

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,
Swiss Federal Institute of Aquatic Science and Technology (EAWAG), ETH Zürich
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 the special 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 (see on Google Scholar)

- 2024 "Sulfoquinovose is exclusively metabolized by the gut microbiota and degraded differently in mice and humans",
Krasenbrink J, Hanson BT, **Weiss AS**, ..., Stecher B, Loy A,
bioRxivs, under review : *Microbiome*, <https://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,... ,
Cell Systems, doi.org/10.1016/j.cels.2024.09.010.
- 2023 "Schlüsselarten des Darmmikrobioms",
Weiss AS,
BIOSpektrum, doi.org/10.1007/s12268-024-2222-x.
- 2023 "Nutritional and host environments determine community ecology and keystone species in a synthetic gut bacterial community",
Weiss AS, ..., 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, ..., **Weiss AS**, ..., 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**, ..., Stecher B,
PLOS Pathogens, doi.org/10.1371/journal.ppat.1011600.
- 2023 "Das Oligo-MM-Modell in der Darmmikrobiomforschung",
Weiss AS, Burrichter AG, Stecher B,
BIOSpektrum, doi.org/10.1007/s12268-023-1875-1.
- 2022 "The Biological Significance of Pyruvate Sensing and Uptake in Salmonella enterica Serovar Typhimurium",
Paulini S, ..., **Weiss AS**, ..., 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**, ..., 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, ..., 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, ..., **Weiss AS**, ..., 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, ..., **Weiss AS**, Opitz M,
PLOS One, doi.org/10.1371/journal.pone.0227249.

Submitted Publications

- 2022 "The gut microbiota reduces intestinal lipid absorption by induction of host
phospholipase A1 activity in bile",
Plagge J, ..., **Weiss AS**, ..., 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 VAAM (The Association for General and Applied
Microbiology, Germany)**, *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 scho-
larship program*.
- 09/2022 **EMBO Travel Grant**, *European Molecular Biology Organization*.
- 07/2022 **Seeon Conference Poster Award**, *DGHM Germany*.

Conference Presentations (Selection)

- 08/2024 **19th International Symposium on Microbial Ecology (ISME19)**, *ISME
Society*, Poster Presentation.
- 06/2024 **7th Joint Microbiology and Infection Conference of the DGHM and
VAAM**, *DGHM and VAAAM Germany*, Invited Oral Presentation.
- 06/2024 **GRC Marine Microbes 2024 : Linking Genes, Rates, and Biogeochemistry
in Marine Microbiology**, *Gordon Research Conference*, Poster Presentation.
- 05/2024 **15th Student Symposium on Molecular Medicine**, *University of Ulm*, Invited
Oral Presentation.

- 04/2024 **Scientific Spring Meeting KNVM and NVMM 2024**, Invited Oral Presentation.
- 01/2024 **MEEHubs 2024 : Conference on Microbial Ecology and Evolution**, Oral Presentation.
- 12/2022 **Keystone Symposium : The Human Microbiome Ecology and Evolution**, *EMBO*, Oral Presentation & Poster, awarded with the NK and Irene Cheung Family Scholar Scholarship.
- 09/2022 **EMBO Workshop : Bacterial Networks (BacNet22)**, *EMBO*, Oral Presentation, awarded with a EMBO Travel Grant.
- 08/2022 **18th International Symposium on Microbial Ecology (ISME18)**, *ISME Society*, Oral Presentation.
- 07/2022 **CRC1371 Symposium : Functional and Clinical Relevance of Microbiome Signatures**, *CRC1371 of the German Research Foundation (DFG)*, Oral Presentation.
- 07/2022 **14th Seeon Conference**, *DGHM Germany*, Poster, awarded with the Poster Award 2022.
- 10/2021 **12th International Symposium on Gut Microbiology**, *INRAE France*, Oral Presentation.
- 09/2021 **73rd Annual Conference of German Society for Hygiene and Microbiology**, *DGHM Germany*, Oral Presentation.
- 07/2021 **EMBO-EMBL Symposium : New Approaches and Concepts in Microbiology**, *EMBL Heidelberg, Germany*, Poster.

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, online*.
- 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*.

Supervision and Mentoring

- 05/2025 **Elective course for Master and PhD Students**, *Experimental Microfluidics*, ETH Zürich.
- 02/2025 **Bachelor Course**, *Practical course in Microbiology for Environmental Science*, 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*, ETH Zürich.
- 10/2021 - 04/2022 **Supervision of Master Students**.
- 07/2020 **Supervision of Master Course**, *Practical course : Animal Models, Microbiota and Pathogens*, LMU Munich.

Academic and Institutional Service

- ongoing **Peer review for journals**, including Science, Nature Communications, the ISME Journal, ISME Communications and 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.