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

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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

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| since 10/2017 | Full Professor, University of Vienna |
| 8/2012 - 9/2017 | Associate Professor, University of Vienna |
| 4/2012 | Habilitation (*venia docendi*) 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

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| 18.09.2001 | Dissertation (Dr. rer. nat), grade 1.1 (*magna cum laude*), 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**

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| 2023 | *Highly Cited Researcher* (Clarivate) https://clarivate.com/highly-cited-researchers |
| 2022 | *Ars Docendi* Recognition Award (Austrian State Prize for excellent teaching in higher education) together with colleagues Matthias Horn and Alexander Loy |
| 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**

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| 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**

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| since 2022 | Vice-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 |
| since 2018 | Head of the Comammox Research Platform, University of Vienna |
| 2017 | Member of the Scientific Committee, 5$^{th}$ 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) |

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| 2018-2019 | Member of the Scientific Advisory Committee, 6th 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 5th International Conference on Nitrification (ICoN5), Vienna, Austria (July 23-27, 2017) |
| 2016 | Session convener at the 16th International Symposium on Microbial Ecology (ISME-16), Montreal, Canada (August 21-26, 2016) |
| 2014 - 2015 | Member of the Scientific Advisory Committee and session convener, 4th International Conference on Nitrification (ICoN4), Edmonton, Canada (June 28-July 1, 2015) |
| 2014 | Session convener at the 15th 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 (*Curriculare Arbeitsgruppe LehrerInnenbildung Neu*), University of Vienna |
| 2011 - 2013 | Member of the Senate of the University of Vienna |
| 2004 - 2006 | Member of the Local Organizing Committee for the 11th 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 "1st Bremen FISH Camp (international workshop on Fluorescence *in situ* 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 *daime* ("digital image analysis in microbial ecology"); programming languages: C++, GLSL, R, SQL. The *daime* image analysis and visualization software has been used by researchers in microbiology, medicine, and other sciences in more than 450 published studies. https://www.microbial-ecology.net/daime |

**Teaching and Supervision / Mentoring Activities**

More than 100 courses in bachelor and master curricula at the University of Vienna since 2003.

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| Lectures: | Biodiversity and molecular ecology of microorganisms; Microbial communities; Environmental sciences lecture (topic: biological wastewater treatment and nitrification) |
| 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 *in situ* hybridization, Phylogeny of prokaryotes |

Served as **main supervisor and co-supervisor** of **14 postdocs**, **15 PhD students**, and **23 diploma/master students** at the University of Vienna. Among my former PhD students and postdocs, 10 hold permanent or tenure-track positions [(senior) scientist, assistant professor] in academia and 3 hold associate professorships.

**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 Mundinger, 2020 (Nijmegen University, The Netherlands), and Pieter Blom, 2024 (Nijmegen University, The Netherlands).

## Publication Output

Author on **100 papers** in peer-reviewed journals (including 4 papers in *Nature*, 2 papers in *Science*, and 5 papers in *PNAS*). Received in total **15,665 citations**; **h-index 58** (Clarivate Web of Science) [Google Scholar: **24,059 citations**; **h-index 67**].

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

## Invited Talks

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| since 2002 | **65 invited talks** at international conferences, workshops, and institutional seminars in 21 countries |

## Patents

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| 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. € 1,035,089.78 [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*

- 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 Lücker). € 181,000 [2012-2014]

Last update: April 12, 2024

# Publication List

Total number of citations according to Web of Science (as of April 2024): 15,665

h-Index: 58

## Publications in Peer-Reviewed Journals

(* indicates corresponding authorship)

1. Kop LFM, Koch H, Jetten MSM, **Daims H**, Lücker S (2024). Metabolic and phylogenetic diversity in the phylum *Nitrospinota* revealed by comparative genome analyses. *ISME Commun.* 4: ycad017.
2. Mueller AJ, Daebeler A, Herbold CW, Kirkegaard RH, **Daims H*** (2023). Cultivation and genomic characterization of novel and ubiquitous marine nitrite-oxidizing bacteria from the *Nitrospirales*. *ISME J.* 17: 2123–2133.
3. Ni G*, Leung PM, Daebeler A, Guo J, Hu S, Cook P, Nicol GW, **Daims H**, Greening C* (2023). Nitrification in acidic and alkaline environments. *Essays Biochem.* EBC20220194.
4. Zhang Y, Liu T, Li MM, Hua Z-S*, Evans P, Qu Y, Tan S, Zheng M, Lu H, Jiao J-Y, Lücker S, **Daims H**, Li W-J*, Guo J* (2023). Hot spring distribution and survival mechanisms of thermophilic comammox *Nitrospira*. *ISME J.* 17: 993-1003.
5. Kop LFM, Koch H, Spieck E, van Alen T, Cremers G, **Daims H**, Lücker L* (2023). Complete genome sequence of *Nitrospina watsonii* 347, isolated from the Black Sea. *Microbiol. Resour. Announc.* 12: e0007823.
6. Daebeler A*, Güell-Bujons Q, Mooshammer M, Zechmeister T, Herbold CW, Richter A, Wagner M, **Daims H** (2023). Rapid nitrification involving comammox and canonical *Nitrospira* at extreme pH in saline-alkaline lakes. *Environ. Microbiol.* 25:1055-1067.
7. De La Fuente MJ, de la Iglesia R, Farias L, Glasner B, Torres-Rojas F, Muñoz D, **Daims H**, Lukumbuzya M, Vargas I* (2022). Enhanced nitrogen and carbon removal in natural seawater by electrochemical enrichment in a bioelectrochemical reactor. *J. Environ. Manage.* 323: 116294.
8. Brugiroux S, Berry D, Ring D, Barnich N, **Daims H**, Stecher B* (2022). Specific localization and quantification of the Oligo-Mouse-Microbiota ($OMM^{12}$) by fluorescence *in situ* hybridization (FISH). *Current Protocols* 2: e548.
9. Leung PM, Daebeler A*, Chiri E, Hanchapola I, Gillett DL, Schittenhelm RB, **Daims H***, Greening C* (2022). A nitrite-oxidising bacterium constitutively consumes atmospheric hydrogen. *ISME J.* 16: 2213-2219.
10. Jung MY*, Sedlacek CJ*, Kits KD, Mueller AJ, Rhee SK, LHink L, Nicol GW, Bayer B, Lehtovirta-Morley L, Wright C, De La Torre JR, Herbold CW, Pjevac P, **Daims H**, Wagner M (2022). Ammonia-oxidizing archaea possess a wide range of cellular ammonia affinities. *ISME J*. 16: 272–283.
11. Liu S, Jung MY, Zhang S, Wagner M, **Daims H***, Wanek W (2021). Nitrogen kinetic isotope effects of nitrification by the complete ammonia oxidizer *Nitrospira inopinata*. *mSphere* 6: e0063421.
12. Gottshall EY*, Bryson SJ, Cogert KI, Landreau M, Sedlacek CJ, Stahl DA, **Daims H**, Winkler M (2021). Sustained nitrogen loss in a symbiotic association of Comammox *Nitrospira* and Anammox bacteria. *Water Res.* 202: 117426.
13. De La Fuente MJ, de la Iglesia R, Farías L, **Daims H**, Lukumbuzya M, Vargas I (2021). Electrochemical enrichment of marine denitrifying bacteria to enhance nitrate metabolization in seawater. *J. Environ. Chem. Eng.* 9: 105604.

14. Mueller AJ, Jung MY, Strachan CR, Herbold CW, Kirkegaard RH, Wagner M, **Daims H*** (2021). Genomic and kinetic analysis of novel Nitrospinae enriched by cell sorting. *ISME J.* 15: 732–745.

15. Lukumbuzya M, Kristensen JM, Kitzinger K, Pommerening-Roser A, Nielsen PH, Wagner M, **Daims H***, Pjevac P (2020). A refined set of rRNA-targeted oligonucleotide probes for in situ detection and quantification of ammonia-oxidizing bacteria. *Water Res.* 186: 116372.

16. Daebeler A, Kitzinger K, Koch H, Herbold CW, Steinfeder M, Schwarz J, Zechmeister T, Karst SM, Albertsen M, Nielsen PH, Wagner M, **Daims H*** (2020). Exploring the upper pH limits of nitrite oxidation: diversity, ecophysiology, and adaptive traits of haloalkalitolerant *Nitrospira*. *ISME J.* 12: 2967-2979.

17. Yang Y, **Daims H**, Liu Y, Herbold CW, Pjevac P, Lin JG, Li M*, Gu JD* (2020). Activity and metabolic versatility of complete ammonia oxidizers in full-scale wastewater treatment systems. *mBio* 11: e03175-19.

18. Kitzinger K*, Marchant HK*, Bristow LA, Herbold CW, Padilla CC, Kidane AT, Littmann S, **Daims H**, Pjevac P, Stewart FJ, Wagner M, Kuypers MMM (2020). Single cell analyses reveal contrasting life strategies of the two main nitrifiers in the ocean. *Nat. Commun.* 11: 767.

19. 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.

20. Riva A, Kuzyk O, Forsberg E, Siuzdak G, Pfann C, Herbold C, **Daims H**, Loy A, Warth B, Berry D* (2019). A fiber-deprived diet disturbs the fine-scale spatial architecture of the murine colon microbiome. *Nat. Commun.* 10: 4366.

21. Lukumbuzya M, Schmid M, Pjevac P*, **Daims H** (2019). A multicolor fluorescence *in situ* hybridization approach using an extended set of fluorophores to visualize microorganisms. *Front. Microbiol.* 10: 1383.

22. Kits KD, Jung M-Y, Vierheilig J, Pjevac P, Sedlacek CJ, Liu S, Herbold CW, Stein LY, Richter A, Wissel H, Brüggemann N, Wagner M*, **Daims H** (2019). Low yield and abiotic origin of $N_2O$ formed by the complete nitrifier *Nitrospira inopinata*. *Nat. Commun.* 10:1836.

23. Lee KS, Palatinszky M, Pereira FC, Nguyen J, Fernandez VI, Mueller AJ, Menolascina F, **Daims H**, Berry D, Wagner M, Stocker R* (2019). An automated Raman-based platform for the sorting of live cells by functional properties. *Nat. Microbiol.* 4: 1035-1048.

24. Sakoula D, Nowka B, Spieck E, **Daims H**, Lücker S* (2018). The draft genome sequence of "*Nitrospira lenta*" strain BS10, a nitrite oxidizing bacterium isolated from activated sludge. *Stand. Genomic Sci.* 13: 32.

25. Kitzinger K, Koch H, Lücker S, Sedlacek CJ, Herbold C, Schwarz J, Daebeler A, Mueller AJ, Lukumbuzya M, Romano S, Leisch N, Karst SM, Kirkegaard R, Albertsen M, Nielsen PH, Wagner M, **Daims H*** (2018). Characterization of the first "*Candidatus* Nitrotoga" isolate reveals metabolic versatility and separate evolution of widespread nitrite-oxidizing bacteria. *mBio* 9: e01186-18.

26. Daebeler A*, Herbold CW, Vierheilig J, Sedlacek CJ, Pjevac P, Albertsen M, Kirkegaard RH, de la Torre JR, **Daims H,** Wagner M* (2018). Cultivation and genomic analysis of "*Candidatus* Nitrosocaldus islandicus," an obligately thermophilic, ammonia-oxidizing Thaumarchaeon from a hot spring biofilm in Graendalur Valley, Iceland. *Front. Microbiol.* 9:193.

27. Füssel J*, Lücker S*, Yilmaz P, Nowka B, van Kessel MAHJ, Bourceau P, Hach PF, Littmann S, Berg J, Spieck E, **Daims H**, Kuypers MMM, Lam P (2017). Adaptability as the key to success for the ubiquitous marine nitrite oxidizer *Nitrococcus*. *Sci. Adv.* 3:e1700807.

28. Kits KD, Sedlacek CJ, Lebedeva EV, Han P, Bulaev A, Pjevac P, Daebeler A, Romano S, Albertsen M, Stein LY, **Daims H***, Wagner M (2017). Kinetic analysis of a complete nitrifier reveals an oligotrophic lifestyle. *Nature* 549:269-272.

29. Pjevac P, Schauberger C, Poghosyan L, Herbold CW, van Kessel MAHJ, Daebeler A, Steinberger M, Jetten MSM, Lücker S, Wagner M, **Daims H*** (2017). *AmoA*-targeted polymerase chain reaction primers for the specific detection and quantification of comammox *Nitrospira* in the environment. *Front. Microbiol.* 8:1508.

30. Schulz F*, Yutin N, Ivanova NN, Ortega DR, Lee TW, Vierheilig J, **Daims H**, Horn M, Wagner M, Jensen GJ, Kyrpides NC, Koonin EV, Woyke T (2017). Giant viruses with an expanded complement of translation system components. *Science* 356: 82-85.

31. Oswald K, Graf JS, Liftmann S, Tierken D, Brand A, Wehrli B, Albertsen M, **Daims H**, Wagner M, Kuypers MMM, Schubert CJ, Milucka J* (2017). *Crenothrix* are major methane consumers in stratified lakes. *ISME J.* 11:2124-2140.

32. **Daims H***, Lücker S, Wagner M (2016). A new perspective on microbes formerly known as nitrite-oxidizing bacteria. *Trends Microbiol.* 24: 699-712.

33. Hemp J*, Lücker S, Schott J, Pace L, Johnson J, Schink B, **Daims H**, Fischer W (2016). Genomics of a phototrophic nitrite oxidizer: Insights into the evolution of photosynthesis and nitrification. *ISME J.* 10: 2669-2678.

34. Hüpeden J, Wegen S, Off S, Lücker S, Bedarf Y, **Daims H**, Kühn C, Spieck E* (2016). Relative abundance of *Nitrotoga* in a biofilter of a cold freshwater aquaculture plant appears to be stimulated by slightly acidic pH. *Appl. Environ. Microbiol.* 82: 1838-1845.

35. **Daims H**, Lebedeva EV, Pjevac P, Han P, Herbold C, Albertsen M, Jehmlich N, Palatinszky M, Vierheilig J, Bulaev A, Kirkegaard RH, von Bergen M, Rattei T, Bendinger B, Nielsen PH, Wagner M* (2015). Complete nitrification by *Nitrospira* bacteria. *Nature* 528: 504-509.

36. Koch H, Lücker S, Albertsen M, Kitzinger K, Herbold C, Spieck E, Nielsen PH, Wagner M, **Daims H*** (2015). Expanded metabolic versatility of ubiquitous nitrite-oxidizing bacteria from the genus *Nitrospira*. *Proc. Natl. Acad. Sci. USA* 112: 11371-11376.

37. Palatinszky M, Herbold C, Jehmlich N, Pogoda M, Han P, von Bergen M, Lagkouvardos I, Karst SM, Galushko A, Koch H, Berry D, **Daims H**, Wagner M* (2015). Cyanate as an energy source for nitrifiers. *Nature* 524: 105-108.

38. Schaffner I, Hofbauer S, Krutzler M, Pirker KF, Bellei M, Stadlmayr G, Mlynek G, Djinovic-Carugo K, Battistuzzi G, Furtmüller PG, **Daims H**, Obinger C* (2015). Dimeric chlorite dismutase from the nitrogen-fixing cyanobacterium *Cyanothece* sp. PCC7425. *Mol. Microbiol.* 96: 1053-1068.

39. Nowka B, Off S, **Daims H**, Spieck E* (2015). Improved isolation strategies allowed the phenotypic differentiation of two *Nitrospira* strains from widespread phylogenetic lineages. *FEMS Microbiol. Ecol.* 91: fiu031.

40. Hofbauer S, Hagmüller A, Schaffner I, Mlynek G, Krutzler M, Stadlmayr G, Pirker KF, Obinger C, **Daims H**, Djinovic-Carugo K*, Furtmüller PG* (2015). Structure and heme-binding properties of HemQ (chlorite dismutase-like protein) from *Listeria monocytogenes*. *Arch. Biochem. Biophys.* 574: 36-48.

41. Gruber-Dorninger C, Pester M, Kitzinger K, Savio DF, Loy A, Rattei T, Wagner M, **Daims H*** (2015). Functionally relevant diversity of closely related *Nitrospira* in activated sludge. *ISME J.* 9: 643-655.

42. Lücker S*, Schwarz J, Gruber-Dorninger C, Spieck E, Wagner M, **Daims H** (2015). *Nitrotoga*-like bacteria are previously unrecognized key nitrite oxidizers in full-scale wastewater treatment plants. *ISME J.* 9: 708-720.

43. Nowka B, **Daims H**, Spieck E (2015). Comparison of oxidation kinetics of nitrite-oxidizing bacteria: nitrite availability as a key factor in niche differentiation. *Appl. Environ. Microbiol.* 81: 745-753.

44. Koch H, Galushko A, Albertsen M, Schintlmeister A, Gruber-Dorninger C, Lücker S, Pelletier E, Le Paslier D, Spieck E, Richter A, Nielsen PH, Wagner M, **Daims H*** (2014). Growth of nitrite-oxidizing bacteria by aerobic hydrogen oxidation. *Science* 345: 1052-1054.

45. Sorokin DY*, Vejmelkova D, Lücker S, Streshinskaya GM, Rijpstra I, Sinninghe Damsté J, Kleerebezem R, Van Loosdrecht M, Muyzer G, **Daims H** (2014). *Nitrolancea hollandica* gen. nov., sp. nov., a chemolithoautotrophic nitrite-oxidizing bacterium from a bioreactor belonging to the phylum Chloroflexi. *Int. J. Syst. Evol. Microbiol* 64: 1859-1865.

46. Remus-Emsermann MNP*, Lücker S, Müller DB, Potthoff E, **Daims H**, Vorholt JA (2014). Spatial distribution analyses of natural phyllosphere-colonizing bacteria on *Arabidopsis thaliana* revealed by fluorescence in situ hybridization. *Environ. Microbiol.* 16: 2329-2340.

47. Pester M, Maixner F, Berry D, Rattei T, Koch H, Lücker S, Nowka B, Richter A, Spieck E, Lebedeva E, Loy A, Wagner M, **Daims H*** (2014). NxrB encoding the beta subunit of nitrite oxidoreductase as functional and phylogenetic marker for nitrite-oxidizing *Nitrospira*. *Environ. Microbiol*. 16: 3055-3071.

48. Almstrand R, Persson F, **Daims H**, Ekenberg M, Christensson M, Wilén BM, Sörensson F, Hermansson M* (2014). Three-dimensional stratification of bacterial biofilm populations in a moving bed biofilm reactor for nitritation anammox. *Int. J. Mol.Sci.* 15: 2191-2206.

49. Hofbauer S, Gysel, K, Bellei M, Hagmueller A, Schaffner I, Mlynek G, Kostan J, Pirker K, **Daims H**, Furtmüller P, Battistuzzi G, Djinovic-Carugo K, Obinger C* (2014). Manipulating conserved heme cavity residues of chlorite dismutase: effect on structure, redox chemistry and reactivity. *Biochemistry* 53: 77-89.

50. Lopez-Vazquez CM*, Kubare M, Saroj DP, Chikamba C, Schwarz J, **Daims H**, Brdjanovic D (2014). Thermophilic biological nitrogen removal in industrial wastewater treatment. *Appl. Microbiol. Biotechnol.* 98: 945-956.

51. Almstrand R, **Daims H**, Persson F, Sörensson F, Hermansson M* (2013). New methods for analysis of spatial distribution and coaggregation of microbial populations in complex biofilms. *Appl. Environ. Microbiol.* 79(19):5978-5987.

52. Lücker S, Nowka B, Rattei T, Spieck E, **Daims H*** (2013). The genome of *Nitrospina gracilis* illuminates the metabolism and evolution of the major marine nitrite oxidizer. *Front. Microbiol.* 4: 27.

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## Book Chapters and Other Publications

1. Sorokin DY, Lücker S, **Daims H** (2018). *Nitrolancea*. *In* Bergey's Manual of Systematics of Archaea and Bacteria. John Wiley & Sons. DOI: 10.1002/9781118960608.gbm01563.

2. **Daims H**, Wagner M (2018). *Nitrospira*. Trends Microbiol. **5**: 462-463.

3. **Daims H** (2018). Stickstoffkreisläufe in der Abwasserreinigung – neue und bewährte Wege. *In* Wiener Mitteilungen Wasser-Abwasser-Gewässer, vol. 247, pp. 31-46. (Krampe J, Kreuzinger N, eds). Riegelnik, Vienna.

4. Hausmann B, Pjevac P, Schreck K, Herbold CW, **Daims H**, Wagner M, Loy A (2018). Draft genome sequence of *Telmatospirillum siberiense* 26-4b1T, an acidotolerant peatland alphaproteobacterium potentially involved in sulfur cycling. *Genome Announc.* **6**: e01524-17.

5. Lücker L and **Daims H** (2014). The Family *Nitrospinaceae*. *In* The Prokaryotes, pp. 231-237. (Rosenberg E, DeLong EF, Lory S, Stackebrandt E, Thompson F, eds.). Springer, New York.

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10. **Daims H** (2009). Quantitative FISH for the cultivation-independent quantification of microbes in wastewater treatment plants *In* FISH Handbook for Biological Wastewater Treatment: Identification and quantification of microorganisms in activated sludge and biofilms by FISH, (Nielsen PH, **Daims H**, Lemmer H, eds.). IWA Publishing, London, UK. pp. 85-92.

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12. **Daims H** (2005). Molecular analyses of microbial community structure and function of flocs. *In* Flocculation in Natural and Engineered Environmental Systems, (Droppo IG, Leppard GG, Liss SN, Milligan TG, eds.), CRC Press, Boca Raton, pp. 317-338.

13. Loy A, **Daims H**, Wagner M (2002). Activated sludge: Molecular techniques for determining community composition. *In* The Encyclopedia of Environmental Microbiology, (Bitton G, ed.), Wiley, New York, pp. 26-43.

14. **Daims H**, Schleifer K-H, Wagner M (2002). Halbautomatische und kultivierungs-unabhängige Quantifizierung von Bakterien in komplexen Umweltproben. *Laborwelt* **1/2002**: 10-14.

## Invited Oral Presentations on Conferences, Workshops, and Seminars

1. **Daims H.** A novel substrate for nitrification by complete ammonia oxidizers (comammox). New Zealand Microbiological Society Conference for 2023, Auckland, New Zealand (20.-23. November 2023). Online presentation.
2. **Daims H.** An Expanded Picture of Nitrification: Comammox, Alternative Lifestyles, and Microbial Interactions. **Conference opening lecture.** 8th International Conference on Nitrification (ICoN8), Princeton, USA (30. July-3. August 2023).
3. **Daims H.** Chemical imaging tools for studying *in situ* microbial physiology. **Keynote lecture.** CEMBO/EU Conference for young scientists “Hot Topics in Microbiology”, Bratislava, Slovakia (7.-10.12.2022).
4. **Daims H.** Physiology of comammox: key features of a 'green microbe'. International Water Association (IWA) webinar ‘Complete ammonia oxidizers – a new pathway in the nitrification process’ (25. May 2022). Online presentation.
5. **Daims H.** Novel and surprising insights into the microbiology of nitrification. Seminar at the Institut Ruđer Bošković, Zagreb, Croatia (4. March 2022). Online presentation.
6. **Daims H.** Novel insights into the ecophysiology of nitrifying microorganisms. JAMS 10th Annual Symposium, Kuala Lumpur, Malaysia (23.-24. August 2021). Online presentation.
7. **Daims H.** Stickstoff-Eliminierung in der Abwasserreinigung: Überraschungen aus der Mikrobiologie (Nitrogen elimination in wastewater treatment: surprises from microbiology). 40. AssistentInnentreffen der deutschsprachigen siedlungswasserwirtschaftlichen Institute, TU+BOKU Vienna, Austria (4.-7. September 2019).
8. **Daims H.** Metabolic versatility, complete ammonia oxidizers, And more: A new perspective on the nitrifying microorganisms. 8th Congress of European Microbiologists (FEMS 2019), Glasgow, UK (7.-11. July 2019)
9. **Daims H.** A new picture of major players in the nitrogen cycle: Genome resolved metagenomics as the key to surprising discoveries. Annual Conference 2019 of the Association for General and Applied Microbiology, Mainz, Germany (17.-20. March 2019).
10. **Daims H.** Metabolic versatility, complete ammonia oxidizers, and more: A new perspective on the nitrifying microorganisms. Seminar at the Dept. of Microbiology, University of Constance, Germany (5. November 2018).
11. **Daims H.** Stickstoffkreisläufe in der Abwasserreinigung – neue und bewährte Wege (Nitrogen cycles in sewage treatment – new and established paths). Seminar Aktuelle biologische Methoden und Verfahren in der Wassergütewirtschaft, TU Vienna, Austria (27.-28. February 2018).
12. **Daims H.** Sleep, stress and the Black Queen: Microbial hidden activities and cooperation. Fifth How Dead is Dead? Conference, Vienna, Austria (6.-8. September 2017).
13. **Daims H.** Complete nitrification by one organism: The discovery and characterization of comammox. IWA World Water Congress, Brisbane, Australia (9.-14. October 2016).
14. **Daims H.** Microcolony mini-metagenomics of active nitrifiers. Seminar at the Australian Centre for Ecogenomics, University of Queensland, Brisbane, Australia (11. October 2016).
15. **Daims H.** Complete nitrification by one organism: The discovery and characterization of comammox. **Session convener.** 16th International Symposium on Microbial Ecology (ISME-16), Montreal, Canada (21.-26. August 2016).
16. **Daims H.** Roundtable lecturer on the topic “Ecology-based engineering of natural microbial communities: Nitrification as an example”. 16th International Symposium on Microbial Ecology (ISME-16), Montreal, Canada (21.-26. August 2016).
17. **Daims H.** Complete nitrification by one organism: The discovery and characterization of comammox. **Distinguished Track Lecturer, Ecological and Evolutionary Science Track (Keynote lecture).** ASM Microbe 2016, Boston, USA (16.-20. June 2016).
18. **Daims H.** Repainting our picture of nitrite-oxidizing bacteria. Seminar at the Dept. of Chemistry and Bioscience, Aalborg University. Aalborg, Denmark (14. January 2016).
19. **Daims H.** Flexible friends or foes: Recent insights add fresh paint to our picture of nitrite-oxidizing bacteria. **Plenary lecture and session convener.** 4th International Conference on Nitrification (ICoN4), Edmonton, Canada (28. June-1. July 2015).

20. **Daims H.** Raman-based sorting of microbes with defined functional properties for single-cell genomics. 3rd Microbial Single Cell Genomics Workshop, Boothbay Harbor, USA (14.-18. June 2015).
21. **Daims H.** Tales of partnership and crime: Interactions of autotrophic and heterotrophic microorganisms. **Session convener.** 15th International Symposium on Microbial Ecology (ISME-15), Seoul, South Korea (24.-29. August 2014).
22. **Daims H.** Surprising versatility and multiple roots: News on the ecophysiology and evolution of nitrite-oxidizing bacteria. 114th ASM General Meeting, Boston, USA (17-20. May 2014).
23. **Daims H.** Surprising versatility and multiple roots: News on the ecophysiology and evolution of nitrite-oxidizing bacteria. Seminar at the Dept. of Microbiology, University of Hamburg, Germany (11. April 2014).
24. **Daims H.** Diversity, ecophysiology, and evolution of nitrite-oxidizing bacteria: A glimpse into a bag of surprises. **Plenary lecture.** 3rd International Conference on Nitrification (ICoN3), Tokyo, Japan (2.-5. September 2013).
25. **Daims H.** Ecophysiology and evolution of nitrite-oxidizing bacteria: News on the 'Big Unknown' of the nitrogen cycle. Seminar at the 'Microbial Ecology Group', University of Michigan, Ann Arbor, USA (11. July 2013).
26. **Daims H.** Surprising diversity and unexpected functions: Features of nitrite-oxidizing bacteria revealed by "Omics" and in situ tools. **Keynote lecture.** 5th International Conference on Microbial Ecology and Water Engineering, Ann Arbor, USA (7.-10. July 2013).
27. **Daims H.** Ecophysiology and evolution of nitrite-oxidizing bacteria: News on the 'Big Unknown' of the nitrogen cycle. Seminar at the Dept. of Microbiology, University of Constance, Germany (17. June 2013).
28. **Daims H.** Molecular biology and interactions of nitrite-oxidizing bacteria: A glance on the second step of nitrification. 2nd Symposium on Biological Nitrogen Removal Mechanisms and Process Analysis, Hsinchu, Taiwan (14.-15. January 2013).
29. **Daims, H.** Nitrification: Ammonia- and Nitrite-Oxidizing Bacteria. Ph.D. course on Microbial Ecology in Wastewater Treatment, Aalborg, Denmark (23.-26. October 2012).
30. **Daims H.** Microbial molecular ecology of nitrification. Advanced Course on Environmental Biotechnology, TU Delft, The Netherlands (20. June 2012).
31. **Daims H.** Ecophysiology and evolution of nitrite-oxidizing bacteria: News on the *Big Unknown* of the N-cycle. SGM Spring Conference, Dublin, Ireland (26-29. March 2012).
32. **Daims H.** Digital image analysis of microorganisms: From counting to stereology. First Bremen FISH Camp, Bremen, Germany (14-24. June 2011).
33. **Daims H.** Ecophysiology and genomics of key nitrite-oxidizing bacteria. Annual Meeting of the Dutch Society for Microbiology, Arnhem, The Netherlands (18.-20. April 2011).
34. **Daims H.** Novel insights into the ecophysiology and evolution of nitrite-oxidizing bacteria. Seminar at the Eidgenössische Anstalt für Wasserversorgung, Abwasserreinigung und Gewässerschutz (Eawag), Zürich, Switzerland (November 2010).
35. **Daims H.** Metagenomics illuminate the ecophysiology and evolution of nitrite-oxidizing bacteria. Seminar at the Department of Biological Sciences, Microbiology, University of Aarhus, Denmark (November 2010).
36. **Daims H.** Nitrification: Physiology, niche differentiation, and interactions of key players. Workshop “Microbial Ecology in Wastewater Treatment”, Dept. of Biotechnology, Chemistry and Environmental Engineering, Aalborg University, Denmark (October 2010).
37. **Daims H.** Quantitative FISH and new variations of (F)ISH. 13th International Symposium on Microbial Ecology (ISME-13), Seattle, USA (August 2010).
38. **Daims H.** Genomics and functional analyses of nitrite-oxidizing bacteria. Seminar at the Max-Planck-Institute for Marine Microbiology, Bremen, Germany (26. May 2010).
39. **Daims H.** How to apply genomic info to predict the ecological role of nitrifiers. The Water Research Conference, Lisbon, Portugal (April 2010).
40. **Daims H.** Ecophysiology and genomics of nitrifying microbes in natural and engineered systems. Seminar at the Dept. of Environmental Geosciences, University of Vienna, Austria (8. March 2010).
41. **Daims H.** Wastewater Treatment: A Useful Model System for Microbial Ecology. European

Science Foundation Workshop “EuroMicrobe”, Hilversum, The Netherlands (December 2009).

42. **Daims H.** Single cell tools to investigate microbial physiology. Biofilms 2009 Meeting of the American Society for Microbiology, Cancun, Mexico (November 2009).
43. **Daims H.** Ecology and evolution of nitrite oxidizers: Insights from *in situ* tools and environmental genomics. Autumn Meeting of the Society for General Microbiology, Edinburgh, United Kingdom (September 2009).
44. **Daims H.** *In situ* diversity and niche adaptations of nitrite-oxidizing bacteria. 1st International Conference on Nitrification (ICoN1), Louisville, Kentucky, USA (July 2009).
45. **Daims H.** Environmental genomics and in situ physiology of key nitrifying bacteria in engineered systems and hot springs. Seminar at the Department of Microbiology, University Zürich, Switzerland (March 2009).
46. **Daims H.** Ecophysiology and genomics of *Nitrospira*, the key nitrite oxidizers in natural and engineered ecosystems. **Plenary lecture.** 4th Congress of the Slovenian Microbiological Society with International Participation, Portoroz, Slovenia (November 2008).
47. **Daims H.** Environmental genomics illuminates the biology of key nitrite-oxidizing bacteria. **Conference opening lecture.** N-Cycle Meeting, Nijmegen, Netherlands (September 2008).
48. **Daims H.** Nitrification in biological wastewater treatment: Insights based on molecular approaches. 162nd Meeting of the Society for General Microbiology, Edinburgh, United Kingdom (March 31, 2008).
49. **Daims H.** Structure-function analysis of microbial biofilms. ESF workshop "Valuing biofilm services: The beauty and the beast", Lunz am See, Austria (September 2007).
50. **Daims H.** Molecular biological tools for analyzing structure-function relationships in mixed microbial environments. ECOSERV workshop on state-of-the-art in wastewater treatment and environmental impact, University of Newcastle upon Tyne, UK (March 2007).
51. **Daims H.** Enigmatic uncultured bacteria in nature and biotechnology. Seminar at Genoscope, Evry, France (January 2007).
52. **Daims H.** Ecology and genomics of key nitrite oxidizers active in natural and engineered habitats. 11th International Symposium on Microbial Ecology (ISME-11), Vienna, Austria (August 2006).
53. **Daims H.** Genomics, ecophysiology and interactions of yet uncultured nitrifying bacteria. Summer conference of the Society for Applied Microbiology, Edinburgh, United Kingdom (July 2006).
54. **Daims H.** "Nitrification and Anammox" and "Environmental Genomics" (two talks). Dept. of Biotechnology, Chemistry and Environmental Engineering, Aalborg University, Denmark (May 2006).
55. **Daims H.** "Who you are and what you do": FISH and related methods for characterizing complex microbial communities. Seminar at the Institute of Microbiology and Hygiene, Charité, Berlin, Germany (March 2006).
56. **Daims H.** Biodiversity and ecophysiology of N-cycle bacteria. COST Action 856 (Ecological Aspects of Denitrification, with Emphasis on Agriculture) management committee meeting & workshop, Nijmegen, the Netherlands (March 2006).
57. **Daims H.** and Wagner M. The Use of FISH, digital image analysis, and MAR techniques to analyze structure and physiology of biofilm communities. Philips Oral Healthcare biofilm symposium, Los Angeles, USA (October 2005).
58. **Daims H.** Molekulare Methoden zur Analyse der Biodiversität und Funktion nicht kultivierter Mikroorganismen (Molecular methods for analysing biodiversity and function of uncultured microorganisms). Workshop "Perspektiven molekularer und isotopischer Methoden zum Nachweis des natürlichen Schadstoffabbaus in Böden" organized by the German Federal Ministry of Education and Research and DECHEMA, Braunschweig, Germany (September 2005).
59. **Daims H.,** Le Paslier D, Spieck E, Wagner M. Ecophysiology and genomics of nitrite-oxidizing bacteria important for wastewater treatment. 12th European Congress on Biotechnology, Copenhagen, Denmark (August 2005).
60. **Daims H.** From biodiversity to environmental genomics: Microbiology of nitrite-oxidizing *Nitrospira*-like bacteria. Seminar at the University of Natural Resources and Applied Life

Sciences, Vienna, Austria (March 2005).

61. **Daims H.** Biodiversity and ecophysiology of *Nitrospira*-like bacteria. Seminar at the Austrian Research Centers, Seibersdorf, Austria (January 2005).
62. **Daims H.** From 16S rRNA to environmental genomics: microbiology of *Nitrospira*-like bacteria. Seminar at the Environmental Engineering group intramural meeting, University of Newcastle upon Tyne, UK (November 2004).
63. **Daims H.** Ecology and genomics of uncultured autotrophic nitrite-oxidizers and anaerobic ammonium oxidizers. Gordon Research Conference on the Molecular Basis of Microbial One-Carbon Metabolism, Mt. Holyoke College, Massachusetts, USA (August 2004).
64. **Daims H**, Wagner M. Microbial Structure and Community Structure of Flocs. Workshop on Flocculation in Natural and Engineered Systems, Burlington, Ontario, Canada (September 2003).
65. **Daims H.** Population structure and functional analyses, by *in situ* techniques, of nitrifying bacteria in wastewater treatment plants. Seminar at the Advanced Wastewater Management Centre, University of Queensland, Brisbane, Australia (May 2002).

## Contributed Oral Presentations on Conferences and Workshops

1. Kits KD, Jung MY, Sedlacek CJ, Vierheilig J, Pjevac P, Brüggemann N, Wagner M, **Daims H**. Nitric oxide and nitrous oxide production by complete ammonia oxidizers (comammox). 23rd European Nitrogen Cycle Meeting, Alicante, Spain (19.-21. September 2018).
2. **Daims H,** Palatinszky M, Pogoda M, Koch H, Wagner M. Cyanate: A novel substrate for nitrification by ammonia-oxidizing archaea and nitrite-oxidizing bacteria. 19th European Nitrogen Cycle Meeting, Ghent, Belgium (10.-12. September 2014).
3. **Daims H**, Lee TK, Kitzinger K, Dorninger C, Schmid M, Wagner M. Picking them one by one: Raman-based sorting and single-microcolony genomics of uncultured microdiverse nitrifiers in activated sludge flocs. Biofilms 6 Conference, Vienna, Austria (11.-13. May 2014).
4. Dolinšek J, Lagkouvardos I, Wagner M, **Daims H.** *Nitrospira* for lunch: A novel microbial predator hunts for nitrite-oxidizing bacteria in activated sludge. 2nd International Conference on Water Research, Singapore (20.-23. January 2013).
5. **Daims H.** Click chemistry: A new approach for single cell microbial ecology. 14th International Symposium on Microbial Ecology (ISME-14), Copenhagen, Denmark (August 2012).
6. Sorokin D, Vejmelkova D, Lücker S, Kleerebezem R, Muyzer G, Sinninghe-Damsté J, Wagner M, Le Paslier D, van Loosdrecht M, **Daims H**. Nitrification expanded: Discovery, physiology, and genomics of a Gram-positive, thermotolerant, and lithoautotrophic nitrite oxidizer. 2nd International conference on nitrification (ICoN2), Nijmegen, The Netherlands (3-7. July 2011).
7. **Daims H,** Lücker S, Mussmann M, Brito I, Spieck E, Head IM, Le Paslier D, Wagner M. Ammonia-oxidizing *Archaea* and nitrite-oxidizing *Nitrospira* in wastewater treatment plants: New insights based on molecular tools and environmental genomics. 5th Specialized conference on microbial population dynamics in biological wastewater treatment (ASPD5), Aalborg, Denmark (May 2009).
8. **Daims H**, Lücker S, Maixner F, Spieck E, Le Paslier D, Wagner M. Metagenomics of *Nitrospira defluvii* illuminates the biology of key nitrite-oxidizing bacteria. 12th International Symposium on Microbial Ecology (ISME-12), Cairns, Australia (August 2008).
9. **Daims H**, Pelletier E, Lücker S, Maixner F, Hace K, Spieck E, Le Paslier D, Wagner M. Metagenome-based analyses of uncultured *Nitrospira*-like bacteria, the key nitrite oxidizers in wastewater treatment, and the complete genome of the uncultured nitrite oxidizer *Nitrospira defluvii*. 3rd European Conference on Prokaryotic Genomics, Göttingen, Germany (October 2007).
10. **Daims H,** Maixner F, Lücker S, Stoecker K, Hace K, Wagner M. Ecophysiology and niche differentiation of *Nitrospira*-like bacteria, the key nitrite oxidizers in wastewater treatment plants. 4th IWA Activated Sludge Population Dynamics Specialist Conference, Gold Coast, Australia (July 2005).
11. **Daims H.** Ecophysiology and environmental genomics of yet uncultured nitrite-oxidizing bacteria. 10th International Symposium on Microbial Ecology (ISME-10), Cancun, Mexico (August 2004).
12. **Daims H**, Maixner M, Spieck E, Anneser B, Wagner M. Diversity, Ecophysiology, and Genomics of uncultured *Nitrospira*-like nitrite-oxidizing bacteria. Minisymposium on Microbial Ecology, University of Applied Life Sciences and Natural Resources, Vienna, Austria (March 2004).
13. **Daims H**, Schleifer K-H, Wagner M. A Novel Approach to Identify Denitrifying Bacteria in Environmental Samples Based on Stable Isotope Probing, Fluorescence *In Situ* Hybridization and Microautoradiography. IUMS 10th International Congress of Bacteriology and Applied Microbiology, Paris, France (July 2002).
14. **Daims H**, Wagner M. An integrated software solution for visualization and quantitative digital image analysis of microbial cells detected by FISH and confocal laser scanning microscopy. IWA International Specialized Conference on Biofilm Monitoring, Porto, Portugal (March 2002).
15. **Daims H**, Lee N, Schmid M, Nielsen PH, Schleifer K-H, Wagner M. Yet unculturable bacteria as major players for nutrient removal in waste water treatment. Biotechnology World Congress, Berlin, Germany (September 2000).
16. **Daims H**, Purkhold U, Bjerrum L, Arnold E, Wilderer PA, Wagner M. Nitrification in sequencing biofilm batch reactors: lessons from molecular approaches. IWA Symposium on Sequencing

Batch Reactor Technology, Narbonne, France (July 2000).

17. **Daims H**, Wagner M. The biology of *Nitrospira*-like bacteria in wastewater treatment plants: from structure to function. Annual meeting of the German Association for General and Applied Microbiology (VAAM), Munich, Germany (March 2000).
18. **Daims H**, Nielsen PH, Nielsen JL, Juretschko S, Wagner M. Novel *Nitrospira*-like bacteria as dominant nitrite-oxidizers in biofilms from wastewater treatment plants: diversity and *in situ* physiology. IAWQ Conference on Biofilm Systems, New York, USA (October 1999).
19. **Daims H**, Wagner M. *Nitrospira*-like bacteria play a key role in nitrifying biofilms. Annual meeting of the German Association for General and Applied Microbiology (VAAM), Göttingen, Germany (March 1999).