

Complete list of all scientific publications

Until now I have published 56 papers in peer-reviewed journals (including 1 paper in *Nature Communications*, 3 papers in *PNAS*, 1 each in *Nature Climate Change*, *Cell*, *Science Advances*, 2 in *New Phytologist*, and 8 in *The ISME Journal*), as well as 2 book chapters.

The papers were cited >6500 times. Current “h-index” of 35 (Scopus, June 2024).

PhD thesis:

Woebken D. Diversity and ecology of marine Planctomycetes with focus on anammox bacteria. 2008. University of Bremen, Bremen, Germany.

Peer-reviewed publications:

1. Dietrich M, Panhölzl C, Angel R, Giguere A, Randi D, Hausmann B, Herbold CW, Pötsch EM, Schaumberger A, Eichorst SA, **Woebken D.** 2024. Plant roots affect free-living diazotroph communities in temperate grassland soils despite decades of fertilization. *Communications Biology* 7:846.
2. Barrajon-Santos V, Nepel M, Hausmann B, Voglmayr H, **Woebken D**, Mayer VE. 2024. Dynamics and drivers of fungal communities in a multipartite ant-plant association. *BMC Biology* 22:112
3. Imminger S, Meier DV, Schintlmeister A, Legin A, Schnecker J, Richter A, Gillor O, Eichorst SA, **Woebken D.** 2024. Survival and rapid resuscitation permit limited productivity in desert microbial communities. *Nature Communications* 15:3056.
4. Nepel M, Mayer VE, Barrajon-Santos V, **Woebken D.** 2023. Bacterial diversity in arboreal ant nesting spaces is linked to colony developmental stage. *Communications Biology* 6:1217.
5. Schmidt H, Gorka S, Seki D, Schintlmesiert A, **Woebken D.** 2023. Gold-FISH enables targeted NanoSIMS analysis of plant-associated bacteria. *New Phytologist* 240:439–451.
6. Dietrich M, Montesinos-Navarro A, Gabriel R, Strasser F, Meier DV, Mayerhofer W, Gorka S, Wiesenbauer J, Martin V, Weidinger M, Richter A, Kaiser A, **Woebken D.** 2022. Both abundant and rare fungi colonizing *Fagus sylvatica* ectomycorrhizal root-tips shape associated bacterial communities. *Communications Biology* 5:1261.
7. Schagerl M, Angel R, Donabaum U, Gschwandner AM, **Woebken D.** 2022. *Limnospira fusiformis* harbors dinitrogenase reductase (*nifH*)-like genes, but does not show N₂ fixation activity. *Algal Research*. 66: 102771.
8. Falkenberg R, Fochler M, Sigl L, Bürstmayr H, Eichorst SA, Michel A, Oburger E, Staudinger A, Steiner B, **Woebken D.** 2022. The breakthrough paradox - How focusing on one form of innovation jeopardizes the advancement of science. *EMBO Reports*. 23:e54772.
9. Nepel M*, Pfeifer J, Oberhauser FB, Richter A, **Woebken D***, Mayer VE. 2022. Nitrogen fixation by diverse diazotrophic communities can support population growth in arboreal ants. *BMC Biology*. 20:135. (*co-corresponding authors).
10. Nepel M*, Angel R, Borer ET, Frey B, MacDougall AS, McCulley RL, Risch AC, Schütz M, Seabloom EW, **Woebken D***. 2022. Global grassland diazotrophic communities are structured by combined abiotic, biotic, and spatial distance factors but resilient to fertilization. *Frontiers in Microbiology*. 13:821030.
11. Trojan D, García-Robledo E, Meier DV, Hausmann B, Revsbech NP, Eichorst EA, **Woebken D.** 2021. Microaerobic lifestyle at nanomolar O₂ concentrations mediated by low-affinity terminal oxidases in abundant soil bacteria. *mSystems*. 6:e00250-21.

12. Mayerhofer W, Schintlmeister A, Dietrich M, Gorka S, Wiesenbauer J, Martin V, Gabriel R, Reipert S, Weidinger M, Clode P, Wagner M, **Woebken D**, Richter A, Kaiser C. 2021. Recently photoassimilated carbon and fungal-delivered nitrogen are spatially correlated at the cellular scale in the ectomycorrhizal tissue of *Fagus sylvatica*. *New Phytologist* 232:2457–2474.
13. Meier DV, Greve AJ, Chennu A, van Erk MR, Muthukrishnan T, Abed RMM, **Woebken D**, De Beer D. 2021. Limitation of microbial processes at saturation-level salinities in a microbial mat covering a coastal saltflat. *Applied Environmental Microbiology*. 87:e00698-21.
14. Giguere AT*, Eichorst SA*, Meier DV, Herbold CW, Richter A, Greening C, **Woebken D**. 2021. Acidobacteria are active and abundant members of diverse atmospheric H₂-oxidizing communities detected in temperate soils. *The ISME Journal* 15:363–376. (*co-first authors)
15. Meier DV, Imminger S, Gillnor O, **Woebken D**. 2021. Distribution of mixotrophy and desiccation survival mechanisms across microbial genomes in an arid biological soil crust community. *mSystems*. 6:e00786-20.
16. Man Leung P, Bay SK, Meier DV, Chiri E, Cowan DA, Gillor O, **Woebken D**, Greening C. 2021. Energetic basis of microbial growth and persistence in desert ecosystems. *mSystems* 5: e00495-19.
17. Eichorst SA, Trojan D, Huntemann M, Clum A, Pillay M, Palaniappan K, Varghese N, Mikhailova N, Stamatis D, Reddy TBK, Daum C, Goodwin LA, Shapiro N, Ivanova N, Kyrpides N, Woyke T, **Woebken D**. 2020. One complete and seven draft genome sequences of subdivision 1 and 3 *Acidobacteria* isolated from soil. *Microbiology Resource Announcement* 9:301087-19.
18. Sedlacek CJ, Giguere AT, Dobie MD, Mellbye BL, Ferrell RV, **Woebken D**, Sayavedra-Soto LA, Bottomley PJ, Daims H, Wagner M, Pjevac P. 2020. Transcriptomic response of *Nitrosomonas europaea* transitioned from ammonia- to oxygen-limited steady-state growth. *mSystems* 5: e00562-19.
19. Zheng Q, Hu Y, Zhang S, Noll L, Böckle T, Dietrich M, Herbold CW, Eichorst SA, **Woebken D**, Richter A, Wanek W. 2019. Soil multifunctionality is affected by the soil environment and by microbial community composition and diversity. *Soil Biology and Biochemistry* 136:107521.
20. Gorka S, Dietrich M, Mayerhofer W, Gabriel R, Wiesenbauer J, Martin V, Zheng Q, Imai B, Prommer J, Weidinger M, Schweiger P, Eichorst SA, Wagner M, Richter A, Schintlmeister A, **Woebken D***, Kaiser C*. 2019. Rapid transfer of plant photosynthates to soil bacteria via ectomycorrhizal hyphae and its interaction with nitrogen availability. *Frontiers in Microbiology* 10:168. (*co-corresponding authors)
21. Schneider S, Schintlmeister A, Becana M, Wagner M, **Woebken D**, Wienkoop S. 2019. Sulfate is transported at significant rates through the symbiosome membrane and is crucial for nitrogenase biosynthesis. *Plant, Cell and Environment* 42:1180–1189.
22. Walker TWN, Kaiser C, Strasser F, Herbold CW, Leblans NIW, **Woebken D**, Janssens IA, Sigurdsson BD, Richter A. 2018. Microbial temperature sensitivity and biomass change explain soil carbon loss with warming. *Nature Climate Change* 8:885–889.
23. Zumstein MT, Schintlmeister A, Nelson TF, Baumgartner R, **Woebken D**, Wagner M, Kohler H-P E, McNeill K, Sander M. 2018. Biodegradation of synthetic polymers in soils: Tracking carbon into CO₂ and microbial biomass. *Science Advances* 4:eaas9024.
24. Schmidt H, Nunan N, Höck A, Eickhorst T, Kaiser C, **Woebken D**, Raynaud X. 2018. Recognizing Patterns: Spatial Analysis of Observed Microbial Colonization on Root Surfaces. *Frontiers in Environmental Science* 6:61.

25. Angel R, Nepel M, Panhölzl C, Schmidt H, Herbold CW, Eichorst SA, **Woebken D**. 2018. Evaluation of primers targeting the diazotroph functional gene and development of NifMAP – a bioinformatics pipeline for analyzing *nifH* amplicon data. *Frontiers in Microbiology* 9:703.
26. Hausmann B, Pelikan C, Herbold CW, Köstlbacher S, Albertsen M, Eichorst SA, Glavina Del Rio T, Huemer M, Nielsen PH, Rattei T, Stingl U, Tringe SG, Trojan D, Wentrup C, **Woebken D**, Pester M, Loy A. 2018. Peatland *Acidobacteria* with a dissimilatory sulfur metabolism. *The ISME Journal* 12:1729–1742.
27. Eichorst SA, Trojan D, Roux S, Herbold C, Rattei T, **Woebken D**. 2018. Genomic insights into the *Acidobacteria* reveal strategies for their success in terrestrial environments. *Environmental Microbiology* 20:1041–1063.
28. Angel R, Panhölzl C, Gabriel R, Herbold C, Wanek W, Richter A, Eichorst SA, **Woebken D**. 2018. Application of stable-isotope labeling techniques for the detection of active diazotrophs. *Environmental Microbiology* 20:44–61.
29. Everroad RC, Stuart RK, Bebout BM, Detweiler AM, Lee JZ, **Woebken D**, Prufert-Bebout L, Pett-Ridge J. 2016. Permanent draft genome of strain ESFC-1: ecological genomics of a newly discovered lineage of filamentous diazotrophic cyanobacteria. *Standards in Genome Science* 11:53.
30. Spohn M, Pötsch EM, Eichorst SA, **Woebken D**, Wanek W, Richter A. 2016. Soil microbial carbon use efficiency and biomass turnover in a long-term fertilization experiment in a temperate grassland. *Soil Biology and Biochemistry* 97:168–175.
31. Eichorst SA, Strasser F, Woyke T, Schintlmeister A, Wagner M, **Woebken D**. 2015. Advancements in the application of NanoSIMS and Raman microspectroscopy to investigate the activity of microbial cells in soils. *FEMS Microbiology Ecology* 91:fiv106
32. **Woebken D***, Burow LC, Behnam F, Mayali X, Schintlmeister A, Fleming ED, Prufert-Bebout L, Singer SW, López Cortés A, Hoehler TM, Pett-Ridge J, Spormann AM, Wagner M, Weber PK, Bebout BM*. 2015. Revisiting N₂ fixation in Guerrero Negro intertidal microbial mats with a functional single-cell approach. *The ISME Journal* 9:485–496. (*co-corresponding authors)
33. Berry D, Mader E, Lee TK, **Woebken D**, Wang Y, Zhu D, Palatinszky M, Schintlmeister A, Schmid MC, Hanson BT, Shterzer N, Mizrahi I, Rauch I, Decker T, Bocklitz T, Popp J, Gibson CM, Fowler PW, Huang WE, Wagner M. 2015. Tracking heavy water (D₂O) incorporation for identifying and sorting active microbial cells. *Proceedings of the National Academy of Sciences of the United States of America* 112: E194–203.
34. Seedorf H, Griffin NW, Ridaura VK, Reyes A, Cheng J, Rey FE, Smith MI, Simon GM, Scheffran RH, **Woebken D**, et al. 2014. Bacteria from diverse habitats colonize and compete in the mouse gut. *Cell* 159:253–266.
35. Burow LC, **Woebken D**, Bebout BM, Marshall IPG, Singer SW, Pett-Ridge J, Prufert-Bebout L, Spormann AM, Weber PK, Hoehler TM. 2014. Identification of *Desulfobacterales* as primary hydrogenotrophs in a complex microbial mat community. *Geobiology* 12:221–230.
36. Lee JZ, Burow LC, **Woebken D**, Everroad RC, Kubo MD, Spormann AM, Weber PK, Pett-Ridge J, Bebout BM, Hoehler TM. 2014. Fermentation couples *Chloroflexi* and sulfate-reducing bacteria to *Cyanobacteria* in hypersaline microbial mats. *Frontiers in Microbiology* 5:61.
37. Burow LC*, **Woebken D***, Marshall IPG, Lindquist EA, Bebout BM, Prufert-Bebout L, Hoehler TM, Tringe SG, Pett-Ridge J, Weber PK, Spormann AM, Singer SW. 2013. Anoxic carbon flux in photosynthetic microbial mats as revealed by metatranscriptomics and NanoSIMS. *The ISME Journal* 7:817–829. (*co-first authors)

38. Everroad RC, **Woebken D**, Singer SW, Burow LC, Kyrpides N, Woyke T, Goodwin L, Detweiler A, Prufert-Bebout L, Pett-Ridge J. 2013. Draft genome sequence of an oscillatorian cyanobacterium, strain ESFC-1. *Genome Announcements* 1(4):e00527–13.
39. van de Vossenberg J, **Woebken D**, Maalcke WJ, Wessels HJCT, Dutilh BE, Kartal B, Janssen-Megens EM, Roeselers G, Yan J, Speth D, Gloerich J, Geerts W, van der Biezen E, Pluk W, Francoijs K-J, Russ L, Lam P, Malfatti SA, Tringe SG, Haaijer SCM, Op den Camp HJM, Stunnenberg HG, Amann R, Kuypers MMM, Jetten MSM. 2013. The metagenome of the marine anammox bacterium '*Candidatus Scalindua profunda*' illustrates the versatility of this globally important nitrogen cycle bacterium. *Environmental Microbiology* 15:1275–1289.
40. **Woebken D***, Burow LC, Prufert-Bebout L, Bebout BM, Hoehler TM, Pett-Ridge J, Spormann AM, Weber PK, Singer SW*. 2012. Identification of a novel cyanobacterial group as active diazotrophs in a coastal microbial mat using NanoSIMS analysis. *The ISME Journal* 6:1427–1439. (*co-corresponding authors)
41. Burow LC, **Woebken D**, Bebout BM, McMurdie PJ, Singer SW, Pett-Ridge J, Prufert-Bebout L, Spormann AM, Weber PK, Hoehler TM. 2012. Hydrogen production in photosynthetic microbial mats in the Elkhorn Slough estuary, Monterey Bay. *The ISME Journal* 6:863–874.
42. Musat F, Wilkes H, Behrends A, **Woebken D**, Widdel F. 2010. Microbial nitrate-dependent cyclohexane degradation coupled with anaerobic ammonium oxidation. *The ISME Journal* 4:1290–1301.
43. Hamersley MR, **Woebken D**, Bohrer B, Schulze M, Lavik G, Kuypers MMM. 2009. Water column anammox and denitrification in a temperate permanently-stratified lake (Lake Ransnitzer, Germany). *Systematic and Applied Microbiology* 32:571–582.
44. Hoffmann F, Radax R, **Woebken D**, Holtappels M, Lavik G, Rapp HT, Schläppy M-L, Schleper C, Kuypers MMM. 2009. Complex nitrogen cycling in the sponge *Geodia barretti*. *Environmental Microbiology* 11:2228–2243.
45. Galan A, Molina V, Thamdrup B, **Woebken D**, Lavik G, Kuypers MMM, Ulloa O. 2009. Anammox bacteria and the anaerobic oxidation of ammonium in the oxygen minimum zone off northern Chile. *Deep-Sea Research II* 56:1021–1031.
46. Lam P, Lavik G, Jensen MM, van de Vossenberg J, Schmid M, **Woebken D**, Gutiérrez D, Amann R, Jetten MSM, Kuypers MMM. 2009. Revising the nitrogen cycle in the Peruvian oxygen minimum zone. *Proceedings of the National Academy of Sciences of the United States of America* 106:4752–4757.
47. **Woebken D***, Lam P, Fuchs BM, Kuypers MMM, Naqvi SWA, Kartal B, Strous M, Jetten MSM, Amann R. 2008. Microdiversity study of marine anammox bacteria reveals a novel *Candidatus Scalindua* phylotype in marine oxygen minimum zones. *Environmental Microbiology* 10:3106–3119. (*corresponding author)
48. Schmid MC, Hooper AB, Klotz MG, **Woebken D**, Lam P, Kuypers MMM, Pommerening-Roeser A, op den Camp HJM, Jetten MSM. 2008. Environmental detection of octahaem cytochrome hydroxylamine/hydrazine oxidoreductase genes of aerobic and anaerobic ammonium-oxidizing bacteria. *Environmental Microbiology* 10:3140–3149.
49. **Woebken D**, Teeling H, Dumitriu A, Kostadinov I, Amann R, Glöckner FO. 2007. Fosmids of novel marine *Planctomycetes* from the Namibian and Oregon coast upwelling systems and their cross-comparison with planctomycete genomes. *The ISME Journal* 1:419–435.
50. **Woebken D**, Fuchs BM, Kuypers MMM, Amann R. 2007. Potential interactions of particle-associated anammox bacteria with bacterial and archaeal partners in the Namibian upwelling system. *Applied and Environmental Microbiology* 73:4648–4657.

51. Hamersley MR, Lavik G, **Woebken D**, Rattray JE, Lam P, Hopmans EC, Sinninghe Damsté JS, Krüger S, Graco M, Gutiérrez D, Kuypers MMM. 2007. Anaerobic ammonium oxidation in the Peruvian oxygen minimum zone. *Limnology and Oceanography* 52:923–933.
52. Hannig M, Lavik G, Kuypers MMM, **Woebken D**, Martens-Habbena W, Jürgens K. 2007. Shift from denitrification to anammox after inflow events in the central Baltic Sea. *Limnology and Oceanography* 52:1336–1345.
53. Wakeham SG, Amann R, Freeman KH, Hopmans EC, Jørgensen BB, Putnam IF, Schouten S, Sinninghe Damsté JS, Talbot HM and **Woebken D**. 2007. Microbial ecology of the stratified water column of the Black Sea as revealed by a comprehensive biomarker study. *Organic Geochemistry* 38:2070–2097.
54. Bauer M, Kube M, Teeling H, Richter M, Lombardot T, Allers E, Wurdemann CA, Quast C, Kuhl H, Knaust F, **Woebken D**, Bischof K, Mussmann M, Choudhuri JV, Meyer F, Reinhardt R, Amann R, FO Glöckner. 2006. Whole genome analysis of the marine Bacteroidetes *Gramella forsetii* reveals adaptations to degradation of polymeric organic matter. *Environmental Microbiology* 8:2201–2213.
55. Fuchs BM, **Woebken D**, Zubkov MV, Burkhill P, R. Amann. 2005. Molecular identification of picoplankton populations in contrasting waters of the Arabian Sea. *Aquatic Microbial Ecology* 39:145–157.
56. Kuypers MMM, Lavik G, **Woebken D**, Schmid M, Fuchs BM, Amann R, Jørgensen BB, Jetten MSM. 2005. Massive nitrogen loss from the Benguela upwelling system through anaerobic ammonium oxidation. *Proceedings of the National Academy of Sciences of the United States of America* 102:6478–6483.

Book chapters

Eichorst SA, Trojan D, and **Woebken D**. 2018. *Terriglobus*. In *Bergey's Manual of Systematics of Archaea and Bacteria*. (eds. Whitman WB, Rainey F, Kämpfer P, Trujillo M, Chun J, DeVos P, Hedlund B and Dedysh S). doi:10.1002/9781118960608.gbm00003.pub2

Eichorst SA and **Woebken D**. 2014. *Investigation of microorganisms at the single-cell level using Raman Microspectroscopy and Nanometer-scale Secondary Ion Mass Spectrometry*. In *Applications of Molecular Microbiological Method*. (eds. Skovhus TL, Caffrey S, and Hubert CRJ). Caister Academic Press, Norfolk, UK.