# Curriculum Vitae


| | |
|---|---|
| Name: | Sascha Marc Bernd Krause |
| Website: | https://smbkrause.github.io/ |
| ORCID ID: | https://orcid.org/0000-0001-8403-1514 |


## Academic Degrees

**Doctor of Natural Science**, Max Planck Institute for Terrestrial Microbiology and Philipps-University Marburg, Germany, Apr 2010.

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

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

## Professional Experience

**Research Professor in Microbial Ecology,** School of Ecology and Environmental Sciences, East China Normal University (ECNU), Shanghai, China, Oct 2019-present

**Scientist,** Department of Molecular Ecology, Thünen Institute of Biodiversity, Braunschweig, Germany, Jun 2018-Jul 2019.

**Research Assistant Professor,** Department of Microbiology, University of Washington (UW), Seattle, U.S., May 2016-Jul 2017.

**Research Associate,** Department of Chemical Engineering, UW, Seattle, U.S., Febr 2014-Apr 2016.

**Postdoctoral Researcher,** Department of Microbial Ecology, Netherlands Institute of Ecology (NIOO), Wageningen, the Netherlands, May 2010-Mar 2014.

**Research Assistant,** Department of Biogeochemistry, Max Planck Institute (MPI) for Terrestrial Microbiology, Marburg, Germany, Oct 2006-Mar 2007.

## Honors

**Overseas High-Level Talent Position** at East China Normal University, Overseas High-Level Talent Recruitment Program, Oct 2019-present.

**Zijiang Outstanding Young Scholar** at East China Normal University, Double Hundred Talents Program, Oct 2019-Jul 2025.

## Research (Last five years)

### Grants

Sino-Germany Mobility Programme: From microbe to satellite: Synthesis of the methane budget in the context of agri-ecological sustainability (project partner), Jan 2021-Dec 2025, 280K CAD.

MicroTrait: From taxonomy to microbial functional diversity, approval number 32050410288, National Science Foundation China (NSFC), Jan 2020-Dec 2023, 90K CAD.

Zijiang Outstanding Young Scholar (ECNU), Oct 2019-Jul 2025, 380K CAD.

Overseas High-Level Talent Recruitment Program Funding, Oct 2019-Jul 2025, 380K CAD.

### International Conferences (last five years)

The 5$^{th}$ International Conference of Geobiology. Wuhan, China, Jun 2025. Invited oral presentation.

GRC Molecular Basis of Microbial One-Carbon Metabolism. Waterville, USA, Aug 2024. Poster presentation.

5th Euro C1 & BVOC symposium. Wageningen, May 2024. Oral presentation.

3rd International Forum on Black Soils Conservation and Utilization (ICBS3), Changchun (China), Jul 2023. Keynote Speaker.

### Relevant Organizational/Workshop Experience

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

### Research Visits

Visiting Scientist, Department of Microbial Ecology, NIOO, Wageningen, the Netherlands, Dec 2021-May 2023.

Visiting Scientist, Department of Biological Sciences, Simon Fraser University, Burnaby, BC Canada, Dec 2025-Feb 2026.

## Teaching

### Lecturer

ECNU, master courses:

- Scientific Writing, ECOL3221102009, Spring 2020-ongoing
- Soil Biology, ECOL3211102053, Autumn 2020-2021.
- Microbial Ecology, ECOL3211102065, Spring 2021-ongoing.
- Eco Journal Club, ECOL3211102064, Spring 2021-ongoing.

TU Braunschweig/Thünen Institute of Biodiversity, bachelor courses:

- Ecology of Microorganisms, Spring 2018-2019.
- Environmental Sciences, Spring 2018-2019.

UW, Science Teaching Experience for Postdocs Program, multiple major biological seminars, fall 2015.

NIOO, master course “Ecological aspects of biological interactions”, Spring 2013-2014.

Philipps-University Marburg, master course “Microbial ecology”, Winter 2007-2009.

### Supervisor/mentor

ECNU, graduates and postgraduates research education, October 2019-ongoing.

NIOO, postgraduates research education, May 2023-ongoing.

UW, undergraduates and postgraduates research education, February 2014-July 2017.

NIOO, Erasmus practical training, guest researcher from Uruguay, Spring 2011-2013.

NIOO, work training technical assistant educational program ROC Vondellaan, Spring 2010-2011.

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

## Relevant Services

### Professional

Manuscript Reviews: Applied Microbiology and Biotechnology, Applied Soil Ecology, Ecology Letters, European Journal of Soil Biology, FEMS Microbiology Ecology, FEMS Microbiology Letters, Frontiers in

Terrestrial Microbiology, Global Ecology and Biogeography, ISME Journal, Journal of Biogeography, Plant and Soil, Science Advances, Environmental Microbiology, and Environmental Microbiology Reports.

Editorial services: Editorial Board Member for European Journal of Soil Biology and iMeta; Associate Editor in Frontiers for Terrestrial Microbiology.

### Outreach

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

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 (written and spoken) |
| Dutch: | good (written and spoken) |
| Spanish: | basic (A2 level, CEFR) |
| Chinese: | basic (HSK level 1) |

# List of publications

Wang R., Chen Y., Zhai B., **Krause S.M.B.** (2025). Expanding the CSR framework to incorporate microbial interactions: evidence from methane-consuming communities. *Frontiers in Microbiology* **16**: 1589221.

**Krause S.M.B.**, van den Berg N.I., Brenzinger K., Zweers H., Bodelier P.L.E. (2025). Beyond methane consumption: exploring the potential of methanotrophic bacteria to produce secondary metabolites. *ISME Communications* **5**: ycaf030.

Dong W., Li W., Feng S., Deng Y., Zheng Z., **Krause, S.M.B. (**2024). Long-term nitrogen and phosphorus fertilization modulates methane uptake and microbial community dynamics in subtropical forest soils. *Pedosphere* **35**: 1–11.

Liu R., Wei Z., Dong W., Wang R., Adams J.M., Yang L. and **Krause S.M.B.** (2024). Unraveling the impact of lanthanum on methane consuming microbial communities in rice field soils. *Frontiers in Terrestrial Microbiology* **15**: 1298154.

Pérez, G.; **Krause, S.M.B.**; Bodelier, P.L.E.; Meima-Franke, M.; Pitombo, L.; Irisarri, P. (2023). Interactions between Cyanobacteria and methane processing microbes mitigate methane emissions from rice soils. *Microorganisms* **11**, 2830.

Finn, D.R., Rohe, L., **Krause, S.M.B.,** Guliyev, J., Loewen, A., Tebbe, C. (2023). Methanogenesis in biogas reactors under inhibitory ammonia concentration requires community-wide tolerance. *Applied Microbiology and Biotechnology* **107**: 6717–6730.

**Krause, S.M.B.,** Szoboszlay, M., Dier, M., Erbs, M., Manderscheid, R., Weigel, H.J., Tebbe, C. (2023). Impact of elevated atmospheric $CO_2$ on the wheat rhizomicrobiome under the additional influence of warming, drought, and nitrogen fertilization. *European Journal of Soil Biology* **117**: 103515.

**Krause, S.M.B.**, Bertilsson, S., Grossart, H.P., Bodelier, P.L.E., van Bodegom, P., Lennon, J.T., Philippot, L., Le Roux, X. (2022). Microbial trait-based approaches for agroecosystems. *Advances in Agronomy* **175**: 259-299.

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.

**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. *Microbiology Monographs* **32**: 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.

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.

**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).

**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.

**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.

**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.