

CHRISTOPHER WARREN SCHADT
Microbial Ecology and Physiology Group
Environmental Science Division
Oak Ridge National Laboratory
Oak Ridge, TN 37831-6038
schadtcw@ornl.gov

Research interests:

Development and use of molecular methodologies for the study of the ecology of microorganisms. Identification of the interrelationships between genomics and physiology of environmentally relevant microorganisms. Use of genomics-based methods for inferring the functional abilities of uncultured microorganisms in the environment.

Education:

University of Colorado, Biology, Ph.D., 2002
University of Washington, Botany, B.S., 1996

Research experience:

Staff Scientist, Oak Ridge National Laboratory, 2005-Present
Faculty Affiliate, University of Tennessee, 2003-Present
Postdoctoral Research Associate, Oak Ridge National Laboratory, 2003-2004
Postdoctoral Research Associate, University of Colorado, 2002-2003
Graduate Research Assistant, University of Colorado, 1998-2002
Lab Health and Safety Officer, University of Colorado, 1999-2003
Undergraduate Research Assistant, University of Washington, 1994-1996

Grants and awards:

Co-Investigator DOE/ORNL-LDRD Program (Lead PI: Norby) – 2006
"Disentangling Soil Respiration using Genomic Techniques"
Co-Investigator DOE-PER Program (Lead PI: Defazio) - 2004
"Hierarchical Experimental Responses at Macromolecular to Ecosystem Scales"
Co-Investigator DOE-NABIR Program (Lead PI: Palumbo) - 2004
"An Integrated Assessment of Geochemical and Community Structure Determinants of Metal Reduction Rates in Subsurface Sediments"
Co-Author NSF-Ecological and Evolutionary Physiology (PIs: Monson and Schmidt) - 1999
"Ecophysiological roles of plants, mycorrhizae, and soil microbes in early spring nitrogen dynamics"
University of Colorado Graduate Student Travel Grants - 1998 & 2000
Beverly Sears Graduate Student Research Grants - 1997 & 1999
Edna Bailey Sussman Graduate Student Research Grant - 1998

Professional service:

Univ. of Colorado EPOB, Departmental Research Symposium Organizer - 1998 & 1999

Univ. of Colorado, EPOB, United Government of Graduate Students Rep. – 1998 & 1999

Occasional Reviewer for the journals below: 1999- Present

Applied and Environmental Microbiology, Environmental Microbiology, Science, Microbial Ecology, Oecologia, New Phytologist, & Arctic, Alpine and Antarctic Research

Professional societies:

American Society for Microbiology

Mycological Society of America

Soil Ecology Society

Peer-reviewed publications:

Gentry TJ, Wickham, GS, **Schadt CW**, He Z, and J Zhou. Microarray Applications in Microbial Ecology Research. *Microbial Ecology*, In Press

Gentry TJ, **Schadt CW**, He Z, and J Zhou. Functional Gene Arrays for Microbial Community Analysis. In: *Manual of Environmental Microbiology* (Crawford et al, eds) American Society for Microbiology, In Press

Hwang C, Wu WM, Gentry T J, Carley J, Carroll SL, **Schadt C**, Watson D, Jardine PM, Zhou J, Hickey RF, Criddle CS, and MW Fields. Changes in bacterial community structure correlate with initial operating conditions of a field-scale denitrifying fluidized bed reactor, *Applied Microbiology and Biotechnology*, In Press

Schadt CW and J Zhou. Advances in Microarrays for Soil Microbial Community Analyses. In *Soil Biology: Nucleic Acids and Proteins in Soil* (Nannipieri, P. & Smalla K., eds). Springer-Verlag, In Press.

Liebich J., **Schadt CW**, Chong SC, Rhee SK, and J Zhou. Improvement of oligonucleotide probe design criteria for the development of functional gene microarrays for environmental applications. *Applied and Environmental Microbiology*, In Press.

Schadt C, Leibich J, Chong S, Gentry T, He Z, Pan H, and J Zhou. (2005) Design and Use of Functional Gene Microarrays (FGAs) for the Characterization of Microbial Communities. In *Methods in Microbiology Volume 33: Microbial Imaging* (Savidge & Pothoulakis, eds). Academic Press Pp331-368

Meyer AF, Lipson DA, Martin AP, **Schadt CW**, and SK Schmidt. (2004) Molecular and metabolic characterization of cold tolerant, alpine soil *Pseudomonas sensu stricto*. *Applied and Environmental Microbiology*. **70**:483-489

Schadt CW, Martin AP, Lipson DA and SK Schmidt. (2003) Seasonal dynamics of previously unknown fungal lineages in tundra soils. *Science* **301**:1359-1361

Lipson DA, **Schadt CW** and SK Schmidt. (2002) Changes in soil microbial community structure and function in an alpine dry meadow following spring snow melt. *Microbial Ecology* **43**:307-314.

Schadt CW, Mullen RB and SK Schmidt. (2001) Isolation and phylogenetic identification of a dark septate endophyte of the alpine plant *Ranunculus adoneus*. *New Phytologist* **150**:747-754.

Lipson DA, **Schadt CW**, Schmidt SK and RK Monson. (1999) Ectomycorrhizal transfer of amino acid-nitrogen to the alpine sedge *Kobresia myosuroides*. *New Phytologist* **142**:163-167.

Publications submitted or in preparation

Wu L, Liu X, **Schadt CW**, Tiedje JM, and J Zhou. Microarray-based analysis of subpicogram quantities of microbial community DNA. *Nature Methods*, IN REVIEW

Rodríguez-Martínez EM, Pérez EX, **Schadt CW**, Zhou J, and AA Massol-Deyá. Microbial Diversity and Bioremediation of a Hydrocarbon-Contaminated Aquifer in Vega Baja, Puerto Rico. *International Journal of Environmental Research and Public Health*, IN REVIEW

Garten CT, Kang SH, Brice DJ, Schadt CW, and J-Z Zhou. Variability in Forest Soil Properties and Processes at Spatial Scales from One Meter to One Kilometer. *Soil Biology and Biogeochemistry*, IN PREP.

Schadt CW, Moncalvo JM, Scott-Denton LE, McLendon T, Meyer AP and SK Schmidt. Digging Deeper: A widespread novel fungal lineage common to soils of diverse origins. *Applied and Environmental Microbiology*, IN PREP.

Schadt CW, Schuyler MA, Norby RJ, Vilgalys RJ, and J. Zhou. Simultaneous Analysis of Ammonium and Methane Monooxygenase Genes from Two Forested Free Air CO₂ Enrichment (FACE) Sites Reveals Dominant Environmental Sequences of Unknown Origin or Function. *Applied and Environmental Microbiology*, IN PREP

Schadt CW and SK Schmidt. Isolation, characterization and rDNA phylogenetic identification of the dominant ectomycorrhizal fungi associated with the alpine sedge *Kobresia myosuroides*. *New Phytologist*, IN PREP.

Invited lectures in last year:

Microbial Genomes Conference, September 2004

Soil Ecology Society Meeting, May 2005 (**Keynote Address for Day 3**)

Ecological Society of America Annual Meeting, August 2005

Appalachian State University Departmental Seminar, October 2005