

Anna S. Weiss

Curriculum Vitae

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Education & Research Experience

- since 05/2025 **Walter Benjamin Fellow.**
Postdoctoral Fellowship awarded by the German Research Foundation (DFG)
- since 04/2025 **Lecturer, ETH Zürich.**
Department of Civil, Environmental and Geomatic Engineering, ETH Zürich
- since 06/2023 **Postdoctoral Researcher.**
Microbial Systems Ecology Group, Department of Environmental Microbiology, ETH Zurich, Department of Environmental Systems Science, and Eawag, Department of Environmental Microbiology
Project: *Elucidating the effects of functional redundancy and bacterial interaction networks on functional stability of microbial communities*
- 01/2019 - 09/2023 **Dr. rer. nat. Microbiology**, with distinction "*summa cum laude*".
Ludwig Maximilians University Munich
Graduate School of the Collaborative Research Centre 1371 *Microbiome Signatures*, funded by the German Research Foundation (DFG)
Dissertation: *Ecology of a Synthetic Gut Bacterial Community*
Max von Pettenkofer Institute, Chair of Medical Microbiology and Hospital Epidemiology, Prof. Dr. Stecher
- 01/2016 - 12/2018 **Scientific Staff.**
Soft Condensed Matter Group/ Bacterial Biophysics Group,
Faculty of Physics, Ludwig-Maximilians-University, Munich
Project: *Single-cell analysis and mathematical modeling of a colicinogenic competition system in E. coli*
- 10/2016 - 10/2018 **Master of Science Physics & Biophysics.**
Ludwig-Maximilians University, Munich
Master Thesis: *Influence of Delay in Toxin Expression on Two-Strain Bacterial Competition in Escherichia coli*,
Bacterial Biophysics Group, Dr. habil. Opitz
- 08/2016 - 10/2016 **Research Internship.**
Soft Condensed Matter Group/ Bacterial Physics Group,
Faculty of Physics, Ludwig-Maximilians-University, Munich
Project Thesis: *"Noise Characterization in Gene Expression in a Δ LexA E. coli Strain via Inverse Fluorescent Microscopy"*

10/2012 - 07/2016 **Bachelor of Science Physics.**
Ludwig-Maximilians University, Munich
Bachelor Thesis: *Quantum Confinement in Ligand-Stabilized Organometall Iodide Perovskite Nanocrystals*,
Photonics and Optoelectronics Group, Prof. Dr. Feldmann

Publications (Selection)

See metrics and a full list of publications on Google Scholar (link).

- 2025 "Sulfoquinovose is exclusively metabolized by the gut microbiota and degraded differently in mice and humans", Krasenbrink J, Hanson BT, **Weiss AS**, Borusak S, Tanabe TS, Lang M, Aichinger G, Hausmann B, Berry D, Richter A, Marko D, Mussmann M, Schleheck D, Stecher B, Loy A,
Accepted for publication: Microbiome, doi.org/10.1101/2025.01.22.634256.
- 2024 "Cell Systems Voices: How can concepts from ecology enable insights about cellular communities?", **Weiss AS**, Gralka M, Faust K, Basanta Gutierrez D, Pienta K, Zhou X, Venturelli OS, Gibbons S, Ebrahimkhani MR, Shakiba N, Ma S,
Cell Systems, doi.org/10.1016/j.cels.2024.09.010.
- 2023 "Nutritional and host environments determine community ecology and keystone species in a synthetic gut bacterial community", **Weiss AS**, Niedermeier LS, von Stempel A, Burrichter AG, Ring D, Meng C, Kleigrew K, Lincetto C, Hübner J, Stecher B,
Nature Communications, doi.org/10.1038/s41467-023-40372-0.
- 2023 "Ecophysiology and interactions of a novel taurine-respiring bacterium in the mouse gut", Ye H, Borusak S, Eberl C, Krasenbrink J, **Weiss AS**, Chen S, Hanson BT, Hausmann B, Herbold CW, Pristner M, Zwirzitz B, Warth B, Pjevac P, Schleheck D, Stecher B, Loy A,
Nature Communications, doi.org/10.1038/s41467-023-41008-z.
- 2023 "Phage-targeting of protective commensals impairs resistance against *Salmonella Typhimurium* infection in gnotobiotic mice", von Stempel A, **Weiss AS**, Wittmann J, Salvado Silva M, Ring D, Wortmann E, Clavel T, Debarbieux L, Kleigrew K, Stecher B,
PLOS Pathogens, doi.org/10.1371/journal.ppat.1011600.
- 2022 "The Biological Significance of Pyruvate Sensing and Uptake in *Salmonella enterica* Serovar Typhimurium", Paulini S, Fabiani FD, **Weiss AS**, Moldoveanu AL, Helaine S, Stecher B, Jung K,
Microorganisms, doi.org/10.3390/microorganisms10091751.
- 2021 "*E. coli* enhance colonization resistance against *Salmonella Typhimurium* by competing for galactitol, a context-dependent limiting carbon source", Eberl C, **Weiss AS**, Jochum LM, Durai Raj AC, Ring D, Hussain S, Herp S, Meng C, Kleigrew K, Gigl M, Basic M, Stecher B,
Cell Host & Microbe, doi.org/10.1016/j.chom.2021.09.004.

- 2021 "In vitro interaction network of a synthetic gut bacterial community", **Weiss AS**, Burrichter AG, Durai Raj AC, von Stempel A, Meng C, Kleigrew K, Münch PC, Rössler L, Huber C, Eisenreich W, Jochum LM, Göing S, Jung K, Lincetto C, Hübner J, Marinos G, Zimmermann J, Kaleta C, Sanchez A, Stecher B,
ISME J, doi.org/10.1038/s41396-021-01153-z.
- 2020 "Evolutionary Stabilization of Cooperative Toxin Production through a Bacterium-Plasmid-Phage Interplay", Spriewald S, Stadler E, Hense BA, Münch PC, McHardy AC, **Weiss AS**, Obeng N, Müller J, Stecher B,
mBio, doi.org/10.1128/mBio.00912-20.
- 2020 "Dynamics of ColicinE2 production and release determine the competitive success of a toxin-producing bacterial population", **Weiss AS**, Goetz A, Opitz M,
Scientific Reports, doi.org/10.1038/s41598-020-61086-z.
- 2020 "Gene expression noise in a complex artificial toxin expression system", Goetz A, Mader A, von Bronk B, **Weiss AS**, Opitz M,
PLOS One, doi.org/10.1371/journal.pone.0227249.

Submitted Publications Under Review

- 2025 "Bridging the scales: what can microbial ecologists learn from classic ecology?", Beldi L, Henderson A, Lee M, Luneau JS, Mazel F, Miller TE, Padmanabha P, Raach B, van Vliet S, **Weiss AS**, Meacock O, Vogel M ,
under review: ISME Communications.
- 2024 "The gut microbiota reduces intestinal lipid absorption by induction of host phospholipase A1 activity in bile", Plagge J, Zimmermann-Kogadeeva M, Höring M, Liebisch G, Janssen KP, Slack E, Zimmermann M, Heeren J, Giansanti P, Basic M, Bolsega S, **Weiss AS**, Hermeling S, Viehof-Beckmann A, Clavel T, Dupont A, Jokisch F, Seeliger C, Bleich A, Brunner S, Hidrobo M, Stecher B, Coleman OI, Scheiber J, Matysik S, Klingenspor M, Küster B, Haller D, Burkhardt R, Kuipers F, Ecker J ,
under review: Gastroenterology.

Academic and Professional Awards and Honors

- 07/2024 Dr. Hildegard and Heinrich Fuchs Award (PhD Award of the Medical Faculty), Ludwigs-Maximilian University Munich, Germany.
- 06/2024 PhD Award of the Association for General and Applied Microbiology (VAAM), Germany.
- 09/2023 Doctoral degree awarded with the highest distinction *summa cum laude*, Ludwigs-Maximilian University Munich, Germany.
- 12/2022 The NK and Irene Cheung Family Scholarship, Keystone Symposia scholarship program.
- 09/2022 EMBO Travel Grant.
- 07/2022 Seoon Conference Poster Award, DGHM Germany.

Teaching and Mentoring

- 05/2025 Elective course for MSc and PhD Students, *Experimental Microfluidics*, 102-1248-00L, ETH Zürich.
- 02/2025 Bachelor Course, *Practical course in Microbiology for Environmental Science*, 701-0220-00L, ETH Zürich.
- since 10/2024 Co-Supervision of PhD Students, Microbial Systems Ecology Group, ETH Zürich.
- 03/2024 Bachelor Course, *Practical course in Microbiology for Environmental Science*, 701-0220-00L, ETH Zürich.
- 10/2021 - 04/2022 Supervision of MSc and Visiting Students, LMU Munich.
- 07/2021 Supervision of Master Course, *Animal Models, Microbiota and Pathogens*.
- 07/2020 Supervision of Master Course, *Animal Models, Microbiota and Pathogens*, LMU Munich.

Academic and Institutional Service

- ongoing Peer reviewing for academic journals, including Science, Nature Communications, the ISME Journal, ISME Communications, Current Opinion in Microbiology, npj.
- since 08/2024 Conference organization, Core organization team for MEEHubs2026, a hub-based conference on microbial ecology and evolution.
- since 01/2024 Representative postdoc, Institute for Biogeochemistry and Pollutant Dynamics (IBP), ETH Zürich.

Invited Talks

- 05/2025 Eawag Department of Environmental Microbiology Seminar Series, Department for Environmental Microbiology, Eawag, ETH Zürich.
- 10/2024 ETH Seminar in Microbiology, Ecology and Evolution, Department for Systems Science, ETH Zürich.
- 06/2024 7th Joint Microbiology and Infection Conference of the DGHM and VAAM.
- 05/2024 15th Student Symposium on Molecular Medicine, University of Ulm.
- 04/2024 Scientific Spring Meeting KNVM and NVMM 2024.

Conference Presentations (Selection)

Oral Presentations

- 03/2025 Annual Meeting of the Swiss National Science Foundation NCCR Microbiomes.
- 09/2024 Annual Meeting of the Simons Collaboration Principles of Microbial Ecosystems (PriME).
- 01/2024 MEEHubs 2024: Conference on Microbial Ecology and Evolution.
- 12/2022 Keystone Symposium: The Human Microbiome Ecology and Evolution, awarded with the NK and Irene Cheung Family Scholar Scholarship.

- 09/2022 EMBO Workshop: Bacterial Networks (BacNet22), awarded with a EMBO Travel Grant.
- 08/2022 18th International Symposium on Microbial Ecology (ISME18).
- 07/2022 DFG CRC1371 Symposium: Functional and Clinical Relevance of Microbiome Signatures.
- 10/2021 12th International Symposium on Gut Microbiology, INRAE France.
- 09/2021 73rd Annual Conference of German Society for Hygiene and Microbiology, DGHM Germany.

Poster Presentations

- 08/2024 19th International Symposium on Microbial Ecology (ISME19).
- 06/2024 GRC Marine Microbes 2024: Linking Genes, Rates, and Biogeochemistry in Marine Microbiology.
- 12/2022 Keystone Symposium: The Human Microbiome Ecology and Evolution, awarded with the NK and Irene Cheung Family Scholar Scholarship.
- 07/2022 14th Seeon Conference, DGHM Germany, awarded with the Poster Award 2022.
- 07/2021 EMBO-EMBL Symposium: New Approaches and Concepts in Microbiology.

Advanced Training (Selection)

- 04/2025 GenAI for Scientific Writing and Research, *ETH Zürich, Switzerland*.
- 01/2019 - 05/2023 Integrated Research Training Group, CRC1371 funded by the German Research Foundation (DFG).
- 09/2021 Negotiation and Conflict Management, Helmholtz Institute Munich, Germany.
- 04/2021 Nature Masterclass Scientific Writing and Publishing, Springer Nature.
- 02/2020 Metagenomic Bioinformatics Analysis Course, EMBL Heidelberg, Germany.
- 09/2019 Summer School on Microbial Community Modelling, KU Leuven, Belgium.
- 06/2019 2nd Seeon Summer School on Microbiome in Health and Disease, German Foundation for Hygiene and Microbiology (DGHM), Seeon, Germany.
- 05/2019 5th de.NBI Genomics Workshop, de.NBI, JLU Giessen, Germany.
- 02/2019 Theoretical and qualification pursuant to the ordinance on animal protection in experiments (TierSchVersV): Mouse, rat and rabbit, LAS interactive, TransMIT, Germany.