

CURRICULUM VITAE

ROBIN GERLACH

Chemical and Biological Engineering
Center for Biofilm Engineering
Thermal Biology Institute
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EDUCATION

Doctor of Philosophy Environmental Engineering, Center for Biofilm Engineering, Montana State University - Bozeman, April 2001; GPA: 3.96

Focus: Transport and Activity of Dissimilatory Metal-Reducing Bacteria in Porous Media for the Remediation of Chlorinated Solvents and Heavy Metals

Diplomingenieur Technischer Umweltschutz, (M.S. Environmental Science and Engineering), Technical University Berlin, March 1996; GPA: 1.1 on a scale from 1.0 (excellent) to 4.0 (sufficient)

Focus I: Enhancement of Microbial Reduction Processes in Contaminated Sediments (Thesis)

Focus II: Sorptive Behavior and Bioavailability of Inorganic Phosphates in Diesel Oil-Contaminated Soil (Thesis)

Focus III: Drinking Water and Wastewater Treatment

PROFESSIONAL EXPERIENCE

Associate Professor, Chemical and Biological Engineering, Center for Biofilm Engineering, Thermal Biology Institute, Montana State University, Bozeman, MT, August 2006–present

Assistant Research Professor, *Research*: 1) Long-Term Stewardship of Mixed Wastes: Passive Reactive Barriers for Simultaneous In Situ Remediation of Chlorinated Solvent, Heavy Metal, and Radionuclide Contaminants. 2) Biofilm Remediation for Restoration of Contaminated Army Sites. 3) Bacterial Transport through and Biofilm Formation in Porous Media. *Teaching*: Environmental Science and Engineering (CE 442). Center for Biofilm Engineering and Civil Engineering, Montana State University, Bozeman, MT, April 2003–August 2006

Research Engineer, *Projects*: 1) Indirect Microbial Alteration of Reducible Metal Ions. 2) Application of silica gels for the containment of NAPLs. *Teaching* (together with Al Cunningham): Contaminant Hydrology (CE 529), Environmental Engineering Investigations (ENVE 534), Center for Biofilm Engineering, Montana State University, Bozeman, MT, Nov 2001–April 2003.

Postdoctoral Researcher, Indirect Microbial Alteration of Reducible Metal Ions. Center for Biofilm Engineering, Montana State University, Bozeman, MT, May 2001–October 2001.

Supervision and Mentoring of Graduate Students, Undergraduate Students, and Professional Employees, Five graduate, 18 undergraduate students, one research engineer, and two

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laboratory technicians in a variety of research projects. Center for Biofilm Engineering, Montana State University, Bozeman, MT, 1997-present.

Research and Teaching Assistant, *Research*: a) Transport of dissimilatory metal-reducing bacteria through porous media, b) Influence of dissimilatory metal-reducing bacteria on the fate of chlorinated aliphatics and heavy metals from contaminated water, c) subsurface biofilm barriers, d) Enhancement of MTBE biodegradation. *Teaching*: Organized, prepared, and lectured in several chemical, civil, and environmental engineering courses. Center for Biofilm Engineering, Montana State University, Bozeman, MT, 1996-2001.

Research and Teaching Assistant, *Research*: Anaerobic degradation of chlorinated aromatics and nitroaromatics in sediments. *Teaching*: Organization, method development, handout-writing, lecturing, and grading of laboratory component of Environmental Microbiology (ENVI 525). Department of Environmental Science and Engineering, Rice University, Houston, Texas, 1994-1995.

Research and Teaching Assistant, *Research*: Bioavailability of phosphates in diesel oil-contaminated soil. *Teaching*: Organization, method development, handout-writing, lecturing of laboratory classes in General Microbiology and Environmental Hygiene for Environmental Engineers, Soil and Groundwater Bioremediation, Soil Microbiology, Biological Testing Systems, Microbial Ecology; Graduate and Undergraduate level. Department of Environmental Microbiology and Technical Hygiene, Technical University of Berlin, 1992-1995

Seminar Supervisor in Environmental Education, organized weeklong trip to Wangerooge (island in the North-Sea, Germany) and gave seminar for 20 students (age from 14 - 50 years). Topics: Economical and ecological problems due to heavy use of the North Sea, contaminant accumulation in food chains, microscopic and chemical analysis of water and sediment samples. Germany 1994.

Laboratory Assistant, Berliner Wasserbetriebe (Berlin Waterworks), Chemical and Microbiological analysis of Drinking Water and Wastewater, Laboratory Studies on the *In Situ* Remediation of a Diesel Oil-Contaminated Aquifer. Berlin, 1994.

Laboratory Assistant, Hazardous Waste Site Remediation, Dekonta GmbH, toxicity testing and degradation studies. Hamburg, 1993.

Electronic Data Processing Assistant, Deutsche Klassenlotterie Berlin (German Lottery Company, Berlin), part time late night work, 1989-1996.

Training in Industrial Mechanics, Siemens AG, Berlin, September-November 1987

RESEARCH RELATED QUALIFICATIONS AND ACTIVITIES

Director, Environmental and Biofilm Mass Spectrometry Facility, College of Engineering, Montana State University, 2005-present.

Participant 2006 NSF Frontiers in Integrative Biology Research (FIBR) Workshop "Do Species Matter in Microbial Communities?", Montana State University, July 31 through August 2, 2006

Participant 2004 Bouyocous Conference on Electron Transfer and Environmental Biogeochemistry at the Clay Water Interface, San Antonio, TX, Jan 14-17, 2004

Summer School in Synchrotron Radiation Center of Advanced Microstructure and Devices, Louisiana State University Marine Biological Laboratory, Baton Rouge, LA, 2002

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Summer Course on Microbial Diversity Marine Biological Laboratory, Woods Hole, MA, 2001

Certificate in Radiochemistry ("Fachkunde im Strahlenschutz" Fachkundegruppen 2.3, 4.2 und 4.3); radiation safety training, permission to work with open and encapsulated radionuclides without activity limit in Germany

Ad Hoc Reviewer for Environmental Science and Technology, Biotechnology Progress, Bioremediation Journal, Journal of Hazardous Materials, Environmental Engineering Science, Biofilms, Biodegradation, Biotechnology and Bioengineering

Montana State University-Undergraduate Scholars Program, Center for Biofilm Engineering Undergraduate Research Fellowship Program, American Indian Research Opportunities (AIRO) Program Undergraduate Student Research Mentor and Reviewer, 1997-present (mentored > 20 undergraduate and highschool students)

Member American Chemical Society (ACS, 2000-present), American Society for Microbiology (ASM, 2003-present), American Geophysical Union (2004-present), Society for Biological Engineering (2006-present)

Analytical Techniques: GC (MS, FID, ECD, Hall-Detector), HPLC (MS, UV diode array, conductivity, amperometric), ICP-MS, AAS, spectroscopy, microscopy (light, epifluorescence, confocal laser), XPS, XRD, SEM, TEM, and others

PC/Macintosh/UNIX computing platforms, including spreadsheet, word processing, presentation graphics, technical illustration, graphics illustration; spreadsheet modeling; statistical analysis of experimental data and experimental design, Biofilm Reactor Model AQUASIM, Natural Attenuation Models BIOSCREEN and BIOCHLOR; Mathematical software packages (Matlab, MathCad)

FURTHER QUALIFICATIONS

Languages: English (fluent); German (fluent); Latin (Latinum); French (3 years); Spanish (1 year)

FELLOWSHIPS & AWARDS

Outstanding Researcher Award, Center for Biofilm Engineering/College of Engineering, Montana State University, 2004

Best Paper Award, 6th International Symposium on In Situ and On-Site Bioremediation Symposium, San Diego, CA, June 2001.

W.G. Characklis Outstanding Student Award for achievements in interdisciplinary research, undergraduate research mentoring and interaction with industrial associates (Center for Biofilm Engineering, Montana State University) 2000

Montana State University Alumni Association/Bozeman Chamber of Commerce Award for Excellence in Guidance and Inspiration (Bozeman, MT) 1999

Honorable Mention, Poster Presentation, (U.S. EPA Great Plains/Rocky Mountain Hazardous Substance Research Center) St. Louis, 1999

Karen Morehouse Best Paper Award for Best Conference Presentation and Paper (U.S. EPA Great Plains/Rocky Mountain Hazardous Substance Research Center) 1998

Honorary Citizenship, Bozeman, MT, 1998

Kenneth E. Tait Graduate Fellowship (1998/1999), Mary & Robert Sanks Graduate Fellowship (1998/1999), Barnard Construction Company Scholarship (1997/1998) (Dept. of Civil Engineering, Montana State University)

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National Science Foundation - Center for Biofilm Engineering - Ph.D. Candidate Fellowship for Outstanding Students, (Montana State University) 1996-2001

Research & Teaching Scholarship, Department of Environmental Science and Engineering (Rice University, Houston, TX) 1994-1995

Award from Thomas-Mann Oberschule for Best High School Graduate (Berlin, Germany) 1987

EXTRACURRICULAR ACTIVITIES

Member, Montana State University-Academic Affairs Committee, 2006-present

Montana State University-Library Representative, Chemical and Biological Engineering, 2006-present

Montana State University-American Indian Research Opportunities (AIRO) Program Highschool Student Research Mentor, 2005

Montana State University Move-In Day Volunteer 2005

Middle School Science Project Mentor, Meghan Kirk (Biofilm Barriers, 2002) Molly Kirk (Selenium resistance in Bacteria, 2004), both went on to Montana-wide Middle School Science Project Competition

Organizer of Center for Biofilm Engineering Departmental Seminar, 2000-2003

National Science Foundation, Engineering Research Center, Student Leadership Council Representative for the Center for Biofilm Engineering, Montana State University, 1998-2001

Montana State University, International Student Organization, Senator for Germany, 1997/1998

Supervisor in daycare, Oversight of children (age 6-16) in open play areas, Teaching of chess and billiard seminars, Organization of outdoor trips and games, 1986-1996

PUBLICATIONS AND PRESENTATIONS

PUBLICATIONS (accepted and published):

CUNNINGHAM, A.B.; SHARP, R.S.; CACCAVO JR, F.; GERLACH, R. (2007): Effects of Starvation on Bacterial Transport Through Porous Media. *Advances in Water Resources*. In Press.

SEYMOUR, J.D.; GAGE, J.P.; CODD, S.L.; GERLACH, R. (2007): Magnetic Resonance Microscopy of Biofouling Induced Scale Dependent Transport in Porous Media. *Advances in Water Resources*. 30:1408-1420

SHARP, R.R.; STOODLEY, P.; ADGIE, M.; GERLACH, R.; CUNNINGHAM, A.B. (2005): Visualization and characterization of dynamic patterns of flow, growth, and activity of biofilms growing in porous media. *Water Science and Technology*. 52, 7:85-90.

BORCH, T.; INSKEEP W.P.; HARWOOD, J.A.; GERLACH, R. (2005): Impact of Ferrihydrite and Anthraquinone-2,6-Disulphonate on the Reductive Transformation of 2,4,6-Trinitrotoluene by a Gram Positive Fermenting Bacterium. *Environmental Science and Technology*. 39, 18:7126-7133.

SEYMOUR, J.D.; GAGE, J.P.; CODD, S.L.; GERLACH, R. (2004): Anomalous Fluid Transport in Porous Media Induced by Biofilm Growth. *Physical Review Letters*. 93, 19:8101-8104.

BORCH, T.; GERLACH, R. (2004): Use of Reversed Phase High-Performance Liquid Chromatography-Diode Array Detection for Complete Separation of 2,4,6-Trinitrotoluene

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- Metabolites and EPA Method 8330 Explosives: Influence of Column Temperature and Ion-Pair Reagent. *Journal of Chromatography A*. 1022: 83-94.
- GAGE J.P.; SEYMOUR, J.D.; CODD, S.L.; GERLACH, R. (2004): Biofilm Growth Induced Transformation of Porous Media Dynamics. *Eos Trans. AGU*, 85(47), Fall Meet. Suppl., Abstract H11E-0342, 2004
- SHARP R.R.; GERLACH, R.; CUNNINGHAM, A.B.; ADGIE, M.; STOODLEY, P. (2004): Use of Bioluminescence to Study Reactive Solute Transport and Biofilm Growth and Activity in Porous Media. *Eos Trans. AGU*, 85(47), Fall Meet. Suppl., Abstract H13I-03, 2004
- BORCH, T., INSKEEP, W.P., GERLACH, R. (2004): Iron (Hydr)Oxides and Electron Shuttles Govern the Fate of 2,4,6-Trinitrotoluene by a Soil Bacterium. June 5-11, 2004. Goldschmidt Geochemistry Conference. Copenhagen, Denmark. *Geochimica et Cosmochimica Acta*, 68 (11), Supplement 1, p. 451.
- BORCH, T.; GERLACH, R.; CUNNINGHAM, A.B.; PEYTON, B.M.; Apel, W.A. (2002): Influence of Biogenically Produced Fe(II) and Humic Acid Analogs on the Fate of 2,4,6-Trinitrotoluene (TNT). *Eos Trans. AGU*, 83(47), Fall Meet. Suppl., Abstract B22E-11, 2002
- NYMAN, J.L.; CUNNINGHAM, A.B.; CACCAVO, F. JR. & GERLACH, R. (2002): Biogeochemical Elimination of Chromium (VI) from Contaminated Water. *Bioremediation Journal*. 6(1):39-55.
- GERLACH, R.; NYMAN, J.L.; CACCAVO JR., F. & CUNNINGHAM, A.B. (2000): Iron-Reducing Bacteria Facilitate the Geochemical Elimination of Cr(VI) from Contaminated Water. In Preprints of Extended Abstracts, 220th ACS National Meeting, August 20-24, 2000, Washington, D.C. Division of Environmental Chemistry. Preprints of Extended Abstracts Vol. 40, No 2. pp. 397-400.
- GERLACH, R.; CUNNINGHAM, A.B. & CACCAVO JR., F. (2000): Biogeochemical Processes Involving Dissimilatory Iron-Reducing Bacteria Can Influence the Transformation of Carbon Tetrachloride by Iron Metal. In Preprints of Extended Abstracts, 220th ACS National Meeting, August 20-24, 2000, Washington, D.C. Division of Environmental Chemistry. Preprints of Extended Abstracts Vol. 40, No 2. pp. 355-357.
- BOUWER, E.J., RIJNAARTS, H.H.M., CUNNINGHAM, A.B. & GERLACH, R. (2000): Biofilms in Porous Media. In Bryers, J.D. (Ed.): *Biofilms II: Process Analysis and Applications*. Wiley-Liss, Inc. pp. 123-158.
- GERLACH, R., CUNNINGHAM, A.B. & CACCAVO, F. JR. (2000): Dissimilatory Iron-Reducing Bacteria Influence the Performance of Zero-Valent Iron. *Environmental Science and Technology*, 34, 2461-2464.
- GERLACH, R.; STEIOF, M.; ZHANG, C. & HUGHES, J.B. (1999): Low Aqueous Solubility Electron Donors for the Reduction of Nitroaromatics in Anaerobic Sediments. *Journal of Contaminant Hydrology* 36, 91-104.
- GERLACH, R.; CACCAVO, F. JR. & CUNNINGHAM, A.B. (1999): Chromium Elimination with Microbially Reduced Iron – Redox-Reactive Biobarriers, In: Alleman, B.C. and Leeson, A.L. (eds.), *Bioremediation of metals and inorganic compounds*, Proceedings from the Fifth In Situ and On-Site Bioremediation Symposium, held April 19-22, 1999 in San Diego, CA, Battelle Press, Columbus, Richland, pp. 13-18.
- SHARP, R.R.; GERLACH, R. & CUNNINGHAM, A.B. (1999): Bacterial Transport Issues Related to Subsurface Biobarriers, In: Alleman, B.C. and Leeson, A.L. (eds.), *Engineered approaches for in situ bioremediation of chlorinated solvent contamination*, Proceedings

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from the Fifth In Situ and On-Site Bioremediation Symposium, held April 19-22, 1999 in San Diego, CA, Battelle Press, Columbus, Richland, pp. 211-216.

GERLACH, R.; CUNNINGHAM, A.B.; CACCAVO JR., F. (1998): Formation of Redox-Reactive Subsurface Barriers Using Dissimilatory Metal-Reducing Bacteria. In Ericksen, L.E. and Rankin, M.M. (eds.): Proceedings of the 1998 Conference on Hazardous Waste Research – Bridging Gaps in Technology and Culture. Snowbird, UT, May 18-21, 1998. Great Plains/Rocky Mountain Hazardous Substance Research Center. Manhattan, Kansas. pp. 209-223.

GERLACH, R.; STEIOF, M. & HUGHES, J.B. (1996): Anaerober Abbau substituierter aromatischer Verbindungen in Sedimenten (Anaerobic Degradation of Substituted Aromatic Compounds in Sediments). In KREYSA, G. & J. WIESNER (eds.): In situ Sanierung von Böden. Resümee und Beiträge des 11. DECHEMA Fachgesprächs Umweltschutz / DECHEMA, Deutsche Gesellschaft für Chemisches Apparatewesen, Chemische Technik und Biotechnologie e.V., Frankfurt am Main. pp. 305-314.

PUBLICATIONS (submitted and in preparation):

ZIGANSHIN, A.M.; GERLACH, R.; BORCH, T.; NAUMOV, A.V.; NAUMOVA, R.P. Production of Eight Different Hydride Complexes and Nitrite Release from 2,4,6-Trinitrotoluene by *Yarrowia lipolytica*. *Applied and Environmental Microbiology*. Submitted for Publication. June 12, 2007.

SIVASWAMY, V.; PEYTON, B.M.; VIAMAJALA, S.; GERLACH, R., APEL, W.A.; SANI, R.K.; DOHNALKOVA, A; BORCH, T. Dual Mechanisms of Uranium Immobilization by *Cellulomonas* sp. strain ES6. *Environmental Science and Technology*. In Preparation.

BALLOR, N.R; BORCH, T.; GERLACH, R. Mixed Waste Degradation by Gram Positive Subsurface Bacteria and the Influence of Electron Shuttles. *Environmental Science and Technology*. In Preparation.

GERLACH, R.; VIAMAJALA, S; JENNINGS, L.K.; PEYTON, B.M.; APEL, W.A.; CUNNINGHAM, A.B. Influence of Carbon Sources and Electron Shuttles on Ferric Iron Reduction by *Cellulomonas* sp. strain ES6. *Biodegradation*. In Preparation.

GERLACH, R.; FIELD, E.K.; JENNINGS, L.K.; PEYTON B.M.; APEL W.A.; CUNNINGHAM A.B. Influence of Carbon Source, Iron Minerals, and Electron Shuttling Compounds on the Bacterial Reduction of Chromate. In Preparation.

VIAMAJALA S., GERLACH R., SIVASWAMY V., PEYTON B.M., APEL W.A., CUNNINGHAM A.B., PETERSEN J.N. (2007): Permeable reactive bio-barriers for in-situ Cr(VI) reduction: Bench scale tests using *Cellulomonas* sp. strain ES6. In Preparation

BORCH T.; GERLACH R. & INSKEEP W.P. The Influence of Fe(Hydr)oxide Phases and the electron shuttle anthraquinone-2,6-disulfonate on the reduction of 2,4,6-Trinitrotoluene by a fermenting Bacterium. In Preparation.

GERLACH, R.; CUNNINGHAM, A.B. & CACCAVO, F. JR.: Change of transport-related cell properties during starvation of *Shewanella algae* BrY. In Preparation.

PRESENTATIONS:

BORCH, T.; GERLACH, R.; PEYTON, B.M.; FENDORF, S. (2007): Identification of biogeochemical mechanisms controlling the fate of uranium, phosphate, and 2,4,6-trinitrotoluene. Platform Presentation. ACS Northwest Regional Meeting, Boise, ID, June 17 - 20, 2007

APEL, W.A.; LEE, B.; PEYTON, B.M.; GERLACH, R. (2006): Mobility of Source Zone Heavy Metals and Radionuclides: The Mixed Roles of Fermentative Activity on Fate and Transport of

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- U and Cr. Poster Presentation. Department of Energy, Environmental Remediation Sciences Program (ERSP), PI meeting, Airlie Conference Center, Warrenton, VA, April 3-5, 2006
- GERLACH, R. (2006): Electron Transport in Engineered Biofilms. Platform Presentation. Inland Northwest Research Alliance (INRA) Subsurface Biotechnology and Bioremediation Symposium and Workshop, Montana State University, Bozeman, MT, June 22-23, 2006
- STEPPLER, D.; GERLACH, R. (2006): Contaminant Degradation by Zero Valent Iron. Poster Presentation, Council of Undergraduate Research (CUR), Posters on the Hill, April 25, 2006. (news article at <http://www.montana.edu/cpa/news/nwview.php?article=3730>, mentioned in President Gamble's 2006 Spring University address: <http://www.montana.edu/cpa/news/nwview.php?article=3692>)
- GERLACH, R.; GAGE, J.P.; ADGIE, M.; SEYMOUR, J.D.; CODD, S.L.; SHARP, R.S.; CUNNINGHAM, A.B. (2005): Bacterial Transport and Biofilm Formation in Porous Media. Platform Presentation at the INRA Environmental and Subsurface Science Symposium, Big Sky, MT, September 19-21, 2005
- FIELD, E.K., JENNINGS, L.K., CUNNINGHAM, A.B., PEYTON, B.M., GERLACH, R., AND APEL, W.A. (2005): Influence of Carbon Source, Iron Minerals, and Electron Shuttling Compounds on the Bacterial Reduction of Chromate. Poster Presentation at the INRA Environmental and Subsurface Science Symposium, Big Sky, MT, September 19-21, 2005
- GERLACH, R.; BORCH, T.; BALLOR, N.R.; CUNNINGHAM, A.B.; PEYTON, B.M.; APEL, W.A. (2005): Fermenters and Reductive Contaminant Transformation Processes in the Subsurface. Platform Presentation. The Joint International Symposia for Subsurface Microbiology (ISSM 2005) and Environmental Biogeochemistry (ISEB XVII). Jackson Hole, WY. August 14-19, 2005.
- GERLACH, R.; GAGE, J.P.; ADGIE, M.; SEYMOUR, J.D.; CODD, S.L.; SHARP, R.S.; CUNNINGHAM, A.B. (2005): Bacterial Transport and Biofilm Formation in Porous Media. Platform Presentation. The Joint International Symposia for Subsurface Microbiology (ISSM 2005) and Environmental Biogeochemistry (ISEB XVII). Jackson Hole, WY. August 14-19, 2005.
- SIVASWAMY, V.; PEYTON, B. M. ; VIAMAJALA, S. ; GERLACH, R.; APEL, W.A.; SANI, R.; A. DOHNALKOVA, A. (2005): Uranium Immobilization by Cellulomonas. Platform Presentation. The Joint International Symposia for Subsurface Microbiology (ISSM 2005) and Environmental Biogeochemistry (ISEB XVII). Jackson Hole, WY. August 14-19, 2005.
- GERLACH, R. (2005): Biofilm-Based Technologies for Mixed-Waste Remediation – Influence of Biofilms, Minerals, and Organic Matter on the Fate of TNT, TCE, and Cr(VI). Presentation at U.S. Army Research Office Workshop. High Hampton Inn. Cashiers, NC. May, 2005.
- GAGE, J.P.; SEYMOUR, J.D.; CODD, S.L.; GERLACH, R. (2004): Biofilm Growth Induced Transformation of Porous Media Dynamics. Poster Presentation at the 2004 American Geophysical Union Fall Meeting, San Francisco, CA, Dec 13-17, 2004
- SHARP, R.R.; GERLACH, R.; CUNNINGHAM, A.B.; ADGIE, M.; STOODLEY, P. (2004): Use of Bioluminescence to Study Reactive Solute Transport and Biofilm Growth and Activity in Porous Media. Platform Presentation at the 2004 American Geophysical Union Fall Meeting, San Francisco, CA, Dec 13-17, 2004

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- BALLOR, N.R.; GERLACH, R (2004): Bioremediation and the Role of Mixed Pollution: TNT and Cr(VI). Poster Presentation at the 2004 Annual Meeting, American Institute of Chemical Engineers. Austin Convention Center, Austin, TX. November 7-12, 2004
- BALLOR, N.R.; GERLACH, R (2004): Bioremediation and the Role of Mixed Pollution: TNT and Cr(VI). Poster Presentation at the 2004 Fall Meeting of the Michigan American Society for Microbiology. Crystal Mountain Resort, MI, October 8/9, 2004
- GERLACH R. & MATHESON, L. (2004): Reductive Transformation of Cr(VI) and 2,4,6-Trinitrotoluene (TNT) in Batch and Flow Systems – Scale-up Considerations. Platform Presentation at the 4th INRA Subsurface Science Symposium, Spokane, WA, Sept 20-22, 2004
- GERLACH, R.; CUNNINGHAM, A.B.; VIAMAJALA, S.; PEYTON, B.M.; APEL, W.A. (2004): Influence of Carbon Sources, Electron Shuttling Compounds, and Iron Minerals on the Reduction of Oxidized Contaminants. Platform Presentation at the 4th INRA Subsurface Science Symposium, Spokane, WA, Sept 20-22, 2004
- SIVASWAMY, V.; PEYTON, B.M.; VIAMAJALA, S.; GERLACH, R.; APEL, W.A. (2004): Uranium Immobilization by Cellulomonas. Poster Presentation at the 4th INRA Subsurface Science Symposium, Spokane, WA, Sept 20-22, 2004
- GAGE, J.P.; SEYMOUR, J.D.; CODD, S.L.; GERLACH, R. (2004): Biofilm Growth Induced Transformation of Porous Media Dynamics. Platform Presentation at the 4th INRA Subsurface Science Symposium, Spokane, WA, Sept 20-22, 2004
- BORCH, T.; INSKEEP W.P.; R. GERLACH, R. (2004): Iron (Hydr)Oxides and Electron Shuttles Govern the Fate of 2,4,6-Trinitrotoluene by a Soil Bacterium. Platform Presentation. Goldschmidt Conference - Processes in Geochemistry, Copenhagen (Denmark), June 05-11, 2004.
- GERLACH, R.; BORCH, T; CUNNINGHAM, A.B.; VIAMAJALA, S.; PEYTON, B.M.; APEL, W.A. (2004): Influence of Electron Shuttling Compounds and Iron Minerals on the Reduction of Metals and Organics. Platform presentation. 4th International Conference on Remediation of Chlorinated and Recalcitrant Compounds, Monterey, CA, May 24–27, 2004.
- MATHESON, L.J.; GOLDBERG, W.C.; GERLACH, R. (2004): Biofilm Restoration of Contaminated Army Sites. Presentation at U.S. Army Research Office Workshop. High Hampton Inn. Cashiers, NC. April, 2004.
- GAGE, J.P.; CODD, S.L.; GERLACH, R.; SEYMOUR, J.D. (2003): NMR Microscopy of Microbial Transport in Porous Media. Poster Presentation, ASM Conference on Biofilms – Biofilms 2003. Victoria, BC, November 02-06, 2003.
- GERLACH, R.; BORCH, T.; CUNNINGHAM, A.B.; VIAMAJALA, S.; PEYTON, B.M.; APEL, W.A. (2003): Influence of Electron Shuttling Compounds on the Reduction of Metals and Organics. Platform Presentation at the 3rd INRA Subsurface Science Symposium, Salt Lake City, UT, October 05-08, 2003
- VIAMAJALA, S.; PEYTON, B.M.; SIVASWAMY, V.; APEL, W.A.; GERLACH, R.; CUNNINGHAM, A.B. (2003): Cr(VI) Reduction by Cellulomonas: Multi-Scale Flow-Cell Experiments. Platform Presentation at the 3rd INRA Subsurface Science Symposium, Salt Lake City, UT, October 05-08, 2003
- BORCH, T.; GERLACH, R.; CUNNINGHAM, A.B. (2003): Iron (III) Minerals Can Impact the Microbial Reduction of 2,4,6-Trinitrotoluene. Platform Presentation at the 3rd INRA Subsurface Science Symposium, Salt Lake City, UT, October 05-08, 2003

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- GAGE, J.P.; SEYMOUR, J.D.; CODD, S.L.; GERLACH, R.; CUNNINGHAM, A.B. (2003): NMR Imaging of Microbial Transport in Porous Media. Platform Presentation at the 3rd INRA Subsurface Science Symposium, Salt Lake City, UT, October 05-08, 2003
- GAGE, J.P.; CODD, S.L.; GERLACH, R.; SEYMOUR, J.D (2003): NMR Microscopy of Microbial Transport in Porous Media. Poster Presentation at the 7th International Conference on Magnetic Resonance Microscopy, Ampere Society, Snowbird, UT, September 20-25, 2003.
- VIAMAJALA, S.; GERLACH, R.; PEYTON, B.M.; APEL, W.A.; CUNNINGHAM, A.B.; PETERSEN, J.N. (2003): Passive Reactive Barrier (PRB) for In Situ Remediation of Cr(VI): Bench- and Meso-Scale Tests using *Cellulomonas* spp. Platform Presentation. 2nd European Bioremediation Conference. Chania, Crete, Greece, June 30-July 04, 2003
- VIAMAJALA, S.; PEYTON, B.M.; APEL, W.A.; GERLACH, R.; CUNNINGHAM, A.B. (2003): Cr(VI) Reduction by *Cellulomonas* spp. — Batch Kinetics and Meso-Scale Tests. Platform presentation. 7th International Symposium on In Situ and On-Site Bioremediation Symposium, Orlando, FL, June 02–05, 2003.
- BORCH, T.; GERLACH, R.; CUNNINGHAM, A.B. (2003): 2,4,6-Trinitrotoluene (TNT) Biodegradation by a Novel Gram-Positive Iron-Reducing Bacterium. Platform presentation. 7th International Symposium on In Situ and On-Site Bioremediation Symposium, Orlando, FL, June 02–05, 2003
- GERLACH, R.; BORCH, T.; CUNNINGHAM, A.B. (2003): Biofilm-Based Technologies for Mixed-Waste Remediation. Presentation at U.S. Army Research Office Workshop. High Hampton Inn. Cashiers, NC. April 27-30, 2003.
- BORCH, T.; GERLACH, R.; CUNNINGHAM, A.B.; PEYTON, B.M.; APEL W.A. & INSKEEP, W.P. (2002): Influence of Biogenically Produced Fe(II), Electron Shuttling, and Humic Acid on the Fate of 2,4,6-trinitrotoluene (TNT). December 19th, 2002. Department of Chemistry, Lund University, Sweden.
- BORCH, T.; GERLACH, R.; CUNNINGHAM, A.B.; PEYTON, B.M.; Apel, W.A. (2002): Influence of Biogenically Produced Fe(II) and Humic Acid Analogs on the Fate of 2,4,6-Trinitrotoluene (TNT). Platform presentation. Fall Meeting, American Geophysical Union, San Francisco, CA, December 6-10, 2002.
- BORCH, T.; JORDAN, R.N.; CUNNINGHAM, A.B. & GERLACH, R. (2002): Use of High Performance Liquid Chromatography – Diode Array Detection for the Improved Analysis of 2,4,6-Trinitrotoluene and its Reduced Metabolites. Poster Presentation at the 2nd INRA Subsurface Science Symposium, Boise, ID, October 13-16, 2002
- GERLACH, R.; CUNNINGHAM, A.B.; PEYTON, B.M. & APEL, W.A. (2002) Iron Mediated Reduction of Reducible Contaminants by *Cellulomonas* spp. Platform Presentation at the 2nd INRA Subsurface Science Symposium, Boise, ID, October 13-16, 2002
- VIAMAJALA, S.; PEYTON, B.M.; PETERSEN, J.N.; APEL, W.A.; SANI, R.; GERLACH, R. & CUNNINGHAM, A.B. (2002): Metal reduction with *Cellulomonas* isolates obtained from Cr(VI)-contaminated aquifers. Platform Presentation at the 2nd INRA Subsurface Science Symposium, Boise, ID, October 13-16, 2002
- Viamajala S., Gerlach R., Sani R., Smith W.A., Peyton B.M., Petersen J.N., Cunningham A.B., Apel W.A. (2002): Direct and Fe(II)-Mediated Chromate Reduction by *Cellulomonas* spp.. Poster Presentation at the 2nd INRA Subsurface Science Symposium, Boise, ID, October 13-16, 2002
- ADGIE, M.; GERLACH, R.; CUNNINGHAM, A.B.; SHARP, R.S. (2002): Development of a Biofilm Biobarrier: Evaluation of Activity and Effect on Hydraulic Conductivity of Porous Media.

Curriculum Vitae
-Robin Gerlach-

- Institute of Hazardous Materials Managers National Conference. Louisville, Kentucky. October 2002.
- GERLACH, R.; NYMAN, J.L.; CUNNINGHAM, A.B.; CACCAVO JR., F. & APEL, W.A. (2001): Iron-Reducing Bacteria and Permeable Reactive Subsurface Barriers. Platform presentation. 1st INRA Subsurface Science Symposium, Idaho Falls, ID, September 06–07, 2001.
- GERLACH, R.; CUNNINGHAM, A.B. & CACCAVO, F. JR. (2001): Explanation of Bacterial Transport Enhancement by Starvation. Poster presentation. 1st INRA Subsurface Science Symposium, Idaho Falls, ID, September 06–07, 2001.
- GERLACH, R.; CUNNINGHAM, A.B. & CACCAVO, F. JR. (2001): Explanation of Bacterial Transport Enhancement by Starvation. Poster presentation. 6th International Symposium on In Situ and On-Site Bioremediation Symposium, San Diego, CA, June 02–07, 2001.
- GERLACH, R.; NYMAN, J.L.; CUNNINGHAM, A.B.; CACCAVO JR., F. & APEL, W.A. (2001): Iron-Reducing Bacteria and Permeable Reactive Subsurface Barriers. Platform presentation. 6th International Symposium on In Situ and On-Site Bioremediation Symposium, San Diego, CA, June 02–07, 2001.
- GERLACH, R.; CUNNINGHAM, A.B. & CACCAVO JR., F. (2000): Dissimilatory Iron-Reducing Bacteria Can Influence the Reduction of Carbon Tetrachloride by Iron Metal. Presentation at the Hazardous Waste Research 2000 Conference in Denver, CO, 23-25 May 2000.
- GERLACH, R.; CACCAVO, F. JR. & CUNNINGHAM, A. B. (1999): Chromium(VI)-Elimination from Contaminated Groundwaters Using Redox-Reactive Biobarriers. Poster Presentation at 1999 Conference on Hazardous Waste Research – Gateways to Environmental Solutions. Great Plains/Rocky Mountain Hazardous Substance Research Center. St. Louis, MO, May 24-27, 1999.
- GERLACH, R. (1998): Formation of Reactive Subsurface Barriers Using Dissimilatory Metal-Reducing Bacteria. Presentation at Engineering Biological Processes for Environmental Enhancement. Annual Meeting of the Pacific Northwest Region of the ASAE in Fairmont Hot Springs, MT. Sept. 10-12, 1998.

SHORT COURSES, INVITED LECTURES, CONFERENCE ORGANIZATION

- Chromatographic and Mass Spectrometric Detection and Identification of Small Molecules in Environmental Research. Invited Lecture. March 02, 2007. Utah State University. Logan, UT
- Chromatographic and Mass Spectrometric Observation of the Transformation of Organic Compounds at Elevated Temperatures. Invited Lecture. February 26, 2007. Montana State University, Thermal Biology Institute. Bozeman, MT
- Biofilms in biotechnology, medicine and bioremediation. Guest Lecture PS101/VTMB101/MB110. Montana State University – Bozeman. Nov 21, 2005, Nov 13, 2006.
- Organizer, Breakout Session “Electron Transport in Biofilms” INRA Subsurface Biotechnology and Bioremediation Symposium and Workshop, June 22-23, 2006, Montana State University, Bozeman, MT
- Inland Northwest Research Alliance (INRA) Subsurface Biotechnology and Bioremediation Symposium and Workshop, Conference Organizer with Al Cunningham, Brent Peyton, and Ron Sims, June 22-23, 2006, Montana State University, Bozeman, MT
- Subsurface Biofilm Barriers for Control of Contaminant Transport. Invited Lecture. January 17, 2006. Utah State University. Logan, UT

Curriculum Vitae
-Robin Gerlach-

Mixed Waste Remediation - Influence of Co-Contaminants, Organic Matter, and Iron Minerals on the Transformation of TNT, Chromium, and Chlorinated Aliphatics. Invited Lecture. November 18, 2005, Georgia Tech. Atlanta, GA

Subsurface Biofilm Barriers for Control of Contaminant Transport. Invited Lecture. September 26, 2005. Washington State University. Pullman, WA.

An Introduction to Bioremediation. Guest Lecture PS101/VTMB101/MB110. Montana State University – Bozeman. Sept 16, 2003, April 06, 2004, Nov 22, 2004.

Short Course on Bioremediation of Reducible Metals. Instructors: CUNNINGHAM, A.B.; APEL, W.A.; CACCAVO JR., F.; PEYTON, B.M.; PETERSEN, J.S.; GERLACH, R. 6th International Symposium on In Situ and On-Site Bioremediation Symposium, San Diego, CA, June 06, 2001.

Biobarriers - A Novel Technology for the Containment and Remediation of Contaminated Groundwater. Invited Lectures. September 12, 2001: University of Stuttgart, Germany; May 04, 2001: RWTH Aachen, Germany; August 25, 2000: University of Iowa, Iowa City.

Iron-Reducing Bacteria and Permeable Reactive Subsurface Barriers. Invited Lecture. September 11, 2001: EAWAG, Zürich, Switzerland.