

Dr. ir. Laurence Strubbe

°Brugge, Belgium, 7 January 1995

laurence.strubbe@hotmail.com, laurence.strubbe@eawag.ch

ORCID: <https://orcid.org/0000-0003-2983-2700>

[linkedin.com/in/laurencestrubbe/](https://www.linkedin.com/in/laurencestrubbe/)

twitter.com/StrubbeLaurence

Education, training and professional experience

2023 – Present **Postdoctoral researcher at Eawag, Switzerland**

SCENE project: Providing guidance towards a low-N₂O-emission operation and design of full-scale biological wastewater treatment plants. *Research group:* Data & Information led by dr. Andreas Frömelt. *Department:* Process engineering led by prof. dr. Eberhard Morgenroth.

2018-2023 **PhD in Bioscience Engineering: Environmental Sciences and Technology at Ghent University, Belgium**

PhD thesis: Aerobic granular sludge for sustainable wastewater treatment: aeration efficiency and design considerations, *Promoter:* prof. dr. ir. Eveline Volcke (UGent), Doctoral advisory committee: prof. dr. ir. Jan Dries (UAntwerpen) & prof. dr. ir. Mark van Loosdrecht (TUDelft)

2018-2023 **Training programme of the Doctoral Schools of (Bioscience) Engineering at Ghent University, Belgium**

Specialist courses: Reactiekinetiek en reactoren (UGent); Advanced Biofilm Course (TUDelft); Aerobic Granular Sludge Technology for Wastewater Treatment (TUDelft); Environmental Systems analysis (Eawag)

Transferable skills courses: Introduction Day for new PhD students 2019, Advanced Academic English: Conference Skills - English Proficiency for Presentations, Creative thinking, 'Let's talk Science' Digital Summer School 2021, FWO Postdoc Grant Writing

2015-2018 **Master of Science in Bioscience Engineering: Environmental Technology (Master of Science in de bio-ingenieurswetenschappen: milieutechnologie) at Ghent University, Belgium**

MSc thesis: Calibration of a reverse osmosis model at full-scale. *Promoters:* prof. dr. ir. Ingmar Nopens and prof. dr. ir. Arne Verliefde

Internship: Valorisation of straw to effective and sustainable feed, *Advisor:* Prof. dr. ir. Willy Verstraete, AVECOM

2012-2015 **Bachelor of Science in Bioscience Engineering: Environmental Technology (Bachelor of Science in de bio-ingenieurswetenschappen: milieutechnologie) at Ghent University, Belgium**

Ba thesis: City farming: the production of fruit and vegetables in climate-controlled growth chambers, *Promoter:* Prof. dr. Danny Geelen

Journal publications (A1)

In preparation / submitted

Strubbe, L., De Coen, J., Carrera, P., Volcke, E.I.P., 2024. Design procedure of an aerobic granular sludge plant.

Published

1. **Strubbe, L.**, Dierickx A., Verbist B., Denayer A., Volcke, E.I.P., 2024. Household-scale digesters in Rwanda: performance analysis and net-greenhouse gas effect. *Journal of Cleaner Production* 457, 142492. <https://doi.org/10.1016/j.jclepro.2024.142492> (IF2023 = 11.1)
2. **Strubbe, L.**, van Dijk, E.J.H., Carrera, P., van Loosdrecht, M.C.M., Volcke, E.I.P., 2024. Impact of oxygen transfer dynamics on the performance of an aerobic granular sludge reactor. *Chemical Engineering Journal* 482, 148843. <https://doi.org/10.1016/j.cej.2024.148843> (IF2023 = 15.1)
3. **Strubbe, L.**, van Dijk, E.J.H., Deenekamp, P.J.M., van Loosdrecht, M.C.M., Volcke, E.I.P., 2023. Oxygen transfer efficiency in an aerobic granular sludge reactor: dynamics and influencing factors of alpha. *Chemical Engineering Journal* 452, 139548. <https://doi.org/10.1016/j.cej.2022.139548> (IF2022 = 16.744)
4. Carrera P., **Strubbe L.**, Val del Río A., Mosquera-Corral A., E.I.P. Volcke (2023). Modelling salinity effects on aerobic granular sludge treating fish-canning wastewater. *Environmental Science: Water Research & Technology*, 9, 747–755. <https://doi.org/10.1039/D2EW00874B> (IF2022 = 5.819)
5. **Strubbe, L.**, Pennewaerde, M., Baeten, J.E., Volcke, E.I.P., 2022. Continuous aerobic granular sludge plants: Better settling versus diffusion limitation. *Chemical Engineering Journal* 428, 131427. <https://doi.org/10.1016/J.CEJ.2021.131427> (IF2022 = 16.744)
6. Gaublomme, D., **Strubbe, L.**, Vanoppen, M., Torfs, E., Mortier, S., Cornelissen, E., De Gusseme, B., Verliefde, A., Nopens, I., 2020. A generic reverse osmosis model for full-scale operation. *Desalination* 490, 114509. <https://doi.org/10.1016/J.DESAL.2020.114509> (IF2022 = 11.211)

Book chapters

1. **Strubbe L.**, de Kreuk M., van Dijk E.J.H., van Loosdrecht M.C.M. and Volcke E.I.P. (2023). Chapter 11 'Aerobic Granular Sludge'. In: *Biological Wastewater Treatment: Examples and Exercises*. 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. Volcke E.I.P., **Strubbe L.**, Lopez-Vazquez C.M. and van Loosdrecht M.C.M. (2023). Chapter 10 'Bulking Sludge'. In: *Biological Wastewater Treatment: Examples and Exercises*. 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

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

Oral presentations by Strubbe L.

1. **Strubbe, L.**, van Dijk, E.J.H., Carrera P., van Loosdrecht, M.C.M., Volcke, E.I.P. Impact of oxygen transfer dynamics on the performance of an aerobic granular sludge reactor. 9th Water Resource Recovery Modelling Seminar, Notre Dame, Indiana, USA, April 2024.
2. **Strubbe, L.**, van Dijk, E.J.H., Deenekamp, P.J.M., van Loosdrecht, M.C.M., Volcke, E.I.P. Unravelling the alpha factor for aerobic granular sludge reactors. 6th IWA International Conference on eco-Technologies for Wastewater Treatment, Girona 2023.
3. **Strubbe, L.**, Pennewaerde, M., Baeten, J.E., Volcke, E.I.P. Could the treatment capacity of a continuous wastewater treatment plant be increased with aerobic granular sludge? IWA World Water Congress & Exhibition, Copenhagen 2022.
4. **Strubbe, L.**, van Dijk, E.J.H., Deenekamp, P.J.M., van Loosdrecht, M.C.M., Volcke, E.I.P. Unravelling the mysterious alpha factor in an aerobic granular sludge batch reactor. Invited talk at Royal HaskoningDHV, Amersfoort 2022.
5. **Strubbe, L.**, Pennewaerde, M., Baeten, J.E., Volcke, E.I.P. 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.
6. **Strubbe, L.**, van Dijk, E.J.H., Deenekamp, P.J.M., van Loosdrecht, M.C.M., Volcke, E.I.P. Influencing factors of the alpha factor in an aerobic granular sludge batch reactor. CAPTURE days, online 2021.
7. **Strubbe, L.**, Pennewaerde, M., Baeten, J., Volcke, E. Could the treatment capacity of a continuous flow reactor be increased with aerobic granular sludge? CAPTURE science talk, online 2021.
8. **Strubbe, L.**, Pennewaerde, M., Baeten, J., Volcke, E. Could the treatment capacity of a continuous flow reactor be increased with aerobic granular sludge? IWA Biofilms Virtual Conference, online 2020.
9. **Strubbe, L.**, Pennewaerde, M., Baeten, J., Volcke, E. Continuous aerobic granular sludge reactors: conservatism or rational improvement? CAPTURE-Water showcase event, UGent, Faculty of Bioscience Engineering 2020.

Poster presentations and oral presentations by co-authors (*)

1. Carrera P.*, **Strubbe L.**, Val del Río A., Mosquera-Corral A., E.I.P. Volcke. Modelling salinity effects on aerobic granular sludge treating fish-canning wastewater. 6th IWA International Conference on eco-Technologies for Wastewater Treatment, Girona 2023. *Poster presentation by Carrera P.*
2. **Strubbe, L.**, Michiels, W., Baeten, J., Volcke, E. How bubbles reflect process behaviour: control of a wastewater treatment plant using off-gas analyses. IWA 7th YWP BeNeLux conference, Delft 2022. *Poster presentation.*

3. **Strubbe, L.**, Michiels, W., Baeten, J., Volcke, E. What bubbles can tell about water – control of a wastewater treatment plant using off-gas analyses. IWA Biofilms conference, online 2021. *Poster presentation*.
4. Gaublomme D.*, Vanoppen M., **Strubbe L.**, De Gusseme B., Mortier S., Cornelissen E. R. Verliefde A. and Nopens, I. 2018. Validation of a generic steady state model for full-scale Reverse Osmosis. IWA Symposium on Modelling and Integrated Assessment, 2019. *Oral presentation by Gaublomme D.*

Session chair

- 2022 Chair of session on 'Optimization and control of nutrient removal', IWA World Water Congress Exhibition, Copenhagen 2022 (co-chair: dr. Thiago Bressani Ribeiro).
- 2021 Co-chair of the granular sludge session, IWA Biofilms Virtual Conference 2021 (Chair: dr. ir. Nicolas Derlon).

Organisation of conferences and events

- 2019 Part of the organising committee of the 1st CAPTURE conference, Ghent 2019
- 2018-2019 Member of the Centre for Environmental Science and Technology (CES&T) event team, Inspiring afternoon 2019 - responsible for the CES&T thesis awards, 2019.

Professional activities

- Since 2024 Organiser and moderator of the ENG Montagsseminars together with dr. Stephany Wei, Eawag
- 2022-2023 Representative of the BioCo group at the bi-weekly General CAPTURE meeting, Ghent University
- 2020-2023 Organiser and moderator of the BioCo seminars together with dr. Paula Carrera, Ghent University
- Since 2019 Member of Belgian-International Water Association (BIWA)

Review work

- 2023 Scientific committee member of IWA Symposium on Modelling and Integrated Assessment (Watermatex), Québec City, 2023.
- 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.
- Since 2019 Verified reviewer for journal articles in Biochemical Engineering Journal and Microbial Biotechnology
<https://www.webofscience.com/wos/author/record/2392787>

Awards and distinctions

- 2023 Water Industry & Research Award of Belgian-International Water Association (BIWA) for the most excellent scientific publication (Strubbe et al. 2023)
- 2019-2023 PhD Fellowship strategic basic research, Research Foundation Flanders (FWO), success rate 2019: 37%, Ghent University, Belgium
- 2022 Selected participant at the World Water Camp 2022, part of IWA World Water Congress Exhibition, Copenhagen 2022 organised by VIA University College, Denmark. 50 selected participants with 12 different nationalities out of 110 applications.
- 2022 2nd best poster award, IWA 7th YWP BeNeLux conference, Delft 2022
- 2021 Awarded for activating critical discussions as a Young Water Professional during the IWA Water Resource Recovery Modelling Seminar, online 2021.
- 2018 3th best MSc thesis related to water technology selected by watercircle.be
- 2015 Selected as student ambassador of 'Veterinarians Without Borders', followed by a 10-days exchange programme to Rwanda.

Supervision of master thesis students

- 2022-2023 Josse De Coen, MSc. in Bioscience Engineering: Environmental Technology, UGent, Design of aerobic granular sludge plants - The future of municipal wastewater treatment in Flanders? (*Promoter*: prof. dr. ir. Eveline Volcke, *Co-tutor*: dr. Paula Carrera).
- 2022-2023 Hanne Pierre, MSc. in Bioscience Engineering: Environmental Technology, UGent, Unravelling the kinetics and influencing factors of hydrolysis in aerobic densified sludge (*Promoters*: prof. dr. ir. Eveline Volcke & prof. dr. Di Wu, *Co-tutor*: dr. Paula Carrera).
- 2021-2022 Aaron Dierickx, MSc. in Bioscience Engineering: Agriculture, Performance analysis and net-greenhouse gas effect of household scale digesters in rural Rwanda (*Promoter*: prof. dr. ir. Eveline Volcke).
- 2019-2020 Margot Pennewaerde, MSc. in Bioscience Engineering: Chemistry and Bioprocess Technology, UGent, Innovative wastewater treatment with granular sludge reactors (*Promoter*: prof. dr. ir. Eveline Volcke, *Co-tutor*: dr. ir. Janis Baeten).
- 2019-2020 Wouter Michiels, MSc. in Bioscience Engineering: Chemistry and Bioprocess Technology, UGent, Control of wastewater treatment basins using off-gas analyses (*Promoters*: prof. dr. ir. Eveline Volcke & dr. ir. Janis Baeten).

Teaching assistance

- 2021-2023 Master course Advanced Wastewater Treatment Process Design. Assistance for classes on biofilm and aerobic granular sludge reactors (9 hrs. of lectures per semester, 15-40 students), Ghent University.
- 2021 Reviewer of MOOC: Metal recovery from wastewater by prof. dr. ir. Gijs Du Laing, CAPTURE, Ghent University.

2018-2020

Master course Environmental Constructions. Assistance for classes on design of environmental installations and interpretation of process diagrams (15 hrs. of lectures per semester, 15-40 students), Ghent University.