

Lizette R. Chevalier, Ph.D., P.E., BCEE, D-WRE, F-ASCE

Acting Associate Dean, College of Engineering
Professor, Civil and Environmental Engineering
Southern Illinois University Carbondale
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Carbondale, IL 62901
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Education

Ph.D., Michigan State University, Dept. of Civil and Environmental Engineering, Evaluation of Hydraulic Controls to Promote Surfactant Enhanced Dissolution of Trapped Residual NAPL, 1994.
Advisors: Dr. David Wiggert and Dr. Roger Wallace

Master's of Science, Michigan State University, Dept. of Civil and Environmental Engineering, *The Design and Use of a Tensiometer to Measure Soil Water Pressure in the Vadose Zone*, 1990.
Advisor: Dr. Roger Wallace

Bachelor's of Science, Wayne State University, Dept. of Civil Engineering, 1988

Experience

Southern Illinois University Carbondale

Carbondale, IL
Acting Associate Dean, College of Engineering
Professor of Civil and Environmental Engineering, 2007-present
Chair, Department of Civil and Environmental Engineering, 2002 – 2008 (two terms)
Associate Professor, Department of Civil and Environmental Engineering, 1999-2007
Assistant Professor, Department of Civil Engineering, 1995-1999

Bucknell University

Lewisburg, PA
Visiting Assistant Professor, Department of Civil Engineering, 1994-1995

Michigan State University

E. Lansing, MI
General Electric Fellow, 1993-1994
Instructor, Numerical Methods, 1992-1993
Graduate Research Assistant, 1990-1992
Dean's Distinguished Fellow in Engineering, 1989-1990

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General Motors Research and Development

Warren, MI

Research and Environmental Staff, Graduate Intern Engineer, 1992

Designed an experimental apparatus for a bench scale soil washing study of clayey soils contaminated with PCBs

Conducted a state-of-the-art review of the commercial application of soil washing and *in-situ* soil flushing for the development of a database of vendors and available technologies

Research and Scholarship

Research Overview

Fate and transport of contaminants; Environmental technology; Environmental impact of anthropogenic nanomaterials; Advances in technology enhanced engineering education

Research and education grants from the National Science Foundation, the Engineering Information Foundation, the USDA/Illinois Groundwater Consortium (\$3.7 M)

NSF CLEANER Science Advisory Board, 2005-2006

Reviewer for National Science Foundation, Department of Homeland Security, Petroleum Research Fund and a wide range of research journals and conferences

Teaching Overview

Introductory (junior-level), graduate-level and general education courses in environmental /water resources engineering, numerical methods for engineers, core curriculum course in environmental science

Developed instructional websites for engineering education that also targets other educational sectors (K-12, community colleges, technical careers)

International Conference of Engineering Educators (ICEE) Advisory Board, Puerto Rico Conference, 2006

Grants Awarded Externally

Pinter, N., Whiles, M., Chevalier, L.R., Lant, C., and Baer, S., 2009. *IGERT: Multidisciplinary, Team-Based Training in Watershed Science and Policy*. National Science Foundation, Division of Graduate Education. (\$3,179,181)

Chevalier, L.R., Ray, B.T., Nicklow, J., and Boruszkowski, L., 2001, *Digital Images of Environmental and Water Resources Engineering Principles and Practice*. National Science Foundation DUE. (\$140,000)

Craddock, J.N., Chevalier, L.R., and Riley, P., 2000, *Interactive Multimedia Labware for Civil Engineering Curricula*. National Science Foundation, Division of Undergraduate Research, Course, Curriculum and Laboratory Improvement. (\$206,079)

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Spoerre, J., Harackiewicz, F.J, and Chevalier, L.R., 1999, *Engineering Change in the Classroom*, Engineering Information Foundation, (\$83,202)

Craddock, J.N, and Chevalier, L.R., 1999, *Civil Engineering Laboratories Supplemental Web Site*, NSF SUCCEED Coalition, (\$4000)

Chevalier, L.R., 1998, *Capillary Trapping of Immiscible Organic Contaminants in Aquifer Soils Due to Flooding*, USDA/Illinois Groundwater Consortium. (\$36,837)

Chevalier, L.R., 1998, *Benchmark Experiments in Aquifer Remediation of Light Nonaqueous Phase Liquid Contaminants Using Surfactants*, National Science Foundation Research Planning Grant for Women Scientist and Engineers. (\$18,000)

Grants Awarded Internally

Chevalier, L.R. and DeVantier, B.A., 1999. *Evaluation of GAC from Agricultural By-products to Reduce THM in Chlorinated Water*. Materials Technology Center. (\$18,000)

Chevalier, L.R., 1999, *Support for Research in NAPL Flow, Transport and Remediation in Groundwater Aquifers*. Joint Women's Studies and University Women's Professional Advancement Juried Competition. (\$589)

Chevalier, L.R., 1997-1999, Testing of Surfactants for Use in Remediation of Light Nonaqueous Phase Liquid Contaminants in Aquifers. SIUC Materials Technology Center. (\$33,088)

Chevalier, L.R., 1998, *Technology Enhanced Learning in Engineering*, SIUC Regional Center for Distance Learning and Multimedia Development. (\$750)

DeVantier, B. A. and Chevalier, L.R., 1998. *Technology Enhanced Assessment and Learning of Computer Languages in Engineering Applications*. SIUC Office of Vice Chancellor for Academic Affairs and Provost: New Teaching Fellowship Program in Multimedia Instructional Technology. (\$11,190)

Chevalier, L.R., 1998, *Soil Column Experiments in Remediation of Immiscible Organic Contaminants in Aquifer Soils*. Joint Women's Studies and University Women's Professional Advancement Juried Competition. (\$500).

Chevalier, L.R., 1996-1997, Special Research Project, *Preliminary Experimental Investigation of Transient Mass Transfer of Trapped Residual NAPL in Aquifer Soil*. Office of Research and Development, SIUC. (\$25,015)

Journal Publications

Chevalier, L.R., McCann, C. D., 2008, Feasibility of calcium peroxide as an oxygen releasing compound in treatment walls, *Int. J. of Environment and Waste Management*, 2(3): 245-256.

Yesuf, J. N., DeVantier, B. A., Chevalier, L. R., 2008, Bisolute equilibrium studies for the sorption of basic dyes on a GAC from almond shells: A nonlinear approach, *Water, Air and Soil Pollution: Focus Innovative Remediation Technologies for Pollution Abatement*, 8(2-3):387-393.

Chevalier, L.R., Yesuf, J.N., Knowles, L.S., 2007, Evaluation of textile dye sorption on GAC produced from almond shells based on optimized isotherm models, *Environmental Engineering Science*, 24(4):563-579.

Chevalier, L.R., Yesuf, J., 2007. Use of nonlinear error functions for parameter estimation of pressure-saturation equations. *Water, Air and Soil Pollution*, 179(1-4):57-65.

Nicklow, J.W., Marikunte, S.S., and Chevalier, L.R., 2007. Balancing pedagogical and professional practice skills in the training of graduate teaching assistants. *ASCE J. of Prof. Issues in Engineering Education and Practice*, 133(2):89-93.

Chevalier, L.R., 2006, Use of optimization to develop a correlation model for predicting residual NAPL saturation. *Civil Engineering and Environmental Systems*, 23(2):65-72.

Chevalier, L.R., 2003. Surfactant dissolution and mobilization of LNAPL contaminants in aquifers. *Environmental Monitoring and Assessment: Special Edition on Innovative Technologies and Policies for Waste Management*. 84(1-2):19-33.

Chevalier, L.R., Irwin, C.N. and Craddock, J.N., 2002. Evaluation of InSpectra UV analyzer for measuring conventional water and wastewater parameters. *Advances in Environmental Research*. 6(3):369-375.

Craddock, J.N. and Chevalier, L.R., 2002. Development and formative assessment of web-based multimedia labware for an environmental engineering laboratory. *International Journal of Engineering Education*, 18(6):725-731.

Chevalier, L.R. and Fonte, J.M., 2000. Correlation model to predict residual immiscible organic contaminants in sandy soils. *Journal of Hazardous Materials*, 72(1):39-52.

Chevalier, L.R., Morris, T., Allen, C., Lazarowitz, V. and Fektenberg, L., 2000, Comparison of primary and secondary flushing to enhance LNAPL recovery. *Journal of Soil and Sediment Contamination*, 9(5):425-448.

Chevalier, L.R., Craddock, J.N., Riley, P.C., and Trunk, B.J., 2000. Interactive multimedia labware for strength of materials laboratory. *Computer Applications in Engineering Education*, 8(1): 31-37.

Chevalier, L.R. and Peterson, J.E., 1999. Literature review of 2-D laboratory experiments in NAPL flow, transport and remediation. *Journal of Soil Contamination*, 8(1):149-167.

Chevalier, L.R., 1998. Experimental and numerical evaluation of LNAPL lens and polluted capillary fringe thickness. *ASCE Journal of Environmental Engineering*. 124(2):156-161.

Chevalier, L. R., Wallace, R.B. and Wiggert, D.C., 1998. Impact of surfactants on configuration of hydrocarbon lens. *Journal of Soil Contamination*, 7(3):395-414.

Chevalier, L.R., Masten, S.J., Wiggert, D.C., and Wallace, R.B., 1997. Experimental investigation of surfactant enhanced dissolution of residual NAPL in saturated soil. *Ground Water Monitoring and Remediation*. 17(4):89-98.

Chevalier, L.R. and Wallace, R.B., 1997. Aqueous phase permeability in the region of discontinuous NAPL. *Journal of Soil Contamination*, 6(4):409-424.

R.B. Wallace, D.C. Wiggert, M.D. Shabana, L.R. Chevalier, 1991. Experimental observation of the effect of surfactants on an oil lens present at the capillary fringe. *EOS, Transactions, AGU*, 72(17): 120, H51A-2.

Book Chapter

Chevalier, L.R. and Nicklow, J.W. , 2006. Web based projects for Civil and Environmental Engineering education: Pedagogy, assessment and lessons learned. *International Network for Engineering Education and Research (iNEER) Special Volume*.

Conference Proceedings (peer reviewed)

Harackiewicz, F.J, Marikunte, S., Chevalier, L.R., Nicklow, J.W., 2006. An innovative approach to advising and mentoring of graduate students. *Proceedings of the International Conference on Engineering Education*, San Juan, Puerto Rico.

Chevalier, L.R., Marikunte, S., Yesuf, J.N., 2006, Parameter Estimation Using Spreadsheet Optimization: A Review of Applications in Civil and Environmental Engineering Education and Research, *Proceedings of the International Conference on Engineering Education*, San Juan, Puerto Rico.

Marikunte, S., Nicklow, J.W., Harackiewicz, F., and Chevalier, L.R. 2006. Benefits and challenges of training teaching assistants. *Proceedings of the 2006 ASEE Conference*. Chicago, IL.

Nicklow, J.W., Chevalier, L.R., Ray, B.T., and Boruszkowski, L.A. 2006. A video production for undergraduate recruitment and retention. *Proceedings of the 2006 World Water and Environmental Resources Congress*, ASCE, Omaha, NE.

Chevalier, L.R., Craddock, J.N, Ray, B.T., Nicklow, J.W., 2005, Technology enhanced projects for education in civil and environmental engineering at Southern Illinois University Carbondale, *iCEER 2005, Exploring Innovation in Education and Research*, Tainan, Taiwan.

Ray, B.T., Chevalier, L.R., Nicklow, J.W., and Boruszkowski, L.A. (2004). Website and CD-ROM development: Digital images of water and wastewater processes for engineering education." *Proceedings of the 2004 ASEE Conference*. Salt Lake City, UT.

Nicklow, J.W., Chevalier, L.R., Ray, B.T., and Boruszkowski, L.A. (2004). "A digital image CD-ROM and website for environmental and water resources engineering curricula and K-12 education." *Proceedings of the 2004 Conference of the Environmental and Water Resources Institute*, ASCE. Salt Lake City, UT.

Nicklow, J.W., Chevalier, L.R., Ray, B.T., Boruszkowski, L.A., 2003. Development of a digital image CD-ROM and website: A new resource for water resources engineering education. *Proceedings of the 2003 Conference of the Environmental and Water Resources Institute*, ASCE. Philadelphia, PA.

Ray, B.T., Chevalier, L.R., Nicklow, J. W., Boruszkowski, L. A., and McCann, C. D., 2003. Website and CD-ROM development: Digital images of water and wastewater processes for engineering education. *Proceedings of the 2003 ASEE Conference*. Nashville, TN.

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Harackiewicz, F.J., Linsey, J., Chevalier, L.R., 2002. Antennas for Everyone, *Proceedings of the ASEE Annual Conference and Exposition*, Montréal, Canada.

Chevalier, L.R., Craddock, J.N., Vallath, C., and Arndt, A., 2002. technology enhanced laboratory manual for introduction to environmental engineering, *Proceedings of the ASEE Annual Conference and Exposition*, Montréal, Canada.

Craddock, J.N., Chevalier, L.R., and Mushumhi, K., 2002. Mechanics of materials interactive multimedia labware, *Proceedings of the ASEE Annual Conference and Exposition*, Montréal, Canada.

Chevalier, L.R., and Craddock, J.N., 2001. Formative assessment of interactive multimedia labware for environmental engineering laboratory. *Proceedings of the International Conference on Engineering Education*, Aug. 6-10, 2001, Oslo/Bergen, Norway.

Chevalier, L.R., Chrisman, B., and Kelsey, M., 2001. Success Week: A freshman orientation program at Southern Illinois University Carbondale College of Engineering. *Proceedings of the International Conference on Engineering Education*, Aug. 6-10, 2001, Oslo/Bergen, Norway.

Harackiewicz, F.J., Chevalier, L.R. and Palmer, S.C., 2001. Notable Engineers: A Project Book. *Proceedings of the International Conference on Engineering Education*, Aug. 6-10, 2001, Oslo/Bergen, Norway.

Chevalier, L.R. and Craddock, J.N., 2001. Interactive multimedia labware for civil engineering curricula. *Proceedings of the 2001 American Society for Engineering Education Annual Conference*, June 24-27, 2001, Albuquerque, New Mexico.

Craddock, J.N. and Chevalier, L.R., 2000. Interactive multimedia labware for torsion experiment, *Proceedings of the American Society for Engineering Education Conference: Engineering Education Beyond the Millennium*, St. Louis, MO.

Craddock, J.N. and Chevalier, L.R., 2000. Web based laboratory manuals in civil engineering. *Proceedings of the International Conference on Engineering Education*, Taipei, Taiwan.

Chevalier, L.R. and Petersen, J.E., 1998. Reduction of residual LNAPL in aquifers by applying surfactant prior to pumping. *Proceedings of the Groundwater Symposium at the American Society of Civil Engineering International Water Resources Engineering Conference*, Memphis, Tenn.

Chevalier, L.R. and Craddock, J.N., 1998. Integrating technology enhanced learning into a nontechnical engineering course. *Proceedings of the International Conference on Engineering Education: Progress Through Partnership: Strengthening Alliances*, Rio, Brazil.

Chevalier, L.R., 1997. Using the world wide web as a teaching resource in undergraduate classes. *Proceedings of the International Conference on Engineering Education: Progress Through Partnerships*, Chicago, IL.

Chevalier, L.R., Wallace, R.B., Wiggert, D.C., and Shabana, M.D. 1996. 2-D experimental investigation of surfactant mobilization of light nonaqueous phase liquid. *Proceedings of the ASCE Conference on NAPL in the Subsurface Environment: Assessment and Remediation*, Washington D.C.

Selected Conference Proceedings (non-peer reviewed), Presentations and Posters

Sainte Aimé, R., Kandel, S., Chevalier, L.R., 2010. "Utilization of nanomaterials in water disinfection and groundwater remediation" , 15th Annual Mid-American Environmental Engineering Conference, Missouri S&T .

Eichfeld, W., Hsiao, J.K., Chevalier, L.R., 2007. Using advisory boards in the capstone design process. *1st National Conference Focused on Engineering Capstone Design Courses*, Boulder, Colorado.

Craddock, J.N., and Chevalier, L.R., 2002. Experiences with Cross Discipline Partnerships in the Development of Multimedia Labware for Civil Engineering Classes. *Proceedings of the ASEE Illinois-Indiana Sectional Conference*, Illinois Institute of Technology, Chicago, IL.

Craddock, J.N. and Chevalier, L.R., 2002. Industrial training applications of a multimedia environmental laboratory manual for introduction to environmental engineering. Calvert City Environmental Consortium, Calvert City, Ky.

Cisco, R.M, Chaffee, S.G., Chevalier, L.R., Ray, B.T., Nicklow, J.W., Boruszkowski, L., 2002. Digital Imaging of Environmental Water Resources Engineering. Poster Presentation. *UWPA Conference Celebrating Scholarship By and About Women*, Southern Illinois University Carbondale.

Arndt, A., Swami, S., Chevalier, L.R., Craddock, J.N, 2002. *Development of Interactive Multimedia Labware for Civil Engineering Curriculum*. Poster Presentation. UWPA Conference Celebrating Scholarship By and About Women, Southern Illinois University Carbondale.

Craddock, L.R. and Chevalier, J.N., 2002. Multimedia Environmental Laboratory Manual for Introduction to Environmental Engineering. Presentation to the Purchase Area Environmental Forum, Paducah, Kentucky.

Chevalier, L.R, and Craddock, J.N., 2002. Demonstration of Multimedia Labware for Strength of Material Laboratory. *SIUC Technology Fair: Distance Learning Week*, Southern Illinois University Carbondale.

Chevalier, L.R. and Cisse, A.M., 1999. Testing of surfactants for use in remediation of light nonaqueous phase liquid contaminants in aquifers. Paper Presentation. *4th Annual ChAMP Student Research Conference in Science, Mathematics, Engineering and Technology, Research, Discovery and Communication*, Illinois Institute of Technology, Chicago, IL.

Chevalier, L.R. and Fonte, J.M, 1999. Correlation model for trapping of immiscible organic contaminants in sandy soils. *Proceedings of the 9th Annual Conference Illinois Groundwater Consortium*. Research on Agricultural Chemicals in Illinois Groundwater: Status and Future Directions IX., Makanda, IL.

Chevalier, L.R. and Fonte, J.M., 1998. Simulated Study of Environmental Restoration: A Civil and Environmental Engineering Workshop for High School Students. *Proceedings of the ASEE Forecast for the Future. Proceedings of the ASEE Illinois-Indiana Sectional Conference*. March Carbondale, IL.

Chevalier, L.R. and Fonte, J.M., 1998. Capillary Trapping of Immiscible Organic Contaminants in Aquifer Soils Due to Flooding: Preliminary Results. *Proceedings of Illinois Groundwater*

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Consortium 8th Annual Research Planning Conference, Research on Agricultural Chemicals in Illinois Groundwater: Status and Future Directions, Makanda, IL.

Graduate Students

Nicolas Sarkany (current) IGERT Fellow

Ricot Saint Aime (current) Fulbright Fellow-Haiti

Jean-René Thélusmond (current) Fulbright Fellow-Haiti

Chris Mills (current)

Michael Burke (current)

Saroj Kandel (current)

Ellen Lin (current) joint program with NCKU, Taiwan

Weilan Zhang (current)

Serena Blackstock , 2009, Master's Project. Geographic Information Systems for Investigating the Location of Wind Energy Systems.

Sarah Burnam, 2007, Master's Thesis, The Effect of Ethanol Cosolvency on Benzene.

Manoj Bhattarai, 2006, Master's Thesis, A Numerical Modeling Study of Surfactant Enhanced Mobilization of Residual LNAPL Using UTCHEM.

Jemil N. Yesuf, 2006, Master's Thesis. Determination of Single and Multi-component Adsorption isotherms Using Nonlinear Regression and Numerical Optimization. *Thesis of the Year Award for SIUC and the Midwest Association of Graduate Schools.*

McCann, Chad, M.S. Thesis, 2005, Master's Thesis, Feasibility of Using Oxygen Releasing Compounds In-Situ for Bioremediation.

Mayank Srivastava, 2005, Master's Thesis, Estimation of Coalbed Methane Production Potential through Reservoir Simulation. Thesis co-Advisor with Dr. Harpalani, Mining and Mineral Resources Engineering.

Mark Radake, 2005, Master's Thesis. Surfactant Enhanced Recovery of Light Non-aqueous Phase Liquids.

LaToya Knowles, 2005, Master's Thesis. Adsorptive Removal of Basic Dyes by Acid Activated Almond Nutshell.

Craig Irwin, 2002, Master's Project. Evaluation of InSpectra UV Analyzer for Measuring the Conventional Water Parameter.

Kelvin Wong, 2000, Master's Thesis. Mechanisms of Surfactant Enhanced NAPL Recovery from Soil.

Renee Goff, 2000, Master's Thesis. Evaluation of GAC from Almond Shells to Reduce Chloroform in Drinking Water.

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Lars O. Fektenberg, 1999, Master's Thesis. Comparison of Primary and Secondary Surfactant Flushing to Enhance LNAPL Recovery.

Amadou Cisse, 1999, Master's Project. Experimental Measures of Surfactant Properties.

Jeannette M. Fonte, 1998, Master's Thesis. Capillary Trapping of Nonaqueous Phase Liquids in Saturated Porous Media: Study of Characteristic for Prediction.

Jason Petersen, 1998, Master's Thesis. Laboratory Investigation of LNAPL Flow and Surfactant Enhanced Remediation.

Web Sites Developed Through NSF Education Grants

Digital Images in Environmental and Water Resources Engineering: A Web Site of Discovery

http://civil.engr.siu.edu/CEE_DI/

On-line Laboratory Manual for Environmental Engineering

On-line Laboratory Manual for Strength of Materials

http://civil.engr.siu.edu/CEE_Labs/

On-Line Course Material

Course material includes Powerpoint lecture notes, class problems, exams, quizzes and homeworks. Notes are also available through 710 Bookstore.

<http://civil.engr.siu.edu/cheval>

ENGR 351 Numerical Methods for Engineers

CEE 210 Environmental Biology for Engineers

CEE 310 Environmental Engineering

CEE 412 Contaminant Flow, Transport and Remediation in Groundwater

CEE 510 Hazardous Waste Engineering

Additional Courses

CEE 418 Water and Wastewater Design

ENGR 301i Humans and Their Environment (University Core Curriculum)

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