

Univ.-Prof. Dr. rer. nat. Holger Daims

Division of Microbial Ecology
Centre for Microbiology and Environmental Systems Science
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Research Interests

- Ecophysiology and evolution of nitrogen-cycling microorganisms
- Microbiology of wastewater treatment
- Microbe-microbe interactions
- Molecular and isotope methods in microbial ecology
- Imaging tools and digital image analysis in microbiome research

Professional Experience

since 10/2017	Full Professor, University of Vienna
8/2012 - 9/2017	Associate Professor, University of Vienna
4/2012	Habilitation (<i>venia docendi</i>) in Microbiology obtained at the University of Vienna
12/2010 - 7/2012	Assistant Professor (tenure track), Department of Microbial Ecology, University of Vienna
2/2003 - 11/2010	Assistant Professor (“Universitätsassistent”), Department of Microbial Ecology, University of Vienna
4/2002 - 6/2002	Research visit at the Department of Microbiology, University of Queensland, Brisbane, Australia
10/2001 - 1/2003	Post-doctoral fellow, Department of Microbiology, Technische Universität München, Germany

Education

18.09.2001	Dissertation (Dr. rer. nat), grade 1.1 (<i>magna cum laude</i>), Technische Universität München, Germany
2/1998 - 9/2001	PhD studies, Department of Microbiology, Technische Universität München, Germany (thesis: “Population structure and functional analyses, by in situ techniques, of nitrifying bacteria in wastewater treatment plants”)
26.09.1997	Diploma in Biology, grade 1.0 (“Mit Auszeichnung”, “with distinction”), University of Technology of the Rhineland, Aachen, Germany
2/1995 - 4/1995	Internship at the Department of Microbiology, University of Hawaii at Manoa, Honolulu, HI, USA
1990 - 1997	Studies in Biology, University of Technology of the Rhineland, Aachen, Germany, and University of Cologne, Germany

Honors and Awards

- 2023 *Highly Cited Researcher* (Clarivate)
<https://clarivate.com/highly-cited-researchers>
- 2022 *Ars Docendi* Recognition Award for Excellence in Teaching from the Austrian Federal Ministry of Education, Science and Research
- 2021 *Highly Cited Researcher* (Clarivate)
<https://clarivate.com/highly-cited-researchers>
- 2016 *ISME-IWA Bio Cluster Award*, Grand Prize
- 2016 *Distinguished Track Lecturer*, Ecological and Evolutionary Science Track, ASM Microbe 2016, Boston, USA
- 2009 *Wiener Zukunftspreis (Vienna Future Award)* of the City of Vienna and the *News Magazine*
- 2006 *Focus of Excellence* award of the Faculty of Life Sciences, University of Vienna, Austria
- 1997 *Springorum* medal of the University of Technology of the Rhineland, Aachen

Editorial and Reviewing Activities

- 2019-2023 Topic Editor of *Frontiers in Microbiology*, research topic “Ecology and Physiology of Nitrification”
- since 2017 Editorial Board member of *Environmental Microbiology*
- 2017 - 2019 Editorial Board member of *PeerJ*
- 2013 - 2016 Editorial Board member of *Applied and Environmental Microbiology*
- 2007 – 2018 Editorial Board member of *The ISME Journal*
- 2006 – 2012 Associated Editor of *Microbiology* (SGM)
- 2006 – 2007 Editorial Board member of *Microbial Ecology*

Ad hoc referee for numerous journals including *Science*, *Nature Microbiology*, *Nature Geosciences*, *Nature Reviews Microbiology*, *PNAS*, *ISME Journal*, *Trends in Microbiology*, *Trends in Biotechnology*, *FEMS Microbiology Ecology*, *Systematic and Applied Microbiology*, *Water Research*

Grant proposal reviewer for funding agencies including *NSF*, *European Research Council (ERC)*, *BSF*, *Human Frontier Science Program*, *NWO Research Council for Earth and Life Sciences*

Selected Professional Activities

- 2024-2025 Co-Chair of the Local Organizing Committee for the 28th European Nitrogen Cycle Meeting (ENC28), Vienna, Austria (September 8-11, 2025)
- 2024-2025 Member of the Steering Committee, 9th International Conference on Nitrification and Related Processes (ICoN9), Bremen, Germany (June 22-26, 2025)
- since 2024 Deputy head of the Department of Microbiology and Ecosystem Science, University of Vienna
- since 2022 Deputy head of the Division of Microbial Ecology, University of Vienna
- since 2019 Spokesman for the Professors of the Centre for Microbiology and Environmental Systems Science at the Senate of the University of Vienna
- 2018-2025 Head of the Comammox Research Platform, University of Vienna
- 2017 Member of the Scientific Committee, 5th How Dead is Dead? Conference, Vienna, Austria (September 6-8, 2017)

since 2017	Member of the Board of Experts, Austrian Microbiome Initiative (AMICI)
2020-2021	Member of the Scientific Advisory Committee, 7 th International Conference on Nitrification and Related Processes (ICoN7), virtual conference (July 18-22, 2021)
2018-2019	Member of the Scientific Advisory Committee, 6 th International Conference on Nitrification and Related Processes (ICoN6), Xiamen, China (October 8-12, 2019)
2016 - 2017	Co-chair and co-organizer (with Christa Schleper and Michael Wagner) of the 5 th International Conference on Nitrification (ICoN5), Vienna, Austria (July 23-27, 2017)
2016	Session convener at the 16 th International Symposium on Microbial Ecology (ISME-16), Montreal, Canada (August 21-26, 2016)
2014 - 2015	Member of the Scientific Advisory Committee and session convener, 4 th International Conference on Nitrification (ICoN4), Edmonton, Canada (June 28-July 1, 2015)
2014	Session convener at the 15 th International Symposium on Microbial Ecology (ISME-15), Seoul, South Korea (August 24-29, 2014)
2013 - 2014	Member of the Local Organizing Committee for the Biofilms 6 conference, Vienna, Austria (May 11-13, 2014)
2013 - 2015	Member of the university-wide Curricular Workgroup for Teacher Education (<i>Curriculare Arbeitsgruppe LehrerInnenbildung Neu</i>), University of Vienna
2011 - 2013	Member of the Senate of the University of Vienna
2004 - 2006	Member of the Local Organizing Committee for the 11 th Symposium on Microbial Ecology (ISME-11), Vienna, Austria (August 20-25, 2006)
5/2006, 10/2010, 10/2012	Lecturer at the international workshop “Microbial Ecology in Wastewater Treatment”, Aalborg University, Denmark
6/2012	Lecturer at the international “Advanced Course on Environmental Biotechnology”, TU Delft, The Netherlands
6/2011	Lecturer at the “1 st Bremen FISH Camp (international workshop on Fluorescence <i>in situ</i> Hybridization)”, Max-Planck Institute for Marine Microbiology, Bremen, Germany
since 1999	Co-organizer, lecturer, and supervisor at the annual “International FISH Course”, Technische Universität München, Germany, and University of Vienna, Austria
since 1999	Developer of the software <i>daime</i> (“digital image analysis in <u>m</u> icrobial <u>e</u> cology”); programming languages: C++, GLSL, R, SQL. The <i>daime</i> image analysis and visualization software has been used by researchers in microbiology, medicine, and other sciences in more than 500 published studies.

Teaching and Supervision / Mentoring Activities

Courses in bachelor and master programs at the University of Vienna since 2003.

Lectures:	Biodiversity and molecular ecology of microorganisms; Microbial communities; Environmental sciences lecture (topic: biological wastewater treatment and nitrification); Fundamental Concepts of Microbiome Science
Seminars:	Current topics in molecular microbial ecology and evolution; Advances in microbial ecology; Field trips in microbiology; Proseminar in microbial ecology; Seminar in environmental sciences
Lab courses:	Fluorescence <i>in situ</i> hybridization of microbes; Molecular phylogeny of prokaryotes

Main supervisor and co-supervisor of 14 postdocs, 15 PhD students, and 24 diploma/master students at the University of Vienna. Among my former PhD students and postdocs, 12 hold permanent or tenure-track positions [(senior) scientist, assistant professor] in academia, 2 hold associate professorships, and 1 is full professor.

Member of PhD thesis committees of Dennis Fink (University of Bremen, Germany), Jessika Füssel (University of Bremen, Germany), Irene Schaffner (University of Natural Resources and Life Sciences, Vienna), Katharina Kitzinger (University of Bremen, Germany and University of Vienna, Austria), Franziska Klotz (University of Constance, Germany), Niek Stortenbeker (University of Bremen, Germany), Daniel Schmidt (University of Natural Resources and Life Sciences, Vienna), Cristina Alcaraz (University of Vienna), Paula Rojas Pinzon (University of Vienna), Moritz Mohrlok (University of Vienna), Nataliia Solntceva (University of Vienna), Guilhem Panneau (ETH Zurich, Switzerland).

External PhD thesis reviewer/opponent of Rheanne Pickering, 2008 (Newcastle University, UK), Cristina Moraru, 2010 (University of Bremen, Germany), Jessika Füssel, 2014 (University of Bremen, Germany), Boris Nowka, 2014 (University of Hamburg, Germany), Alejandro Palomo, 2017 (Technical University of Denmark), Monica Conthe, 2018 (TU Delft, The Netherlands), Lianna Poghosyan, 2020 (Nijmegen University, The Netherlands), Aniela Munding, 2020 (Nijmegen University, The Netherlands), and Pieter Blom, 2024 (Nijmegen University, The Netherlands).

Publication Output

Author on **108 papers** in peer-reviewed journals (including 5 papers in *Nature*, 2 papers in *Science*, and 5 papers in *PNAS*). Received in total **18,003 citations**; **h-index 62** (Clarivate Web of Science) [Google Scholar: **27,690 citations**; **h-index 71**].

Author of **12 book chapters** and Co-Editor of 1 book.

Invited Talks

since 2002 **67 invited talks** at international conferences, workshops, and institutional seminars in 22 countries

Patents

since 2006 1 patent (EP 1903010 A1)

Funding

Projects as principal investigator (PI) and as co-PI

- FWF Cluster of Excellence CoE 7. Microbiomes drive Planetary Health. Key researcher (Cluster Head: Michael Wagner). € 648,410 of a total amount of € 35 Mio [2023-2028]
- FFG FO999902796. Microbiome Imaging. € 2,169,489 [2023-2027]. Co-PI: Michael Wagner.
- FWF DOC 69-B. Biology of macroscopic bacterial consortia from karst cave streams [2020-2024]. Project in the FWF-funded doctoral school “Microbial symbioses in dynamic environments: Metabolic interplay and novel interactions”
- City of Vienna. Nachweis von SARS-CoV-2 Genom im Abwasser der Stadt Wien (detection of SARS-CoV-2 in wastewater of Vienna) (PI Norbert Kreuzinger, Technical University Vienna). € 25,000 [2020-2021].
- University of Vienna. The Comammox Research Platform. € 1,035,089 [2018-2025]. Co-PI: Kristina Djinović-Carugo.
- FWF P30570-B21. Physiology and environmental importance of complete ammonia oxidizers (comammox). € 390,138 [2017-2022]

- FWF W1257. Post-genomic characterization of *Nitrospina*, a major marine nitrite oxidizer. € 196,682 [2016-2020]. Project in the FWF-funded doctoral school “Microbial Nitrogen Cycling – From Single Cells to Ecosystems”
- FWF P27319-B21. Microdiversity of uncultured nitrite-oxidizing bacteria. € 424,000 [2015-2019]
- FWF P25231-B21. Illuminating the ecology of nitrite-oxidizing bacteria in soil and aquatic ecosystems. € 370,000 [2013-2018]
- DOE-JGI CSP1497. Raman-based microcolony genomics and transcriptomics for studying microevolution and ecology of nitrifiers. In-kind contributions (Large scale next generation sequencing) [2013-2015]
- WWTF LS09-40. Multiphasic comparative analysis of key nitrite-oxidizing bacteria in wastewater treatment plants. € 630,000 [2010-2014]
- FWF/ESF I44. Project in the EuroDiversity consortium “COMIX - Coupling biofilm diversity and ecosystem functioning: The role of communication and mixing in microbial landscapes”. € 192,000 [2006-2011]
- University of Vienna. Graduate school (*Initiativkolleg*) “Symbiotic Interactions”. € 64,500 of a total amount of € 247,000 allocated to the Division of Microbial Ecology [2007-2010]
- FWF S100. Project in the National Research Network (NFN) “MICDIF - Linking microbial diversity and ecosystem functions across scales and interfaces”; project title “Functional diversity of nitrifying and heterotrophic microorganisms”. € 299,000 [2007-2010]
- University of Vienna. Project in the University Research Focus “Symbiosis research and principles of molecular recognition”, project title “Molecular Interactions between intracellular bacteria and their eukaryotic host cells”. € 65,000 of a total amount of € 450,000 [2006-2009]
- WWTF LS216. Genomics and ecology of novel uncultured nitrite-oxidizing bacteria in natural and engineered surroundings. € 460,000 [2004-2008]

Projects as host

- Marie Skłodowska-Curie Postdoctoral Fellowship INTERACT (PI Ruizhe Pei). € 214,344 [2025-2027]
- EMBO Postdoctoral Fellowship ALTF 102-2023 (PI Nicole Geerlings). € 144,000 [2024-2026]
- FWF T 938. Ecology of novel nitrite-oxidizers in the phylum Chloroflexi (PI Anne Daebeler). € 230,010 [2017-2020]. Project in the FWF Hertha Firnberg program for female post-docs.
- University of Vienna. PhD Completion Grant to Christiane Gruber-Dorninger [2014-2015]
- FWF P24101. Illuminating the Ecophysiology of *Nitrotoga*-like NOB (PI Sebastian Lüscher). € 181,000 [2012-2014]

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