

# CURRICULUM VITAE

## Education

- Ph.D. University of Iowa—Civil and Environmental Engineering (2002)  
M.S. Marquette University—Civil and Environmental Engineering (1998)  
B.S. Northwestern University—Environmental Engineering (1994)

## Professional Experience

- 2003- Post-Doctoral Fellow—Microbiology  
University of Iowa; Matthew R. Parsek, research advisor. Research: Biofilm development and cell-cell signaling of *Pseudomonas aeruginosa*
- 2002-2003 Post-Doctoral Scholar—Civil and Environmental Engineering  
University of Iowa; Jerald L. Schnoor and Pedro J. Alvarez, research advisors. Research: Application of molecular techniques to investigate bioremediation of perchlorate and RDX.
- 1998-2002 Graduate Research Assistant—Civil and Environmental Engineering  
University of Iowa; Gene F. Parkin, research advisor. Research: Degradation of perchlorate by mixed- and pure-culture bacteria.
- 1998 Environmental Engineer, Summer Internship  
Applied Technologies, Inc., Brookfield, Wisconsin. Projects: Design of Biological Treatment Systems for Industrial Wastewaters.
- 1996-1998 Graduate Research Assistant  
Marquette University; Daniel H. Zitomer, research advisor. Research: Biological Treatment of High-Strength Industrial Wastewaters.
- 1995-1996 Environmental Engineer  
ENSA Environmental, Inc., Northbrook, Illinois. Projects: Underground Storage Tank Removal Oversight, Asbestos Inspection, and Air Quality Monitoring.

## Fellowships and Awards

- NIH-Training Grant on Mechanisms of Parasitism Post-Doctoral Fellow,  
University of Iowa, 2004-present
- NSF-Research Training Grant in Gene Expression and Bioremediation Fellow,  
University of Iowa, 1998-2002

University of Iowa Graduate Student Senate Travel Grant, May 2002

## **Professional Certification**

Engineer in Training—State of Illinois, 1994

## **Professional Licenses**

International Fire Code Institute UST Decommissioner—State of Illinois, 1996-1998

Visible Emissions Observer—State of Wisconsin, 1995-1996

Asbestos Inspector—State of Kentucky, 1996

Asbestos Inspector—State of Wisconsin, 1995-1996

Hazardous Waste Operations and Emergency Response, 1995-1997

## **Funded Research**

Post-Doctoral Scholar (2003-present)  
“Cell-To-Cell Signaling in Bacterial Biofilms”—National Institute of Health (NIH)  
(David L. Chopp, Northwestern University, Principal Investigator)

Co-Principal Investigator/Post-Doctoral Scholar (2002-2003)  
“Treatability and Demonstration Project for Phytoremediation and Rhizodegradation of  
Perchlorate in Groundwater at the Longhorn Army Ammunition Plant, Karnack, Texas”—U.S.  
Army Operations Command (Jerald L. Schnoor, Principal Investigator)

Post-Doctoral Scholar (2002-2003)  
“Fe(0)-Based Bioremediation of RDX-Contaminated Groundwater”—Strategic Environmental  
Research and Development Program (SERDP) (Pedro J. Alvarez, Principal Investigator)

Graduate Research Assistant (2000-2002)  
“Phytoremediation and Bioremediation of Perchlorate in Groundwater at the Longhorn Army  
Ammunition Plant, Karnack, Texas”—U.S. Army Industrial Operations Command (Jerald L.  
Schnoor and Gene F. Parkin, Principal Investigators)

## **Professional Services**

Reviewer—*Environmental Science and Technology*

Reviewer—*Biodegradation*

Reviewer—*Water Research*

Reviewer—*Journal of Chemical Technology and Biotechnology*

Proposal Reviewer—NIWR-USGS National Competitive Grants Program

## Professional Societies

American Society of Microbiology (since 2002)  
Water Environment Federation (since 1999)

## Publications

Shrout, J.D., D.L. Chopp, and M.R. Parsek. (in preparation) “Quorum Sensing and Motility Affect Architecture of *Pseudomonas aeruginosa* Biofilms.”

Shrout, J.D. and G.F. Parkin. (submitted—*Water Res.*) “Effect of Electron Donor, Oxygen, and Redox Potential on Bacterial Perchlorate Degradation.”

Shrout, J.D., G.C. Struckhoff, G.F. Parkin and J.L. Schnoor. (accepted—*Environ. Sci. Technol.*) “Stimulation and Molecular Characterization of Bacterial Perchlorate Rhizodegradation by Plant-Produced Electron Donors”.

Sherburne, L.A., J.D. Shrout, and P.J. Alvarez. (2005) “Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX) Degradation by *Acetobacterium paludosum*.” *Biodegradation* 16(6): 539-547.

Shrout, J.D., P. Larese-Casanova, M.M. Scherer and P.J. Alvarez. (2005) “Sustained and Complete Hexahydro-1,3,5-Trinitro-1,3,5-Triazine (RDX) Degradation in Zero-Valent Iron Simulated Barriers under Different Microbial Conditions”. *Environ. Technol.* 26 (10): 1115-1126.

Shrout, J.D., T. E. Scheetz, T. L. Casavant, and G. F. Parkin. (2005) “Isolation and Characterization of Autotrophic, Hydrogen-Utilizing, Perchlorate-Reducing Bacteria.” *Appl. Microbiol. Biotechnol.* 67(2): 261-268.

Shrout, J.D., A.G.B. Williams, M.M. Scherer, and G.F. Parkin (2005) “Inhibition of Microbial Perchlorate Reduction by Zero-Valent Iron.” *Biodegradation* 16(1): 23-32.

Shrout, J.D., M.L. Seppanen, G.F. Parkin, and J.L. Schnoor. 2003. “Utilization Of Plant-Produced Electron Donors For Bacterial Perchlorate Degradation.” In Proceedings of *Air & Waste Management Association's 96th Annual Conference and Exhibition*. June 22-26, 2003. San Diego, California, U.S.A.

Shrout, J.D. 2002. *Characteristics and Electron Donor Requirements of Perchlorate Degradation by Mixed and Pure-Culture Bacteria*. Ph.D. Dissertation. The University of Iowa.

Shrout, J.D., and G.F. Parkin. 2000. “Inhibition Of Anaerobic Perchlorate Biotransformation By Fe(0)” In Proceedings of 2<sup>nd</sup> *International Conference on Remediation of Chlorinated and Recalcitrant Compounds*. May 22-25, 2000. Monterey, CA, U.S.A. Battelle Press.

Zitomer, D.H. and J.D. Shrout. 2000. “High-Sulfate, High-Chemical Oxygen Demand Wastewater Treatment Using Aerated Methanogenic Fluidized Beds” *Wat. Environ. Res.* 1:90-97.

Zitomer, D.H. and J.D. Shrout. 1998. "Feasibility and Benefits of Methanogenesis Under Oxygen-Limited Conditions" *Waste Mgmt.* 18:107-116.

Shrout, J.D. 1998. *The Effects of Limited Aeration on Expanded Bed Biological Wastewater Treatment*. M.S. Thesis. Marquette University.

Zitomer, D.H. and J.D. Shrout. 1998. "Limited-Aeration of Methanogenic Systems for Treatment of Sulfate-Containing Wastewater" Proceedings of the 1998 ASCE National Conference on Environmental Engineering. June 7-10, 1998. Chicago, IL, U.S.A.

Zitomer, D.H. and J.D. Shrout. 1997. "Kinetics of COD Biotransformation Under Methanogenic, Limited-Aeration Conditions" *Proceedings 70<sup>th</sup> Annual Water Environment Federation Conference*. October 18-22, 1997. Chicago, IL, U.S.A.

## Book Chapters

Shrout, J.D. and M.R. Parsek (in press) "Quorum Sensing: Coordinating Group Behavior Through Intercellular Signals" in Molecular Paradigms of Infectious Disease: A Bacterial Perspective. eds. C. Nickerson and M. Schurr. Kluwer Academic/Plenum. New York.

## Invited Presentations

"Cell Signaling and Motility Affect Architecture of *Pseudomonas aeruginosa* Biofilms." Marquette University. November 18, 2004, Milwaukee, Wisconsin, U.S.A.

"Potential for *In Situ* Rhizodegradation of Perchlorate." Iowa Groundwater Association Annual Meeting. November 10, 2004, Coralville, Iowa, U.S.A.

"Inhibition of Bacterial Perchlorate Degradation by Zero-Valent Iron." Northwestern University. January 29, 2003, Evanston, Illinois, U.S.A.

"Characterization of Methanogenic, Perchlorate-Acclimated, Mixed Cultures." Swiss Federal Institute for Environmental Science and Technology (EAWAG), ETH, Switzerland. June 19, 2001, Dübendorf, Switzerland.

## Abstracts

Shrout, J.D., D.L. Chopp, and M.R. Parsek. "Quorum Sensing and Motility Affect Architecture of *Pseudomonas aeruginosa* Biofilms." *American Society of Microbiology 105<sup>th</sup> General Meeting*. June 5-9, 2005, Atlanta, Georgia, U.S.A.

Shrout, J.D., J.L. Schnoor, and G.F. Parkin. "Effect of Electron Donor Addition and Redox Conditions on Bacterial Perchlorate Degradation." *5<sup>th</sup> International Conference on Remediation of Chlorinated and Recalcitrant Compounds*. May 24-27, 2004, Monterey, California, U.S.A.

Shrout, J.D., P. Larese-Casanova, M.M. Scherer, and P.J. Alvarez. "Sustained RDX Degradation in Bioaugmented, Simulated, Fe(0) Permeable Reactive Barriers." *5<sup>th</sup> International Conference on Remediation of Chlorinated and Recalcitrant Compounds*. May 24-27, 2004, Monterey, California, U.S.A.

Shrout, J.D., M. L. Seppanen, G. F. Parkin, and J. L. Schnoor. "Utilization Of Plant-Produced Electron Donors For Bacterial Perchlorate Degradation." *Air & Waste Management Association's 96th Annual Conference and Exhibition*. June 22-26, 2003, San Diego, California, U.S.A.

Shrout, J.D., B. Oh, G. F. Parkin, and P. J. Alvarez "Enhanced RDX Degradation by Dissimilatory Iron-Reducing Bacteria in Flow-Through Fe(0) Columns." *American Society of Microbiology 103<sup>rd</sup> General Meeting*. May 18-22, 2003, Washington D.C., U.S.A.

Shrout, J.D. and G.F. Parkin. "Isolation of Hydrogen-Utilizing, Autotrophic, Perchlorate-Degrading Bacteria." *11<sup>th</sup> Biocatalysis and Bioprocessing Conference*. October 21-23, 2002, Iowa City, Iowa, U.S.A.

Shrout, J.D. and G.F. Parkin. "Isolation of Hydrogen-Utilizing, Autotrophic, Perchlorate-Degrading Bacteria." *American Society of Microbiology 102<sup>nd</sup> General Meeting*. May 19-23, 2002, Salt Lake City, Utah, U.S.A.

Shrout, J.D. and G.F. Parkin. "Electron Donor Requirements And Redox Conditions For Perchlorate Degradation." *3<sup>rd</sup> International Conference on Remediation of Chlorinated and Recalcitrant Compounds*. May 20-23, 2002, Monterey, California, U.S.A.

Shrout, J.D. and G.F. Parkin. "Electron Donor Requirements And Redox Conditions For Perchlorate Degradation." *10<sup>th</sup> Biocatalysis and Bioprocessing Conference*. October 22-24, 2001, Iowa City, Iowa, U.S.A.

Shrout, J.D. and G.F. Parkin. "Characterization of Methanogenic, Perchlorate-Acclimated, Mixed Cultures." *6th International Symposium on In Situ and On-Site Bioremediation*. June 4-7, 2001, San Diego, CA, U.S.A.

Shrout, J.D. and G.F. Parkin. "Inhibition Of Anaerobic Perchlorate Biotransformation By Fe(0)." *9th Biocatalysis and Bioprocessing Conference*. October 23-25, 2000, Iowa City, Iowa, U.S.A.

Shrout, J.D. and G.F. Parkin. "Inhibition Of Anaerobic Perchlorate Biotransformation By Fe(0)." *2<sup>nd</sup> International Conference on Remediation of Chlorinated and Recalcitrant Compounds*. May 22-25, 2000, Monterey, CA, U.S.A.

Mason, M.G., J.D. Shrout, and G.F. Parkin. "Enhanced Anaerobic Degradation of Tetrachloroethene and 1,1,1-Trichloroethane Using a Lactate Enriched Methanogenic Culture in the Presence of Zero-Valent Iron." *8<sup>th</sup> Biocatalysis and Bioprocessing Conference*. October 25-27, 1999, Iowa City, Iowa, U.S.A.

Mason, M.G., J.D. Shrout, and G.F. Parkin. "Enhanced Anaerobic Degradation of Tetrachloroethene and 1,1,1-Trichloroethane Using a Lactate Enriched Methanogenic Culture in the Presence of Zero-Valent Iron." *1999 Conference on Hazardous Waste Research—Great Plains/Rocky Mountain Hazardous Substance Research Center*. May 24-26, 1999, St. Louis, MO, U.S.A.

### **Continuing Education and Special Training**

January 15, 1996—Chicago, IL "8-Hour Waste Operations and Emergency Response Training Refresher 29CFR1910.120" (Baxter Reilly).

February 6-8, 1995—Milwaukee, WI "Asbestos Inspector Training Course" (Milwaukee Asbestos Information Center).

January 10-13, 1995—Chicago, IL "40-Hour Waste Operations and Emergency Response Training 29CFR1910.120" (Baxter Reilly).