
Curriculum Vitae of dr. ir. Laurence Strubbe

°Brugge, Belgium, 7 January 1995

Laurence.Strubbe@eawag.ch, ORCID-ID: 0000-0003-2983-2700

EDUCATION

- 2018-2023 **PhD in Bioscience Engineering: Environmental Sciences and Technology**
Ghent University, Belgium
Topic: Aerobic granular sludge for urban wastewater treatment: aeration efficiency and design considerations
- 2012-2018 **Master of Science in Bioscience Engineering: Environmental Technology**
Magna cum laude, Ghent University, Belgium

ADDITIONAL TRAINING (certificate obtained)

<i>Course name</i>	<i>Institution</i>	<i>Year</i>
Introduction to Machine Learning using Python	ETH Zürich	2024
Training programme of the Doctoral Schools of (Bioscience) Engineering	UGent	2023
<u>Specialist courses:</u>		
Environmental Systems analysis	Eawag	2022
Aerobic Granular Sludge Technology for Wastewater Treatment	TU Delft	2020
Advanced Biofilm Course	TU Delft	2019
Reactiekinetiek en reactoren	UGent	2019
<u>Transferable skills courses:</u>		
FWO Postdoc Grant Writing	UGent	2022
'Let's talk Science'	UGent	2021
Creative thinking	UGent	2019
Advanced Academic English: Conference Skills - English Proficiency for Presentations	UGent	2019

CAREER PATH – FELLOWSHIPS

- 2023–Present **Postdoctoral researcher at Eawag**
Federal Institute of Aquatic Science and Technology, Switzerland
in collaboration with Empa, Swiss Federal Laboratories for Materials Science and Technology
Project: Providing guidance towards a low-N₂O-emission operation and design of full-scale biological wastewater treatment plants (www.scene-project.ch).
- 2021-present **Self-employed kids yoga teacher** (www.laluneyoga.be), Belgium
- 2019-2023 **Personal PhD Fellowship strategic basic research**
Research Foundation Flanders (FWO), Ghent University, Belgium
- 2017 **Energy to Zero, E20**, Ghent, Belgium
2-monts student job as energy consultant
- 2016 **Avecom**, Wondelgem, Belgium
1-month internship, topic: Valorisation of straw to effective and sustainable feed

AWARDS

- 1) **Water Industry & Research Award of Belgian-International Water Association**, € 800, 2023.
- 2) **2nd best poster award**, Eawag Symposium, Switzerland 2025.
- 3) **2nd best poster award**, 7th IWA YWP BeNeLux conference, Delft 2022.
- 4) Awarded for **activating critical discussions as a Young Water Professional** during the IWA Water Resource Recovery Modelling Seminar, online 2021.
- 5) **3th best MSc thesis** related to water technology selected by watercircle.be.

SELECTED FOR HIGH LEVEL TRAINING PROGRAMMES

- 1) **1 of 12 selected participants worldwide** of the **prestigious 1-year Leadership programme** for Young Water Professionals of the International Water Association (IWA), 2024-2025.
- 2) **Participant at the World Water Camp 2022**, part of IWA World Water Congress Exhibition, Copenhagen 2022 organised by VIA University College, Denmark.
- 3) **Student ambassador of ‘Veterinarians Without Borders’**, followed by a 10-days exchange programme to Rwanda, 2015.

JOURNAL PUBLICATIONS

Published

IF: Impact factor; Q: Journal quartile ; TC: Total citations (ISI WoS, March 2025)

1. Escaping historical lock-in - Redesigning wastewater treatment plants and their microbiomes for the 21st Century. Verstraete, W., **Strubbe, L.**, Pikaar, I., Vinestock, T., Lee, P., Matassa, S., Chong, J. Zhou, J., Daigger, G., Guo, M., 2025. Environmental Science & Technology 59(29), 14862-14869. <https://doi.org/10.1021/acs.est.5c06208> (**IF2024 = 11.3, Q1, rank 7/495** category Environmental Science in 2024, TC = 1).
2. Household-scale digesters in Rwanda: performance analysis and net-greenhouse gas effect. **Strubbe, L.**, Dierickx A., Verbist B., Denayer A., Volcke, E.I.P., 2024. Journal of Cleaner Production 457, 142492. <https://doi.org/10.1016/j.jclepro.2024.142492> (**IF2024 = 9.8, Q1, rank 5/233** category Environmental Science in 2023, TC = 1).
3. Impact of oxygen transfer dynamics on the performance of an aerobic granular sludge reactor. **Strubbe, L.**, van Dijk, E.J.H., Carrera, P., van Loosdrecht, M.C.M., Volcke, E.I.P., 2024. Chemical Engineering Journal 482, 148843. <https://doi.org/10.1016/j.cej.2024.148843> (**IF2023 = 15.1, Q1, rank 7/273** category chemical engineering in 2023, TC = 3).
4. Oxygen transfer efficiency in an aerobic granular sludge reactor: dynamics and influencing factors of alpha. **Strubbe, L.**, van Dijk, E.J.H., Deenekamp, P.J.M., van Loosdrecht, M.C.M., Volcke, E.I.P., 2023. Chemical Engineering Journal 452, 139548. <https://doi.org/10.1016/j.cej.2022.139548> (**IF2022 = 16.744, Q1, rank 6/272** category chemical engineering in 2022, TC = 12).
5. Modelling salinity effects on aerobic granular sludge treating fish-canning wastewater. Carrera P., **Strubbe L.**, Val del Río A., Mosquera-Corral A., E.I.P. Volcke (2023). Environmental Science: Water Research & Technology, 9, 747–755. <https://doi.org/10.1039/D2EW00874B> (IF2022 = 5.819, Q1, rank 22 / 248 Water Science and Technology in 2023, TC = 1).
6. Continuous aerobic granular sludge plants: Better settling versus diffusion limitation. **Strubbe, L.**, Pennewaerde, M., Baeten, J.E., Volcke, E.I.P., 2022. Chemical Engineering Journal 428, 131427. <https://doi.org/10.1016/J.CEJ.2021.131427> (**IF2022 = 16.744, Q1, rank 6/272** category chemical engineering in 2022, TC = 21).
7. A generic reverse osmosis model for full-scale operation. Gaublomme, D., **Strubbe, L.**, Vanoppen, M., Torfs, E., Mortier, S., Cornelissen, E., De Gussemme, B., Verliefde, A., Nopens, I., 2020. Desalination 490, 114509. <https://doi.org/10.1016/J.DE-SAL.2020.114509> (**IF2020= 9.501, Q1, rank 3/225** category Environ.Science in 2023, TC = 12).

BOOK CHAPTERS

1. 'Aerobic Granular Sludge'. In: Biological Wastewater Treatment: Examples and Exercises. **Strubbe L.**, de Kreuk M., van Dijk E.J.H., van Loosdrecht M.C.M. and Volcke E.I.P. (2023). Chapter 11 Edited by C.M. Lopez-Vazquez, D. Brdjanovic, E.I.P. Volcke, M.C.M van Loosdrecht, D. Wu, and G. Chen. ISBN13: 9781789062298, eISBN: 9781789062304
2. 'Bulking Sludge'. In: Biological Wastewater Treatment: Examples and Exercises.

Volcke E.I.P., **Strubbe L.**, Lopez-Vazquez C.M. and van Loosdrecht M.C.M. (2023). Chapter 10 Edited by C.M. Lopez-Vazquez, D. Brdjanovic, E.I.P. Volcke, M.C.M van Loosdrecht, D. Wu, and G. Chen. ISBN13: 9781789062298, eISBN: 9781789062304

CONFERENCE CONTRIBUTIONS

Workshop organizer

Setting the scene for an aerobic granular sludge reactor modelling protocol. **IWA Water Resource Recovery Modelling Seminar, Stellenbosch, South Africa, 2023.** Strubbe, L., Carrera, P., Derlon, N., Morgenroth, E., Volcke, E.I.P.

Oral presentations by Strubbe L. at international conferences

1. A hybrid framework: Combining mechanistic and data-driven approaches for understanding N₂O emissions. Part of the N₂O workshop: Challenges, Modelling, Innovations, and Future Directions for Tackling N₂O Emissions in water resource recovery facilities. **7th IWA International Conference on Ecotechnologies for Wastewater Treatment Stockholm, Sweden, 2025.** Strubbe, L., Keck, H., Schott, T., Magyar, P., Mohn J., Morgenroth, E., Joss A., Froemelt, A.
2. Relationship status N₂O and NO₂⁻: it's complicated. **7th IWA International Conference on Ecotechnologies for Wastewater Treatment Stockholm, Sweden, 2025.** Strubbe, L., Keck, H., Schott, T., Magyar, P., Mohn J., Morgenroth, E., Joss A., Froemelt, A.
3. Impact of oxygen transfer dynamics on the performance of an aerobic granular sludge reactor. **9th Water Resource Recovery Modelling Seminar, Notre Dame, Indiana, USA, 2024.** Strubbe, L., van Dijk, E.J.H., Carrera P., van Loosdrecht, M.C.M., Volcke, E.I.P.
4. N₂O production pathways: from complex metabolism to simple models. **9th Water Resource Recovery Modelling Seminar, Notre Dame, Indiana, USA, 2024.** Strubbe, L., Domingo-Felez C.
5. Overview on mechanistic N₂O modelling frameworks. Part of N₂O modelling workshop, (N₂O Panic). **9th Water Resource Recovery Modelling Seminar, Notre Dame, Indiana, USA, 2024.** Strubbe, L., Freyschmidt A.H., Froemelt A.
6. Unravelling the alpha factor for aerobic granular sludge reactors. **6th IWA International Conference on eco-Technologies for Wastewater Treatment, Girona, Spain, 2023.** Strubbe, L., van Dijk, E.J.H., Deenekamp, P.J.M., van Loosdrecht, M.C.M., Volcke, E.I.P.
7. Could the treatment capacity of a continuous wastewater treatment plant be increased with aerobic granular sludge? **IWA World Water Congress & Exhibition, Copenhagen, Denmark, 2022.** Strubbe, L., Pennewaerde, M., Baeten, J.E., Volcke, E.I.P.
8. Could the treatment capacity of a continuous wastewater treatment plant be increased with aerobic granular sludge? **IWA Wastewater, Water and Resource Recovery (WWRR) Conference, online, 2022.** Strubbe, L., Pennewaerde, M., Baeten, J.E., Volcke, E.I.P.
9. Could the treatment capacity of a continuous flow reactor be increased with aerobic granular sludge? **IWA Biofilms Virtual Conference, online, 2020.** Strubbe, L., Pennewaerde, M., Baeten, J., Volcke, E.

Oral presentations by Strubbe L. at national conferences in Belgium

10. Influencing factors of the alpha factor in an aerobic granular sludge batch reactor. **CAPTURE days, online 2021.** Strubbe, L., van Dijk, E.J.H., Deenekamp, P.J.M., van Loosdrecht, M.C.M., Volcke, E.I.P.
11. Could the treatment capacity of a continuous flow reactor be increased with aerobic granular sludge? **CAPTURE science talk, online 2021.** Strubbe, L., Pennewaerde, M., Baeten, J., Volcke, E.

12. Continuous aerobic granular sludge reactors: conservatism or rational improvement? **CAPTURE-Water showcase event, UGent, Faculty of Bioscience Engineering**, 2020. Strubbe, L., Pennewaerde, M., Baeten, J., Volcke, E.

Poster presentations by Strubbe L. and oral/poster presentations by co-authors (*)

1. Disentangling N₂O mechanisms in wastewater treatment. Poster at the **Eawag Symposium**, Switzerland, 2025. **Strubbe, L.**, Keck, H., Magyar, P., Mohn J., Morgenroth, E., Joss A., Froemelt, A.
2. On-line analysis of isotopic composition in N₂O emitted during biological nitrogen removal in wastewater treatment. Poster at the **Annual Meeting of the German Association for Stable Isotope Research. TU Darmstadt, Germany**, 2024. Keck, H.*, Strubbe, L., Magyar, P., Joss, A., Frörmelt, A., Chénier, N., Mohn, J.
3. Modelling salinity effects on aerobic granular sludge treating fish-canning wastewater. Poster at the **6th IWA International Conference on eco-Technologies for Wastewater Treatment, Girona, Spain**, 2023. Carrera P.*, Strubbe L., Val del Río A., Mosquera-Corral A., E.I.P. Volcke.
4. How bubbles reflect process behaviour: control of a wastewater treatment plant using off-gas analyses. Poster at the **7th IWA YWP BeNeLux conference, Delft, The Netherlands**, 2022. **Strubbe, L.**, Michiels, W., Baeten, J., Volcke, E.
5. What bubbles can tell about water – control of a wastewater treatment plant using off-gas analyses. Poster at the **IWA Biofilms conference, online**, 2021. **Strubbe, L.**, Michiels, W., Baeten, J., Volcke, E.
6. Validation of a generic steady state model for full-scale Reverse Osmosis. **10th IWA Symposium on Modelling and Integrated Assessment (Watermatex), Copenhagen, Denmark**, 2019. Gaublomme D.*, Vanoppen M., Strubbe L., De Gussemme B., Mortier S., Cornelissen E. R. Verliefde A. and Nopens, I.

INVITED TALKS

1. Aerobic granular sludge for urban wastewater treatment: aeration efficiency and design considerations. **Invited talk at the company Royal HaskoningDHV, Amersfoort, The Netherlands**, 2023.
2. Unravelling the mysterious alpha factor in an aerobic granular sludge batch reactor. **Invited talk at the company Royal HaskoningDHV, Amersfoort, The Netherlands**, 2022.

OBTAINED RESEARCH FUNDING

1. **3-years personal Postdoc Fellowship**, Research Foundation Flanders (**FWO**), Ghent University, Belgium, 2015-2028, extra bench fee of € 21,500.
2. **4-years personal PhD Fellowship** strategic basic research, Research Foundation Flanders (**FWO**), Ghent University, Belgium, 2019-2023, extra bench fee of € 14,880.
3. **3 years project Flanders International Climate Action Programme (G-STIC)** on *Climate adaptation and mitigation through biogas at household level in Rwanda (CLIMBIO)*, project lead: B. Verbist, KU Leuven, 2024-2027, € 499.840.

SUPERVISION OF MASTER STUDENTS

1. Tianhui Chen, MSc. in Environmental Engineering at Technical University of Denmark (DTU). The role influent and operating characteristics on N₂O production in biological wastewater treatment. Master project in exchange programme at ETH Zürich, Switzerland, 2025 (Promoters: prof. Eberhard Morgenroth and dr. Andreas Froemelt).
2. Matteo Chiavegato, **MSc. in Environmental Engineering at Politecnico di Milano (Polimi)**. The role of supernatant addition in N₂O emissions. Joint master thesis with Polimi, Italy and Eawag,

- Switzerland, 2024-2025 (Promoters: prof. Manuela Antonelli and dr. Andreas Froemelt, Co-tutor: dr. Beatrice Cantoni).
3. Toni Schott, 4-months internship, **MSc. student in Global Change Ecology (Bsc. in Environmental Sciences), University in Bayreuth, Germany**, is NO₂⁻ the direct cause of N₂O emissions? 2024. **I was the sole supervisor.**
 4. Lies Vervaet, MSc. in **Bioscience Engineering: Environmental Technology, UGent**, Off-gas analysis for controlling sequentially operated wastewater treatment processes, 2023-2024 (Promoter: prof. Eveline Volcke, Co-tutor: dr. Paula Carrera).
 5. Josse De Coen, **MSc. in Bioscience Engineering: Environmental Technology, UGent**, Design of aerobic granular sludge plants - The future of municipal wastewater treatment in Flanders? 2022-2023 (Promoter: prof. Eveline Volcke, Co-tutor: dr. Paula Carrera).
 6. Hanne Pierre, **MSc. in Bioscience Engineering: Environmental Technology, UGent**, Unravelling the kinetics and influencing factors of hydrolysis in aerobic densified sludge, 2022-2023 (Promoters: prof. Eveline Volcke & prof. Di Wu, Co-tutor: dr. Paula Carrera).
 7. Aaron Dierickx, **MSc. in Bioscience Engineering: Agriculture, UGent**, Performance analysis and net-greenhouse gas effect of household scale digesters in rural Rwanda, 2021-2022 (Promoter: prof. Eveline Volcke).
 8. Margot Pennewaerde, **MSc. in Bioscience Engineering: Chemistry and Bioprocess Technology, UGent**, Innovative wastewater treatment with granular sludge reactors, 2019-2020 (Promoter: prof. Eveline Volcke, Co-tutor: dr. Janis Baeten).
 9. Wouter Michiels, **MSc. in Bioscience Engineering: Chemistry and Bioprocess Technology, UGent**, Control of wastewater treatment basins using off-gas analyses, 2019-2020 (Promoters: prof. Eveline Volcke & dr. Janis Baeten).

TEACHING ACTIVITIES

<i>Institution</i>	<i>Duration</i>	<i>Subject</i>
ETH Zürich	January-June 2025	Coaching of group of four students on the process design of a Membrane Aerated Biofilm Reactor (MABR) in an existing Continuous Activated Sludge (CAS) plant, as part of the master course <i>Process Engineering Ib</i> by prof. Eberhard Morgenroth (Credits: 3 ECTS).
International Water Association (IWA)	2024-present	Development of an educational programme ‘Circle of Water’ for high school students to raise awareness on the circular water economy and develop solutions based on the biomimicry concept, as part of the IWA Leadership programme.
Global Sanitation Graduate School	Online Open Access theory course of 30 min.	‘Aerobic Granular Sludge’- video-recorded lecture on ‘Plant configuration and design’. In: Open Access Course Series on Biological Wastewater Treatment (Chapter 11). https://studybwwt.online/
UGent	9 h. of lectures per semester 2021-2023	Theory and exercise classes on biofilm and aerobic granular sludge reactors (15-40 students) , as part of the master course Advanced Wastewater Treatment Process Design by prof. Eveline Volcke (Credits: 3 ECTS).

CAPTURE	2021	Reviewer of one of the Massive Open Online Courses (MOOC) on resource recovery technologies: Metal recovery from wastewater by prof. Gijs Du Laing.
UGent	15 h. of lectures per semester 2018-2020	Exercise classes on design of environmental installations and interpretation of process diagrams (15-40 students) , as part of the master course Environmental Constructions by prof. Eveline Volcke (Credits: 5 ECTS).

PROFESSIONAL ACTIVITIES

Review work:

Since 2019	Verified reviewer (8 contributions) for journal articles in peer-reviewed journals: https://www.webofscience.com/wos/author/record/2392787 .
2025	Scientific committee member of IWA Nutrient Removal and Recovery conference (NRR26), Delft, 2026. Reviewer of 5 abstracts.
2023	Scientific committee member of IWA Symposium on Modelling and Integrated Assessment (Watermatex), Québec City, 2023. Reviewer of 6 abstracts.
2022-2023	Scientific committee member of IWA Water Resource Recovery Modelling Seminar, Stellenbosch 2023. Reviewer of 8 abstracts.
2022	Reviewer for the IWA World Water Congress Exhibition, Copenhagen 2022. Reviewer of 10 abstracts.

Functions in/Membership of professional organizations:

Since 2024	Membership engagement officer of the Young Water Professionals chapter of Switzerland, part of the International Water Association (IWA).
Since 2019	Member of Belgian-International Water Association (BIWA).

Functions within university management:

2024	Organiser and moderator of the weekly seminar at department level, Eawag.
2022-2023	Representative of the BioCo research group at the bi-weekly General CAPTURE meeting, UGent.
2020-2023	Organiser and moderator of the BioCo seminars, UGent.

Organization of conferences and events:

2025-2026	Part of the YWP's organizing committee of IWA Nutrient Removal and Recovery conference (NRR26) , Delft, 2026.
2019	Part of the organizing committee of the 1st CAPTURE conference , Ghent.
2019	Member of the Centre for Environmental Science and Technology (CES&T) event team , Inspiring afternoon- responsible for the CES&T thesis awards, Ghent.

Session chair at conferences:

2022	Chair of session on 'Optimization and control of nutrient removal', IWA World Water Congress Exhibition, Copenhagen, Denmark .
2021	Co-chair of the granular sludge session, IWA Biofilms Virtual Conference .