CHRISTOPHER WARREN SCHADT

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Oak Ridge National Laboratory
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Department of Microbiology
University of Tennessee
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EDUCATION

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

PROFESSIONAL POSITIONS

Senior Staff Scientist, Biosciences Division, Oak Ridge Natl. Laboratory, 2012-Pres.
Joint Faculty Associate Professor, Dept. of Microbiology & Bredesen Center for Interdisciplinary Graduate Education, Univ. of Tenn, 2010-Pres.
Staff Scientist, Biosciences Division, Oak Ridge National Laboratory, 2007-12.
Adjunct Professor, Univ. of Tennessee, Genome Science and Technology, 2007-Pres.
Adjunct Professor, Univ. of Tennessee, Dept. of Microbiology, 2007-2010
Group Leader for Molecular Microbial Ecology, ORNL, 2007-2012
Associate Staff Scientist, Environmental Sciences Division, ORNL, 2005-06
Postdoctoral Research Associate, Environmental Sciences Division, ORNL, 2003-05
Postdoctoral Research Associate, University of Colorado, 2002-03

GRANTS AND AWARDS

Co-PI, DOE-BSSD Program – 2022-2025 (1M annual) “Uncovering the microbial networks that degrade plant-derived phenolic compounds and their role in peatland soil carbon sequestration - revisiting the 'enzyme latch' hypothesis”.
Co-PI, DOE-BSSD Program – 2020-2022 (1M annual) “Bio-Scales Pilot Project: Defining gene function and its connection to ecosystem processes”
PI, ORNL-LDRD Program – 2016-18 (390K annual) "Understanding the microbially-driven mechanisms behind the rapid responses of soils to short-term disturbance events that result in large nitrous oxide emission pulses”
PI, ORNL-LDRD Program – 2015 (35K total funding) "Targeted Metagenomic Analysis of the Novel Bacterial Phylum AD3 from Walker Branch Watershed Shallow Subsurface Soils”
Co-PI, DOE-TES Program – 2014-17 (350K annual) “Toward A Predictive Understanding of the Response of Belowground Microbial Carbon Turnover to Climate Change Drivers in a Boreal Peatland”
Co-PI, DOE-TES Program – 2011-13 (350K annual) “The response of soil carbon storage and microbially mediated carbon turnover to simulated climatic disturbance in a northern peatland forest: revisiting the concept of soil organic matter recalcitrance”
Co-PI, DOE Genomic Sciences Program – 2009-Present (6.5M annual) “ORNL Scientific Focus Area in Plant-Microbe Interfaces”
Co-PI, DOE Terrestrial Ecosystem Sciences Program 2009-Present (8.25M annual)

"ORNL Scientific Focus Area in Terrestrial Ecosystems Sciences"

Co-PI & ORNL lead, DOD/SERDP Program – 2010-12 (550K annual) "Mechanisms and Permanence of Sequestered Pb and As in soils: Impact on Human Bioavailability"

PI, ORNL-LDRD Program – 2007-09 (350K annual funding) "Carbon Drivers of the Microbe Switchgrass Rhizosphere Interface"

Co-PI, DOE-ERSP Program – 2007-2012 (1.3M annual funding) "Multiscale Investigations on the Rates and Mechanisms of Targeted Immobilization and Natural Attenuation of Metal, Radionuclide and Co-Contaminants in the Subsurface"

Co-PI, DOE-GtL Program – 2006-10 (3.5M annual funding) "Virtual Institute for Microbial Stress and Survival – Environmental Stress Pathways Project"

Co-PI, ORNL-LDRD Program – 2005-07 (350 K annual funding) "Disentangling Soil Respiration Using Genomic Techniques"

Co-PI, DOE-PER Program – 2005-08. (1.2M annual funding) "Hierarchical Experimental Responses at Macromolecular to Ecosystem Scales"

Co-PI, DOE-NABIR Program – 2004-07 (450K annual funding) "An Integrated Assessment of Geochemical and Community Structure Determinants of Metal Reduction Rates in Subsurface Sediments"

Co-PI, DOE-TCP Program – 2004-12. (1.8M annual funding) "Consortium for enhancing Carbon Sequestration in Terrestrial Ecosystems"

University of Colorado Graduate Student Travel Grants (0.5K) - 1998 & 2000

Beverly Sears Graduate Student Research Grant (2K)- 1997 & 99

Edna Bailey Sussman Graduate Student Research Grant (1K) - 1998

TEACHING EXPERIENCE

Joint Faculty Assoc. Professor, University of Tennessee, 2008-Present

Courses:

GST 520 - Advanced Genetics/Genomics (units on Microbial Diversity; Microbial Comparative Genomics; and Metagenomics – team taught; I conducted 2-3 lectures per semester each fall for 3 years)

GST 541 - Graduate Student Colloquium (Organize graduate student research presentations, lead paper discussions, etc.), Spring Semester 2013

MICRO 620/EEB 630 – Special Topics Course: Fungal Ecology and Systems. Co-taught with Brandon Matheny (EEB), Spring Semester 2015

Graduate Teaching Assistant, University of Colorado, 1996-1998

Introductory Biology Laboratory (2 semesters)

Genetics Recitation (1 Semester)

General Microbiology Laboratory (2 semesters)

SUPERVISION, MENTORING AND GRADUATE COMMITTEES

Dissertation Advisor or Co-Advisor for: Emily Austin (Ecology and Evolutionary Biology UTK, Ph.D. 2013) Migun Shakya (Genome Science and Technology UTK, Ph.D. 2013), and Jessica Velez (Bredesen Center UTK/ORNL, Ph.D. 2020),

Graduate committee member for: Sean Berthrong (PhD, Duke Univ., 2009); Alisha Campbell (PhD, Univ. of Tenn., 2012); Patrick Chanton (MSc, Georgia Tech Univ.

2014); Mellissa Cregger (PhD, Univ. of Tenn., 2012); Emily Hollister (PhD, Texas A&M Univ., 2008); Zabrenna Griffiths (Univ. of Tenn, in progress), Puja Jastoria (PhD Florida State Univ, 2016); Steven Higgins (PhD, Univ. of Tenn, 2018); Lillian Mubitha (Univ. of Tenn., Pending); Diliya Murtazina (Univ. of Tenn., Pending); Chance Noffsinger (Univ. of Tenn, Pending); Jennifer Reeve (Ph.D, Washington State Univ., 2008), Enid Rodriguez (MSc, Univ. of Puerto Rico Mayaguez, 2006); Katherine Sides (MSc, Univ. of Tenn., 2009); Tianze Song (PhD, Georgia Tech, 2022); Sophia Turner (Univ. of Tenn., in progress) Sagar Uturkar (PhD, Univ. of Tenn., 2016); Ian Ware (PhD, Univ. of Tenn., 2019); Mellissa Warren (MSc, Georgia Tech Univ. 2015); Devon Lagueux (Univ. of Houston, in progress);

Postdoctoral/Postmasters Advisor for: William Argiroff (ORNL-Current), Hector Castro (Univ. of Tennessee), Melissa Cregger (ORNL Staff Scientist), Huihai Chen (Sun Yat-Sen University), Marie-Anne De Graaff (Boise State Univ.), Nicholas Dove (AgBiome, Inc.), Sanghoon Kang (Rice University), Laurel Kluber (Novozymes, Inc.), Thomas Gihring (Univ. of Wisconsin, Madison), Eric Johnston (Schneider, Inc.), Yongchao Li (Univ. of Oklahoma), Mike Robeson (Univ. of Arkansas), Spencer Roth (current-ORNL) Jessica (Meg) Steinweg (Roanoke College), Tarah Sullivan (Washington State University), Allison Veach (Univ. of Texas San Antonio), Amudhan Venkateswaran (Pioneer Hybrid Corp.), Daniel Yip (Microbes Biosciences, Inc.), Tingfen Yan (Univ. of Maryland), Gengxin Zhang (Chinese Acad. of Sci.)

Hosted and Advised: 4 visiting faculty/scientists; 5 visiting postdoctoral students; 8 visiting graduate students; 2 high school science teachers; 36 undergraduate students; & 3 high school students, for research internships of 3-12 months at ORNL through the Oak Ridge Institute for Science and Education (ORISE) and other programs.

Group Leader for Molecular Microbial Ecology Group at ORNL 2007-2012. Organization included 3 Staff Scientists; 2 Technical Staff; 7 full-time Postdoctoral Associates; 3 Graduate Student Researchers, 1 Administrative Assistant, as well as graduate students, undergraduate students and multiple temporary appointments of visiting scientists

PROFESSIONAL SERVICE

Chair, Emerging Ecological Issues Committee, Ecological Society of America – 2022-24

Review Panel Member, PNNL/EMSL, Directors CD1 review for Microbial Molecular Phenotyping Capability – 2022

Co-Organizer, DOE-ESS Workshop “Emerging technologies for investigation of soil-plant-microbe dynamics” - 2021

Associate Editor for mSystems Journal – 2020-23

Member, Science Committee, Ecological Society of America – 2019-21

Elected Chair of Soil Ecology Section & ESA Council Member, Ecological Society of America – 2017-19

Review Panel Member, GEM graduate fellowship program, 2018,19 & 20

Review Panel Member, DOE JGI User Programs – 2017,18 & 20

Review Panel Member, DOE EPSCoR, Genomic Sciences, and TES Programs – 2016,18, 21

Elected Vice Chair, Soil Ecology Section, Ecological Society of America – 2015-17
Deputy Section Editor for BMC Microbiology – 2016-17
Associate Editor for BMC Microbiology – 2013-16
Review Panel Member, ORAU Powe Fellowship – 2015-16
Review Panel Member, PNNL Environmental Molecular Sciences Laboratory User Facility – 2014-16, 2018
Invited Session Chair and Organizer for 2013 Fungal Genetics meeting session on "Ecological Metagenomics"
ORNL Internal Seed Money Proposal Review Committee – 2009-10
Biological and Environmental Sciences Directorate Seminar Committee – 2007-09 (Chair 2008-2009)
Convener and Organizer for 2009 ASM General Meeting Colloquium on "Model Microbial Systems – A tractable and manipulable bridge between organismal and environmental studies"
Steering Committee for NSF RCN Network "Fungal Environmental Science and Informatics Networks", PI - Tom Bruns, UC Berkeley – 2007-09
Steering Committee Member, LSP-JGI Fungal Genome Sequencing Program – 2006-07
Review Panel Member, Ecosystems Program, EPSCoR Program, and Polar Programs National Science Foundation – 2007, 11,13,15,16, 20
Review Panel Member, National Institute of Environmental and Health Sciences, 2014
Add Hoc Reviewer, various National Science Foundation programs – 2006 to Present
Add Hoc Reviewer for NASA postdoctoral fellowship program – 2009,10
Regular reviewer for the journals: *Applied and Environmental Microbiology*; *BMC Microbiology; Environmental Microbiology; Environmental Science and Technology; ISME Journal; Microbial Ecology; Molecular Ecology; New Phytologist; PLOS One; Soil Biology and Biogeochemistry;*
Univ. of Colorado, Elected, Graduate Student Government Representative – 1998,99

PROFESSIONAL SOCIETIES

American Society for Microbiology
Ecological Society of America
Soil Ecology Society

COMMUNITY SERVICE

Regional Board Member & Area Referee Administrator, American Youth Soccer Organization – 2016 to Present
Referee for the American Youth Soccer Organization, United States Soccer Federation and Tennessee Secondary School Athletic Association – 2014 to Present
Volunteer, Invasive Plant Survey Crew, Knox County Parks and Recreation – 2014 & 2015
Volunteer, Tennessee Valley Unitarian Universalist Church – 2013 to 2017

PEER REVIEWED PUBLICATIONS (Google Scholar Link)

2022

1. Chen, H., Ma, K., Lu, C., Fu, Q., Qiu, Y., Zhao, J., Huang, Y., Yang, Y. **Schadt,**

C.W., and Chen, H., (2022). Functional redundancy in soil microbial community based on metagenomics across the globe. *Frontiers in Microbiology*. https://doi.org/10.3389/fmicb.2022.878978

2. Chen, H., Ma, K., Huang, Y., Fu, Q., Qiu, Y., Lin, J., **Schadt, C.W.** and Chen, H., (2022). Lower functional redundancy in "narrow" than "broad" functions in global soil metagenomics. *Soil*. https://doi.org/10.5194/soil-8-297-2022
3. Dove, N.C., Carrell, A.A., Engle, N.L., Klingeman, D.M., Rodriguez, M., Wahl, T., Tschaplinski, T.J., Muchero, W., **Schadt, C.W.** and Cregger, M.A., (2022). Relationships between Sphaerulina musiva Infection and the Populus Microbiome and Metabolome. *Msystems*, https://doi.org/10.1128/msystems.00120-22
4. Fremin, et al. (2022). Thousands of small, novel genes predicted in global phage genomes. *Cell Reports*. https://doi.org/10.1016/j.celrep.2022.110984
5. Watmough, et al. (2022). Variation in carbon and nitrogen concentrations among peatland categories at the global scale. *PLoS One.* https://doi.org/10.1371/journal.pone.0275149

2021

6. Bear, S.E., Seward, J.D., Lamit, L.J., Basiliko, N., Moore, T., Lilleskov, E., Yavitt, J.B., **Schadt, C.W.,** Smith, D.S., Mclaughlin, J. and Siljanen, H., Mykytczuk, N, Williams, S., Roulet, N., Harris, L., Carson, M.A., Watmough, S., Bräuer, S.L. (2021). Beyond the usual suspects: methanogenic communities in eastern North American peatlands are also influenced by nickel and copper concentrations. *FEMS Microbiology Letters*. https://doi.org/10.1093/femsle/fnab151
7. Cregger, M., Carper, D.L., Christel, S., Doktycz, M., Labbe, J., Michener, J., Dove, N., Johnston, E.R., Moore, J., Velez, J., Morrell-Falvey, J., Muchero, W., Pelletier, D., Retterer, S., Tschaplinski, T., Tuskan, G., Weston, D., and **C. Schadt.** (2021). Plant-microbe interactions: from genes to ecosystems using Populus as a model system. *Phytobiomes Journal*, https://doi.org/10.1094/PBIOMES-01-20-0009-FI
8. Carper, D. L., Weston, D. J., Barde, A., Timm, C. M., Lu, T-Y., Burdick, L. H., Jawdy, S. S., Klingeman, D. M., Robeson, M. S. II, Veach, A. M., Cregger, M. A., Kalluri, U. C., **Schadt, C. W.**, Podar, M., Doktycz, M. J., and Pelletier, D. A. (2020). Cultivating the Bacterial Microbiota of *Populus* roots. *mSystems.* https://doi.org/10.1128/mSystems.01306-20
9. Dove, N.C., Klingeman, D.M., Carrell, A.A., Cregger, M.A. and **C.W. Schadt.** (2021). Fire alters plant microbiome assembly patterns: integrating the plant and soil microbial response to disturbance. *New Phytologist,* https://doi.org/10.1111/nph.17248
10. Dove NC, Veach AM, Muchero W, Wahl T, Stegen JC, **Schadt CW** and Cregger MA. (2021). Assembly of the *Populus* microbiome is temporally dynamic and determined by selective and stochastic factors. *mSphere* https://doi.org/10.1128/mSphere.01316-20
11. Liang, J., Wang, G., Singh, S., Jagadamma, S., Gu, L., **Schadt**, **C.W.**, Wood, J.D., Hanson, P.J., and Mayes, M.A. (2021). Intensified Soil Moisture Extremes Decrease Soil Organic Carbon Decomposition: A Mechanistic Modeling Analysis. *Journal of Geophysical Research: Biogeosciences*. https://doi.org/10.1029/2021JG006392

12. Nayfach, S., et al. (2021). A genomic catalog of Earth's microbiomes. *Nature Biotechnology*. https://doi.org/10.1038/s41587-020-0718-6
13. Ricciuto, D.M., Xu, X., Shi, X., Wang, Y., Song, X., **Schadt, C.W**., Griffiths, N.A., Mao, J., Warren, J.M., Thornton, P.E., Chanton, J., Keller, J.K., Bridgham, S.D., Gutknecht, J., Sebastyen, S.D., Finzi, A., Kolka, R., and P.J. Hanson. (2021). "An integrative model for soil biogeochemistry and methane processes: I. Model structure and sensitivity analysis." *Journal of Geophysical Research: Biogeosciences*. https://doi.org/10.1029/2020JG005963.
14. Salmon, V.G., Brice, D.J., Bridgham, S., Childs, J., Graham, J., Griffiths, N.A., Hofmockel, K., Iversen, C.M., Jicha, T.M., Kolka, R.K., Kostka, J.E., Malhorta A. Norby, R.J., Phillips J.R., Riccuto, D., **Schadt C.W.,** Sebastyen, S.D., Shi, X., Walker, A.P., Warren, J.M., Weston, D.J., Yang, X, and P.J. Hanson. (2021). Nitrogen and phosphorus cycling in an ombrotrophic peatland: a benchmark for assessing change. *Plant and Soil*, https://doi.org/ 10.1007/s11104-021-05065-x
15. Singh, S., Jagadamma, S., Liang, J., Kivlin, S.N., Wood, J., Wang, G., **Schadt, C.W.,** DuPont, J.I., Gowda, P. and Mayes, M.A., (2021). Differential Organic Carbon Mineralization Responses to Soil Moisture in Three Different Soil Orders Under Mixed Forested System. *Frontiers in Environmental Science*, https://doi.org/10.3389/fenvs.2021.682450
16. Ter Horst, A.M., Santos-Medellín, C., Sorensen, J.W., Zinke, L.A., Wilson, R.M., Johnston, E.R., Trubl, G., Pett-Ridge, J., Blazewicz, S.J., Hanson, P.J. and Chanton, J.P., **Schadt, C.W.,** Kostka, J.E., Emerson, J.B. (2021). Minnesota peat viromes reveal terrestrial and aquatic niche partitioning for local and global viral populations. *Microbiome*. https://doi.org/10.1186/s40168-021-01156-0
17. Van Nuland, M., I. Ware, **C. Schadt**, Z. Yang, J. Bailey and J. Schweitzer. (2021). Natural soil microbiome variation affects spring foliar phenology with consequences for plant productivity and climate-driven range shifts. *New Phytologist*, https://doi.org/10.1111/nph.17599
18. Veach, A.M., Morris, R., Yip, D.Z., Yang, Z.K., Engle, N.L., Cregger, M.A., Tschaplinski, T.J. and **C.W. Schadt.** (2021). Correction to: Rhizosphere microbiomes diverge among *Populus trichocarpa* plant-host genotypes and chemotypes, but it depends on soil origin. *Microbiome*, *9*(1), https://doi.org/10.1186/s40168-019-0668-8
19. Vélez, J.M., Morris, R.M., Vilgalys, R., Labbé, J. and **C.W. Schadt.** (2021). Phylogenetic diversity of 200+ isolates of the ectomycorrhizal fungus *Cenococcum geophilum* associated with *Populus trichocarpa* soils in the Pacific Northwest, USA and comparison to globally distributed representatives. *PLoS ONE*, *16*(1), https://doi.org/10.1371/journal.pone.0231367
20. Ware, IA, ME Van Nuland, ZK Yang, **CW Schadt**, JA Schweitzer and JK Bailey. (2021). Climate-driven divergence in plant-microbiome interactions generates range-wide variation in bud break phenology. *Communications Biology*. https://doi.org/10.1038/s42003-021-02244-5
21. Wilson, R., Tfaily, M, Kolton, M., Johnston, E., Petro, C., Zalman, C., Hanson, P., Heyman, H., Kyle, J., Hoyt, D., Eder, E., Purvine, S., Kolka, R., Sebastyen, S., Griffiths, N., **Schadt, C.,** Keller, J., Bridgham, S., Chanton, J., and Kostka, J. (2021). Soil metabolome response to whole ecosystem warming at the Spruce

and Peatland Responses Under Changing Environments experiment. *Proceedings of the National Academy of Sciences*. https://doi.org/10.1073/pnas.2004192118

22. Zhang, H., Deng, Q., **Schadt, C.W.,** Mayes, M.A., Zhang, D. and Hui, D., (2021). Precipitation and nitrogen application stimulate soil nitrous oxide emission. *Nutrient Cycling in Agroecosystems*, http://doi.org/10.1007/s10705-021-10155-4.

2020

23. Carper, D.L., **Schadt, C.W.,** Burdick, L.H., Kalluri, U.C. and Pelletier, D.A., (2020). Draft Genome Sequence of Tumebacillus sp. Strain BK434, Isolated from the Roots of Eastern Cottonwood. *Microbiology Resource Announcements*, 9(22).
24. Chen, H., Dai, Z., Veach, A.M., Zheng, J., Xu, J. and **C.W. Schadt. (2020).** Global meta-analyses show that conservation tillage practices promote soil fungal and bacterial biomass. *Agriculture, Ecosystems & Environment*, *293*, p.106841.
25. He, Z., Deng, Y., Xu, M., Li, J., Liang, J., Xiong, J., Yu, H., Wu, B., Wu, L., Xue, K. and Shi, S., Carillo, Y., Van Nostrand, J.D., Hobbie, S.E., Reich, P.B., **Schadt, C.W.**, Kent, A.D., Pendall, E., Wallenstein, M., Luo, Y., Yan, Q., and Zhou, J. (2020). Microbial functional genes commonly respond to elevated carbon dioxide. *Environment international,* 144, p.106068.
26. Hui, D., Porter, W., Phillips, J.R., Aidar, M.P., Lebreux, S.J., **Schadt, C.W.** and Mayes, M.A., (2020). Phosphorus rather than nitrogen enhances CO2 emissions in tropical forest soils: Evidence from a laboratory incubation study. *European Journal of Soil Science*, 71(3), pp.495-510.
27. Jian, S., Li, J., Wang, G., Kluber, L.A., **Schadt, C.W**., Liang, J. and Mayes, M.A., (2020). Multi-year incubation experiments boost confidence in model projections of long-term soil carbon dynamics. *Nature Communications*, 11(1), pp.1-9.
28. Kluber, L.A., Johnston, E.R., Allen, S.A., Hendershot, J.N., Hanson, P.J. and **Schadt, C.W.,** (2020). Constraints on microbial communities, decomposition and methane production in deep peat deposits. *PloS ONE*, *15*(2), p.e0223744.
29. Nash, J., Laushman, R. and **Schadt, C.W**, (2020). Ectomycorrhizal fungal diversity interacts with soil nutrients to predict plant growth despite weak plant-soil feedbacks. *Plant and Soil*, pp.1-14.
30. Pelletier, D.A., Burdick, L.H., Podar, M., **Schadt, C.W.** and Kalluri, U.C., (2020). Draft Genome Sequence of Larkinella sp. Strain BK230, Isolated from *Populus deltoides* Roots. *Microbiology Resource Announcements*, *9*(12).
31. Seward, J., Carson, M.A., Lamit, L.J., Basiliko, N., Yavitt, J.B., Lilleskov, E., **Schadt, C.W.**, Smith, D.S., Mclaughlin, J., Mykytczuk, N. and Willims-Johnson, S., (2020). Peatland Microbial Community Composition Is Driven by a Natural Climate Gradient. *Microbial Ecology*.
32. Veach, A.M., Chen, H., Yang, Z.K., Labbe, A.D., Engle, N.L., Tschaplinski, T.J., **Schadt, C.W.** and Cregger, M.A., (2020). Plant Hosts Modify Belowground Microbial Community Response to Extreme Drought. *mSystems*, 5(3).

2019

33. Barba, J, MA Bradford, PE Brewer, D Bruhn, K Covey, J van Haren, JP Megonigal,

TN Mikkelsen, SR Pangala, M Pihlatie, B Poulter, A Rivas-Ubach, **CW Schadt**, K Terazawa, DL Warner, Z Zhang, and R Vargas. (2019). Methane emissions from tree stems: a new frontier in the global carbon cycle. *New Phytologist*. **222:**18-28. DOI: 10.1111/nph.15582

34. Bonito, G, GMN Benucci, K Hameed, D Weighill, P Jones, K-H Chen, D Jacobson, **CW Schadt** and R Vilgalys. (2019). Fungal-Bacterial Networks in the *Populus* Rhizobiome are Impacted by Soil Properties and Host Genotype. *Frontiers in Microbiology*. **10:**481. DOI:10.3389/fmicb.2019.00481
35. Chen, H, Dai Z, Jager HI, Wullschleger SD, Xu J, and **Schadt CW**. (2019). Influences of nitrogen fertilization and climate regime on the above-ground biomass yields of miscanthus and switchgrass: A meta-analysis. *Renewable and Sustainable Energy Reviews*. **108:**303-311. DOI:10.1016/j.rser.2019.03.037
36. Chen, H, ZK Yang, D Yip, RH Morris, SJ Lebreux, MA Cregger, DM Klingeman, S Hui, RL Hettich, SW Wilhelm, G Wang, FE Loeffler and **CW Schadt**. (2019). One-time nitrogen fertilization shifts switchgrass soil microbiomes within a context of larger spatial and temporal variation. *PLoS ONE* **14**:e0211310. DOI:10.1371/journal.pone.0211310
37. Liao, HL, G Bonito, JA Rojas, K Hameed, S Wu, **CW Schadt**, JL Labbe, G Tuskan, FM Martin, IV Grigoriev and R Vilgalys. (2019). Fungal endophytes of Populus trichocarpa alter host phenotype, gene expression and rhizobiome composition. *Molecular Plant-Microbe Interactions*. DOI:10.1094/MPMI-05-18-0133-R
38. Veach, AM, RH Morris, DZ Yip, ZK Yang, NL Engle, MA Cregger, TJ Tschaplinski, **CW Schadt.** (2019). Rhizosphere microbiomes diverge among *Populus trichocarpa* plant-host genotypes and chemotypes, but it depends on soil origin. *Microbiome*. **7:**76. DOI:10.1186/s40168-019-0668-8
39. Ware, IM, ME Van Nuland, JA Schweitzer, Z Yang, **CW Schadt**, LC Sidak-Loftis, NE Stone, JD Busch, DM Wagner and JK Bailey. (2019). Climate-driven reduction of genetic variation in plant phenology alters soil communities and nutrient pools. *Global Change Biology.* **25:**1514-1528. DOI:10.1111/gcb.14553
40. *Yip, DZ, *AM Veach, ZK Yang, MA Cregger and ***CW Schadt**. (2019). Methanogenic Archaea dominate mature heartwood habitats of Eastern Cottonwood (*Populus deltoides*). *New Phytologist* **222:**115-121. DOI:10.1111/nph.15346 (*equal contribution).

2018

41. *Cregger, MA, *AM Veach, ZK Yang, MJ Crouch, R Vilgalys, GA Tuskan, and **CW Schadt.** (2018). The Populus holobiont: dissecting the effects of plant niches and genotype on the microbiome. *Microbiome* **6:**31 (*equal contribution).
42. Dai, Z, W Su, H Chen, A Barberán, H Zhao, M Yu, L Yu, PC Brookes, **CW Schadt**, SX Chang and J Xu. (2018). Long-term nitrogen fertilization decreases bacterial diversity and favors the growth of Actinobacteria and Proteobacteria in agro-ecosystems across the globe. *Global Change Biology*. **24:**3452–3461
43. Higgins SD, **CW Schadt**, PB Matheny and FE Löffler. (2018). Phylogenomics reveals the dynamic evolution of fungal nitric oxide reductases and their relationship to secondary metabolism. *Genome Biology and Evolution*. DOI: 10.1093/gbe/evy187

44. Karpinets, TV, V Gopalakrishnan, J Wargo, AP Futreal, **CW Schadt**, and J Zhang. (2018). Linking associations of rare low-abundance species to their environments by association networks. *Frontiers in Microbiology*. **9:**297.
45. Steinweg, JM, JE Kostka, PJ Hanson and **CW Schadt.** (2018). Temperature sensitivity of extracellular enzymes differs with peat depth but not with season in an ombrotrophic bog. *Soil Biology and Biochemistry*. **125:**244-250
46. Timm, CM, KR Carter, AA Carrell, SR Jun, SS Jawdy, JM Vélez, LE Gunter, ZK Yang, I Nookaew, NL Engle, TY Lu, **CW Schadt**, TJ Tschaplinski, MJ Doktycz, GA Tuskan, DA Pelletier and DJ Weston. (2018). Abiotic Stresses Shift Belowground Populus-Associated Bacteria Toward a Core Stress Microbiome. *mSystems*. **3:**e00070-17.
47. Veach, AM, DZ Yip, NL Engle, ZK Yang, A Bible, J Morrell-Falvey, TJ Tschaplinski, UC Kalluri and **CW Schadt.** (2018). Modification of plant cell wall chemistry impacts metabolome and microbiome composition in *Populus PdKOR1* RNAi plants. *Plant and Soil.* DOI:10.1007/s1110
48. Yu, H, Z He, A Wang, J Xie, L Wu, J Van Nostrand, D Jin, Z Shao, **CW Schadt,** J Zhou and Y Deng. (2018). Divergent responses of forest soil microbial communities under elevated CO2 in different depths of upper soil layers. *Applied and Environmental Microbiology*. **84:**e01694-17

2017

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Schadt CW. (2002) Studies on the fungal associations of the alpine sedge *Kobresia myosuroides*. Ph.D. Dissertation, University of Colorado-Boulder.

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Schadt, CW and AT Classen (2007) Book Review: Soil Microbiology, Ecology and Biochemistry.: EA Paul (ed). *Soil Science Society of America Journal*, **71:**1420

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PATENTS

Pelletier DA, Weston DJ, **Schadt CW**, Doktycz MJ and GA Tuskan J. 2013. Plant Growth Promoting Rhizobacterium. Filed January 2013 (No. 13/747,995), Granted August 2015 (No. US9101144 B2).

INVITED AND CONTRIBUTED PRESENTATIONS & SEMINARS

Ecological Society of America Meeting, virtual, August 2021, Invited
Sun Yat-Sen University, July 2021, Invited
Ecological Society of America, Portland OR, August 2019, Invited
10th Soil Metagenomics Meeting, Argonne Illinois, October 2017, Invited
Ecological Society of America Meeting, Ft. Lauderdale FL, August 2016, Contributed
University of Texas-Austin, Dept. of Integrative Biology, April 2016, Invited
University of Tennessee, Dept. of Civil & Environmental Engineering, March 2016, Invited
University of Nebraska-Center for Biotechnology, Feb 2016, Invited
Phytobiomes Meeting, Washington DC, July 2015, Invited
International Union of Forest Research Organizations, Florence, Italy, June 2015, Invited
Mid-Atlantic States Mycological Conference, Keynote Speaker, April 2014, Invited.
University of Tennessee, Ecology & Evolutionary Biology Departmental Seminar, August 2013, Invited
American Chemical Society Meeting, September 2013, Invited
DOE Joint Genome Institute User Meeting, March 2013, Invited
Ecological Society of America, Annual Meeting, August 2012, Contributed
DOE Joint Genome Institute Seminar, Walnut Creek CA, January 2012, Invited
DOE Subsurface Biogeochemical Research Meeting, Washington DC, April 2011, Invited
Latin American Congress of Microbiology, Uruguay, Sept. 2010, Invited
Ecological Society of America, Annual Meeting, August 2010, Contributed
Ecological Society of America, Annual Meeting, August 2009, Invited
World of Coal Ash Meeting, Lexington Kentucky, May 2009, Contributed
Duke University, Nicholas School of the Environment Seminar, April 2009, Invited
Michigan State University, Dept. Seminar in Microbiology & Molecular Biology, Jan 2009, Invited
University of Tennessee, Departmental Seminar in Civil Engineering, Oct 2008, Invited
Ecological Society of America, Annual Meeting, Aug 2008, Contributed
Texas A&M University, Dept. Seminar in Rangeland Ecology & Management, April 2008, Invited
Fungal Environmental Sampling & Informatics Network, Copenhagen Denmark, Sept 2007, Invited
Ecological Society of America, Annual Meeting, Aug 2007, Invited
American Society of Microbiology General Meeting, May 2007, Invited
University of Tennessee, Departmental Seminar in Microbiology, Dec 2006, Invited
Long Term Ecological Research Network Meeting, Estes Park Colorado, Sept 2006, Invited

Univ. of Oklahoma, Plant & Microbial Sciences, Department Seminar, June 2006, Invited
University of Puerto Rico-Mayaguez, Biology Departmental Seminar, May 2006, Invited
Appalachian State University, Biology Departmental Seminar, Oct 2005, Invited
Ecological Society of America, Annual Meeting, Aug 2005, Contributed
Mycological Society of America, Annual Meeting, Aug 2005, Contributed
Soil Ecology Society Meeting, May 2005 (Keynote Address for Day 3), Invited