CURRICULUM VITAE: DR GAOFENG NI

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QUALIFICATIONS

26/09/2018	PhD (Ecology) at Linnaeus University, Sweden and WETSUS - European Centre of Excellence for Sustainable Water Technology *When bioelectrochemical systems meet extremophiles, possibilities and challenges*
30/08/2013	MSc (Environmental Sciences), Wageningen University, Netherlands Thesis track (Grade 8/10): Environmental Technology
30/08/2011	BSc (Environmental Technology), Jinan University, China Thesis (Grade 8/10): Phytoremediation of cadmium and lead from soil

APPOINTMENTS

07/2022 – present	1.0 FTE - Postdoctoral Research Fellow, Biomedical Discovery Institute, Monash University (MU), Australia
03/2021 – 07/2022	0.5 FTE - Postdoctoral Research Fellow, Australian Centre for Water and Environmental Biotechnology (ACWEB), The University of Queensland (UQ), Australia
03/2021 – 03/2022	0.5 FTE- Postdoctoral Research Fellow, logistics focused, Centre for Microbiome Research (CMR), Queensland University of Technology (QUT), Australia
04/2019 – 03/2021	1.0 FTE - Postdoctoral Research Fellow, ACWEB, UQ, Australia
03/2014 – 09/2018	1.0 FTE - PhD in Ecology, Linnaeus University (LNU), Sweden and European Centre of Excellence for Sustainable Water Technology (WETSUS), The Netherlands
09/2011 – 08/2013	1.0 FTE - MSc. Environmental Science, Wageningen University and Research (WUR), The Netherlands

AWARDS

My research, teaching and service has been recognised with diverse institutional and international competitive awards.

- CSIRO Early Research Career (CERC) Postdoctoral Fellowship in Environmental Genomics (2022, declined due to appointment at Monash University)

- Finalist at “So You Think You Can Pitch” contest (2022)
- Advance Queensland Industry Research Fellowship (2020)
- Universitas 21 ECR award (2019)
- ForTe Talent Factory award (2019, interrupted due to COVID19 pandemic)

GRANTS AND FUNDING

Since PhD graduation, I have secured funding across a range of sources to execute research of using microbiology for a better environment.

- 2023 Monash University Early Career Postdoctoral Fellowship ($80K, 15% success rate, ECPF23–8566329039)
  Real time prediction of microbial greenhouse gas emissions
- 2020-2022 Advance Queensland Industry Research Fellowship ($450K, 17% success rate, RM2019002600)
  Rapid and Comprehensive Microbial Profiling for Water Sustainability
- 2021 University of Queensland Internal Infrastructure funding ($80K)
  Establishment of an RT-qPCR research facility
- 2019 ForTe Talent Factory, Technical University of Munich ($5K, 50 global awardees)
  Representing the University of Queensland
- 2019 Universitas 21 ECR award ($5K, 50 global awardees)
  Representing the University of Queensland
- 2019 University of Queensland, summer student research fund ($3.6K)
- 2019 Travel grant, Electromicrobiology Conference, Denmark (DKK 4K)

Additionally, my roles as PhD student and Postdoctoral Research Fellow were funded by diverse collaborative research projects across Australia and Europe, aimed at creating a more sustainable environmental future.

- 2024 Collaborative Research Project: Monash University and DSM-Firmenich ($142K)
- 2014-2018 European Union 7th Framework Programme BIOELECTROMET (SEK 2.1M)

SUPERVISION AND MENTORING

My students (*denotes completion) have developed excellent scientific and professionals and are highly valued in subsequent careers.

PhD supervision

Yu Wang 2021 –
Strain Resolved Analytics of Environmentally Critical Microorganisms

PhD co-supervision

Jun Xia* 2019 – 2022

Isolation and characterisation of Mycobacterium from industrial processes

Nova Maulani* 2019 – 2022

Understanding of a novel acid-tolerant Mycobacterium in wastewater treatment

Fangrui Cai 2021 – 2023

Understanding microbial novel methane oxidation in wastewater treatment

Master and Honours supervision

Justin Davis * 2023

*(**High Distinction**) Acetogenesis encoded in a novel bacterial phylum*

Zhengyu Jin 2021

Rapid detection of environmental pathogens from water

Pebrianto Harnawan 2017

*(**High Distinction**)* Haloalkaliphilic Microbial Electrolysis Cell for sulfide oxidation

Irdina Adam* 2022

*(**High Distinction**) Application of Nanopore sequencing for E. coli detection in Urban Waters*

TEACHING (MSc level)

My teaching philosophy is to emphasis on effective knowledge development for the student to better understand course content with sufficient details, coupled with appropriate examples, organized in an intuitive structure to facilitate effective course delivery. My lectures are ranked above top 25% at Go8 universities.

- Disease surveillance and the microbiome (GNA5031, MU, 2023)
- Emerging Issues in the Urban Water Cycle and Public Health (WATR7106, UQ, 2020 – 2022)
- Environmental Health Risk - Biological Hazards (ENVH7001, UQ, 2020 – 2022)

SERVICES

Leadership roles

- Global Change Seminar Series Chair, Monash University (1x, 2024)

- Monash University, Greening Lab, Industry Microbiology Team (2023 – 2024)
- Management Committee at Advanced Water Management Centre (ACWEB), UQ (2021)
- Manager of Microbial Ecology Meetings, ACWEB, UQ (quarterly, 2019 - 2022)
- Manager of computing infrastructure, ACWEB, UQ (2019 - 2022)

Training and mentorship

- Reviewer Panel member for over 10 PhD and over 5 MSc students (2019 -)
- Regular (weekly) and frequent informal consultation and mentorship for Postdocs, PhD and Honour students (2019 -)
- Judge for Biological Sciences Postgraduate Poster Presentations (2023)

Master level course development

- A bioinformatics-focus course on the utilization of a QIIME2 software for microbial ecology (over 20 registrations, interrupted due to COVID, UQ, 2020)
- Disease surveillance and the microbiome (GNA5031, MU, 2023)
- Emerging Issues in the Urban Water Cycle and Public Health (WATR7106, UQ, 2020 – 2022)
- Environmental Health Risk - Biological Hazards (ENVH7001, UQ, 2020 – 2022)

Recruitment

I have led selection and interviews to recruit over10 PhD students (2019 -) and over 5 master student (2014 -) at top Australian, Dutch and Swedish universities.

Conference and grant reviews

- Scientific committee: 5th International Conference on Biogas Microbiology (ICBM-5) (2024)
- Grant review: National Science Centre, Poland (Applicant withdraw, 2024)
- Grant review: French National Research Agency (ANR), main call. (2023)
- Reviewer for International Water Association (IWA) World Water Congress & Exhibition section “Microbial Ecology” (2022)

Editorial roles

Review Editor on the Editorial Board of Microbiotechnology (specialty section of Frontiers in Microbiology, Frontiers in Bioengineering and Biotechnology and Frontiers in Environmental Science, 5 – 10 manuscripts per year, 2024 -).

Peer review

I have conducted peer reviews for a large numbers of articles for top journals of the field, including: “mSystems” (IF 6.5), “Water Research” (4 times, IF 11.4), “Journal of

Hazardous Materials" (2 times, IF 12.2), "Environmental Science and Technology" (IF 10.8), "Science of the Total Environment" (IF 8.2), "Engineering" (IF 10.1), "Chemosphere" (IF 8.1).

Society roles

I am actively engaging with experts of my fields by being members of scientific societies, not only for science, but also with a passion for a more inclusive and diverse environment where everyone has equal access to resources and support.

- Australian Society for Microbiology, Committee for Equality, Diversity, and Inclusion, VIC branch (2024 -)
- Member: International Society for Microbial Ecology (2022 -), international society for microbial electrochemistry and technology (2016 -), Australian Society for Microbiology (2022 -), Joint Academic Microbiology Seminars (JAMS) (2019 -)
- Chair of Staff association "Intervision" at ACWEB, UQ (2019 - 2022)
- Chair of Staff association "Intervision" at Linnaeus University, Sweden (2018)
- Committee member of staff association "Wetsus PV", Wetsus European Centre of Excellence for Sustainable Water Technology , the Netherlands (2017)

Outreach activities

I am passionate about communicating the importance of science to the public. I have participated in a wide and growing range of outreach activities.

- Rotary event, Mount Waverley, VIC, Australia (2023)
- Invited talk at the 1st Victorian Oceans Technology and Innovation (2023)
- Industry engagement, appeared in Urban Utilities' Newsletter "Urban Intel" (2020)
- Gained a growing social media presence through Twitter account (479 followers)

CONFERENCE / SEMINAR / SYMPOSIUM PRESENTATIONS

Conferences and symposiums

- ISME Conference, Cape Town, South Africa (poster, 2024)
- Molecular Basis of Microbial One-Carbon Metabolism GRS/GRC, New Hampshire, USA (poster, 2024)
- Animal Production Sciences Conference, Melbourne, Australia (poster pitch, 2024)
- Congress on Gastrointestinal Functions, Illinois, USA (poster pitch, 2024)
- AusME: Australian Microbial Ecology Conference, Melbourne, Australia (section chair and invited speaker, 2023)

- IWA Microbial Ecology in Water Engineering 2023, Brisbane, Australia (invited speaker, and discussion panel member, 2023)
- Applied and Environmental Microbiology GRS/GRC, Connecticut, USA (poster pitch, 2023)
- Australian Society for Microbiology Conference 2023, Perth, Australia (invited speaker, 2023)
- Microbial Ecology-Environmental Microbiology (MEEM) (invited speaker, 2022)
- ISME Conference, Lausanne, Switzerland (poster, 2022)
- OZwater21, Australia (poster, 2021)
- Brisbane JAMS, Microbial Ecology, Australia (invited speaker, 2019)
- Aarhus University, Microbial Ecology, Denmark (2019)
- Chinese Academy of Science, Microbial Ecology, China (invited speaker 2019)
- Shanghai Jiaotong University, Microbial Ecology, China (invited speaker 2019)
- Fuzhou University, Microbial Ecology, China (invited speaker 2019)
- Wetsus members only congress, the Netherlands (invited speaker 2017)
- EU-ISMET conference, poster presentation, Italy (poster, 2016)
- EU FP7 project "BioelectroMET" meeting, the Netherlands (invited speaker, 2016)
- GeneCo winter meeting, Lund University, Sweden (invited speaker, 2016)
- EMBO microbial sulfur metabolism workshop, Denmark (poster, 2015)
- EU FP7 project "BioelectroMET" meeting, Luxembourg (invited speaker, 2015)
- EU FP7 project "BioelectroMET" meeting, the Netherlands (invited speaker, 2014)
- The Second International PlantPower Symposium, the Netherlands (poster 2012)
- EU FP7 project "PlantPower" meeting, the Netherlands (invited speaker 2012)

Institutional seminars

- Greening Lab seminars, MU (5 times, 2022 – 2024)
- BDI Global Change Symposium, MU (2023)
- Centre for Microbiome Research, QUT (3 times, 2021)
- Australian Centre for Water and Environmental Biotechnology seminars, UQ (over 5 times, 2019 – 2022)

PUBLICATIONS

* = corresponding author, IF = 2023 Impact factor

I have published 33 articles with 808 citations and an average citation per indexed paper of 24.5,more than twice of the Go8 average of 11.3, and an h-index of 16. Nearly half of my journal articles (14 of 33) are published in high-impact journals (IF > 10), such as Journal of Hazardous Materials, Environmental Science and Technology, Water

Research, and Nature Microbiology, most involve international and discipline diverse collaborations. Over 75% of my papers are published in the top 10% journals ranked by CiteScore (May 2024). My citations show a rapid upward trajectory (41 in 2020, 116 in 2021, 136 in 2022, 194 in 2023). These metrics demonstrates exceptional capacity for interdisciplinary leadership with regard to career stage.

Printprints

G Ni *et al*., bioRxiv, 2024.08. 15.608071 *Methanogenesis inhibition remodels microbial fermentation and stimulates acetogenesis in ruminants* [Reject with invitation to resubmit at PNAS]

Li *et al*., Research Square 10.21203/rs.3.rs-4473149/v1 *Reductive acetogenesis is a dominant process in the ruminant hindgut* [2024 Accepted at Microbiome, IF = 13.8]

S Bay, G Ni, *et al*., bioRxiv, 2024.05. 30.596735 *Microbial aerotrophy enables continuous primary production in diverse cave ecosystems* [2024]

G Ni, *et al*., bioRxiv, 2023.10. 29.564480 *Metabolic interactions of a minimal bacterial consortium drive robust nitritation at acidic pH* [2023]

Peer reviewed articles

2024

Lappan *et al*., *Towards integrated cross-sectoral surveillance of pathogens and antimicrobial resistance: needs, approaches, and considerations for linking surveillance to action* [Accepted at Environment International, IF = 10.3]

Y Wang, **G Ni***, *et al*., Water Research X 23, 100224 *Wastewater tiling amplicon sequencing in sentinel sites reveals longitudinal dynamics of SARS-CoV-2 variants prevalence* [IF = 7.2]

2023

N Ellaby, *et al*., Microbiology Australia 44 (4), 213-213 *New committee to guide ASM's diversity and inclusion strategy.*

G Ni*, *et al*., Essays in Biochemistry 67 (4), 753-768 *Nitrification in acidic and alkaline environments* [IF = 5.6, Cite = 6]

R Lappan *et al*., Nature Microbiology 8 (4), 581-595 *Molecular hydrogen in seawater supports growth of diverse marine bacteria* [IF = 20.5, Cite = 25]

G Ni Microbiology Australia 44 (1), 22-26 *Mitigating greenhouse gas emissions from waste treatment through microbiological innovation* [Solo article, cite = 2]

G Ni *et al*., Environmental Microbiology 25 (1), 171 *Functional basis of primary succession: Traits of the pioneer microbes* [IF = 4.3, Cite = 9]

2022

J Zhao, *et al.*, *et al.*, Journal of Environmental Management 320, *115883 Characterizing and comparing microbial community and biofilm structure in three nitrifying moving bed biofilm reactors* [IF = 8.0, Cite = 9]

X Zhang, *et al.*, Chemical Engineering Journal 440, 135811 *Bio-reduced graphene oxide on hollow fibers as gas-diffusible anodes for enhancing bioelectrochemical methane oxidation* [IF = 13.3, Cite = 12]

J Xia. G Ni, *et al.*, International Journal of Systematic and Evolutionary Microbiology 72 (6), 005419 *Mycolicibacter acidiphilus sp. nov., an extremely acid-tolerant member of the genus Mycolicibacter* [official journal to record publications of novel microbial taxa Cite = 5]

Y Wang, **G Ni***, *et al.*, ACS ES&T Water 2 (11), 2185-2193 *Detection of SARS-CoV-2 variants of concern with tiling amplicon sequencing from wastewater* [IF = 4.8, Cite = 9]

Cai, G Ni, *et al.*, Frontiers in Microbiology 13, 799859 *Response of the Anaerobic Methanotrophic Archaeon Candidatus "Methanoperedens nitroreducens" to the Long-Term Ferrihydrite Amendment* [IF = 4.0, Cite = 10]

2021

Z Wang, G Ni, *et al.*, Water Research 200, 117211 *Bioleaching of toxic metals from anaerobically digested sludge without external chemical addition* [IF = 11.4, Cite = 19]

G Ni, *et al.*, Environmental Science & Technology Letters 8 (8), 683-690 *Novel multiplexed amplicon-based sequencing to quantify SARS-CoV-2 RNA from wastewater* [IF = 8.9, CITES = 24]

Z Wang, G Ni, *et al.*, Water Research 196, 117026 *Stoichiometric and kinetic characterization of an acid-tolerant ammonia oxidizer 'Candidatus Nitrosoglobus'* [IF = 11.4, Cite = 33]

Z Wang, *et al.*, Water research 194, 116962 *Acidic aerobic digestion of anaerobically-digested sludge enabled by a novel ammonia-oxidizing bacterium* [IF = 11.4, Cite = 32]

W Li, *et al.*, ACS ES&T Water 1 (5), 1153-1160 *The role of crystalline iron oxides in methane mitigation through anaerobic oxidation of methane* [IF = 4.8, Cite = 11]

Z Wang, *et al.*, Environmental science & technology 55 (3), 2048-2056 *Robust nitritation sustained by acid-tolerant ammonia-oxidizing bacteria* [IF = 10.8, Cite = 73]

2020

M Zheng, *et al*., Environmental science & technology 54 (23), 15414-15423 *Critical Factors Facilitating Candidatus Nitrotoga To Be Prevalent Nitrite-Oxidizing Bacteria in Activated Sludge* [IF = 10.8, Cite = 50]

Y Liu, *et al*., ACS ES&T Water 1 (1), 167-174 *Temperature Variations Shape Niche Occupation of Nitrotoga-like Bacteria in Activated Sludge* [IF = 4.8, Cite = 18]

Z Wang, *et al*., Chemical Engineering Journal 393, 124682 *Free ammonia shock treatment eliminates nitrite-oxidizing bacterial activity for mainstream biofilm nitritation process* [IF = 13.3, Cite = 52]

G Ni*, *et al*., Journal of hazardous materials 363, 197-204 *Haloalkaliphilic microorganisms assist sulfide removal in a microbial electrolysis cell* [IF = 12.2, Cite = 35]

2019

G Ni*, *et al*., Frontiers in microbiology 9, 2945 *A Novel Inorganic Sulfur Compound Metabolizing Ferroplasma-Like Population Is Suggested to Mediate Extracellular Electron Transfer* [IF = 4.0, Cite = 24]

2018

G Ni, *et al*., Frontiers in Microbiology 9, 2308 *Microbial community and metabolic activity in thiocyanate degrading low temperature microbial fuel cells* [IF = 4.0, Cite = 15]

2017

E Broman, *et al*., Biodegradation 28, 287-301 *Low temperature, autotrophic microbial denitrification using thiosulfate or thiocyanate as electron donor* [IF = 3.1, Cite = 48]

V Abromaitis, *et al*., Chemical Engineering Journal 317, 503-511 *Effect of shear stress and carbon surface roughness on bioregeneration and performance of suspended versus attached biomass in metoprolol-loaded biological activated carbon systems* [IF = 13.3, Cite = 19]

2016

G Ni, *et al*., Research in microbiology 167 (7), 568-575 *Electricity generation from an inorganic sulfur compound containing mining wastewater by acidophilic microorganisms* [IF = 2.5, Cite = 56, most cited article of the journal in 2019]

M Dopson, G Ni, THJA Sleutels FEMS microbiology reviews 40 (2), 164-181 *Possibilities for extremophilic microorganisms in microbial electrochemical systems* [IF = 10.1, Cite = 134]

A Butkovskyi, G Ni, *et al*., Journal of hazardous materials 303, 41-47 *Mitigation of micropollutants for black water application in agriculture via composting of anaerobic sludge* [IF = 12.2, Cite = 65]

Conference abstracts / papers

- G Ni, *et al*., Animal Production Science Conference (2024) *Methanogenesis inhibition shifts microbial fermentation and stimulates acetogenesis in ruminants* [over 500 registrations]
- G Ni, *et al*., Congress on Gastrointestinal Functions (2024) *Methanogenesis inhibition stimulates acetogenesis by novel microbes in ruminants* [over 300 registrations]
- G Ni, *et al*., Microbial One-Carbon Metabolism GRS/GRC (2024) *Methanogenesis inhibition remodels microbial fermentation and stimulates acetogenesis in ruminants* [over 200 registrations]
- G Ni, *et al*., ISME19 conference (2024) *Metabolically flexible microorganisms rapidly colonise glacial forelands* [over 1,800 registrations]
- A Safarchi, G Ni, *et al*., Targeting Microbiota (2024) *Uncovering the potential of nutritional interventions to rebuild gut health post-antibiotics*
- G Ni, *et al*., Applied and Environmental Microbiology GRS/GRC (2023) *Metabolically flexible microorganisms rapidly colonise glacial forelands* [over 200 registrations]
- G Ni, *et al*., ASM conference (2023) *Metabolically flexible microorganisms rapidly colonise glacial forelands* [over 500 registrations]
- G Ni, *et al*., IWA MEWE conference (2023) *Metabolic interactions in acidic nitritation bioreactors* [over 300 registrations]
- G Ni, *et al*., AUSME conference (2022) *Quantification and VOC delineation of SARS-CoV-2 virus from municipal wastewater* [over 100 registrations]
- G Ni, *et al*., ISME18 conference (2022) *Comparative genomics of an acidic nitritation microbial consortium* [over 2,000 registrations]
- G Ni, *et al*., Ozwater'22 conference (2022) *Rapid identification of harmful microorganisms from water* [over 500 registrations]

Book

- G Ni, Linnaeus University Press (ISBN: 978-91-88761-83-5) *When bioelectrochemical systems meet extremophiles, possibilities and challenges* [PhD Thesis, three chapters, 1050 downloads]