

CONTENTS

- 1** From the Director
- 2** Abbreviations
- 3** Active Sponsored Research Projects
- 9** Journal Articles
- 17** Conference Papers—
Published in Proceedings
- 19** Conference Papers—
No Proceedings
- 25** Other Presentations
- 26** Other Publications
- 27** Technical Reports
- 27** Limited Distribution Reports
- 28** MS Degrees Conferred & Theses Accepted
- 29** PHD Degrees Conferred & Theses Accepted
- 30** Awards, Activities, and Appointments
- 30** International/National Awards
- 32** State/Local Awards
- 34** Seminars
- 36** Organizational Chart
- 37** Research Engineers, Scientists,
and Faculty Affiliates
- 38** Staff
- 39** Graduate Students
- 40** Postdoctoral Research Associates
- 41** Advisory Board
- 42** Nondiscrimination Statement

FROM THE DIRECTOR



Dear Friends of IIHR,

One of my greatest privileges as director of IIHR—Hydrosience & Engineering is the annual opportunity to share the achievements of our faculty, staff, and students. In this report, you'll find an inclusive list of our active sponsored research projects, completed student research (MS theses and PHD dissertations), and journal publications, conference presentations, service, and awards for calendar year 2012.

For IIHR, 2012 marked a transformational moment, as the institute expanded into new areas of multidisciplinary research and collaboration. IIHR continues to evolve into a 21st-century research center, addressing some of the most challenging problems of our times. This year, IIHR added four new faculty affiliates from the Water Sustainability Initiative (WSI). Although sustainability is not a new area of research for IIHR, this formal recognition of its increasing importance represents a major change for us. For IIHR to remain relevant and influential, we must respond to new realities. Our mission of education, research, and public service in hydraulic engineering and fluids research has not changed, but it has subtly shifted into new and rewarding areas of study.

As always, I am extremely proud of our faculty, students, and staff and the important work we do. To paraphrase the words of Sir Isaac Newton, we stand on the shoulders of giants. It is thanks to the dedication and hard work of those who came before us that we are able to see the future. As we carry on with our work, it is comforting to know that others before us have passed through challenging times and solved difficult problems. I believe we can do the same, and that those who came before us would be proud, as I am, of the students and researchers of today who carry on this essential work.

Sincerely,



Larry J. Weber
Director, IIHR—Hydrosience & Engineering
Professor, University of Iowa Department of Civil and
Environmental Engineering
Edwin B. Green Chair in Hydraulics

ABBREVIATIONS

| | | | |
|----------|---|-----------|---|
| AMES | City of Ames, Iowa | ISU | Iowa State University |
| CCT | Roy J. Carver Charitable Trust | JEG | Jacobs Engineering Group Inc. |
| CGCDPH | Cerro Gordo County Department of Public Health | LCSA | Leopold Center for Sustainable Agriculture |
| CH2MH | CH2M Hill | MATC | Mid-America Transportation Center |
| COBO | City of Boardman, Ore. | MCM | McMillen LLC |
| CUAHSI | Consortium of Universities for the Advancement of Hydrologic Science Inc. | MWG | Midwest Generation EME LLC |
| DBQ | City of Dubuque, Iowa | NASA | National Aeronautics and Space Administration |
| DLZ | DLZ Ohio Inc. | NIH | National Institutes of Health |
| DOE | U.S. Department of Energy | NMIMT | New Mexico Institute of Mining and Technology |
| DOE-ANL | U.S. Department of Energy, Argonne National Laboratories | NOAA | National Oceanic and Atmospheric Administration |
| DOE-PNNL | U.S. Department of Energy, Pacific Northwest National Laborator | NSF | National Science Foundation |
| DOI-BOR | U.S. Department of the Interior, Bureau of Reclamation | ORSU | Oregon State University |
| EPA | U.S. Environmental Protection Agency | OSU | Ohio State University |
| ESG | Eastern Shipbuilding Group | PU | Purdue University |
| EXG | Exelon Generation | SDSU | San Diego State University |
| FIU | Florida International University | TAC | City of Tacoma, Wash. |
| GCPUD | Grant County Public Utility District | TNC | The Nature Conservancy |
| GHI | Greeley and Hansen LLC | TTI | Tetra Tech Inc. |
| GXS | Genex Systems | UCR | University of California-Riverside |
| HCA/GHRC | Hungry Canyon Alliance/Golden Hills Resource, Conservation, and Development | UG | University of Georgia |
| HDR | HDR Engineering Inc. | UM | University of Michigan |
| HEI | Health Effects Institute | UMD | University of Maryland |
| HVI | Hy-Vee Inc. | UN | University of Nebraska |
| ICSWCD | Iowa County Soil and Water Conservation District | UNL | University of Nebraska-Lincoln |
| IDNR | Iowa Department of Natural Resources | UNI | University of Northern Iowa |
| IDOT | Iowa Department of Transportation | UNV | University of Nevada |
| IEDA | Iowa Economic Development Authority | USACE | U.S. Army Corps of Engineers |
| IEC | Iowa Environmental Council | USDA | U.S. Department of Agriculture |
| IHRB | Iowa Highway Research Board | USDD | U.S. Department of Defense |
| ISGC | Iowa Space Grant Consortium | USDD-AF | U.S. Department of Defense, Air Force |
| | | USDD-ONR | U.S. Department of Defense—Office of Naval Research |
| | | USDD-NSWC | U.S. Department of Defense—Naval Surface Warfare Center |

ABBREVIATIONS *cont.*

| | |
|--------|---|
| USDOED | U.S. Department of Education |
| UTHSC | University of Tennessee Health Science Center |
| UTHSCH | University of Texas Health Science Center—Houston |
| VBC | Van Buren County, Iowa |
| WDOT | Washington State Department of Transportation |
| WMO | World Meteorological Organization |

ACTIVE SPONSORED RESEARCH PROJECTS

| | |
|---------|---|
| SPONSOR | Lead IIHR Investigator <i>Title</i> |
| AMES | Young <i>13th Street Dam Modification, City of Ames</i> |
| ASU | Papanicolaou <i>Commercial Remote-sensing and Spatial Information Technology Applications Program</i> |
| CCT | Kruger <i>Mussel Communities: A Biosensory Network for Understanding the Nitrogen Cycle</i> |
| CGCDPH | Schnoebelen <i>Arsenic in Cerro Gordo County Wells: Determining the Distribution of Groundwater</i> |
| CH2MH | Lyons <i>Additional Testing of the Abbey Mills Drop Shaft F Physical Model (Hydraulic Model Studies for London Tideway Tunnels Abbey Mills Drop Shaft F)</i> |
| CH2MH | Lyons <i>Testing a New Vortex Generator (Hydraulic Model Studies for London Tideway Tunnels Deptford Storm Relief Vortex Drop Shaft)</i> |
| CH2MH | Lyons <i>Thames Tunnel — Physical Model Studies—CSO (Ranelagh, Heathwall, King George, Putney)</i> |
| CH2MH | Politano <i>CFD Modeling to Support the Reduction of Fish Passage Exposure to Predator Habitat at McNary Dam</i> |
| COBO | Just <i>Nitrogen Dynamics in Poplar Rhizosphere During Dormancy</i> |
| CUAHSI | Krajewski <i>Chair-elect, Chair, and Past-chair, CUAHSI Board of Directors</i> |
| DBQ | Schnoor <i>Sustainable Dubuque Watershed Network: A Partnership of the University of Iowa and the City of Dubuque</i> |
| DLZ | Lyons <i>Physical Modeling of Baffle Drop Structures for the City of Akron, Ohio</i> |

**ACTIVE SPONSORED
RESEARCH PROJECTS** *cont.*

| SPONSOR | Lead IIHR Investigator | SPONSOR | Investigator |
|--|------------------------|--|----------------|
| Title | | Title | |
| | | | |
| DOE | Scherer | FIU | Muste |
| <i>Electron and Atom Exchange Between Aqueous Fe(II) and Structural Fe(III) in Clays: Role in U and Hg(II) Transformations</i> | | <i>Closed Flume Inlet Efficiency</i> | |
| DOE-ANL | Scherer | GCPUD2 | Weber |
| <i>Argonne-SFA</i> | | <i>Professional Engineering Services for Hydraulic Analysis, Modeling, and Testing for Public Utility District No. 2 of Grant County</i> | |
| DOE-PNNL | Scherer | GCPUD2 | Weber |
| <i>Stable Isotope Investigation of FE Atom Exchange in Hematite</i> | | <i>Grant County Public Utilities Department #2</i> | |
| DOI-BOR | Martin | GHI | Lyons |
| <i>Integrated Bubble, Sound, and Light Modeling for Modeling Fish Deterrence</i> | | <i>Hydraulic Physical Model Studies for Drop Structures (District of Columbia Water and Sewer Authority: Anacostia River Project CSO Facility Plan)</i> | |
| DOI-BOR | Papanicolaou | GXS | Constantinescu |
| <i>Smart Sediment Clasts: RFID Particle Locating Software</i> | | <i>Modeling Scour in Cohesive Soils and Smart Scour Countermeasures</i> | |
| EPA | Cwiertny | HCA/GHRC | Papanicolaou |
| <i>Fellowship for Rebekah Oulton</i> | | <i>Stream Classification Project</i> | |
| EPA | Cwiertny | HDR | Young |
| <i>Research and Demonstration of Electrospun Nanofiber Filters: Multifunctional, Chemically Active Filtration Technologies for Small-scale Water Treatment Systems</i> | | <i>Ames Flood Mitigation Study</i> | |
| EPA | Hornbuckle | HEI | Stanier |
| <i>Chicago as a Source of Air Toxics to Lake Michigan</i> | | <i>Development and Application of a Personal Exposure Screening Model for Size-resolved Urban Aerosol</i> | |
| EPA | Stanier | HVI | Piotrowski |
| <i>Applying Data Assimilation and Adjoint Sensitivity to Epidemiological and Policy Studies of Airborne Particulate Matter</i> | | <i>Bathymetric Mapping of the Des Moines River and Gray's Lake</i> | |
| ESG | Carrica | IPC | Politano |
| <i>OPC Program</i> | | <i>Hells Canyon Dam Numerical Modeling in the Tailrace of Hells Canyon Phase V</i> | |
| EXG | Bradley | IPC | Politano |
| <i>CS₂ Thermal Model Update and Investigation of the LaSalle Cooling Lake</i> | | <i>3D Modeling of Deep Water Pump in Brownlee Reservoir — Turbine Five Shutoff Simulations</i> | |
| EXG | Wilson | ICSWCD | Papanicolaou |
| <i>Maintenance of Data Acquisition System — University of Iowa Thermal Models at Braidwood, Dresden, LaSalle, and the Quad Cities Stations</i> | | <i>Integration of Vegetative Practices, Sediment Basins, and Alternative Tile Intakes with Risk Assessment Tools to Manage and Optimize Nutrient Loads in the Clear Creek, Iowa, Watershed</i> | |
| FIU | Craig | IDNR | Kruger |
| <i>Flume Model for Florida DOT</i> | | <i>Bridge-mounted Stream-level Sensors in Iowa (2)</i> | |
| | | IDNR | Young |
| | | <i>Floodplain Mapping Related Services</i> | |

ACTIVE SPONSORED RESEARCH PROJECTS *cont.*

- IDOT Constantinescu
Optimization of Snow-drifting Mitigation and Control Methods for Iowa Conditions (Phases 1 and 2)
- IDOT Krajewski
Pilot Project for a Hybrid Road-flooding Forecasting System on Squaw Creek
- IDOT Muste
Determination of Entrance Loss Coefficients for Twin Pre-cast and Triple RCB Culvert Designs
- IDOT Muste
Development of Self-cleaning Box Culvert Design — Phase II
- IDOT Papanicolaou
An Adaptive Field Detection Method For Bridge Scour Monitoring Using Motion-sensing Radio Transponders (RFIDs)
- IEC Parkin
Consultation Related to Iowa DNR Basin Plan Support Document
- IEDA Weber
Hydrologic Impacts of Drainage Systems
- IEDA Weber
State of Iowa Watershed Demonstration Project
- IHRB Constantinescu
Wind Loads on Dynamic Message Cabinets and Behavior of Supporting Trusses
- ISGC Vigmostad
Development of Realistic Computational Models of the Spaceflight Effects on Human Physiology
- ISU Krajewski
Iowa Daily Erosion Project (IDEP): Second Generation
- ISU Kruger
A Prototype Remote-sensing Validation Site: Toward a Multi-variable Approach to Validating and Scaling Remotely-sensed Observations of the Water Cycle
- ISU Papanicolaou
Identifying the Primary Sources of Sediment in an Anthropogenically-altered Watershed
- ISU Papanicolaou
Watershed-scale Water Cycle Dynamics in Intensively Managed Landscapes: Bridging the Knowledge Gap to Support Climate Mitigation Policies
- JEG Weber
Influence of River Training Structures on Flood Stages in the Unimpounded Reach of the Upper Mississippi River-supplemental Numerical Simulations
- JEG Weber
Supplemental Investigation of the Influence of Chevron Dikes on Flood Stages from River Mile 179.5 to 190.0 of the Middle Mississippi River
- LCSA Papanicolaou
Exploring the Role of Multifunctional Agriculture on the Future of Agriculture and Rural Development
- MATC Papanicolaou
Monitoring the Effects of Knickpoint Erosion on Bridge Pier Structural Damage and Scour
- MCM Weber
Box Canyon Dam — TDG Gate Operations Hydraulic Model Evaluation
- MMS Young
Single-beam Bathymetric Measurements in Support of Iowa River Flood Mitigation Designs
- MWG Wilson
Maintenance of Data Acquisition System — University of Iowa Thermal Model Data Acquisition System Service and Maintenance for Joliet Station
- NASA Krajewski
Developing Precipitation Algorithms for a Mobile Network of Polarimetric X-band Radars for GPM Validation
- NASA Krajewski
Studies of Error Structure in GPM Rainfall Estimates and Scale Aspects of Floods — Rain Gauge Platforms II and Soil Sensors
- NASA Krajewski
Scaling-based Flood Prediction: Exploring the Benefits of Satellite Remote-sensing
- NASA Kruger
Expansion of a Rain Gauge and Soil Moisture Network for the Iowa Flood Studies (IFloodS) Campaign
- NIH Lin
Multiscale Interaction of Pulmonary Gas Flow and Lung Tissue Mechanics

ACTIVE SPONSORED RESEARCH PROJECTS *cont.*

SPONSOR Lead IIHR Investigator

Title

NIH Udaykumar
Multiscale Modeling of Thrombosis Initiation in Cardiovascular Prostheses

NMIMT Craig
Laboratory Flume Design for New Mexico Tech

NOAA Bradley
The Use of Retrospective Hydrologic Forecasts for Forecast System Improvement Using Hydrologic Forecast Verification Concepts

NSF Bennett
CNH: People, Water, and Climate: Adaptation and Resilience in Agricultural Watersheds

NSF Buchholz
The Role of Relative Submergence on Flow-obstacle Interaction: Implications to Sediment Transport

NSF Carrica
Collaborative Research: Simulation-based Design for Deep Water Offshore Wind Turbines Including Wave Loads and Motions

NSF Constantinescu
Third International Symposium on Shallow Flows; Iowa City, Iowa; June 4–6, 2012

NSF Cwiertny
GRDS: CAREER: Hybrid Nanostructures as Catalysts for Advanced Oxidation Processes: An Integrated Research and Education Plan Promoting Water Reuse and Sustainability

NSF Dorale
Collaborative Research: P₂C₂—Sea-level Variability Over the Past 200,000 Years Precisely Reconstructed From Carbonate Deposits in Mallorcan Caves

NSF Eichinger
Collaborative Research: Refinement of Techniques for Estimating Evapotranspiration from Narrow Riparian Zones — Water Balance and Atmospheric Measurements

NSF Krajewski
Development of Software for the Over-the-Internet Control, Data Acquisition, and Product Generation of the Hydrologic Mobile Network of X-band Polarimetric Radars

NSF Krajewski
CMG Research: On the Quest for Power Laws in Floods: Developing Numerical and Analytical Tools

NSF Mattes
Collaborative Research: Stable Isotope-based Differentiation of Vinyl Chloride Assimilators from Cometabolizers in Contaminated Groundwater

NSF Papanicolaou
Differentiating Flash Flood-borne Sediments in a Small Agricultural Headwater System Using Isotopic Tracers

NSF Papanicolaou
Collaborative Research: The Effects of Hydrodynamic and Granular Controls on Bed Load Flux Intermittency: Application to Steep Mountain Streams

NSF Scherer
Linking Molecular Scale Surface Speciation to Interfacial Fe Redox Chemistry

NSF Scherer
Collaborative Research: Stable Isotope Investigation of Fe Oxide Reactivity and Natural Isotope Fractionation

NSF Schnoor
CDI-Type II: Understanding Water-human Dynamics with Intelligent Digital Watersheds

NSF Schnoor
Collaborative Research: The Role of Plants in the Environmental Fate of Growth Promoters and Antibiotics Used in Concentrated Animal Feed Operations

NSF Stanier
CAREER: Strengthening the Predictive Ability for New Particle Formation: A Combined Field, Data Analysis, and Modeling Approach

NSF Tate
CNH-EX: Monsoon Harvests: Assessing the Impact of Distributed Storage Tanks on the Vulnerability of Subsistence-level Agriculture in Tamil Nadu, India

NSF Valentine
Reaction of Carbon Nanotubes with Free Chlorine and Monochloramine Disinfectants: Byproduct Formation and Implications for Nanotube Environmental Fate and Toxicity

ACTIVE SPONSORED RESEARCH PROJECTS *cont.*

- NSF Zhai
MRI: Acquisition of Instrumentation (LC-MS/MS) for the Trace Analysis of Anthropogenic Organic Compounds and Their Metabolites in Various Complex Matrices
- ORSU Kruger
The Genomic Basis of Budburst in Douglas Fir
- OSU Eichinger
Near-source Dispersion of PM from AFOs — Incorporating the Explicit Effects of Windbreaks, Fences, and Building for Design of Dispersion Mitigation
- PU Basu
Dynamics of Hormone Loads and Attenuation in Ditches and Streams Draining Agricultural Fields Receiving Animal Manure Applications
- SDSU Udaykumar
Multi-scale Method for Computation of Shocked, Turbulent, Particle-laden Flow in Explosions and High Combustors
- TAC Weber
Engineering Consulting Services for Cowlitz Falls Dam Hydraulic Modeling Study
- TNC Linderman
Modeling Surface-subsurface Hydrology and Nutrient Dynamics at the Swamp White Oaks Preserve
- TTI Weber
ARRA: Modeling of Fish Behavior and Water-quality Conditions in the Lake Washington Ship Canal
- UCR Cwiertny
Photochemical Disinfection of Agriculturally Introduced Pathogens: The Influence of Extracellular Polymeric Substances on the Bactericidal Capacity of Naturally Occurring Reactive Oxygen Species
- UG Scherer
Quantifying Soil Iron Oscillations in Redox Transition Environments: Impacts on Carbon Degradation Rates and Phosphorus Availability
- UM Stern
Local-flow Measurements for Free-running/Captive Model Maneuvers in IIHR Wave Basin/Towing Tank with Integrated CFD
- UMD Craig
Design of a Towing Tank Basin and Actuated Water Jet Array System for the University of Maryland's Department of Aerospace Engineering
- UN Papanicolaou
An Integrated Approach to Bridge Condition-based Maintenance for Structural Deficiency
- UNI Papanicolaou
EPSCoR: Agricultural Soil Erosion and Carbon Cycle Observations in Iowa: Gaps Threaten Climate Mitigating Policies
- UNL Ward
RAPID: Using a Drought-enhanced Nitrate Pulse to Understand Stream N Retention and Processing
- UNV Cwiertny
Environmental Fate of Synthetic Growth Promoters Used in Animal Agriculture: Mechanistic Studies of Hormone Photolysis, Biodegradation, and Sorption in Natural Systems
- USACE Villarini
IPA Agreements with USACE–Mallakpour
- USACE Villarini
IPA Agreements with USACE–Rowe
- USACE Villarini
IPA Agreements with USACE–Villarini
- USDA Eichinger
Application of LiDAR Technology for Measurement of Emission and Dispersion from Agricultural Systems
- USDA Eichinger
Analysis of LiDAR and Meteorological Data from Around Animal Confinement Buildings
- USDA Habib
Verification of Streamflow Forecasting in Egypt
- USDA Papanicolaou
Prediction of Ksat Dynamics from Remote-sensing Data and Modeling for the State of Iowa
- USDD-ONR Stern
Local-flow Measurement System for Wave Basin Free-running Model Motions and Maneuvering in Waves and Capsize Experiments for CFD Validation

**ACTIVE SPONSORED
RESEARCH PROJECTS** *cont.*

SPONSOR Lead IIHR Investigator
Title

USDD-ONR Stern
CFD-based System Identification for Maneuvering in Waves

USDD-ONR Stern
URANS/DES CFDShip-Iowa Investigation of WAM-V Multi-body Fluid-structure Interaction: Computational and Experimental Research

USDD-AF Buchholz
Fundamental Bounds on Vortex Shedding in Forward Flapping Flight

USDD-AF Udaykumar
Development of a Multiscale Computational Framework for High-speed Multimaterial Dynamics

USDD-ONR Carrica
Bubble-wall Interaction on Full-scale Boundary Layers

USDD-ONR Carrica
Air Entrainment Models and CFD Implementation for Marine Applications

USDD-ONR Carrica
Multiphase Flow Tools for Marine Applications

USDD-ONR Carrica
Bubble-wall Interaction on Full-scale Boundary Layers

USDD-ONR Stern
High-fidelity Viscous Ship Hydrodynamics: Computational and Experimental Research

USDD-ONR Stern
6DOF Unsteady Viscous Ship Hydrodynamics

USDD-ONR Stern
URANS Investigation of Deep and Shallow Water Effects on SES/ACV Resistance, Motions, and Seakeeping using CFDShip-Iowa: Expansion

USDD-ONR Stern
High-performance Computing CFD-based Global Optimization of Hybrid Ship Hull

USDD-ONR Stern
Stochastic Variable Physics SBD for High-speed Waterjet Ships

USDD-ONR Stern
Naval Surface Combatant Maneuvering Wave Breaking and Patterns: CFDShip-Iowa and Wave Basin Tests

USDD-ONR Stern
High-performance Computing CFD-based Global Optimization of Hybrid Ship Hull: Expansion

USDD-ONR Stern
Extension and V&V CFDShip-Iowa for Deep-V Planing Hulls

USDD-ONR Stern
Instrumented Model/Mount Measurement System for Wave Basin High-speed Catamaran Added Resistance/Speed Loss/Inability Experiments for CFD Validation

USDD-NSWC Carrica
Integration of PUF-14 into CFDShip-Iowa V4.5 and Validation for Transient Self-propulsion and Maneuvering Applications

USDOED Just
Campus Living-learning Communities for the Sustainable Citizen: Construct, Content, Assessment, and Dissemination

UTHSCH Chandran
Mitral Valve Dynamic Analysis and Potential Clinical Applications

VBC Papanicolaou
Hydraulic Design of Streambank Protection Structures along the Des Moines River

WDOT Papanicolaou
Prediction of Scour Depth in Gravel Bed Rivers using Radio Frequency IDs

WMO Muste
WMO Project: Assessment of the Performance of Flow Measurement Instruments and Techniques

JOURNAL ARTICLES

Alexander, A.K.; Bidermann, D.; Fink, M.J.; Mihovilovic, M.D.; and **Mattes, T.E.** “Enantioselective Oxidation by a Cyclohexanone Monooxygenase from the Xenobiotic-degrading *Polaromonas* Sp. Strain JS666,” *Journal of Molecular Catalysis B: Enzymatic*, 78, pp. 105–110, June 2012.
[doi:10.1016/j.molcatb.2012.03.002](https://doi.org/10.1016/j.molcatb.2012.03.002)
Reprint 2673

Alipour, F. and **Vigmostad, S.C.** “Measurement of Vocal Folds Elastic Properties for Continuum Modeling,” *Journal of Voice*, 26, 6, pp. 816.e21–816.e29, November 2012.
[doi:10.1016/j.jvoice.2012.04.010](https://doi.org/10.1016/j.jvoice.2012.04.010)
Reprint 2674

AlMomani, T.D.; **Vigmostad, S.C.**; and Alzube, L.A. “A Sharp-interface Fluid-structure Interaction Algorithm for Modeling Red Blood Cells,” *Jordan Journal of Mechanical and Industrial Engineering*, 6, 2, pp. 193–198, April 2012.
<http://www.jjmie.hu.edu.jo/files/v6n2/JJMIE-216-11.pdf>
Reprint 2675

AlMomani, T.D.; **Vigmostad, S.C.**; **Chivukula, V.K.**; Alzube, L.A.; Smadi, O.; and BaniHani, S. “Red Blood Cell Flow in the Cardiovascular System: A Fluid Dynamics Perspective,” *Critical Reviews in Biomedical Engineering*, 40, 5, pp. 427–440, 2012.
[doi:10.1615/CritRevBiomedEng.v40.i5.30](https://doi.org/10.1615/CritRevBiomedEng.v40.i5.30)
Reprint 2676

Araki, M.; **Sadat-Hosseini, H.**; **Sanada, Y.**; Tanimoto, K.; Umeda, N.; and **Stern, F.** “Estimating Maneuvering Coefficients Using System Identification Methods with Experimental, System-based, and CFD Free-running Trial Data,” *Ocean Engineering*, 51, pp. 63–84, Sept. 1, 2012.
[doi:10.1016/j.oceaneng.2012.05.001](https://doi.org/10.1016/j.oceaneng.2012.05.001)
Reprint 2677

Barnhart, B.L.; **Eichinger, W.E.**; and Prueger, J.H. “A New Eddy-covariance Method Using Empirical Mode Decomposition,” *Boundary-Layer Meteorology*, 145, 2, pp. 369–382, June 22, 2012.
[doi:10.1007/s10546-012-9741-6](https://doi.org/10.1007/s10546-012-9741-6)
Reprint 2678

Barnhart, B.L.; **Eichinger, W.E.**; and Prueger, J.H. “Introducing an Ogive Method for Discontinuous Data,” *Agricultural and Forest Meteorology*, 162–163, pp. 58–62, Sept. 15, 2012.
[doi:10.1016/j.agrformet.2012.04.003](https://doi.org/10.1016/j.agrformet.2012.04.003)
Reprint 2679

Basu, N.B.; Jindal, P.; Schilling, K.E.; Wolter, C.F.; and Takle, E.S. “Evaluation of Analytical and Numerical Approaches for the Estimation of Groundwater Travel Time Distribution,” *Journal of Hydrology*, 475, pp. 65–73, December 2012.
[doi:10.1016/j.jhydrol.2012.08.052](https://doi.org/10.1016/j.jhydrol.2012.08.052)
Reprint 2680

Bhushan, S.; Xing, T.; and **Stern, F.** “Vortical Structures and Instability Analysis for Athena Wetted Transom Flow with Full-scale Validation,” *ASME Journal of Fluids Engineering*, 134, 3, 18 pp., March 2012.
[doi:10.1115/1.4006173](https://doi.org/10.1115/1.4006173)
Reprint 2681

Borden, Z.; Meiburg, E.; and **Constantinescu, G.** “Internal Bores: An Improved Model via a Detailed Analysis of Energy Budget,” *Journal of Fluid Mechanics*, 703, pp. 279–314, July 2012.
[doi:10.1017/jfm.2012.213](https://doi.org/10.1017/jfm.2012.213)
Reprint 2682

Camill, P.; Umbanhowar, C.E.; Geiss, C.; Hobbs, W.O.; Edlund, M.B.; Shinneman, A.C.; **Dorale, J.A.**; and Lynch, J. “Holocene Climate Change and Landscape Development from a Low-Arctic Tundra Lake in the Western Hudson Bay Region of Manitoba, Canada,” *Journal of Paleolimnology*, 48, 1, pp. 175–192, May 16, 2012.
[doi:10.1007/s10933-012-9619-0](https://doi.org/10.1007/s10933-012-9619-0)
Reprint 2664

Card, M.L.; **Schnoor, J.L.**; and Chin, Y.-P. “Uptake of Natural and Synthetic Estrogens by Maize Seedlings,” *Journal of Agricultural and Food Chemistry*, 60, 34, pp. 8264–8271, July 20, 2012.
[doi:10.1021/jf3014074](https://doi.org/10.1021/jf3014074)
Reprint 2683

Carrica, P.M.; Sadat-Hosseini, H.; and **Stern, F.** “CFD Analysis of Broaching for a Model Surface Combatant with Explicit Simulation of Moving Rudders and Rotating Propellers,” *Computers and Fluids*, 53, pp. 117–132, Jan. 15, 2012.

[doi:10.1016/j.compfluid.2011.10.002](https://doi.org/10.1016/j.compfluid.2011.10.002)

Reprint 2684

Chan, K.S.; Li, J.; Eichinger, W.E.; and Bai, E. “A New Physics-based Method for Detecting Weak Nuclear Signals via Spectral Decomposition,” *Nuclear Instruments and Methods in Physics Research*, 667, pp. 16–25, March 1, 2012.

[doi:10.1016/j.nima.2011.11.067](https://doi.org/10.1016/j.nima.2011.11.067)

Reprint 2685

Chen, H.; Laskin, A.; Baltrusaitis, J.; Gorski, C.A.; **Scherer, M.M.;** and Grassian, V.H. “Coal Fly Ash as a Source of Iron in Atmospheric Dust,” *Environmental Science & Technology*, 46, 4, pp. 2112–2120, Jan. 18, 2012.

[doi:10.1021/es204102f](https://doi.org/10.1021/es204102f)

Reprint 2686

Chuang, H.S.; **Gui, L.;** and Wereley, S.T. “Nano-resolution Flow Measurement Based on Single Pixel Evaluation PIV,” *Microfluidics and Nanofluidics*, 13, 1, pp. 49–64, Jan. 15, 2012.

[doi:10.1007/s10404-012-0939-1](https://doi.org/10.1007/s10404-012-0939-1)

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Reprint 2767

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Reprint 2777

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Basu, N.B. and **Loukinova, N.V.** “Catchment Legacies and Trajectories: Hydrologic and Biogeochemical Controls,” European Geosciences Union General Assembly, Vienna, Austria, April 22–27, 2012 (Abstract).

Basu, N.B.; Van Meter, K.J.; and **Tate, E.** “Salty or Sweet: Exploring the Challenges of Groundwater Salinization within a Sustainability Framework,” American Geophysical Union Fall Meeting, San Francisco, Calif., Dec. 3–7, 2012 (Abstract).

Boland, S.J. and **Basu, N.B.** “Concentration-discharge Patterns Revealed from High-resolution Nitrate Measurements in Agricultural Landscapes,” American Geophysical Union Fall Meeting, San Francisco, Calif., Dec. 3–7, 2012 (Abstract).

Bressan, F.; Wilson, C.G.; and **Papanicolaou, A.N.** “Estimating Knickpoint Migration in the Deep Loess Region of Western Iowa,” American Geophysical Union Fall Meeting, San Francisco, Calif., Dec. 3–7, 2012 (Abstract).

Brogliola, R.; Aloisio, G.; Falchi, M.; Grizzi, S.; Zaghi, S.; Felli, M.; Miozzi, M.; Pereira, F.; Di Felice, F.; and **Stern, F.** “Flow Survey of a Catamaran Model in Steady Drift,” NAV 2012 17th International Conference on Ships and Shipping Research Centro Congressi Università di Napoli Federico II, Oct. 17–19, 2012 (Abstract).

Chen, B. and **Krajewski, W.F.** “Event-based Recession Analysis across Scales,” American Geophysical Union Fall Meeting, San Francisco, Calif., Dec. 3–7, 2012 (Abstract).

Choi, S.; Hoffman, E.A.; Tawhai, M.H.; and **Lin, C.L.** “Correlation among Regional Ventilation, Airway Resistance, and Particle Deposition in Normal and Severe Asthmatic Lungs,” 65th Annual Meeting of the APS Division of Fluid Dynamics, San Diego, Calif., Nov. 18–20, 2012 (Abstract).

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Cwiertny, D.M. and **Lanzl, C.A.** “Influence of Particle Size and Aggregation on the Dissolution of Iron Oxides,” 243rd ACS National Meeting and Exposition, San Diego, Calif., March 25–29, 2012 (Abstract).

Davis, C.A.; **Schnoebelen, D.J.;** **Weber, L.J.;** Henry, C.; and Robbins, A. “High Temporal Resolution Nitrate Monitoring and Effects of Water Level Manipulation of Water Quality at Lake Odessa,” Mississippi River Research Consortium 44th Annual Meeting, La Crosse, Wis., April 26–27, 2012 (Abstract).

Demir, I. and **Krajewski, W.F.** “A Web-based Data Intensive Visualization of Real-time River Drainage Network Response to Rainfall,” European Geosciences Union General Assembly, Vienna, Austria, April 22–27, 2012 (Abstract).

Demir, I. and **Krajewski, W.F.** “Future of Hydroinformatics: Toward Open, Integrated, and Interactive Online Platforms,” American Geophysical Union Fall Meeting, San Francisco, Calif., Dec. 3–7, 2012 (Abstract).

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Demir, I. and **Krajewski, W.F.** “Novel Scientific Visualization Interfaces for Interactive Information Visualization and Sharing,” American Geophysical Union Fall Meeting, San Francisco, Calif., Dec. 3–7, 2012 (Abstract).

Demir, I.; **Krajewski, W.F.;** **Goska, R.;** **Mantilla, R.;** **Weber, L.J.;** and **Young, N.** “Iowa Flood Information System: Toward Integrated Data Management, Analysis, and Visualization,” European Geosciences Union General Assembly, Vienna, Austria, April 22–27, 2012 (Abstract).

Ding, D.; **Basu, N.B.;** and Linderman, M. “Integrating USDA Crop Progress Data and Remote-sensing Evapotranspiration and Leaf Area Index in Parsimonious Modeling of Hydrologic Responses in Midwestern Landscapes,” American Geophysical Union Fall Meeting, San Francisco, Calif., Dec. 3–7, 2012 (Abstract).

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Elsaadani, M.A. and **Krajewski, W.F.** “Estimation of Satellite-rainfall Error Correlation,” American Geophysical Union Fall Meeting, San Francisco, Calif., Dec. 3–7, 2012 (Abstract).

Fewtrell, T.; Neal, J.; Smith, J.A.; Bates, P.; Miller, A.J.; Baeck, M.L.; and **Villarini, G.** “Flood Inundation Modeling for Urban Watersheds,” European Geosciences Union General Assembly, Vienna, Austria, April 22–27, 2012 (Abstract).

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Hajimirzaie, S.M.; Tsakiris, A.G.; Buchholz, H.J.; and Papanicolaou, A.N. “Effect of Relative Submergence on the Flow Structure in the Wake of Wall-mounted Spherical Obstacle,” 65th Annual Meeting of the APS Division of Fluid Dynamics, San Diego, Calif., Nov. 18–20, 2012 (Abstract).

Hernandez, O.M.; Schnoebelen, D.J.; and Politano, M. “Ecohydraulic Tools Using OpenFoam—Hydrodynamic Comparison of OpenFoam with Commercial Software, Time of Residence, and Species Transport,” Mississippi River Research Consortium 44th Annual Meeting, La Crosse, Wis., April 26–27, 2012.

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Iyer, K.S.; **Lin, C.L.**; Hoffman, E.A.; and Yin, Y. “Repeatability Evaluation of CT Regional Lung Function Measurements via Image Registration,” American Thoracic Society 2012 International Conference, San Francisco, Calif., May 18–23, 2012.

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Kumar, H.; Vasilescu, D.; Yin, Y.; Tawhai, M.H.; Hoffman, E.A.; and **Lin, C.L.** “Morphometry and Advective Mixing Results in a Murine Lung Acinar Model,” American Thoracic Society 2012 International Conference, San Francisco, Calif., May 18–23, 2012.

Lanzl, C.A. and **Cwiertny, D.M.** “Size-dependent Dissolution of Hematite Aggregates,” 243rd ACS National Meeting and Exposition, San Diego, Calif., March 25–29, 2012.

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Mallakpour, I.; Ward, A.S.; and **Basu, N.B.** “Understanding the Spatial and Temporal Variations in Hormone Transport within the Stream Ecosystem,” American Geophysical Union Fall Meeting, San Francisco, Calif., Dec. 3–7, 2012 (Abstract).

Mantilla, R.; Kruger, A.; Krajewski, W.F.; Muste, M.; Ceynar, D.; Goska, R.; and **Ayalew, T.B.** “The Iowa Flood Center’s River Stage Sensor Network—Analysis and Applications of Collected Data,” American Geophysical Union Fall Meeting, San Francisco, Calif., Dec. 3–7, 2012 (Abstract).

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O’Loughlin, E.J.; Boyanov, E.; Kwon, M.J.; Kelly, S.; **Gorski, C.A.**; Latta, D.E.; **Scherer, M.M.**; and Kemner, K.M. “XAFS Investigations of Uranium (VI) Interactions with Iron (II)-Bearing Minerals,” 244th ACS National Meeting, Philadelphia, Pa., Aug. 19–23, 2012 (Abstract).

O’Loughlin, E.J.; Boyanov, M.I.; Gorski, C.A.; McCormick, M.L.; **Scherer, M.M.**; and Kemner, K.M. “Dissimulatory Iron Reduction and the Redox Cycling of Green Rust,” 244th ACS National Meeting, Philadelphia, Pa., Aug. 19–23, 2012 (Abstract).

Oulton, R.L.; Verdugo, E.M.; and **Cwiertny, D.M.** “Hydroxyl Radical Production During Ozonation of Carbon Nanomaterials,” 243rd ACS National Meeting and Exposition, San Diego, Calif., March 25–29, 2012 (Abstract).

Panah, A.E. and **Buchholz, H.J.** “Vortex Interactions on Plunging Airfoil and Wings,” 65th Annual Meeting of the APS Division of Fluid Dynamics, San Diego, Calif., Nov. 18–20, 2012 (Abstract).

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Peri, D.; **Kandasamy, M.**; Tahara, Y.; Wilson, W.; Miozzi, M.; Campana, E.F.; and **Stern, F.** “Simulations-based Design with Variable Physics Modeling and Experimental Verification of a Waterjet Propelled Catamaran,” 29th Symposium on Naval Hydrodynamics, Gothenburg, Sweden, Aug. 26–31, 2012.

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Politano, M.; **Arenas Amado, A.**; Naymik, J.; and Anderson, K. “Temperature Modeling in a Deep Water Reservoir,” Hydrovision International, Louisville, Ky., July 17–20, 2012 (Abstract).

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Schnoebelen, D.J. “Asking the Right Questions—Monitoring the Future of the Mississippi River, America’s Wetland Foundation,” The Big River Lives—Healthy, Sustainable Mississippi River System Conference, St. Louis, Mo., December 2012.

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Schnoebelen, D.J.; Johnson, B.; and **Weber, L.J.** “Hydrodynamic Modeling as a Tool for Ecologists on the Mississippi River,” American Fisheries Society 142nd Annual Meeting, Minneapolis-St. Paul, Minn., Aug. 19–23, 2012.

Seo, B.C.; **Krajewski, W.F.**; and **Villarini, G.** “Rain Gauge Data Quality Control and Combining Data from Different Networks for Hydrologic Applications,” American Geophysical Union Fall Meeting, San Francisco, Calif., Dec. 3–7, 2012 (Abstract).

Shang, E.K.; Xu, C.; Nathan, D.P.; Fairman, R.M.; Gorman, R.C.; Gorman, J.H.; **Vigmostad, S.C.**; and Jackson, B.M. III. “PS206. Wall Thickness Influence on Computational Wall Stress of Arteries,” *Journal of Vascular Surgery*, 55, 6, p. 79S, June 2012.

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Smith, B.K.; Smith, J.A.; Baeck, M.L.; and **Villarini, G.** “Flood-producing Rainfall and Storm Event Hydrologic Response in Urban Watersheds near Baltimore, Md.,” American Geophysical Union Fall Meeting, San Francisco, Calif., Dec. 3–7, 2012 (Abstract).

Somashekar, V.; Olsen, M.G.; **Chandran, K.B.**; and **Udaykumar, H.S.** “Experimental Investigation of Blood Cells Flowing through Microscale Geometries Using MicroPIV,” American Society of Mechanical Engineers 2012 Summer Bioengineering Conference, Fajardo, Puerto Rico, June 20–23, 2012.

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Sonmez, O.; Dogan, E.; and **Demir, I.** “Creating Flood Inundation Maps Using 1D Hydrologic Model and GIS for Lower Meric River Basin, Turkey,” American Geophysical Union Fall Meeting, San Francisco, Calif., Dec. 3–7, 2012 (Abstract).

Stafne, B.; Schnoebelen, D.J.; and Weber, L.J. “Two-dimensional Hydrodynamic Simulation of Pool-scale Effects of Island Restoration Activities in Upper Mississippi River Pool 8,” Mississippi River Research Consortium 44th Annual Meeting, La Crosse, Wis., April 26–27, 2012.

Stern, F.; Yang, J.; Wang, Z.; Sadat Hosseini, H.; Mousaviraad, S.M.; and Bhushan, S. “Computational Ship Hydrodynamics: Nowadays and Way Forward,” 29th Symposium on Naval Hydrodynamics, Gothenburg, Sweden, Aug. 26–31, 2012.

Stern, F.; Yoon, H.; Yarbrough, D.; Okay, M.; Oztekin, B.U.; and Roszelle, B. “Hands-on Integrated CFD Educational Interface and EFD/ePIV/Flowcoach Laboratories for Introductory Fluids Mechanics,” (Invited), 50th AIAA Aerospace Sciences Meeting and Exhibit, Nashville, Tenn., Jan. 6–9, 2012.

Stunkel, K.B. and Basu, N.B. “Spatial Organization of ‘Farmed’ Wetlands in Iowa’s Prairie Pothole Landscape: Geomorphic and Anthropogenic Controls,” American Geophysical Union Fall Meeting, San Francisco, Calif., Dec. 3–7, 2012 (Abstract).

Tahara, Y.; Kobayashi, H.; **Kandasamy, M.;** He, W.; Peri, D.; Diez, M.; Campana, E.F.; and **Stern, F.** “CFD-based Multiobjective Stochastic Optimization of a Waterjet Propelled High-speed Ship,” 29th Symposium on Naval Hydrodynamics, Gothenburg, Sweden, Aug. 26–31, 2012.

Tawhai, M.H.; Hoffman, E.A.; **Lin, C.L.; and Miyawaki, S.** “Effect of Carrier Gas Properties on Aerosol Distribution in a CT-based Human Airway Numerical Model,” Thoracic Society 2012 International Conference, San Francisco, Calif., May 18–23, 2012.

Thorndahl, S.; Smith, J.A.; and **Krajewski, W.F.** “Hydrometeorological and Statistical Analyses of Heavy Rainfall in Midwestern USA,” European Geosciences Union General Assembly, Vienna, Austria, April 22–27, 2012 (Abstract).

Tsakiris, A.G.; Hajimirzaie, S.M.; Papanicolaou, A.N.; and **Buchholz, H.J.** “Effects of a Boulder Array under Low and High Relative Submergence on Roughness: Implication to Bedload Rates,” American Geophysical Union Fall Meeting, San Francisco, Calif., Dec. 3–7, 2012 (Abstract).

Van Meter, K.J. and Basu, N.B. “Down Under: Organic Nitrogen Accumulations in Agricultural Landscapes,” American Geophysical Union Fall Meeting, San Francisco, Calif., Dec. 3–7, 2012 (Abstract).

Verdugo, E.M.; Xie, Y.; and **Cwiertny, D.M.** “Hybrid Hematite/Multiwalled Carbon Nanotube (A-Fe₂O₃/MWCNT) Nanostructures as Sorbents for Metal Contaminants in Water,” 244th ACS National Meeting, Philadelphia, Pa., Aug. 19–23, 2012.

Villarini, G.; Seo, B.C.; Serinaldi, F.; and **Krajewski, W.F.** “Modeling of Radar-rainfall Uncertainties for Hydrologic Applications: Preliminary Results,” American Geophysical Union Fall Meeting, San Francisco, Calif., Dec. 3–7, 2012 (Abstract).

Wacha, K.M.; Papanicolaou, A.N.; and **Wilson, C.G.** “Multifunctional Agriculture: Conducting an Ecosystem Service Assessment for an Agricultural Watershed,” American Geophysical Union Fall Meeting, San Francisco, Calif., Dec. 3–7, 2012 (Abstract).

Ward, A.S. “How Do Short- and Long-term Storage Change During Storm Events in a Headwater Mountain Stream?” Geological Society of America Annual Meeting and Exposition, Charlotte, N.C., Nov. 4–7, 2012 (Abstract).

Ward, A.S.; Fitzgerald, M.R.; Voltz, T.J.; Gooseff, M.N.; and Singha, K. “Geophysical Imaging to Inform Hyporheic Solute Transport Dynamics,” European Geosciences Union General Assembly, Vienna, Austria, April 22–27, 2012 (Abstract).

CONFERENCE PAPERS —
NO PROCEEDINGS *cont.*

Ward, A.S.; Gooseff, M.N.; and Singha, K. “Time Series Analysis of Geophysical Images to Quantify Subsurface Transport of Solute Plumes,” American Geophysical Union Fall Meeting, San Francisco, Calif., Dec. 3–7, 2012 (Abstract).

Ward, A.S.; Robinson, J.; Endreny, T.A.; Cullin, J.; Smidt, S.; Lautz, L.K.; and Zimmer, M.A. “Do Stream Restoration Structures Create Hyporheic Zones that are Comparable to those at Natural Features?” American Geophysical Union Fall Meeting, San Francisco, Calif., Dec. 3–7, 2012 (Abstract).

Wilson, C.G.; **Papanicolaou, A.N.**; and **Wacha, K.M.** “Quantifying the Impact of Agricultural Land Management Practices on Soil Carbon Dynamics at Different Temporal and Spatial Scales,” American Geophysical Union Fall Meeting, San Francisco, Calif., Dec. 3–7, 2012 (Abstract).

Wojcik, C.J. and **Buchholz, H.J.** “The Dynamics of Spanwise Vorticity on a Rotating Flat Plate,” 50th AIAA Aerospace Sciences Meeting and Exhibit, Nashville, Tenn., Jan. 6–9, 2012 (Abstract).

Wojcik, C.J. and **Buchholz, H.J.** “Vorticity Transport on a Rotating Blade,” 65th Annual Meeting of the APS Division of Fluid Dynamics, San Diego, Calif., Nov. 18–20, 2012 (Abstract).

Wright, D.B.; Smith, J.A.; **Villarini, G.**; and Baeck, M.L. “New Approaches to Rainfall and Flood Frequency Analysis Using High-resolution Radar Rainfall Fields and Stochastic Storm Transposition,” American Geophysical Union Fall Meeting, San Francisco, Calif., Dec. 3–7, 2012 (Abstract).

Wu, D.; Tawhai, M.H.; Stoltz, D.A.; Hoffman, E.A.; and **Lin, C.L.** “Periciliary Liquid Depth Prediction in Multiscale CT-based Dynamic Human Lung,” American Thoracic Society 2012 International Conference, San Francisco, Calif., May 18–23, 2012.

Xing, X.; Kuppusamy, S.P.; **Schnoor, J.L.**; and Ludewig, G. “Downregulation of Telomerase Activity and Shortening of Telomere Length by Polychlorinated Biphenyls (PCBs) in HL-60 Cells,” *Environmental and Molecular Mutagenesis*, 53, S66, 2012 (Abstract).

Yang, J. and **Stern, F.** “Robust and Efficient Setup Procedure for Complex Triangulations in Immersed Boundary Simulations,” ASME 2012 Fluids Engineering Summer Meeting, Rio Grande, Puerto Rico, July 8–12, 2012.

Yang, J.; **Wang, Z.**; **Yeon, S.M.**; **Koo, B.**; and **Stern, F.** “High-fidelity Curvilinear-grid Two-phase Flow Solvers for Ship Hydrodynamics,” 29th Symposium on Naval Hydrodynamics, Gothenburg, Sweden, Aug. 26–31, 2012.

Yarker, M.B.; **Stanier, C.O.**; Forbes, C.; and Park, S. “Preparing Middle School Teachers to Use Science Models Effectively when Teaching about Weather and Climate Topics,” American Geophysical Union Fall Meeting, San Francisco, Calif., Dec. 3–7, 2012 (Abstract).

Yin, Y.; Tawhai, M.H.; Hoffman, E.A.; **Lin, C.L.**; and **Choi, J.** “MdcT-based 3d-1d Coupled Airflow Simulation in the Entire Conducting Airway of Breathing Human Lung,” Thoracic Society 2012 International Conference, San Francisco, Calif., May 18–23, 2012.

Zhou, T.; **Ward, A.S.**; O’Connor, B.L.; and Endreny, T.A. “Floodplain Hyporheic Response under Dam Release Hydrographs,” American Geophysical Union Fall Meeting, San Francisco, Calif.; Dec. 3–7, 2012 (Abstract).

OTHER PRESENTATIONS

Just, C.L. “Mussels and Nitrogen,” UI Chemical Engineering Seminar, University of Iowa (UI)-Iowa City, December 2012.

Just, C.L. “Flood Science,” UI College of Education Teachers Institute, University of Iowa-Iowa City, December 2012.

Just, C.L. “Water Sustainability,” German American Chamber of Commerce Meeting, Cedar Rapids, Iowa, October 2012.

Just, C.L. “Sustainability at the Intersection of Mussels and Nitrogen,” Pre-game Address for UI President Sally Mason’s Brunch, University of Iowa-Iowa City, September 2012.

Just, C.L. “Freshwater Mussels and Nitrogen,” UI Department of Geography, University of Iowa-Iowa City, September 2012.

Just, C.L. “Keynote Address,” UI College of Education Graduation, University of Iowa-Iowa City, May 2012.

Just, C.L. “Water Sustainability,” Focus on the Classroom, Iowa City West High School, Iowa City, April 2012.

Just, C.L. “Freshwater Mussels and Nitrogen,” UI Geoscience Department, University of Iowa-Iowa City, April 2012.

Just, C.L. “Nitrogen and Gulf Hypoxia,” UI Policy Matters Course, University of Iowa-Iowa City, March 2012.

Just, C.L. “Freshwater Mussels and Nitrogen,” UI Chemical Engineering Seminar, University of Iowa-Iowa City, February 2012.

Just, C.L. “History of Sustainability,” (Panel Discussion), UI *World Canvass* Program, University of Iowa-Iowa City, February 2012.

OTHER PUBLICATIONS

Bettis III, A.E. “Climatic and Biotic Controls on Silt Production and Accumulation of Loess,” *Nature Education Knowledge*, 3, 7, 25 pp., 2012.

Muste, M.; Kim, D.; and Merwade, V. “Modern Digital Instruments and Techniques for Hydrodynamic and Morphologic Characterization of River Channels,” chapter in *Gravel-Bed Rivers: Processes, Tools, Environments*, Church, Biron, and Roy (Eds.), Wiley-Blackwell, pp. 315–341, January 2012.

Papanicolaou, A.N.; Church, M.; Biron, P.M.; and Roy, A.G. “Aspects of Secondary Flow in Open Channels: A Critical Literature Review,” chapter in *Gravel-Bed Rivers: Processes, Tools, Environments*, Church, Biron, and Roy (Eds.), Wiley-Blackwell, pp. 31–35, January 2012.

Schnoor, J.L. “Coalitions of the Willing,” *Environmental Science & Technology*, 46, 17, p. 9201, Aug. 17, 2012.
[doi:10.1021/es3030353](https://doi.org/10.1021/es3030353)

Schnoor, J.L. “Extended Producer Responsibility for E-Waste,” *Environmental Science & Technology*, 46, 15, p. 7927, June 25, 2012.
[doi:10.1021/es302070w](https://doi.org/10.1021/es302070w)

Schnoor, J.L. “Iowa Caucuses and the Environment,” *Environmental Science & Technology*, 46, 3, p. 1295, Jan. 17, 2012.
[doi:10.1021/es2046298](https://doi.org/10.1021/es2046298)

Schnoor, J.L. “Obama Must Lead on Climate Change,” *Environmental Science & Technology*, 46, 11, p. 5635, May 3, 2012.
[doi:10.1021/es301670s](https://doi.org/10.1021/es301670s)

Schnoor, J.L. “Shale Gas and Hydrofracturing,” *Environmental Science & Technology*, 46, 9, p. 4686, April 5, 2012.
[doi:10.1021/es3011767](https://doi.org/10.1021/es3011767)

Schnoor, J.L. “The Benefits of Being Green,” *Environmental Science & Technology*, 46, 21, p. 11487, Nov. 6, 2012.
[doi:10.1021/es303987j](https://doi.org/10.1021/es303987j)

Schnoor, J.L. “The Future of Higher Education,” *Environmental Science & Technology*, 46, 23, p. 12753, Nov. 2, 2012.
[doi:10.1021/es304366k](https://doi.org/10.1021/es304366k)

Schnoor, J.L. “The U.S. Drought of 2012,” *Environmental Science & Technology*, 46, 19, p. 10480, Sept. 13, 2012.
[doi:10.1021/es303416z](https://doi.org/10.1021/es303416z)

Stumm, W. and **Schnoor, J.L.** “Atmospheric Depositions: Impact of Acids on Lakes,” chapter in *Physics and Chemistry of Lakes*, Second Edition, Lerman, Imboden, and Gat (Eds.), Springer, December 2012.

Theiling, C.H.; **Bettis III, A.E.;** and Heitmeyer, M.E. “Hydro-geomorphic Classification and Potential Vegetation Mapping for Upper Mississippi River Bottomland Restoration,” chapter in *Studies on Environmental and Applied Geomorphology*, Piacentini and Miccadei (Eds.), InTech, pp. 163–190, March 21, 2012.

Vlahos, P.; Mackay, D.; Eisenreich, S.J.; and **Hornbuckle, K.C.** “Exchange of Chemicals between the Atmosphere and Lakes,” chapter in *Physics and Chemistry of Lakes*, Second Edition, Lerman, Imboden, and Gat (Eds.), Springer, December 2012.
Reprint 2776

TECHNICAL REPORTS

Papanicolaou, A.N. and **Tsakiris, A.G.** “Use of Fiber Bragg Grating (FBG) Sensors for Performing Automated Bridge Pier Structural Damage Detection and Scour Monitoring,” Mid-America Transportation Center, 83, 2012.

Papanicolaou, A.N.; **Admiraal, D.M.**; and **Wilson, C.G.** “Monitoring the Effects of Knickpoint Erosion on Bridge Pier and Abutment Structural Damage Due to Scour,” Mid-America Transportation Center, 84, 2012.

Spak, S.N.; **Baek, J.**; Carlson, J.; Carmichael, G.; Kim, Y.J.; Rimer, N.; and **Stanier, C.O.** “Episodic Air Pollution in Wisconsin (LADCO Winter Nitrate Study) and Georgia (SEARCH Network) During Jan–Mar 2009,” Phase II Report Three Dimensional Modeling, Process Analysis and Emissions Sensitivity, Lake Michigan Air Directors Consortium, May 2012.

LIMITED DISTRIBUTION REPORTS

Udaykumar, H.S. “Multi-scale Modeling and Simulation of Compressible Multimaterial Flows,” University of Iowa Department of Mechanical and Industrial Engineering, September 2012.

MS DEGREES CONFERRED & THESES ACCEPTED

Bijukchhe, Vijaya, “Comparison of Experimental Results of Horizontal Kaplan Turbine with Computational Fluid Dynamics,” *Advisor*: Larry Weber, 2012.

Chase, Nathan, “Simulation of the Darpa Suboff Submarine Including Self-propulsion with the E1619 Propeller,” *Advisor*: Pablo Carrica, 2012.

Cobert, Ashley, no thesis, 2012.

Diken, Mehmed Bilal, “Autonomous Tracking of Mussels in a Lab Environment,” *Advisor*: Anton Kruger, May 2012.

Durst, Jonathan, “Applications of Aquatic Chemistry Sensing in the Mississippi River and in a Laboratory Mussel Habitat,” *Advisor*: Craig Just, May 2012.

Gorsalitz, Emily, “Comparative Removal of Pharmaceuticals and Antimicrobials in Conventional and Constructed Wetland Wastewater Treatment in Cold Climate,” *Advisor*: Craig Just, 2012.

Jin-Young, Hyun, no thesis, 2012.

Kemp, Matthew, “An FM-CW Microwave Radar for Rainfall Applications,” *Advisor*: Anton Kruger, 2012.

Loukinova, Natalia, no thesis, *Advisor*: Nandita Basu.

Moustakidis, Jordanis, “Detection of Erosion/Deposition Depth Using a Low Frequency Passive Radio Frequency Identification (RFID) Technology,” *Advisor*: Thanos Papanicolaou, 2012.

Niraula, Suresh, “Applications of Aquatic Chemistry Sensing in the Mississippi River and in a Laboratory Mussel Habitat,” *Advisor*: Craig Just, May 2012.

Petrich, Nicholas, “Simulating and Explaining Passive Air Sampling Rates and Analyte Air Concentrations for Semi-Volatile Compounds on Polyurethane Foam Disks,” *Advisor*: S.N. Spak, 2012.

Reith, Benjamin, “Flood Risk Analysis for the Iowa Statewide Floodplain Mapping Project,” *Advisor*: Larry Weber, 2012.

Schulz, Timothy, “Comparison of PCBs in East Chicago, Ind., and Columbus Junction, Iowa, in Indoor and Outdoor Air,” *Advisor*: Keri Hornbuckle, 2012.

Shrestha, Liza, “CFD Study on Effect of Branch Size in Human Coronary Artery,” *Advisor*: Sarah Vigmostad, 2012.

Stafne, Brice, “Development and Application of a Two-dimensional Hydrodynamic Model for Assessment of Modern and Historical Flow Conditions of Upper Mississippi River Pool 8 near La Crosse, Wis.,” *Advisors*: Larry Weber and Doug Schnoebelen, 2012.

Van Meter, Kimberly, “Sustainability as a Language of Citizenship: The Development of Sustainable Citizens in a University,” *Advisor*: Craig Just, May 2012.

Winsky, Bryson, “A Redesigned Instrument and New Data Analysis Method Used to Measure the Size and Velocity of Hydrometers,” *Advisor*: Bill Eichinger, 2012.

Wojcik, Craig, “The Dynamics of Spanwise Vorticity on a Rotating Flat Plate in a Starting Motion,” *Advisor*: James Buchholz, 2012.

PHD DEGREES CONFERRED & THESES ACCEPTED

Arenas Amado, Antonio, “Development and Application of a Mechanistic Model to Predict Juvenile Salmon Swim Paths,” *Advisors*: Marcela Politano and Larry Weber, 2012.

Bril, Jeremy, “Assessing the Effects of Native Freshwater Mussels on Aquatic Nitrogen Dynamics,” *Advisor*: Craig Just, December 2012.

Domaszczyński, Piotr, “Performance Evaluation of a Network of Polarimetric X-band Radars used for Rainfall Simulation,” *Advisor*: Witold Krajewski, 2012.

Livermore, Joshua, “Microbial Ecology of a Managed Aquifer near the Iowa Army Ammunitions Plant (Middletown, Iowa),” *Advisor*: Tim Mattes, 2012.

Meggo, Richard, “Rhizosphere Biotransformation of Selected Polychlorinated Biphenyl (PCB) Congeners by Switchgrass and Poplar,” *Advisor*: Jerry Schnoor, 2012.

Mousel, John, “A Massively Parallel Adaptive Sharp Interface Solver with Application to Mechanical Heart Valve Simulations,” *Advisor*: H.S. Udaykumar, 2012.

Sousan, Sinan Dhia Jameel, “Optimal Interpolation Schemes to Constrain PM_{2.5} in Regional Modeling over the United States,” *Advisor*: Charles Stanier, 2012.

Stroope, Timothy, “The Impact of Severe Blowdown on Sediment Composition and Sedimentation Rates in Lakes Within Blowdown Patches Created by the Routt-Divide Blowdown of 1997, Mt. Zirkel Wilderness Area, North Central Colorado,” *Advisor*: Frank Weirich, 2012.

AWARDS, ACTIVITIES, AND APPOINTMENTS INTERNATIONAL AND NATIONAL

RESEARCH STAFF

George Constantinescu

- Chair, ASCE Eco-hydraulics Technical Committee, 2008–present
- Chair, ASCE Mass Exchange Processes around In-stream Structures for Habitat Restoration Task Committee, 2005–present
- Chair, IAHR Fluid Mechanics Committee, 2009–present
Guest Editor, *Environmental Fluid Mechanics* special issue focusing on Shallow Flows Symposium, 2012
- Invited lecturer, Sixth Environmental Fluid Mechanics Summer School, Horw, Switzerland, June 2012
- Organizer and chair, Third International Symposium on Shallow Flows, June 2012

David Cwiertny

- Coordinator, Award Symposium for Creative Advances in Environmental Science and Technology Honoring Vicki H. Grassian, 243rd American Chemical Society National Meeting, Division of Environmental Chemistry, San Diego, Calif.
- Coordinator, Symposium on Materials for Water Sustainability, Division of Environmental Chemistry, 244th American Chemical Society National Meeting, Philadelphia, Pa.
- Coordinator, Workshop: Starting Out on the Right Foot: Tips for Success for Aspiring and New Faculty, Association of Environmental Engineering and Science Professors Biannual Conference, Tampa, Fla.
- Guest Editor, *Journal of Environmental Monitoring* Emerging Investigators, themed issue, June 2011–12

Ibrahim Demir

- Session Organizer, “Designing a Roadmap for Workflow Cyberinfrastructure in the Geosciences: From Big Data to the Long Tail,” AGU Fall Meeting, December 3–7, 2012, San Francisco, Calif.
- Session Organizer, “Informatics in Hydrological Modeling and Information Communication,” AGU Fall Meeting, December 3–7, 2012, San Francisco, Calif.
- Winner, Developer Round 1, National Science Foundation and Mozilla’s Foundation Ignite Challenge: Apps for Next-generation Networks, 2012

Keri Hornbuckle

- Fellow, Executive Leadership in Academic Technology and Engineering, 2012–13
- Session Leader, Seventh PCB Workshop, Arcachon, France, May 2012

Witold Krajewski

- Chair, Board of Directors, CUAHSI, 2012

Ching-Long Lin

- Chair, Mechanical Engineering Accreditation Board for Engineering and Technology Committee, 2012
- Elected Fellow, American Institute for Medical and Biological Engineering, 2012
- Lead, Working Group Cell-to-macroscale, Interagency Modeling and Analysis Group and the Multi-scale Modeling Consortium, 2011–present

Marian Muste

- Scientific Fellow, *Hydrologie Hydraulique*, National Research Institute of Science and Technology for Environment and Agriculture, Lyon, France, 2012
- U.S. Expert, Open Panel of the Commission for Hydrology Experts, World Meteorological Organization, 2012

Wilf Nixon

- Received George K. Wadlin Award, American Society for Engineering Education, 2012
- Chair, TRB AH010 Committee on Surface Weather Transportation, 2012
- Co-chair, Organizing Committee of Transportation Research Board (TRB)/NRC Eighth Winter Maintenance Conference, July 2012

A. Jacob Odgaard

- Received Lifetime Achievement Award, Environmental and Water Resources Institute of the American Society of Civil Engineers (EWRI/ASCE), 2012

Thanos Papanicolaou

- Chair, EWRI/ASCE Hydraulics and Waterways Council, 2012

AWARDS, ACTIVITIES, AND APPOINTMENTS *cont.* **INTERNATIONAL AND NATIONAL**

Jerald Schnoor

- Chair, ACS committee to form a new journal and choose editor-in-chief, *Sustainable Chemistry & Engineering*, 2012
- Chair, National Research Council Committee Science for Environmental Protection, 2011–12
- Editor-in-chief, *Environmental Science & Technology*, 2003–present
- Invited Lecturer, 43rd Henry M. Shaw Lecture, “Living in a Changing Water Environment,” North Carolina State University, Raleigh, N.C., Nov. 30, 2012
- Invited Lecturer, Black Swan Seminar, “The U.S. Drought of 2012 and Climate Change,” Virginia Institute of Technology, Blacksburg, Va., Oct. 26, 2012
- Invited Lecturer, Clifford Randall Distinguished Lecture, “Water Sustainability in a Changing World,” Virginia Institute of Technology, Blacksburg, Va., Oct. 26, 2012
- Invited Lecturer, U.S. Agency Modeling Roundtable, “Understanding Water-human Dynamics: The Clear Creek Intelligent Digital Watershed,” USGS, Reston, Va., Nov. 8, 2012
- Testified before the Subcommittee on Energy and Environment in the U.S. House of Representatives, “Science for EPA’s Future,” Feb. 3, 2012

Fred Stern

- Named the Georg P. Weinblum Memorial Lecturer, “Computational Ship Hydrodynamics: Opportunities and Challenges,” Nov. 21, 2012
- Part of the group that received the NATO RTO Scientific Achievement Award, 2012

Gabriele Villarini

- Received “*Premio Evangelista Torricelli*” (best young Italian researcher in hydrology and hydraulics), Italian Group of Hydraulics, September 2012

Adam Ward

- Article selected for Editor’s Highlight and Research Spotlight, *Water Resources Research*, “Hydrologic and Geomorphologic Control on Hyporheic Exchange during Baseflow Recession in a Headwater Mountain Stream,” 2012
- Convener, CyberSeminar Series, Consortium of Universities for the Advancement of Hydrologic Science, “Exploring Cutting-edge Techniques and Advances in Instrumentation,” fall 2012
- Organizer, three complementary sessions on Groundwater-surface Water Interactions, AGU Fall Meeting, 2012

Jianming Yang

- Ranked among Science Direct’s Top 25 Hottest Articles, Nos. 2 and 21, *Journal of Computational Physics*, 2012
- Symposium Co-organizer and Session Chair, ASME Fluids Engineering Division Summer Meeting, Rio Grande, Puerto Rico, 2012

AWARDS, ACTIVITIES, AND APPOINTMENTS *cont.*

STATE AND LOCAL

STUDENTS

Robert Bullard

- Poster Award Recipient, UI College of Engineering Research Open House, 2012

Dimitrios Dermisis

- Authored one of the most downloaded papers in the ASCE database, “Investigating the Role of Clasts on the Movement of Sand in Gravel Bed Rivers,” 2012

Chad Drake

- Received James L. Shive Award, 2012

Seyed Mohammad Hajimirzaie

- Poster Award Recipient, UI College of Engineering Research Open House, 2012

Paul Haugen

- Received E.B. Kurtz Senior Merit Award, 2012

David Koser

- Received John F. Kennedy Memorial Fellowship, 2012

Timothy Schulz

- Poster Award Recipient, UI College of Engineering Research Open House, 2012

Achilleas Tsakiris

- Received the UI Department of Civil and Environmental Engineering’s Doctoral Dissertation Year Fellowship, 2012

Ken Wacha

- Received the Archie A. Alexander Outstanding Scholarship Award, 2012

RESEARCH STAFF

David Cwiertny

- Chair, Campus-wide Water Sustainability Initiative Steering Committee, 2012
- Director of Graduate Studies, University of Iowa Department of Civil and Environmental Engineering, July 2012–present

William Eichinger

- Faculty Advisor, Student Chapter, Society of American Military Engineers, 2009–13

Keri Hornbuckle

- Associate Dean for Academic Programs, College of Engineering, University of Iowa, 2010–present

Craig Just

- Faculty Advisor, UI Engineers for a Sustainable World, 2004–present
- Faculty Advisor, UI Engineers Without Borders USA, 2007–present

Witold Krajewski

- Received UI Graduate College Outstanding Faculty
- Mentor Award in mathematical and physical sciences and engineering, 2012

Anton Kruger

- Received the UI College of Engineering ECE Graduating Class Excellence in Teaching Award, spring 2012

Tim Mattes

- Received Career Development Award, UI Office of the Executive Vice President and Provost, May 2012
- Coordinator, UI Environmental Engineering and Science Program, 2012

Wilf Nixon

- Advisor, Continental Crossings Student Group, 2012
- Coordinator, UI Department of Civil and Environmental Engineering Transportations programs, 2012
- UI Graduating Class Recognition for Excellence in Teaching and Dedication to Student Success, December 2012

Michelle Scherer

- Chair, Department of Civil and Environmental Engineering, 2010–present

AWARDS, ACTIVITIES, AND APPOINTMENTS *cont.*
STATE AND LOCAL

Jerald Schnoor

- Chair, UI Water Sustainability Initiative, 2009–present
- Co-director, UI Center for Global and Regional Environmental Research, 1990–present
- Faculty Co-chair, UI Foundation Capital Campaign, 2012

Charles Stanier

- Received the UI Faculty Career Development Award, 2012
- Recognized for Excellence in Teaching and Dedication to Student Success, 2012

Fred Stern

- Received the UI Faculty Excellence Research Award, 2012

H.S. Udaykumar

- Chair, Department of Mechanical and Industrial Engineering Graduate Committee, 2010–present

Sarah Vigmostad

- Advisor, Iowa Medical Innovations Group, 2009–present
- Faculty Advisor, Society of Women Engineers, UI Chapter, 2012–present
- Recognized for Excellence in Teaching and Dedication to Student Success, December 2012
- Student Mentor, Iowa Space Grant Consortium, 2011–present

Larry Weber

- Co-chair, UI Flood Mitigation Task Force, 2008–present
- Co-chair, Vice President for Research and Economic Development Search Committee, 2011–12
- Faculty Advisor, University of Iowa Shooting Sports Club, 2012

SEMINARS

| DATE | PRESENTER/AFFILIATION | SEMINAR TITLE |
|----------------|--|--|
| Jan. 20, 2012 | Francisco Pedocchi, <i>Docente Grado 2, Universidad de la República, Facultad de Ingeniería Instituto de Mecánica de los Fluidos e Ingeniería Ambiental, Montevideo, Uruguay</i> | “Waves, Currents, and Suspended Sediment Measurements in the Río de la Plata Estuary in front of Montevideo, Uruguay” |
| Jan. 27, 2012 | Gene Takle, Professor, Department of Geological and Atmospheric Sciences, Iowa State University | “Precipitation Corridors: An Exploratory Analysis of Iowa Extreme Precipitation Events” |
| Feb. 1, 2012 | William Gallus, Professor, Department of Geological and Atmospheric Sciences, Iowa State University | “Predictability of Heavy Warm Season Rainfall in 06 – 30 Hour Period for Use by the Iowa Flood Center” |
| Feb. 3, 2012 | Ramanathan Sugumaran, Professor and GeoTREE Director, University of Northern Iowa | “Iowa Statewide LiDAR Data Processing Using Different Computing Environments” |
| Feb. 7, 2012 | René Therrien, Professor and Associate Dean, Department of Geology and Geological Engineering, <i>Université Laval</i> | “The Best of HydroGeoSphere — Examples of What It Can Do” |
| April 6, 2012 | Diogo Bolster, Assistant Professor, Department of Civil Engineering and Geological Sciences, University of Notre Dame | “Probabilistic Risk Assessment in Subsurface Flow and Transport” |
| April 13, 2012 | IIHR—Hydroscience & Engineering (IIHR), student participants in the India Winterim Program | “Exploring Challenges of Groundwater Salinization: An International Student Project in India” |
| May 4, 2012 | Ashraf Mohamed, Assistant Professor, Faculty of Engineering, Ain Shams University | “Water Resources Issues in Egypt and Possible Collaboration Ideas” |
| May 11, 2012 | Aris Psilovikos, Assistant Professor, School of Agricultural Sciences, University of Thessaly | “Monitoring and Modeling as Tools for Water Resources Protection, Restoration, and Management: Case Studies from Greece” |
| May 18, 2012 | Jesus D. Gomez, Hydrology Program, New Mexico Institute of Mining and Technology | “Understanding Dynamic Mountainous Watersheds: Age Distributions, Environmental Tracers, and Mathematical Models” |

SEMINARS *cont.*

| DATE | PRESENTER/AFFILIATION | SEMINAR TITLE |
|----------------|--|---|
| Sept. 21, 2012 | Matthew Wunsch , Graduate Research Assistant, IIHR | “Distributed Storage Modeling in Soap Creek Using HEC-HMS” |
| Sept. 21, 2012 | Ben Reith , Graduate Research Assistant, IIHR | “Economic Flood Risk Analysis for the Statewide Floodplain Mapping Project” |
| Sept. 28, 2012 | Keith Schilling, Research Geologist, Iowa DNR-Geological and Water Survey | “Development of a Highly-resolved 3-D Nutrient Model for Applications in Water Quality and Aquatic Ecosystems” |
| Sept. 28, 2012 | Seyed Mohammad Hajimirzaie , Graduate Research Assistant, IIHR | “Flow Structure in the Wake of a Low-aspect-ratio Wall-mounted Bluff Body” |
| Oct. 11, 2012 | Lawrence C. Murdoch, Professor, College of Engineering and Science, Clemson University | “Three Faces of Fracking” |
| Oct. 19, 2012 | Edward Luke, Associate Professor of Computer Science, Mississippi State University | “Loci: An Autoparallelizing Framework for Irregular Computations” |
| Nov. 2, 2012 | Brice Stafne , Graduate Research Assistant, IIHR; Tommy Sutarto , Graduate Research Assistant, IIHR | “Measuring Critical Erosion Strength of Cohesive Stream Bank Using Conduit Flume” |
| Nov. 16, 2012 | Elizabeth Christiansen, Director, University of Iowa Office of Sustainability | “Sustainability at Iowa” |
| Nov. 30, 2012 | Santiago Lopez Castano , Graduate Research Assistant, IIHR | “A Comprehensive CFD Simulation for Proposed Fish Traps on the Cowlitz Falls River Dam” |
| Nov. 30, 2012 | Benjamin Abban , Graduate Research Assistant, IIHR | “Coupling WEPP and 3ST1D Numerical Models for Improved Prediction of Flow and Sediment Transport at Watershed Scales” |
| Dec. 14, 2012 | Esther Eke, PhD Candidate, Department of Civil and Environmental Engineering, University of Illinois at Urbana-Champaign | “Modeling Channel Width Selection in Meandering Rivers” |

IIHR
Director
L. Weber

ADMINISTRATION & RESEARCH SUPPORT STAFF

| | | |
|--|---|---|
| Director of Engineering Services T. Lyons Mechanical Shop Manager T. Houser Ass't. Shop Manager B. Barquist Eng. Coordinator C. Borgwardt | Director of Development and Communications C. Langel Administrative Assistant L. Myers Lead Communication Specialist J. Stolze Sr. Science Writer & Archivist C. Mutel | Director of Finance and Human Resources T. Gaffey Accountants S. Castillo M. Eckrich S. Gerard Adm. Services Specialist (1 vacant) Secretary H. Hunter |
|--|---|---|

RESEARCH ENGINEERS/SCIENTISTS & FACULTY AFFILIATES

| | | |
|---|--|--|
| Environmental Hydraulics N. Basu G. Constantinescu M. Muste W. Nixon A.J. Odgaard T. Papanicolaou C. Wilson M. Politano D. Schnoebelen A. Ward L. Weber N. Young | Fluid Dynamics J. Buchholz P. Carrica J.E. Martin (1 vacant) K.B. Chandran C. Lin J. Longo F. Stern L. Gui H. Sadat Hosseini M. Kandasamy Z. Wang J. Yang M. Mousaviraad H. Yoon (1 vacant) H.S. Udaykumar S. Vignostad | Air & Water Resources A. Bradley D. Cwienty I. Demir J. Dorale W. Eichinger K. Hombuckle D. Hu A. Martinez C. Just W. Krajewski J. Niemeier A. Kruger R. Mantilla T. Mattes M. Scherer J. Schnoor G. Zhai C. Stanier E. Tate G. Villarini F. Weirich Y.K. Zhang |
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IOWA FLOOD CENTER

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| Director W. Krajewski Associate Director N. Young Managing Director C. Langel Outreach and Communication J. Balkcom S. Steussy Design Engineer D. Ceynar R. Gaska R. Johnson Water Resources Engineer D. Chang D. Gilles K. Kee T. Loeser J. Piotrowski H. Schroeder (1 vacant) GIS Analyst R. Galer T. Johnson M. Keyte J. Thomas Sr. Database Adm. (1 vacant) |
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LACMRERS

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|-----------------------------------|
| Director D. Schnoebelen |
|-----------------------------------|

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|---|
| Graduate & Undergraduate Student Research Assistants |
| Postdoctoral Scholars |
| Visiting Scholars |

RESEARCH ENGINEERS, SCIENTISTS, AND FACULTY AFFILIATES

| FACULTY MEMBER | DEPT. APPOINTMENT | IIHR APPOINTMENT |
|---------------------------------|-------------------------------|------------------------------------|
| Basu, Nandita | Assistant Professor, CEE | Assistant Research Engineer |
| Bradley, A. Allen | Professor, CEE | Research Engineer |
| Buchholz, James | Assistant Professor, ME | Assistant Research Engineer |
| Carrica, Pablo | Associate Professor, ME | Research Engineer |
| Chandran, K.B. | Professor, BME | Research Engineer |
| Constantinescu, George | Associate Professor, CEE | Associate Research Engineer |
| Cwiertny, David | Assistant Professor, CEE | Assistant Research Engineer |
| Demir, Ibrahim | | Assistant Research Engineer |
| Dorale, Jeffrey | Associate Professor, GS | Associate Research Engineer |
| Eichinger, William | Professor, CEE | Research Engineer |
| Garvin, Justin | Adj. Assistant Professor, ME | Assistant Research Engineer |
| Gui, Lichuan | Adj. Associate Professor, ME | Associate Research Scientist |
| Hornbuckle, Keri | Professor, Chair, CEE | Research Engineer |
| Hu, Dingfei | | Assistant Research Scientist |
| Just, Craig | Assistant Professor, CEE | Associate Research Engineer |
| Kandasamy, Manivannan | | Assistant Research Scientist |
| Krajewski, Witold | Professor, CEE | Research Engineer |
| Kruger, Anton | Associate Professor, ECE | Associate Research Engineer |
| Lin, Ching-Long | Professor, ME | Research Engineer |
| Longo, Joe | | Associate Research Engineer |
| Lyons, Troy | | Engineer III |
| Mantilla, Ricardo | Adj. Assistant Professor, CEE | Assistant Research Engineer |
| Martin, Juan Ezekiel | | Assistant Research Scientist |
| Martinez, Andres Araneda | | Assistant Research Scientist |
| Mattes, Tim | Associate Professor, CEE | Associate Research Engineer |
| Mousaviraad, Maysam | | Assistant Research Scientist |
| Muste, Marian | Adj. Professor, CEE | Research Engineer |
| Nakato, Tatsuaki | | Research Engineer Emeritus |
| Nixon, Wilfrid A. | Professor, CEE | Research Engineer |
| Odgaard, A. Jacob | Professor, CEE | Research Engineer |
| Papanicolaou, Thanos | Professor, CEE | Research Engineer |
| Patel, Virendra C. | | Research Engineer Emeritus |
| Politano, Marcela | Adj. Associate Professor, CEE | Associate Research Engineer |
| Sadat Hosseini, Seyed | | Assistant Research Scientist |
| Scherer, Michelle | Professor, DEO, CEE | Research Engineer |
| Schnoebelen, Douglas | Adj. Associate Professor, GS | Research Scientist |
| Schnoor, Jerald | Professor, CEE | Research Engineer |
| Stanier, Charles | Assistant Professor, CBE | Assistant Research Engineer |
| Stern, Fred | Professor, ME | Research Engineer |
| Tate, Eric | Assistant Professor, GSS | Assistant Research Engineer |
| Udaykumar, H.S. | Professor, ME | Research Engineer |
| Vigmostad, Sarah C. | Assistant Professor, BME | Assistant Research Engineer |
| Villarini, Gabriele | Assistant Professor, CEE | Assistant Research Engineer |
| Wang, Zhaoyuan | | Assistant Research Scientist |
| Weber, Larry J. | Professor, CEE | Research Engineer/Director of IIHR |
| Weirich, Frank | Associate Professor, GS | Associate Research Engineer |
| Wilson, Chris | | Assistant Research Scientist |
| Yang, Jianming | Adj. Associate Professor, MIE | Associate Research Engineer |

**RESEARCH ENGINEERS, SCIENTISTS,
AND FACULTY AFFILIATES** *cont.*

FACULTY MEMBER

Yoon, Hyunse
Young, Nate C.
Zhai, Guangshu
Zhang, You-Kuan

DEPT. APPOINTMENT

Adj. Associate Professor, CEE
Adj. Assistant Professor, CEE
Professor, GS

IIHR APPOINTMENT

Assistant Research Scientist
Associate Research Engineer
Assistant Research Scientist
Research Engineer

STAFF

STAFF MEMBER

Barquist, Brandon

Bartels, Scott
Borgwardt, Christian
Castillo, Sofia
Ceynar, Dan
Chang, Derek
Craig, Andrew
Dils, Karin
Eckrich, Melissa
Gaffey, Teresa

Galer, Rochelle
Gerard, Sandra
Gilles, Dan
Goska, Radek
Goss, Jim
Houser, Tim
Hunter, Heather
Johnson, Robert
Johnson, Tyler
Keyte, Melinda
Knox, Jason
Kundert, Mike

Langel, Carmen

Loeser, Tony
Lyons, Troy

Miller, Brian

Mutel, Connie

IIHR TITLE

Engineering Coordinator/
Assistant Shop Manager
Research Project Assistant
Engineering Coordinator
Project Assistant
Engineer II
Engineer
Engineer II
Engineer
Accountant
Director of Finances and
Human Resources
Research Assistant
Project Assistant
Engineer
Design Engineer
Lead Welding Foreman
Supervisor of Shop Services
Secretary
Design Engineer
Research Assistant I
Research Assistant I
Engineering Assistant
Engineering Technician I/
Draftsman
Director of Development
and Communications
Engineer
Director of Engineering
Services
Information Technology
Service and Support
Senior Science Writer
& Archivist

STAFF MEMBER

Myers, Laura
Nelson, Margaret
Nordling, Bradley

Piotrowski, Jesse
Reuter, Brad

Saeugling, Richard
Schroeder, Harvest
Smedley, LaVern
Stolze, Jackie Hartling

Thomas, Justin
Wagner, Greg

Wilson, Mark

IIHR TITLE

Administrative Assistant
Application Developer
Research Project Assistant/
Draftsman
Engineer
Project Construction
Assistant/Research Assistant
Research Project Assistant
Engineer
Research Project Assistant
Lead Communication
Specialist
Research Assistant
Engineer II/
Electronics Engineer
Director of Research
Computing

GRADUATE STUDENTS

Abban, Benjamin CEE
Adhikari, Tika Ram GS
Akkala, James MIE
Allman, Daniel CEE
Ampleman, Matthew EPS
Ausland, Hayden CEE
Awad, Andrew CEE
Ayalew, Tibebe CEE
Bachman, Jonathan CEE
Baidoo-Williams, Henry ECE
Barr, Jared CEE
Basnet, Keshav CEE
Baxter, Travis CEE
Bijukchhe, Vijaya CEE
Bril, Jeremy CEE
Browne, Stephen CEE
Bullard, Robert CBE
Carbone, Michael MIE
Champagne, Ted CEE
Chase, Nathan MIE
Chen, Bo CEE
Cheng, Zhengyang CEE
Chivukula, Venkat Keshav BME
Choi, Chi Chi CEE
Choi, Sanghun MIE
Cobert, Ashley CEE
Cook, Shane MIE
Dermisis, Dimitrios CEE
Ding, Deng GSS
Dogan, Timur MIE
Domaszczyński, Piotr ECE
Drake, Chad CEE
Durst, Jonathan CEE
Dvorak, Joseph MIE
Elsaadani, Mohamed CEE
Elshiekh, Haitham MIE
Erdman, Nicholas CEE
Eslam, Panah Azar MIE
Esmaeilpour, Mehdi MIE
Fahim, Rezaei Hamid MIE
Field, Daniel GSS
Firoozfar, Ali Reza CEE
Fonley, Morgan MATH
Frasson, Reanto Prata De Moraes CEE
Gaynor, Keith CEE
Gorsalitz, Emily CEE
Govindarajan, Vijay BME
Greenstein, Katherine CEE

Haase, Jason CEE
Habib, Mohamed CEE
Hajimirzaie, Seyed Mohammad CEE
Hanaoka, Akira MIE
Hernandez, Murcia Oscar CEE
Horna Munoz, Daniel CEE
Hosnieh, Farahani Mehrdad BME
Huhmann, Brittany CEE
Hyun, Jin-Young CEE
Jahani, Nariman MIE
KC, Ashok CEE
Kapahi, Anil MIE
Kardos, Jennifer LIT
Kemp, Matthew ECE
Khoshouei, Foad CEE
Kim, Dong Hwan MIE
Klingner, William CEE
Koh, Wen Xin CEE
Koo, Bon Guk MIE
Krause, Caitlin CEE
Lanzl, Caylyn CEE
Le, Lance CEE
Lee, John Suk BME
Lee, Kyutae CEE
Li, Jiajia MIE
Li, Yuwei MIE
Lintner, Carly CEE
Liu, Xikun CEE
Lopez Castano, Santiago CEE
Loukinova, Natalia CEE
Malatek, Katheryn CEE
Mallakpour, Iman CEE
Marek, Rachel CEE
Maskey, Mahesh CEE
McClurg, Josiah ECE
Meggo, Richard CEE
Mishra, Kumar Vijay ECE
Mishra, Sudipta Kumar CEE
Miyawaki, Shinjiro CEE
Mofidi, Alireza MIE
Mohaghegh, Fazlolah MIE
Moustakidis, Iordanis CEE
Navarro, Walter CEE
Niraula, Suresh CEE
Nissen, Nathan CEE
Null, Jordan MIE
Osgood, Eric MIE
Oulton, Rebekah CEE

GRADUATE STUDENTS *cont.*

Pasakarnis, Timothy CEE
Perret, Matias MIE
Petrich, Nicholas CEE
Plenner, Sean CEE
Rai, Nirmal MIE
Rapolu, Umashanker GSS
Reith, Benjamin CEE
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Rowe, Scott CEE
Ruebush, Scott MIE
Schulz, Timothy EES
Sen, Oishik MIE
Seo, Bong-Chul CEE
Shao, Tianhua GSS
Sheler, Rebecca CEE
Shrestha, Liza BME
Singh, Ashish CEE
Sloan, Brandon CEE
Stafne, Brice CEE
Stunkel, Kevin CEE
Sutarto, Tommy CEE
Tekle, Tesfalem CEE
Thomas, Nicholas CEE
Tsakiris, Achilleas CEE
Upasani, Sameer ECE
Van Meter, Kimberly CEE
Varmaghani, Ali CEE
Verdugo, Edgard CEE
Verma, Anoop MIE
Wei, Xiupeng MIE
Winsky, Bryson CEE
Wojcik, Craig MIE
Wu, Dan MIE
Wunsch, Matthew CEE
Xin, Xing OEH
Xu, Shuang GSS
Yeon, Seong MIE
Yucuis, Rachel CEE
Zhang, Huilan CEE

POSTDOCTORAL RESEARCH SCHOLARS

Amado, Antonio Arenas CEE
Baek, Jaemeen EES
Barger, Michelle GS
Barnhart, Brad PHYSICS
Bressan, Filippo CEE
Choi, Jiwoong MIE
Cunha, Luciana Kindl Da CEE
Dillard, Seth MIE
Mousel, John MIE
Neumann, Anke CHEM
Niemeier, James IFC
Qu, Shen CEE
Somashekar, Vishwanath MIE
Sousan, Sinan OEH
Yoon, Sung-Hwan MAE

BME Biomedical Engineering
CEE Civil and Environmental Engineering
CS Computer Science
CBE Chemical and Biochemical Engineering
ECE Electrical and Computer Engineering
EPS Earth and Planetary Science
EES Environmental Engineering and Science
GSS Geographical and Sustainability Sciences
GS Geoscience
IFC Iowa Flood Center
LIT Learning and Instructional Technology
MAE Mechanical and Aerospace Engineering
MATH Mathematics
MIE Mechanical and Industrial Engineering
OEH Occupational and Environmental Health

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University of Iowa

Ms. Carmen Langel

Director of Development and Communications,
IIHR—Hydrosience & Engineering
University of Iowa

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