Personal information

Name:	Sascha Krause
Birth:	06 June 1980
Nationality:	German
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Education

Doctor of Natural Science, Max Planck Institute for Terrestrial Microbiology and Philipps University in Marburg, Germany, April 2010.

Master of Science in Biology of Organisms, University of Osnabrück, Germany, October 2006.

Bachelor of Science in Biology of Organisms, University of Osnabrück, Germany, October 2004.

Professional Experience

Professor, School of Ecology and Environmental Sciences, East China Normal University, Shanghai, Germany, October 2019-present
Senior Scientist, Department of Molecular Ecology, Thuenen Institute of Biodiversity, Braunschweig, Germany, June 2018-July 2019.
Research Assistant Professor, Department of Microbiology, University of Washington, Seattle, USA, May 2016-November 2017.
Research Associate, Department of Chemical Engineering, University of Washington, Seattle, USA, February 2014-April 2016.
Postdoctoral Researcher, Department of Microbial Ecology, Netherlands Institute of Ecology, Wageningen, the Netherlands, May 2010-March 2014.
Research Assistant, Department of Biogeochemistry, Max Planck Institute for Terrestrial Microbiology, Marburg, Germany, October 2006-March 2007.

Peer-reviewed Publications

Krause, S.M.B., Dohrmann, A.B., Gillor, O., Christensen, B.T., Merbach, I., Tebbe, C.C. (2019). Soil Properties and Habitats Determine the Response of Bacterial Communities to Agricultural Wastewater Irrigation. *Pedosphere* 30, 146-158

Bu, X., **Krause, S.M.B.**, Gu, X., Tian, J., Zhou, X. (2019). Ethylene rather than acetylene inhibits soil methane oxidation rates in a subtropical evergreen forest. *Soil Biology and Biochemistry* 135, 10-12

Gu, X., Zhou, X., Bu, X., Xue, M., Liang, L., Wang, S., Hao, Y., Wang, Y., Xu, X., Wang, G., **Krause, S.M.B.**, et al. (2019). Soil extractable organic C and N contents, methanotrophic activity under warming and degradation in a Tibetan alpine meadow. *Agriculture, Ecosystems & Environment* 278, 6-14

Krause, S.M.B., Meima-Franke, M., Veraart, A.J., Ren, G., Ho, A., Bodelier, PL.E. (2018). Environmental legacy contributes to the resilience of methane consumption in a laboratory microcosm system. *Scientific reports* 8 (1), 8862

Krause, S., Johnson, T., Samadhi Karunaratne, Y., Fu, Y., Beck A.C., Chistoserdova, L., Lidstrom, M.E. (2017). Lanthanide-dependent cross-feeding of methane derived carbon is linked by microbial community interactions. *Proceedings of the National Academy of Sciences* **114**: 358-363.

Zheng, Y., **Krause, S.**, Beck A.C., Chistoserdova, L. (2016). A Synthetic Ecology Perspective: How Well Does Behavior of Model Organisms in the Laboratory Predict Microbial Activities in Natural Habitats? *Frontiers in Terrestrial Microbiology* **7**:946. doi: 10.3389/fmicb.2016.00946.

Ho, A., Van de Brink, E., Reim, A., **Krause, S.**, Bodelier, P.L.E., (2016). Recurrence and intensity of disturbance shifts the trajectory of methanotrophic activity and community abundance. *Frontiers in Terrestrial Microbiology* **6**:1493. doi: 10.3389/fmicb.2015.01493.

Krause, S., Niklaus, P.A., Badwan Morcillo, S., Franke, M.M., Lüke, C., and Bodelier P.L.E. (2015). Compositional and functional stability of aerobic methane consuming communities in drained and rewetted peat meadows. *FEMS Microbiology Ecology* **91**: fiv119 (advanced online publication). doi: http://dx.doi.org/10.1093/femsec/fiv119.

Krause, S., Le Roux, X., Niklaus, P.A., Van Bodegom, P.M., Lennon, J.T., Bertilsson, S., Grossart, H.P., Philippot, L., Bodelier, P.L.E. (2014). Trait-based approaches for understanding microbial biodiversity and ecosystem functioning *Frontiers in Microbiology* **5**:251. doi: 10.3389/fmicb.2014.00251.

Krause, S., Bodegom, P.M., Cornwell, W.K., Bodelier, P.L.E. (2014). Weak phylogenetic signal in physiological traits of methane-oxidizing bacteria. *Journal of Evolutionary Biology* **27**: 1240-1247.

Krause, S., Meima-Franke, M., Hefting, M.M., Bodelier P.L.E. (2013). Spatial patterns of methanotrophic communities along a hydrological gradient in a riparian floodplain. *FEMS Microbiology Ecology* **86**: 56-70.

Ho, A., Kerckhof, F.M., Lüke, C, Reim, A., **Krause, S.**, Boon, N., Bodelier, P.L.E. (2012). Conceptualizing functional traits and ecological characteristics of methane- oxidizing bacteria as life strategies. *Environmental Microbiology Reports* **5**: 335-345.

Reim, A., Lüke, C., **Krause, S.**, Pratcher, J., Frenzel, P. (2012). One millimetre makes the difference: high resolution analysis of methane-oxidizing bacteria and their specific activity at the oxic-anoxic interface in a flooded paddy soil. *ISME Journal* **6**: 2128-2139.

Wang, J., **Krause, S.**, Muyzer, G., Meima-Franke, M., Laanbroek, H.J., Bodelier, P.L.E. (2012). Spatial patterns of iron- and methane-oxidizing bacterial communities in an irregularly flooded, riparian wetland. *Frontiers in Terrestrial Microbiology* **3**:64. doi: 10.3389/fmicb.2012.00064.

Krause, S., Lüke, C., Frenzel, P. (2012). Methane source strength and energy flow shape methanotrophic communities in oxygen–methane counter-gradients. *Environmental Microbiology Reports* **4**: 203-208.

Siljanen, H.M.P., Saari A., **Krause S.**, Lensu A., Abell, G., Bodrossy L., Bodelier P.L.E., Martikainen, P.J. (2011). Spatial heterogeneity in the functioning and community composition of methanotrophs in the littoral zone of a boreal lake. *FEMS Microbiology Ecology* **75**: 430-445.

Pan, Y., Frenzel, P., Hestnes, A.G., **Krause, S.**, Lüke, C., Meima-Franke, M., Siljanen, H., Svenning, M.M., Bodelier, P.L.E. (2010). Impacts of Inter- and Intralaboratory Variations on the reproducibility of microbial community analyses. *Applied and Environmental Microbiology* **76**: 7451-7458.

Krause, S., Lüke, C., Frenzel, P. (2010). Succession of methanotrophs in oxygen- methane counter-gradients of flooded rice paddies. *ISME Journal* **4**:1603-1607.

Lüke, C., **Krause, S.**, Frenzel, P. (2009). Biogeography of wetland rice methanotrophs. *Environmental Microbiology* **12**: 862-872.

Krause, S., Lüke, C., Frenzel, P. (2009). Spatial heterogeneity of methanotrophs: a geostatistical analysis of *pmoA*-based T-RFLP patterns in a paddy soil. Environmental *Microbiology Reports* **1**: 393-397.

Gröning, J., **Krause, S.**, Hochkirch, A. (2007). Habitat preferences of an endangered insect species, Cepero's Ground-hopper, Tetrix ceperoi. *Ecological Research* **22**: 767- 773.

Hochkirch A., Gröning, J., **Krause, S.** (2007). Intersexual niche segregation in Cepero's Ground-hopper, Tetrix ceperoi. *Evolutionary Ecology* **21**: 727-738.

Peer-reviewed Book Chapter

Bodelier, PL.E., Pérez, G., Veraart, A.J., **Krause, S.M.B.** (2019). Methanotroph Ecology, Environmental Distribution and Functioning, Methanotrophs, 1-38

Research

Grant proposals

Funded

Gerhard ten Doornkaat Koolman-foundation project grant, May 2004, 1000 Euro.

ESF EuroEEFG dissemination grant, August 2012, 1500 Euro.

ESF EuroDiversity dissemination grant, May 2009, 900 Euro.

ESF EuroDiversity travel grant, May 2008, 600 Euro.

ESF EuroDiversity grant for short term visit, February 2008, 500 Euro.

Not Funded

Dutch Science Foundation Innovational Research Incentives Scheme: From taxonomy to microbial functional diversity: a trait-based approach (TAXFUN), submitted March 2013, 250,000 Euro.

NSF Division of Environmental Biology: Preliminary Proposal SG: From species to traits: unifying theory to explain the role of biodiversity for ecosystem functioning (traitBEF), submitted January 2016, 150,000 Dollar.

Joint Genome Institute Community Science Program Annual Call 2017 (Co-applicant): Time-resolved analysis of methane-oxidizing communities: how an oxygen-dependent process persists in a hypoxic environment?, Free JGI technical and analytical service.

Royalty Research Fund Application of the University of Washington: A trait-based approach to understand the role of microbial biodiversity for ecosystem function (MicroTrait), submitted September 2016, 40,000 Dollar.

Endorsed

NSF Division of Environmental Biology: Preliminary Proposal SG: From taxonomy to microbial functional diversity: a trait-based approach (MicroTrait), January 2017, 150,000 Dollar.

International conferences

3rd Thünen Symposium on Soil Metagenomics, Braunschweig (Germany), December 2016. Poster presentation.

Gordon Research Seminar and Conference on the Molecular basis of Microbial One-Carbon Metabolism, Waterville Valley, NH, USA, July 2016. Poster presentation.

Gordon Research Seminar and Conference on Applied and Environmental Microbiology, South Hadley, MA, USA, July-August 2015. Oral and poster presentation.

General Meeting of the American Society for Microbiology, New Orleans, LA, USA, May-June 2015. Poster presentation.

Gordon Research Seminar and Conference on the Molecular Basis of Microbial One-Carbon Metabolism, South Hadley, MA, USA, August 2014. Oral and poster presentation.

15th International Symposium on Microbial Ecology ISME 14, Seoul, South Korea, August 2014. Oral and poster presentation.

2nd Thünen Symposium on Soil Metagenomics, Braunschweig, Germany, December 2013. Oral presentation.

ESF Eurocores Program Ecological and Evolutionary Functional Genomics Conference entitled “Frontiers in Ecological and Evolutionary Genomics” in Noordwijkerhout, the Netherlands, May 2013. Invited oral presentation.

Gordon Research Seminar and Conference on the Molecular Basis of Microbial One-Carbon Metabolism, Lewiston, ME, USA, August 2012. Poster presentation.

14th International Symposium on Microbial Ecology ISME 14, Copenhagen, Denmark, August 2012. Poster presentation.

13th International Symposium on Microbial Ecology ISME 13, Seattle, WA, USA, August 2010. Poster presentation.

BAGECO 10 conference, the 10th Symposium on Bacterial Genetics and Ecology, June 2009. Poster presentation.

General Assembly of the European Geosciences Union, Vienna, Austria, April 2009. Oral presentation.

Relevant organizational / workshop experience

Introduction to Python for Data Science (edX) Course, License 4,291,438, November 2017.

Organizer of the ESF Eurocores Program Ecological and Evolutionary Functional Genomics (EuroEEFG) Workshop entitled “Annotation and analysis of microbial genomes using the MicroScope platform” in Noordwijkerhout, the Netherlands, May 2013.

Organizer of the ESF Eurocores Ecological and Evolutionary Functional Genomics (EuroEEFG) Workshop entitled “Understanding, managing and protecting microbial communities in aquatic and terrestrial ecosystems: Exploring the trait-based functional biodiversity approach” in Wageningen, the Netherlands, February 2013.

Post-graduate Course in Linear Models at Wageningen University, the Netherlands, June 2012.

Post-graduate Course on Geostatistics at Wageningen University, the Netherlands, December 2011.

ESF course on Meta-community Dynamics and Biodiversity in Uppsala, Sweden, May 2008.

Knowledge exchange with the group of Prof. Dr. Antje Boetius at the Max Planck Institute for Marine Microbiology in Bremen, Germany. This visit was combined with a one-week course on the sequence database handling and data analysis program ARB, February 2008.

ESF Workshop on Microbial Diversity and Ecosystem Functioning at WasserCluster Lunz, Austria, March 2007.

Relevant teaching experience

Lecturer, Science Teaching Experience for Postdocs (STEP) Program at University of Washington, multiple major biological seminars, fall 2015.

Supervisor, University of Washington, undergraduates and postgraduates research education, 2014-2017.

Teaching Assistant, University of Wageningen, master course “Ecological aspects of biological interactions”, 2013-2014.

Mentor and supervisor for guest researcher from Uruguay and Erasmus practical training (6-month duration), Netherlands Institute of Ecology, 2011-2013.

Supervisor, work training technical assistant educational program ROC Vondellaan (6-month duration), Netherlands Institute of Ecology, 2010-2011.

Supervisor, work training technical assistant educational program, Max Planck Institute for Terrestrial Microbiology, 2009-2010.

Teaching Assistant, Philipps University Marburg, master courses “Microbial ecology”, 2007-2009.

Services

Professional

Manuscript Reviews: Applied Microbiology and Biotechnology, Applied Soil Ecology, Canadian Journal of Microbiology, Ecology Letters, Environmental Science and Pollution Research, European Journal of Soil Biology, FEMS Microbiology Ecology, FEMS Microbiology Letters, Frontiers in Terrestrial Microbiology, Geomicrobiology, Global Ecology and Biogeography, ISME Journal, Journal of Biogeography, Plant and Soil, PLOS ONE, Geochimica et Cosmochimica Acta, Science Advances, Environmental Microbiology and Environmental Microbiology Reports, Ecological Processes.

External reviewer, Swiss National Science Foundation (SNSF).

Symposium chair, University of Washington Postdoc Association Annual Research Symposium, December 2015.

Lab-manager for undergraduate research assistants in the Lidstrom lab at the University of Washington, May 2016-December 2017.

Participant of the "Global Soil Biodiversity Initiative" to incorporate expert knowledge into sustainable land management (since 2013)

Data management

Submitter (contact), 16S rRNA Illumina sequencing reads, Study SRP071903, Sequence Read Archive (SRA), 2016.

Submitter (contact), RNA Illumina HiSeq 2500 reads, Accession GSE85736, Gene Expression Omnibus (GEO), 2016.

Outreach

Vice chair, University of Washington Postdoc Association (UWPA), 2015-2016.

Netherlands Institute of Ecology Seminar series: Molecular insights into species interactions of microbial methane-consuming communities in lake sediments, December 2016. Invited oral presentation.

Western Washington University Biology Seminar Series: The role of microbial diversity for ecosystem function: A meet and great with microbes saving our planet, October 2015. Invited oral presentation.

Assistant, HiveBio Community Lab, Seattle: Dissemination of scientific principles to the public, 2014-2015.

Coordinator, FIUTS (The foundation for international understanding through students), coordination and supervision of up to 50 international students at the level of high school students to academic staff on social and educational orientations to promote cross cultural interactions, 2014-2016.

Coordinator, International Neighbor Group (ING) at Utrecht University, planning and execution of monthly gatherings for 40 foreign academic people to promote international awareness and understanding, 2010-2014.

Languages

German:	native language
English:	excellent writing and oral skills
Dutch:	good writing and oral skills
Spanish:	basic writing and oral skills