate Professor
Environmental Science & Technology, 2004 Reviewer Award

Larry Weber, Associate Professor
Appointed Director, IIHR- Hydroscience and Engineering
2004 Faculty Service Work

(Community, State, National, International)

Jasbir Arora
- Member, Core Group of Steering Committee for 2006 Structures Congress, SEI/ASCE, St. Louis, 2004-06.
- Member, Program Committee, 17th Analysis and Computation Conference, SEI/ASCE, St. Louis, 2004-06.

Asghar Bhatti
- Member, Structural Engineers Association of Eastern Iowa, 2000-present.
- Campus Representative, American Society of Engineering Education (ASEE), 2000-present.

Allen Bradley
- Secretary, AGU Hydrology Section, (2004-2006).
- Member, Water Resources Research Editor Search Committee.
- Member, Iowa Comprehensive Stormwater Workgroup.
- Member, National Research Council (NRC) Committee on USGS River Science, (2004-2005).
- Member, National Research Council (NRC) Committee on USGS Water Resources Research, (2001-2005).
- Member, Precipitation Conference Planning Committee, (1999-present).

Robert Ettema
- American Society of Civil Engineers, Environmental and Water Resources Institute, Awards Committee, (2003-present).
- Member, Iowa Highway Research Board, (2002-present).
- Technical Program Chair, for the International Association of Hydraulic Research and Engineering (IAHR) Congress, Vancouver, 2009.
2004 Faculty Service Work

(Community, State, National, International)

Keri Hornbuckle
- Co-Organizer, with Joel E. Baker, of a session on organic contaminants at The International Association for Great Lakes Research annual meeting, Waterloo, Ontario.

Wilfrid Nixon
- Member of TRB A3C09 Winter Maintenance Committee, (2004-present).
- Chair, TRB A3C09 Winter Maintenance Committee, (1998-present).
- Member of TRB A5001 Conduct of Research Committee, (1999-present).
- Member of the AASHTO Winter Maintenance Policy Coordinating Committee, (1999-present).

Patrick O’Shaughnessy
- Technical reviewer for NIH/SBIR grant applications (special study sections) (1998-present).

Witold Krajewski
- The University of Iowa Representative to the Consortium of Universities for the Advancement of Water Resources (CUAHSI) (2001-present).
- CUAHSI Committee on Hydrologic Measurement Technology Vice-Chair, (2001-present).
- The University of Iowa Delegate to The Universities Council on Water Resources, (1988-present).
- The University of Iowa Lead Delegate to The Universities Council on Water Resources.
- The University of Iowa Delegate to National Association of State Universities and Land-Grant Colleges, Board on Oceans and Atmosphere.
- Member of the National Oceanic and Atmospheric Administration Global Precipitation
2004 Faculty Service Work

(Community, State, National, International)

Program Science Team (1991-present).
● Member of the National Academy of Sciences (1993-present).
● Member of Prospectus Development Teams 9 and 10 of the United States Weather Research Program

Hosin “David” Lee
● Member, Organizing Committee, 21st International Symposium on Automation and Robotics in Construction.
● Member, Greater Iowa Asphalt Conference Planning Committee, (2004-present)
● Member, Research Committee of the Iowa Concrete Pavement Center, (2000-2005)
● Member, Asphalt Pavement Focus Group, Iowa, (1999-present)

Jacob Odgaard
● Member, International Scientific Advisory Committee for Hydroinformatics Singapore,

Gene Parkin
● Editorial Board of Biodegradation (1997-present).

Michelle Scherer
● Associate Editor, Aquatic Sciences, peer-reviewed quarterly journal.
● Editorial Review Board, Ground Water Monitoring & Remediation, peer-reviewed quarterly journal for the National Ground Water Association (NGWA).
● Electrochemistry Advisory Committee for Coe College.

Jerald Schnoor
● Editor-in-Chief, Environmental Science and Technology, ACS. (2003-present).
● Search Committee, Director of Swiss Federal Institute of Technology,
● Member, Board of Scientific Counselors, EPA-ORD, (1996–present).
● Chair, Board of Scientific Counselors, EPA-ORD, (2000-present).
● National Academy of Engineering, member (1999–present).
● National Science Foundation, CLEANER Path Forward, Chair, (2004-present).

James Stoner
● Transportation Research Board, A3BO8 Committee Member, (1995-present).

Lizhi Sun
● Committee Member, ASCE-EM Inelastic Behavior, (2000-present).
● Committee Member, ASME-AMD/MD Constitutive Equations, (1999-present).
● Committee Member, ASME-AMD Composite Materials, (1999-present).
● American Chemical Society Petroleum Research Fund Proposal Review.
● NSF Engineering SBIR/STTR Phase I Panel Review.
● U.S. Civilian Research & Development Foundation Cooperative Grants Review.

Richard Valentine
● Steering Committee of the National AWWA University Student Activities Committee, (1990-present).
● Member and Secretary, Executive Board of University of Iowa Chapter AAUP, (2004 to present).

Han-Chin Wu
● Committee member, Promotion and Tenure Committee, Dept. of Power Mechanical Engineering, Nat’l Tsing Hua Univ., Hsinchu, Taiwan, (1995-present).
● Committee Member, Joint AMD-MD Committee on Constitutive Equations, ASME, (1975-present).
Faculty Published Work

2004 BOOKS AND MONOGRAPHS

BOOKS


V. Kovalev and W. Eichinger, Elastic Lidar, Theory, Practice and Analysis Methods, Wiley and Sons, N.Y.

Wu, H.C., Continuum Mechanics and Plasticity, CRC Press LLC.

MONOGRAPHS

Faculty Published Work

2004 JOURNAL ARTICLES


Faculty Published Work


Faculty Published Work

2004 CONFERENCE PAPERS


Faculty Published Work


**Ettema, R.**, Marshall, J.S. and McAlister, G., “Wind-driven rivulet break-off in conditions ranging from 0g to 1g,” Workshop on Strategic Research to Enable NASA's Exploration Missions,” Cleveland, Ohio, June.

**Ettema, R.**. “Insights from River Names and Epithets.” ASCE-EWRI Conference, Salt Lake City, UT.

**Ettema, R.** and Mutel, C. “Hans Albert Einstein in South Carolina,” ASCE-EWRI Conference, Salt Lake City, UT.


**Hornbuckle, K.C.**. “Concentration and deposition of atmospheric PCBs in Milwaukee.” ASCE/SAME Engineering Conference. (Continuing Education credits for practicing engineers.) October 20. Davenport, Iowa.

Faculty Published Work


Faculty Published Work


Illman, W. A. and Yeh, T.-C. J., In-Progress Report to the Department of Defense (SERDP), April 14, Arlington, VA (oral presentation).


Faculty Published Work


**Nixon, W.A.,** Kochumman, G., Qiu, J., Qiu, L., and Xiong, J. "Role of Performance Specifications in Developing a Quality Control System for Winter Maintenance," in *Transportation Research Circular Number E-C063*, Proceedings of the Sixth International Symposium on Snow Removal and Ice Control Technology, pp. 555-563, June 7-9, Spokane, WA.


Maxwell, A., **Papanicolaou, A.**, Fox, J.F. and Strom, K. B. “An Experimental Investigation of the Parameters Affecting the Erosion Strength of Cohesive Soil Mixtures,” GSA, meeting, Boise, ID.

Strom, K., **Papanicolaou, A.** and Evangelopoulos, N. “Microforms in gravel bed rivers: formation, disintegration and effects on bedload transport,” GSA, meeting, Boise, ID.
Faculty Published Work

Kramer, C. and Papanicolaou, A. “The role of relative submergence on cluster formation,” GSA, meeting, Boise, ID.

Papanicolaou, A. A particle tracking technique for bedload motion in rivers, GSA, meeting, Boise, ID.


Valentine, R. L. “Recent Advances in Understanding Chloramine Based DBP Formation.” Workshop on Lead Edge Technologies for Water Treatment. Sponsored by the IWA, Prague, Czech Republic, May 12-15.


2004 REPORTS AND TECHNICAL PUBLICATIONS


Faculty Published Work


Swackhamer, D.L. and Hornbuckle, K.C. Assessment of Air Quality and Air Pollutant Impacts in Isle Royale National Park and Voyageurs National Park. Report to the National Park Service, September. Accepted and awaiting formal NPS report number

Illman, W. A. and Yeh, T.-C. J., Annual Report, Strategic Environmental Research and Development Program, December.

Illman, W. A. and Yeh, T.-C. J., Quarterly Progress Report, Strategic Environmental Research and Development Program, October.

Faculty Published Work

Illman, W. A. and Yeh, T.-C. J., Revised Cost Estimate for Implementing the Hydraulic, Conservative Tracer and Partitioning Tracer Tomography Tests to Delineate DNAPL Source Zones in a Sandy Aquifer Strategic Environmental Research and Development Program, July.

Illman, W. A. and Yeh, T.-C. J., Cost Estimate for Implementing the Hydraulic, Conservative Tracer and Partitioning Tracer Tomography Tests to Delineate DNAPL Source Zones in a Sandy Aquifer, Strategic Environmental Research and Development Program.


Haug, P.E., and Odgaard, A.J., “Hydraulic Model Studies for Fish Passage through an Overflow-Underflow Gate Combination at Rock Island Dam”, IIHR Limited Distribution Report No. 320, The University of Iowa, July.


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