Curriculum Vitae

Name:	Sascha Marc Bernd Krause
Birth:	06 June 1980
Nationality:	German
Email:	ssa@des.ecnu.edu.cn
Website:	https://smbkrause.github.io/

Academic degrees

Doctor of Natural Science, Max Planck Institute for Terrestrial Microbiology and Philipps-Universität 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

Research Professor, School of Ecology and Environmental Sciences, East China Normal University, Shanghai, China, October 2019-present

Scientist, Department of Molecular Ecology, Thünen Institute for 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.

Honors

Youth 1000 Talent Plan recipient, Central Government of China, October 2019.

Outstanding young scholars in Zijiang, East China Normal University Double Hundred Talents Program, 2019-ongoing.

Research

Grants

Sino-Germany Mobility Programme: From Microbe to Satellite: Synthesis of the Methane Budget in the Context of Agri-Ecological Sustainability (project partner), 2021-2024, 197.000 Euro.

MicroTrait: From taxonomy to microbial functional diversity, approval number 32050410288, National Science Foundation China (NSFC), 2020-2022, 62.000 Euro.

Youth 1000 Talent program funding, 2019, 262.000 Euro.

European Science Foundation (ESF) EuroEEFG dissemination grants, 2009-2012, 2400 Euro.

ESF EuroDiversity travel grants, 2008, 1100 Euro.

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

Not Funded

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.

Israel Science Foundation (ISF)-NSFC Joint Scientific Research Program Annual Call 2020: Trophic interactions as a controlling factor of methane consumption in wetland soils, 262.000 Euro.

International conferences

4th Thünen Symposium on Soil Metagenomics, Braunschweig (Germany), December 2019. Oral presentation.

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

Scientific board member, 4th Thünen Symposium on Soil Metagenomics, Braunschweig (Germany), December 2019.

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 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.

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.

List of publications

Krause, S.M.B., Bertilsson, S., Grossart, H.P., Bodelier, P.L.E., van Bodegom, P., Lennon, J.T., Philippot, L., Le Roux, X. (2021). Microbial trait-based approaches for agroecosystems. OSF Preprints. doi:10.31219/osf.io/tw56v.

Zhou, X., Zhang, M., **Krause, S.M.B.**, Bu, X., Gu, X., Guo, Z., Jia, Z., Zhou, X., Wang, X., Chen, X. (2021). Soil aeration rather than methanotrophic community drives methane uptake under drought in a subtropical forest. Science of The Total Environment, **792**, 148292.

Liu, L., Zhu, K., **Krause, S.M.B.**, Li, S., Wang, X., Zhang, Z., Shen, M., Yang, Q., Lian, J., Wang, X., Ye, W., Zhang, J. (2021). Changes in assembly processes of soil microbial communities during secondary succession in two subtropical forests. Soil Biology and Biochemistry, **154**, 108144.

Kaupper, T., Mendes, L. W., Harnisz, M., **Krause, S.M.B.**, Horn, M. A., & Ho, A. (2020). Recovery in methanotrophic activity does not reflect on the methane-driven interaction network after peat mining. Applied and environmental microbiology, **87**, e02355-20. Advance online publication.

Krause, S.M.B., Näther, A., Ortiz Cortes, V., Mullins, E., Kessel, G., Lotz, L., & Tebbe, C. C. (2020). No Tangible Effects of Field-Grown Cisgenic Potatoes on Soil Microbial Communities. Frontiers in bioengineering and biotechnology, **8**, 603145.

Krause, S.M.B., Dohrmann, A.B., Gillor, O., Christensen, B.T., Merbach, I., Tebbe, C.C. (2020). Soil
Properties and Habitats Determine the Response of Bacterial Communities to Agricultural

Wastewater Irrigation. *Pedosphere* **30**, 146-158.

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

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

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. (2014b). Trait-based approaches for understanding microbial biodiversity and ecosystem functioning *Frontiers in Microbiology* **5**:251. doi: 10.3389/fmicb.2014.00251.

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 countergradients 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**: 393397.

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 Groundhopper, Tetrix ceperoi. *Evolutionary Ecology* **21**: 727-738.

Teaching

Lecturer, East China Normal University (ECNU), Scientific writing, ECOL3221102009, 2020-ongoing

Lecturer, ECNU, Soil Biology, ECOL3211102053, 2020-2021.

Lecturer, ECNU, Microbial Ecology, ECOL3211102065, 2021-ongoing.

Lecturer, ECNU, Eco Journal Club, ECOL3211102064, 2021-ongoing.

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

Supervisor, UW, undergraduates and postgraduates research education, 2014-2017.

Teaching Assistant, UW, 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 (NIOO), 2011-2013.

Supervisor, work training technical assistant educational program ROC Vondellaan (6-month duration), NIOO, 2010-2011.

Supervisor, work training technical assistant educational program, MPI for Terrestrial Microbiology, 2009-2010.

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

Services

Professional

Reviewer: 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.

Editorial Boards: European Journal of Soil Biology.

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

Ponds among ponds: an exhibition of threshold behavior & nested life (ECNU & NYU), 2021: https://ica.shanghai.nyu.edu/program/roundtable-with-curators-artists-and-scientists/

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

Assistant, HiveBio Community Lab, Seattle: Dissemination of scientific principles to the public, 20142015.

Coordinator, The Foundation for International Understanding Through Students (FIUTS), 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
Latin:	grand qualification in Latin
Chinese:	HSK level 1