Biographical Sketch for Dr. Eberhard Morgenroth

Professor for Process Engineering in Urban Water Management, ETH: Swiss Federal Institute of Technology Zürich,
and Eawag: Swiss Federal Institute of Aquatic Science and Technology
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Education and Training

Institution	*Major*	*Degree & Year*
Technical University of Munich (Germany), Department of Water Quality and Waste Management	Environmental Engineering	Doktor der Ingenieur-wissenschaften (Ph.D.), 1998
Technical University of Hamburg-Harburg (Germany)	Civil and Environmental Engineering	Diplom-Ingenieur, 1995
University of California, Davis (USA)	Civil and Environmental Engineering	Master of Science, 1994

Employment

since 2012	Head of the Process Engineering Department at Eawag
since 2009	Professor, ETH: Swiss Federal Institute of Technology Zürich
since 2009	Eawag: Swiss Federal Institute of Aquatic Science and Technology
2018-2019	Visiting Professor (sabbatical), University of Illinois at Urbana-Champaign
2013-2017	Director of Studies for Environmental Engineering BSc/MSc program at ETH Zürich
2007-2009	Associate Professor, University of Illinois at Urbana-Champaign, Department of Civil and Environmental Engineering and Department of Animal Science.
2000-2007	Assistant Professor, University of Illinois at Urbana-Champaign, Department of Civil and Environmental Engineering and Department of Animal Science.
1998-2000	Assistant Research Professor Technical University of Denmark, Department of Environmental Science and Engineering

Honors and Awards

2022	Mühlheim Water Award for the Water Wall technology (https://muelheim-water-award.com)
2014	IWA Global Project Innovation Award for Blue Diversion Toilet (http://www.bluediversiontoilet.com/)
2003-2004	Beckman Fellow at the Center for Advanced Studies at the University of Illinois (https://icasu.illinois.edu/) to study "Mechanisms of Coexistence in Binary Culture Biofilms".
2002	NSF Faculty Early Career Development Program (CAREER) Award (Topic: Detachment from biofilms under dynamic operating conditions)
1998	Ulrich-Finsterwalder-Award (15.000 DM) sponsored by Dykerhoff & Widmann for an outstanding Ph.D. thesis.

Professional Activities

2021	Conference co-chair: IWA WRRmod - Water Resource Recovery Modelling, 21. – 25. August 2021
2019 - 2024	Editor-in-Chief for *Water Research*
2017	Conference co-chair: Mechanisch-biologische Abwasserreinigung, VSA Tagung, 12. Sep. 2017
2015	Conference chair: IWA Specialized Conference Biofilms in Drinking Water Systems - From Treatment to Tap, 23. – 26. August 2015 in Arosa (Switzerland)
2013	Conference co-chair: 2nd Water Research Conference on Urban water management to increase sustainability of cities, 20. – 23. January 2013, Singapore.
2010	Conference co-chair for joint WEF/IWA conference on “Biofilm Reactor Technology”
2003	Conference chair for the Conference on Environmental Engineering Education Sept. 24 - 26, 2003 in Zurich, Switzerland.
2002 - 2024	Editor for *Water Research*
since 2000	IWA: Management committee of the specialist group on environmental engineering education (2000 – 2009: Chair)
since 2000	IWA: Management committee of the specialist group on Biofilm Processes (2013 - 2019: Chair)
1999 – 2006	IWA: Member of the Task Group on Biofilm Modeling

List of Publications for Dr. Eberhard Morgenroth

Professor for Process Engineering in Urban Water Management, ETH: Swiss Federal Institute of Technology Zürich,
and Eawag: Swiss Federal Institute of Aquatic Science and Technology
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Books, Chapters and Monographs

Morgenroth,E. and Wilderer,P.A. (1999): Continuous flow and sequential processes in municipal wastewater treatment. In: Winter,J. (ed.), Environmental processes I: Wastewater treatment, pp. 322-334. 2(15), pp. 322-334. Weinheim Wiley-VCH. (Biotechnology 11a).

Schmidt,T.C., Morgenroth,E., Schirmer,M., Effenberg,M. and Haderlein,S.B. (2001): Use and Occurrence of Fuel Oxygenates in Europe. In: Diaz,A.F. and Donna,D.L. (eds.), Oxygenates in Gasoline: Environmental Aspects, pp. 58-79.), pp. 58-79. American Chemical Society, Washington DC. (ACS-Symposium Series 799

Wilderer,P.A., Irvine,R.L., Goronszy,M.C., Artan,N., Demoulin,G., Keller,J., Morgenroth,E., Nyhuis,G., Tanaka,K. and Torrijos,M. (2001): Sequencing batch reactor technology. Wilderer, P. A., Irvine, R. L., and Goronszy, M. C. (eds.) IWA Publishing. Series: IWA Scientific and Technical Report Series No. 10.

Morgenroth,E. (2003): Detachment - an often overlooked phenomenon in biofilm research and modeling. In: Wuertz,S., Wilderer,P.A. and Bishop,P.L. (eds.), Biofilms in wastewater treatment, pp. 264-290.), pp. 264-290. IWA Publishing.

Morgenroth,E. and Arvin,E. (2003): The European perspective to MTBE as an oxygenate in fuels. In: Rapport,D., Lasley,W., Rolston,D., Nielsen,O., Qualset,C. and Damania,A. (eds.), Managing for Ecosystem Health, pp. 1447-1456.), pp. 1447-1456. Lewis Publisher, Boca Raton, Florida USA.

Wanner,O., Eberl,H.J., Morgenroth,E., Noguera,D.R., Picioreanu,C., Rittmann,B.E. and van Loosdrecht,M.C.M. (2006): Mathematical Modeling of Biofilms IWA Publishing, London, UK. Series: Scientific and Technical Report Series Report No. 18.

Morgenroth,E. (2008): Biofim Systems. In: Henze,M., van Loosdrecht,M.C.M., Ekama,G. and Brdjanovic,D. (eds.), Biological Wastewater Treatment - Principles, Modelling, and Design, IWA Publishing, London.

Morgenroth,E. (2008): Modelling Biofim Systems. In: Henze,M., van Loosdrecht,M.C.M., Ekama,G. and Brdjanovic,D. (eds.), Biological Wastewater Treatment - Principles, Modelling, and Design, IWA Publishing, London.

Boltz, J. P.; Morgenroth, E.; deBarbadillo, C.; Dempsey, M. J.; McQuarrie, J.; Ghylin, T.; Harrison, J.; Nerenberg, R., (2010) Biofilm Reactor Technology and Design. In *Design of Municipal Wastewater Treatment Plants*, McGraw Hill. New York, USA; Vol. Volume 2, Fifth Edition. WEF Manual of Practice No. 8, ASCE Manuals and Reports on Engineering Practice No. 76.

Morgenroth,E. (2020): Modelling Biofim Systems In Chen, G., Ekama, G.A., van Loosdrecht, M.C.M. and Brdjanovic, D. (2020) Biological Wastewater Treatment: Principles, Modeling and Design, IWA Publishing.

Layer, M., Garcia Villodres, M., Brison, A., Stähle, M., Morgenroth, E. and Derlon, N. (2021) Download package for: Eawag AGS Model package V1.0 (https://doi.org/10.25678/00043M).

Journal Publications

Link to publications and Google Scholar Profile: http://scholar.google.com/citations?user=q8moFfcAAAAJ
ORCID: https://orcid.org/0000-0002-1217-269X

Morgenroth, E., Schroeder, E.D., Chang, D.P.Y. and Scow, K.M. (1996) Nutrient Limitation in a Compost Biofilter Degrading Hexane. *Journal Of The Air & Waste Management Association* 46(4), 300-308.

Morgenroth, E., Sherden, T., van Loosdrecht, M.C.M., Heijnen, J.J. and Wilderer, P.A. (1997) Aerobic granular sludge in a sequencing batch reactor. *Water Research* 31(12), 3191-3194.

Morgenroth, E. and Wilderer, P.A. (1998a) Sequencing Batch Reactor Technology - Concepts, Design, Experiences. *Journal Of The Chartered Institution Of Water And Environmental Management* 12(5), 314-321.

Morgenroth, E. and Wilderer, P.A. (1998b) Modeling of enhanced biological phosphorus removal in a sequencing batch biofilm reactor. *Water Science and Technology* 37(4-5), 583-587.

Beun, J.J., Hendriks, A., van Loosdrecht, M.C.M., Morgenroth, E., Wilderer, P.A. and Heijnen, J.J. (1999) Aerobic granulation in a sequencing batch reactor. *Water Research* 33(10), 2283-2290.

Morgenroth, E. and Wilderer, P.A. (1999) Controlled biomass removal - The key parameter to achieve enhanced biological phosphorus removal in biofilm systems. *Water Science and Technology* 39(7), 33-40.

Morgenroth, E., Eberl, H.J. and van Loosdrecht, M.C.M. (2000a) Evaluating 3-D and 1-D mathematical models for mass transport in heterogeneous biofilms. *Water Science and Technology* 41(4-5), 347-356.

Morgenroth, E., Obermayer, A., Arnold, E., Bruhl, A., Wagner, M. and Wilderer, P.A. (2000b) Effect of long-term idle periods on the performance of sequencing batch reactors. *Water Science and Technology* 41(1), 105-113.

Morgenroth, E., van Loosdrecht, M.C.M. and Wanner, O. (2000c) Biofilm models for the practitioner. *Water Science and Technology* 41(4-5), 509-512.

Morgenroth, E. and Wilderer, P.A. (2000) Influence of detachment mechanisms on competition in biofilms. *Water Research* 34(2), 417-426.
Artan, N., Wilderer, P., Orhon, D., Morgenroth, E. and Ozgur, N. (2001) The mechanism and design of sequencing batch reactor systems for nutrient removal - the state of the art. *Water Science and Technology* 43(3), 53-60.
Artan, N., Wilderer, P., Orhon, D., Tasli, R. and Morgenroth, E. (2002) Model evaluation and optimisation of nutrient removal potential for sequencing batch reactors. *Water S.A.* 28(4), 423-432.
Frigon, D., Oerther, D.B., Morgenroth, E. and Raskin, L. (2002) Oligonucleotide probe hybridization and modeling results suggest that populations consuming readily degradable substrate in plug-flow reactors have high cellular RNA levels. *Water Science and Technology* 45(6), 115-126.
Morgenroth, E., Arvin, E. and Vanrolleghem, P. (2002a) The use of mathematical models in teaching wastewater treatment engineering. *Water Science and Technology* 45(6), 229-233.
Morgenroth, E., Kommedal, R. and Harremoes, P. (2002b) Processes and modeling of hydrolysis of particulate organic matter in aerobic wastewater treatment - A review. *Water Science and Technology* 45(6), 25-40.
Choi, Y.C. and Morgenroth, E. (2003) Monitoring biofilm detachment under dynamic changes in shear stress using laser-based particle size analysis and mass fractionation. *Water Science and Technology* 47(5), 69-76.
Horn, H., Reiff, H. and Morgenroth, E. (2003) Simulation of growth and detachment in biofilm systems under defined hydrodynamic conditions. *Biotechnology and Bioengineering* 81(5), 607-617.
Austermann-Haun, U., Barjenbuch, M., Beier, M., Cornel, P., Greulich, F., Heinz, A., Horn, H., Kraft, A., Martz, M., Morgenroth, E., Rosenwinkel, K.H., Rother, E., Schlegel, S. and Seyfried, C.F. (2004) Aerobe Biofilmverfahren in der Industrieabwasserreinigung - Definitionen, Verfahrenstechniken, Einsatzgebiete, Bemessungshinweise (In German). *KA - Abwasser, Abfall* 51(12), 195-198.
Eberl, H.J., van Loosdrecht, M.C.M., Morgenroth, E., Noguera, D.R., Picioreanu, C., Perez, J., Rittmann, B.E., Schwarz, A.O. and Wanner, O. (2004) Modelling A Spatially Heterogeneous Biofilm And The Bulk Fluid: Selected Results From Benchmark Problem (BM2). *Water Science and Technology* 49(11-12), 155-162.
Morgenroth, E., Daigger, G.T., Ledin, A. and Keller, J. (2004a) International evaluation of current and future requirements for environmental engineering education. *Water Science and Technology* 49(8), 11-18.
Morgenroth, E., Eberl, H.J., van Loosdrecht, M.C.M., Noguera, D.R., Picioreanu, C., Rittmann, B.E., Schwarz, A. and Wanner, O. (2004b) Comparing biofilm models for a single species biofilm system. *Water Science and Technology* 49(11-12), 145-154.
Morgenroth, E. and Gujer, W. (2004) Environmental engineering education - Preface. *Water Science and Technology* 49(8), VII-VII.
Noguera, D.R. and Morgenroth, E. (2004) Introduction to the IWA Task Group on Biofilm Modeling. *Water Science and Technology* 49(11-12), 131-136.
Rittmann, B.E., Schwarz, A.O., Eberl, H.J., Morgenroth, E. and Wanner, O. (2004) Results from the Multi-Species Benchmark Problem (BM3) Using One-Dimensional Models. *Water Science and Technology* 49(11-12), 163-168.
Sophonsiri, C. and Morgenroth, E. (2004) Chemical composition associated with different particle size fractions in municipal, industrial, and agricultural wastewaters. *Chemosphere* 55(5), 691-703.
Telgmann, U., Horn, H. and Morgenroth, E. (2004) Influence of growth history on sloughing and erosion from biofilms. *Water Research* 38(17), 3671-3684.
Wanner, O. and Morgenroth, E. (2004) Biofilm modeling with AQUASIM. *Water Science and Technology* 49(11-12), 137-144.
Lopez, C., Pons, M.N. and Morgenroth, E. (2005) Evaluation of microscopic techniques (epifluorescence microscopy, CLSM, TPE-LSM) as a basis for the quantitative image analysis of activated sludge. *Water Research* 39(2-3), 456-468.
Miyake, H. and Morgenroth, E. (2005) Optimization of enhanced biological phosphorus removal after periods of low loading. *Water Environment Research* 77(2), 117-127.
Nguyen, V.T., Morgenroth, E. and Eberl, H.J. (2005) A mesoscale model for hydrodynamics in biofilms that takes microscopic flow effects into account. *Water Science and Technology* 52(7), 167-172.
Nogueira, R., Elenter, D., Brito, A., Melo, L.F., Wagner, M. and Morgenroth, E. (2005) Evaluating heterotrophic growth in a nitrifying biofilm reactor using fluorescence in situ hybridization and mathematical modeling. *Water Science and Technology* 52(7), 135-141.
Qi, S.Y. and Morgenroth, E. (2005) Modeling Steady-State Biofilms with Dual-Substrate Limitations. *ASCE Journal of Environmental Engineering* 131(2), 320-326.
Sudarsan, R., Milferstedt, K., Morgenroth, E. and Eberl, H.J. (2005) Quantification off detachment forces on rigid biofilm colonies in a roto-torque reactor using computational fluid dynamics tools. *Water Science and Technology* 52(7), 149-154.
Amin, M.M., Zilles, J.L., Greiner, J., Charbonneau, S., Raskin, L. and Morgenroth, E. (2006) Influence of the antibiotic erythromycin on anaerobic treatment of a pharmaceutical wastewater. *Environmental Science & Technology* 40(12), 3971-3977.

Asatekin, A., Menniti, A., Kang, S.T., Elimelech, M., Morgenroth, E. and Mayes, A.M. (2006) Antifouling nanofiltration membranes for membrane bioreactors from self-assembling graft copolymers. *Journal Of Membrane Science* 285(1-2), 81-89.
Dimock, R. and Morgenroth, E. (2006) The influence of particle size on microbial hydrolysis of protein particles in activated sludge. *Water Research* 40(10), 2064-2074.
Horn, H. and Morgenroth, E. (2006) Transport of oxygen, sodium chloride, and sodium nitrate in biofilms. *Chemical Engineering Science* 61(5), 1347-1356.
Kommedal, R., Milferstedt, K., Bakke, R. and Morgenroth, E. (2006) Effects of initial molecular weight on removal rate of dextran in biofilms. *Water Research* 40(9), 1795-1804.
Lopez, C., Pons, M.N. and Morgenroth, E. (2006) Endogenous processes during long-term starvation in activated sludge performing enhanced biological phosphorus removal. *Water Research* 40(8), 1519-1530.
Milferstedt, K., Pons, M.N. and Morgenroth, E. (2006a) Optical method for long-term and large-scale monitoring of spatial biofilm development. *Biotechnology and Bioengineering* 94(4), 773-782.
Milferstedt, K., Pons, M.N. and Morgenroth, E. (2006b) The effect of growth and detachment on formation of large scale biofilm structure. *Biofilms* 2, 1-2.
Pons, M.N., Milferstedt, K. and Morgenroth, E. (2006) Modeling of chord length distributions. *Chemical Engineering Science* 61(12), 3962-3973.
Brockmann, D. and Morgenroth, E. (2007) Comparing global sensitivity analysis for a biofilm model for two-step nitrification using the qualitative screening method of Morris or the quantitative variance-based Fourier Amplitude Sensitivity Test (FAST). *Water Science and Technology* 56(8), 85-93.
Brockmann, D., Rosenwinkel, K.H. and Morgenroth, E. (2007) Estimation of kinetic parameters of a model for deammonification in biofilms and evaluation of the model. *Water Science and Technology* 55(8-9), 291-299.
Choi, Y.C., Li, X., Raskin, L. and Morgenroth, E. (2007) Effect of backwashing on perchlorate removal in fixed bed biofilm reactors. *Water Research* 41(9), 1949-1959.
Elenter, D., Milferstedt, K., Zhang, W., Hausner, M. and Morgenroth, E. (2007) Influence of detachment on substrate removal and microbial ecology in a heterotrophic/autotrophic biofilm. *Water Research* 41(20), 4657-4671.
Milferstedt, K., Pons, M.N. and Morgenroth, E. (2007) Texture analysis of spatial biofilm development. *Water Science and Technology* 55(8-9), 481-488.
Padmasiri, S.I., Zhang, J.Z., Fitch, M., Norddahl, B., Morgenroth, E. and Raskin, L. (2007) Methanogenic population dynamics and performance of an anaerobic membrane bioreactor (AnMBR) treating swine manure under high shear conditions. *Water Research* 41(1), 134-144.
Shimada, T., Zilles, J., Raskin, L. and Morgenroth, E. (2007) Carbohydrate storage in anaerobic sequencing batch reactors. *Water Research* 41(20), 4721-4729.
Zhang, J., Padmasiri, S.I., Fitch, M., Norddahl, B., Raskin, L. and Morgenroth, E. (2007) Influence of cleaning frequency and membrane history on fouling in an anaerobic membrane bioreactor. *Desalination* 207(1-3), 153-166.
Brockmann, D., Rosenwinkel, K.H. and Morgenroth, E. (2008) Practical identifiability of biokinetic parameters of a model describing two-step nitrification in biofilms. *Biotechnology and Bioengineering* 101(3), 497-514.
Choi, Y.C., Li, X., Raskin, L. and Morgenroth, E. (2008) Chemisorption of oxygen onto activated carbon can enhance the stability of biological perchlorate reduction in fixed bed biofilm reactors. *Water Research* 42, 3425-3434.
Li, X., Morgenroth, E. and Raskin, L. (2008) Quantitative rRNA-Targeted Solution-Based Hybridization Assay Using Peptide Nucleic Acid Molecular Beacons. *Applied and Environmental Microbiology* 74(23), 7297-7305.
Milferstedt, K., Pons, M.N. and Morgenroth, E. (2008) Textural fingerprints: A comprehensive descriptor for biofilm structure development. *Biotechnology and Bioengineering* 100(5), 889-901.
Shimada, T., Zilles, J.L., Morgenroth, E. and Raskin, L. (2008a) Modelling the effect of the antimicrobial tylosin on the performance of an anaerobic sequencing batch reactor. *Water Science and Technology* 57(11), 1699-1704.
Shimada, T., Zilles, J.L., Morgenroth, E. and Raskin, L. (2008b) Inhibitory effects of the macrolide antimicrobial tylosin on anaerobic treatment. *Biotechnology and Bioengineering* 101(1), 73-82.
Hug, T., Benedetti, L., Hall, E.R., Johnson, B.R., Morgenroth, E., Nopens, I., Rieger, L., Shaw, A. and Vanrolleghem, P.A. (2009) Wastewater treatment models in teaching and training: the mismatch between education and requirements for jobs. *Water Science and Technology* 59(4), 745-753.
Menniti, A., Kang, S., Elimelech, M. and Morgenroth, E. (2009) Influence of shear on the production of extracellular polymeric substances in membrane bioreactors. *Water Research* 43(17), 4305-4315.
Milferstedt, K., Pons, M.N. and Morgenroth, E. (2009) Analyzing characteristic length scales in biofilm structures. *Biotechnology and Bioengineering* 102(2), 368-379.
Morgenroth, E. and Milferstedt, K. (2009) Biofilm engineering: linking biofilm development at different length and time scales. *Reviews in Environmental Science and Biotechnology* 8(3), 203-208.
Pons, M.N., Milferstedt, K. and Morgenroth, E. (2009) Biofilm Monitoring on Rotating Discs by Image Analysis. *Biotechnology and Bioengineering* 103(1), 105-116.

Boltz, J.P., Morgenroth, E. and Sen, D. (2010) Mathematical Modelling of Biofilms and Biofilm Reactors for Engineering Design. *Water Science and Technology* 62(8), 1821-1836.
Brockmann, D. and Morgenroth, E. (2010) Evaluating operating conditions for outcompeting nitrite oxidizers and maintaining partial nitrification in biofilm systems using biofilm modeling and Monte Carlo filtering. *Water Research* 44(6), 1995-2009.
Menniti, A. and Morgenroth, E. (2010a) The influence of aeration intensity on predation and EPS production in membrane bioreactors. *Water Research* 44(8), 2541-2553.
Menniti, A. and Morgenroth, E. (2010b) Mechanisms of SMP production in membrane bioreactors: Choosing an appropriate mathematical model structure. *Water Research* 44(18), 5240-5251.
Li, X., Upadhyaya, G., Yuen, W., Brown, J., Morgenroth, E. and Raskin, L. (2010) Changes in the Structure and Function of Microbial Communities in Drinking Water Treatment Bioreactors upon Addition of Phosphorus. *Applied and Environmental Microbiology* 76(22), 7473-7481.
Boltz, J.P., Morgenroth, E., Brockmann, D., Bott, C., Gellner, W.J. and Vanrolleghem, P.A. (2011) Systematic evaluation of biofilm models for engineering practice: components and critical assumptions. *Water Science and Technology* 64(4), 930–944.
Joss, A., Derlon, N., Cyprien, C., Burger, S., Szivak, I., Traber, J., Siegrist, H. and Morgenroth, E. (2011) Combined nitritation-anammox: Advances in understanding process stability. *Environmental Science & Technology* 45(22), 9735-9742.
Shimada, T., Morgenroth, E., Tandukar, M., Pavlostathis, S.G., Smith, A., Raskin, L. and Kilian, R.E. (2011a) Syntrophic Acetate Oxidation in Two-Phase (Acid-Methane) Anaerobic Digesters. *Water Science and Technology* 64(9), 1812-1820.
Shimada, T., Li, X., Zilles, J.L., Morgenroth, E. and Raskin, L. (2011b) Effects of the Antimicrobial Tylosin on the Microbial Community Structure of an Anaerobic Sequencing Batch Reactor. *Biotechnology and Bioengineering* 108(2), 296-305.
Ye, X., Morgenroth, E., Zhang, X. and Finneran, K.T. (2011) Anthrahydroquinone-2,6,-disulfonate (AH_2QDS) increases hydrogen molar yield and xylose utilization in growing cultures of Clostridium beijerinckii. *Applied Microbiology and Biotechnology* 92(4), 855-864.
Boltz, J.P., Morgenroth, E., Daigger, G.T., deBarbadillo, C., Murthy, S., Sørensen, K.H. and Stinson, B. (2012) Method to identify potential phosphorus rate-limiting conditions in post-denitrification biofilm reactors within systems designed for simultaneous low-level effluent nitrogen and phosphorus concentrations. *Water Research* 46(19), 6228-6238.
Derlon, N., Peter-Varbanets, M., Scheidegger, A., Pronk, W. and Morgenroth, E. (2012) Predation influences the structure of biofilm developed on ultrafiltration membranes. *Water Research* 46(10), 3323-3333.
Ghasemian, M., Amin, M.M., Morgenroth, E. and Jaafarzadeh, N. (2012) Anaerobic biodegradation of methyl tert-butyl ether and tert-butyl alcohol in petrochemical wastewater. *Environmental Technology* 33(16), 1937-1943.
Guo, B., Zhang, Y., Ha, S.J., Jin, Y.S. and Morgenroth, E. (2012) Combined biomimetic and inorganic acids hydrolysis of hemicellulose in Miscanthus for bioethanol production. *Bioresource Technology* 110, 278-287.
Li, X., Yuen, W., Morgenroth, E. and Raskin, L. (2012) Backwash intensity and frequency impact the microbial community structure and function in a fixed-bed biofilm reactor. *Appl Microbiol Biotechnol* 96(3), 815-827.
Ye, X.F., Zhang, X.Y., Morgenroth, E. and Finneran, K.T. (2012) Anthrahydroquinone-2,6-disulfonate increases the rate of hydrogen production during Clostridium beijerinckii fermentation with glucose, xylose, and cellobiose. *International Journal of Hydrogen Energy* 37(16), 11701-11709.
Choubert, J.M., Rieger, L., Shaw, A., Copp, J., Sperandio, M., Sorensen, K., Ronner-Holm, S., Morgenroth, E., Melcer, H. and Gillot, S. (2013) Rethinking wastewater characterisation methods for activated sludge systems - a position paper. *Water Science and Technology* 67(11), 2363-2373.
Derlon, N., Koch, N., Eugster, B., Posch, T., Pernthaler, J., Pronk, W. and Morgenroth, E. (2013) Activity of metazoa governs biofilm structure formation and enhances permeate flux during Gravity-Driven Membrane (GDM) filtration. *Water Research* 47(6), 2085-2095.
Guo, B., Zhang, Y., Yu, G., Lee, W.-H., Jin, Y.S. and Morgenroth, E. (2013) Two-Stage Acidic-Alkaline Hydrothermal Pretreatment of Lignocellulose for the High Recovery of Cellulose and Hemicellulose Sugars. *Applied Biochemistry And Biotechnology* 169(4), 1069-1087.
Janjaroen, D., Ling, F.Q., Monroy, G., Derlon, N., Mogenroth, E., Boppart, S.A., Liu, W.T. and Nguyen, T.H. (2013) Roles of ionic strength and biofilm roughness on adhesion kinetics of Escherichia coli onto groundwater biofilm grown on PVC surfaces. *Water Research* 47(7), 2531-2542.
Ye, X.F., Zhang, X., Morgenroth, E. and Finneran, K.T. (2013) Exogenous anthrahydroquinone-2,6-disulfonate specifically increases xylose utilization during mixed sugar fermentation by Clostridium beijerinckii NCIMB 8052. *International Journal of Hydrogen Energy* 38(6), 2719-2727.
Zhang, X., Ye, X., Finneran, K.T., Zilles, J.L. and Morgenroth, E. (2013a) Interactions between Clostridium beijerinckii and Geobacter metallireducens in co-culture fermentation with anthrahydroquinone-2, 6-disulfonate

(AH2QDS) for enhanced biohydrogen production from xylose. *Biotechnology and Bioengineering* 110(1), 164-172.
Zhang, X., Ye, X., Guo, B., Finneran, K.T., Zilles, J.L. and Morgenroth, E. (2013b) Lignocellulosic hydrolysates and extracellular electron shuttles for H_2 production using co-culture fermentation with Clostridium beijerinckii and Geobacter metallireducens. *Bioresource Technology* 147, 89-95.
Chomiak, A., Mimoso, J., Koetzsch, S., Sinnet, B., Pronk, W., Derlon, N. and Morgenroth, E. (2014a) Biofilm formation and permeate quality improvement in Gravity Driven Membrane ultrafiltration. *Water Science & Technology: Water Supply* 14(2), 274-282.
Chomiak, A., Sinnet, B., Derlon, N. and Morgenroth, E. (2014b) Inorganic particles increase biofilm heterogeneity and enhance permeate flux. *Water Research* 64, 177-186.
Derlon, N., Mimoso, J., Klein, T., Koetzsch, S. and Morgenroth, E. (2014) Presence of biofilms on ultrafiltration membrane surfaces increases the quality of permeate produced during ultra-low pressure gravity-driven membrane filtration. *Water Research* 60, 164-173.
Jenni, S., Vlaeminck, S.E., Morgenroth, E. and Udert, K.M. (2014) Successful application of nitritation/anammox to wastewater with elevated organic carbon to ammonia ratios. *Water Research* 49C, 316-326.
Kohler, E., Villiger, J., Posch, T., Derlon, N., Shabarova, T., Morgenroth, E., Pernthaler, J. and Blom, J.F. (2014) Biodegradation of Microcystins during Gravity-Driven Membrane (GDM) Ultrafiltration. *Plos One* 9(11), e111794.
Martin, K.J., Bolster, D., Derlon, N., Morgenroth, E. and Nerenberg, R. (2014) Effect of fouling layer spatial distribution on permeate flux: A theoretical and experimental study. *Journal Of Membrane Science* 471, 130-137.
Thalmann, B., Voegelin, A., Sinnet, B., Morgenroth, E. and Kaegi, R. (2014) Sulfidation Kinetics of Silver Nanoparticles Reacted with Metal Sulfides. *Environmental Science & Technology* 48(9), 4885-4892.
Chomiak, A., Traber, J., Morgenroth, E. and Derlon, N. (2015) Biofilm increases permeate quality by organic carbon degradation in low pressure ultrafiltration. *Water Research* 85, 512-520.
Fumasoli, A., Morgenroth, E. and Udert, K.M. (2015) Modeling the low pH limit of Nitrosomonas eutropha in high-strength nitrogen wastewaters. *Water Research* 83(0), 161-170.
Habermacher, J., Benetti, A.D., Derlon, N. and Morgenroth, E. (2015) The effect of different aeration conditions in activated sludge - side-stream system on sludge production, sludge degradation rates, active biomass and extracellular polymeric substances. *Water Research* 85, 46-56.
Hubaux, N., Wells, G. and Morgenroth, E. (2015) Impact of coexistence of flocs and biofilm on performance of combined nitritation-anammox granular sludge reactors. *Water Research* 68, 127-139.
Kuenzle, R., Pronk, W., Morgenroth, E. and Larsen, T.A. (2015) An energy-efficient membrane bioreactor for on-site treatment and recovery of wastewater. *Journal of Water, Sanitation and Hygiene for Development* 5(3), 448-455.
Larsen, T.A., Gebauer, H., Gründl, H., Künzle, R., Lüthi, C., Messmer, U., Morgenroth, E., Niwagaba, C.B. and Ranner, B. (2015) Blue Diversion: A new approach to sanitation in informal settlements. *Journal of Water, Sanitation and Hygiene for Development* 5(1), 64-71.
Laureni, M., Weissbrodt, D.G., Szivak, I., Robin, O., Nielsen, J.L., Morgenroth, E. and Joss, A. (2015) Activity and growth of anammox biomass on aerobically pre-treated municipal wastewater. *Water Research* 80, 325-336.
Mimoso, J., Pronk, W., Morgenroth, E. and Hammes, F. (2015) Bacterial growth in batch-operated membrane filtration systems for drinking water treatment. *Separation and Purification Technology* 156, 165-174.
Ravndal, K.T., Künzle, R., Derlon, N. and Morgenroth, E. (2015) On-site treatment of used wash-water using biologically activated membrane bioreactors operated at different solids retention times. *Journal of Water, Sanitation and Hygiene for Development* 5(4), 544-552.
Schielke-Jenni, S., Villez, K., Morgenroth, E. and Udert, K.M. (2015) Observability of anammox activity in single-stage nitritation/anammox reactors using mass balances. *Environmental Science: Water Research & Technology* 1(4), 523-534.
Shen, Y., Monroy, G.L., Derlon, N., Janjaroen, D., Huang, C., Morgenroth, E., Boppart, S.A., Ashbolt, N.J., Liu, W.-T. and Nguyen, T.H. (2015) Role of Biofilm Roughness and Hydrodynamic Conditions in Legionella pneumophila Adhesion to and Detachment from Simulated Drinking Water Biofilms. *Environmental Science & Technology* 49(7), 4274-4282.
Thalmann, B., Voegelin, A., von Gunten, U., Behra, R., Morgenroth, E. and Kaegi, R. (2015) Effect of Ozone Treatment on Nano-Sized Silver Sulfide in Wastewater Effluent. *Environmental Science & Technology* 49(18), 10911-10919.
Vannecke, T.P., Wells, G., Hubaux, N., Morgenroth, E. and Volcke, E.I. (2015) Considering microbial and aggregate heterogeneity in biofilm reactor models: how far do we need to go? *Water Science & Technology* 72(10), 1692-1699.
Wagner, J., Weissbrodt, D.G., Manguin, V., Ribeiro da Costa, R.H., Morgenroth, E. and Derlon, N. (2015) Effect of particulate organic substrate on aerobic granulation and operating conditions of sequencing batch reactors. *Water Research* 85, 158-166.

Zöllig, H., Fritzsche, C., Morgenroth, E. and Udert, K.M. (2015a) Direct electrochemical oxidation of ammonia on graphite as a treatment option for stored source-separated urine. *Water Research* 69(0), 284-294.
Zöllig, H., Morgenroth, E. and Udert, K.M. (2015b) Inhibition of Direct Electrolytic Ammonia Oxidation Due to a Change in Local pH. *Electrochimica Acta* 165, 348-355.
Zöllig, H., Remmele, A., Fritzsche, C., Morgenroth, E. and Udert, K.M. (2015c) Formation of Chlorination Byproducts and Their Emission Pathways in Chlorine Mediated Electro-Oxidation of Urine on Active and Nonactive Type Anodes. *Environmental Science & Technology* 49(18), 11062-11069.
Derlon, N., Grutter, A., Brandenberger, F., Sutter, A., Kuhlicke, U., Neu, T.R. and Morgenroth, E. (2016a) The composition and compression of biofilms developed on ultrafiltration membranes determine hydraulic biofilm resistance. *Water Research* 102, 63-72.
Derlon, N., Wagner, J., da Costa, R.H.R. and Morgenroth, E. (2016b) Formation of aerobic granules for the treatment of real and low-strength municipal wastewater using a sequencing batch reactor operated at constant volume. *Water Research* 105, 341-350.
Ding, A., Liang, H., Li, G.B., Derlon, N., Szivak, I., Morgenroth, E. and Pronk, W. (2016) Impact of aeration shear stress on permeate flux and fouling layer properties in a low pressure membrane bioreactor for the treatment of grey water. *Journal Of Membrane Science* 510, 382-390.
Fumasoli, A., Etter, B., Sterkele, B., Morgenroth, E. and Udert, K.M. (2016) Operating a pilot-scale nitrification/distillation plant for complete nutrient recovery from urine. *Water Science and Technology* 73(1), 215-222.
Gold, M., Dayer, P., Faye, M.C.A.S., Clair, G., Seck, A., Niang, S., Morgenroth, E. and Strande, L. (2016) Locally produced natural conditioners for dewatering of faecal sludge. *Environmental Technology*, 1-13.
Habermacher, J., Benetti, A.D., Derlon, N. and Morgenroth, E. (2016) Degradation of the unbiodegradable particulate fraction (X_U) from different activated sludges during batch digestion tests at ambient temperature. *Water Research* 98, 206-214.
Laureni, M., Falas, P., Robin, O., Wick, A., Weissbrodt, D.G., Nielsen, J.L., Ternes, T.A., Morgenroth, E. and Joss, A. (2016) Mainstream partial nitritation and anammox: long-term process stability and effluent quality at low temperatures. *Water Research* 101, 628-639.
McCall, A.-K., Scheidegger, A., Madry, M.M., Steuer, A.E., Weissbrodt, D.G., Vanrolleghem, P.A., Kraemer, T., Morgenroth, E. and Ort, C. (2016) Influence of Different Sewer Biofilms on Transformation Rates of Drugs. *Environmental Science & Technology* 50(24), 13351-13360.
Shen, Y., Huang, C., Monroy, G.L., Janjaroen, D., Derlon, N., Lin, J., Espinosa-Marzal, R., Morgenroth, E., Boppart, S.A., Ashbolt, N.J., Liu, W.T. and Nguyen, T.H. (2016) Response of simulated drinking water biofilm mechanical and structural properties to long-term disinfectant exposure. *Environmental Science and Technology* 50(4), 1779-1787.
Shi, Y., Wells, G. and Morgenroth, E. (2016) Microbial activity balance in size fractionated suspended growth biomass from full-scale sidestream combined nitritation-anammox reactors. *Bioresource Technology* 218, 38-45.
Thalmann, B., Voegelin, A., Morgenroth, E. and Kaegi, R. (2016) Effect of humic acid on the kinetics of silver nanoparticle sulfidation. *Environmental Science: Nano* 3(1), 203-212.
Wu, S., Bhattacharjee, A.S., Weissbrodt, D.G., Morgenroth, E. and Goel, R. (2016) Effect of short term external perturbations on bacterial ecology and activities in a partial nitritation and anammox reactor. *Bioresource Technology* 219, 527-535.
Boltz, J.P., Johnson, B.R., Takacs, I., Daigger, G.T., Morgenroth, E., Brockmann, D., Kovacs, R., Calhoun, J.M., Choubert, J.M. and Derlon, N. (2017a) Biofilm carrier migration model describes reactor performance. *Water Sci Technol* 75(12), 2818-2828.
Boltz, J.P., Smets, B.F., Rittmann, B.E., van Loosdrecht, M.C.M., Morgenroth, E. and Daigger, G.T. (2017b) From biofilm ecology to reactors: a focused review. *Water Science and Technology* 75(8), 1753-1760.
Carr, G., Blanch, A.R., Blaschke, A.P., Brouwer, R., Bucher, C., Farnleitner, A.H., Fürnkranz-Prskawetz, A., Loucks, D.P., Morgenroth, E., Parajka, J., Pfeifer, N., Rechberger, H., Wagner, W., Zessner, M. and Blöschl, G. (2017) Emerging outcomes from a cross-disciplinary doctoral programme on water resource systems. *Water Policy* 19(3), 463-478.
Carrel, M., Beltran, M.A., Morales, V.L., Derlon, N., Morgenroth, E., Kaufmann, R. and Holzner, M. (2017) Biofilm imaging in porous media by laboratory X-Ray tomography: Combining a non-destructive contrast agent with propagation-based phase-contrast imaging tools. *Plos One* 12(7), e0180374.
Fumasoli, A., Bürgmann, H., Weissbrodt, D.G., Wells, G.F., Beck, K., Mohn, J., Morgenroth, E. and Udert, K.M. (2017) Growth of Nitrosococcus-Related Ammonia Oxidizing Bacteria Coincides with Extremely Low pH Values in Wastewater with High Ammonia Content. *Environmental Science & Technology*.
McCall, A.K., Palmitessa, R., Blumensaat, F., Morgenroth, E. and Ort, C. (2017) Modeling in-sewer transformations at catchment scale - implications on drug consumption estimates in wastewater-based epidemiology. *Water Research* 122, 655-668.

Nguyen, M.T., Allemann, L., Ziemba, C., Larivé, O., Morgenroth, E. and Julian, T.R. (2017) Controlling Bacterial Pathogens in Water for Reuse: Treatment Technologies for Water Recirculation in the Blue Diversion Autarky Toilet. *Frontiers in Environmental Science* 5(90).
Schmitt, R.J.P., Morgenroth, E. and Larsen, T.A. (2017) Robust planning of sanitation services in urban informal settlements: An analytical framework. *Water Research* 110, 297-312.
Tobias, R., O'Keefe, M., Künzle, R., Gebauer, H., Gründl, H., Morgenroth, E., Pronk, W. and Larsen, T.A. (2017) Early testing of new sanitation technology for urban slums: The case of the Blue Diversion Toilet. *Science of the Total Environment* 576, 264-272.
Weissbrodt, D.G., Holliger, C. and Morgenroth, E. (2017) Modeling hydraulic transport and anaerobic uptake by PAOs and GAOs during wastewater feeding in EBPR granular sludge reactors. *Biotechnol Bioeng* 114(8), 1688-1702.
Wells, G.F., Shi, Y., Laureni, M., Rosenthal, A., Szivak, I., Weissbrodt, D.G., Joss, A., Buergmann, H., Johnson, D.R. and Morgenroth, E. (2017) Comparing the Resistance, Resilience, and Stability of Replicate Moving Bed Biofilm and Suspended Growth Combined Nitritation-Anammox Reactors. *Environ Sci Technol* 51(9), 5108-5117.
Zollig, H., Remmele, A., Morgenroth, E. and Udert, K.M. (2017) Removal rates and energy demand of the electrochemical oxidation of ammonia and organic substances in real stored urine. *Environmental Science-Water Research & Technology* 3(3), 480-491.
Carrel, M., Morales, V.L., Beltran, M.A., Derlon, N., Kaufmann, R., Morgenroth, E. and Holzner, M. (2018a) Biofilms in 3D porous media: Delineating the influence of the pore network geometry, flow and mass transfer on biofilm development. *Water Research* 134, 280-291.
Carrel, M., Morales, V.L., Dentz, M., Derlon, N., Morgenroth, E. and Holzner, M. (2018b) Pore-Scale Hydrodynamics in a Progressively Bioclogged Three-Dimensional Porous Medium: 3-D Particle Tracking Experiments and Stochastic Transport Modeling. *Water Resources Research* 54(3), 2183-2198.
Derlon, N., Layer, M., Morgenroth, E., Adler, A., Gelb, A. and Holliger, C. (2018a) Boues Granulaires Aérobies. *Aqua & Gas* (1), 14-19.
Derlon, N., Pronk, W. and Morgenroth, E. (2018b) La présence de biofilms: un avantage pour stabiliser le flux et augmenter la qualité du perméat. *Aqua & Gas* 98(5), 30-35.
Desmond, P., Best, J.P., Morgenroth, E. and Derlon, N. (2018a) Linking composition of extracellular polymeric substances (EPS) to the physical structure and hydraulic resistance of membrane biofilms. *Water Research* 132, 211-221.
Desmond, P., Morgenroth, E. and Derlon, N. (2018b) Physical structure determines compression of membrane biofilms during gravity driven membrane (GDM) ultrafiltration. *Water Research* 143, 539-549.
Desmond, P., Böni, L., Fischer, P., Morgenroth, E. and Derlon, N. (2018c) Stratification in the physical structure and cohesion of membrane biofilms — Implications for hydraulic resistance. *Journal Of Membrane Science* 564, 897-904.
Jafari, M., Desmond, P., van Loosdrecht, M.C.M., Derlon, N., Morgenroth, E. and Picioreanu, C. (2018) Effect of biofilm structural deformation on hydraulic resistance during ultrafiltration: A numerical and experimental study. *Water Research* 145, 375-387.
Rittmann, B.E., Boltz, J.P., Brockmann, D., Daigger, G.T., Morgenroth, E., Sorensen, K.H., Takacs, I., van Loosdrecht, M.C.M. and Vanrolleghem, P.A. (2018) A framework for good biofilm reactor modeling practice (GBRMP). *Water Science & Technology* 77(4), 1149-1164.
Wielinski, J., Müller, C., Voegelin, A., Morgenroth, E. and Kaegi, R. (2018) Combustion of Sewage Sludge: Kinetics and Speciation of the Combustible. *Energy & Fuels* 32(10), 10656-10667.
Ziemba, C., Larivé, O., Reynaert, E. and Morgenroth, E. (2018) Chemical composition, nutrient-balancing and biological treatment of hand washing greywater. *Water Research* 144, 752-762.
Jafari, M., Derlon, N., Desmond, P., van Loosdrecht, M.C.M., Morgenroth, E. and Picioreanu, C. (2019) Biofilm compressibility in ultrafiltration: A relation between biofilm morphology, mechanics and hydraulic resistance. *Water Research* 157, 335-345.
Laureni, M., Weissbrodt, D.G., Villez, K., Robin, O., de Jonge, N., Rosenthal, A., Wells, G., Nielsen, J.L., Morgenroth, E. and Joss, A. (2019) Biomass segregation between biofilm and flocs improves the control of nitrite-oxidizing bacteria in mainstream partial nitritation and anammox processes. *Water Research* 154, 104-116.
Layer, M., Adler, A., Reynaert, E., Hernandez, A., Pagni, M., Morgenroth, E., Holliger, C. and Derlon, N. (2019) Organic substrate diffusibility governs microbial community composition, nutrient removal performance and kinetics of granulation of aerobic granular sludge. *Water Research X* 4, 100033.
Pronk, W., Ding, A., Morgenroth, E., Derlon, N., Desmond, P., Burkhardt, M., Wu, B. and Fane, A.G. (2019) Gravity-driven membrane filtration for water and wastewater treatment: A review. *Water Research* 149, 553-565.
Silva, M.O.D., Desmond, P., Derlon, N., Morgenroth, E. and Pernthaler, J. (2019) Source Community and Assembly Processes Affect the Efficiency of Microbial Microcystin Degradation on Drinking Water Filtration Membranes. *Front Microbiol* 10.

Thurlimann, C.M., Udert, K.M., Morgenroth, E. and Villez, K. (2019) Stabilizing control of a urine nitrification process in the presence of sensor drift. *Water Research* 165, 114958.
Ward, B.J., Traber, J., Gueye, A., Diop, B., Morgenroth, E. and Strande, L. (2019) Evaluation of conceptual model and predictors of faecal sludge dewatering performance in Senegal and Tanzania. *Water Research* 167, 115101.
Wielinski, J., Gogos, A., Voegelin, A., Muller, C., Morgenroth, E. and Kaegi, R. (2019) Transformation of Nanoscale and Ionic Cu and Zn during the Incineration of Digested Sewage Sludge (Biosolids). *Environmental Science & Technology* 53(20), 11704-11713.
Ziemba, C., Larivé, O., Deck, S., Huisman, T. and Morgenroth, E. (2019) Comparing the anti-bacterial performance of chlorination and electrolysis post-treatments in a hand washing water recycling system. *Water Research X* 2, 100020.
Bogler, A., Packman, A., Furman, A., Gross, A., Kushmaro, A., Ronen, A., Dagot, C., Hill, C., Vaizel-Ohayon, D., Morgenroth, E., Bertuzzo, E., Wells, G., Kiperwas, H.R., Horn, H., Negev, I., Zucker, I., Bar-Or, I., Moran-Gilad, J., Balcazar, J.L., Bibby, K., Elimelech, M., Weisbrod, N., Nir, O., Sued, O., Gillor, O., Alvarez, P.J., Crameri, S., Arnon, S., Walker, S., Yaron, S., Nguyen, T.H., Berchenko, Y., Hu, Y., Ronen, Z. and Bar-Zeev, E. (2020) Rethinking wastewater risks and monitoring in light of the COVID-19 pandemic. *Nature Sustainability*.
Doll, C., Larsen, T.A., Strande, L., Udert, K.M. and Morgenroth, E. (2020) Water Hub im NEST-Gebäude: Eine Plattform zum Testen von innovativen Ressourcenorientierten Sanitärsystemen. *Aqua & Gas* (2), 52-57.
Hadengue, B., Scheidegger, A., Morgenroth, E. and Larsen, T.A. (2020) Modeling the Water-Energy Nexus in Households. *Energy and Buildings* 225, 110262.
Hess, A., Bettex, C. and Morgenroth, E. (2020) Influence of intermittent flow on removal of organics in a biological activated carbon filter (BAC) used as post-treatment for greywater. *Water Research X*, 100078.
Hoffmann, S., Feldmann, U., Bach, P.M., Binz, C., Farrelly, M., Frantzeskaki, N., Hiessl, H., Inauen, J., Larsen, T.A., Lienert, J., Londong, J., Luthi, C., Maurer, M., Mitchell, C., Morgenroth, E., Nelson, K.L., Scholten, L., Truffer, B. and Udert, K.M. (2020) A Research Agenda for the Future of Urban Water Management: Exploring the Potential of Nongrid, Small-Grid, and Hybrid Solutions. *Environmental Science & Technology* 54(9), 5312-5322.
Jacquin, C., Yu, D., Sander, M., Domagala, K., Traber, J., Morgenroth, E. and Julian, T.R. (2020) Competitive co-adsorption of bacteriophage MS2 and natural organic matter onto multiwalled carbon nanotubes. *Water Research X*, 100058.
Jimenez, J., Charnier, C., Kouas, M., Latrille, E., Torrijos, M., Harmand, J., Patureau, D., Spérandio, M., Morgenroth, E., Béline, F., Ekama, G., Vanrolleghem, P.A., Robles, A., Seco, A., Batstone, D.J. and Steyer, J.-P. (2020) Modelling hydrolysis: Simultaneous versus sequential biodegradation of the hydrolysable fractions. *Waste Management* 101, 150-160.
Layer, M., Villodres, M.G., Hernandez, A., Reynaert, E., Morgenroth, E. and Derlon, N. (2020a) Limited simultaneous nitrification-denitrification (SND) in aerobic granular sludge systems treating municipal wastewater: Mechanisms and practical implications. *Water Research X*, 100048.
Layer, M., Bock, K., Ranzinger, F., Horn, H., Morgenroth, E. and Derlon, N. (2020b) Particulate substrate retention in plug-flow and fully-mixed conditions during operation of aerobic granular sludge systems. *Water Research X* 9, 100075.
Reynaert, E., Greenwood, E.E., Ndwandwe, B., Riechmann, M.E., Sindall, R.C., Udert, K.M. and Morgenroth, E. (2020) Practical implementation of true on-site water recycling systems for hand washing and toilet flushing. *Water Research X* 7, 100051.
Sutherland, C., Reynaert, E., Dhlamini, S., Magwaza, F., Lienert, J., Riechmann, M.E., Buthelezi, S., Khumalo, D., Morgenroth, E., Udert, K.M. and Sindall, R.C. (2021a) Socio-technical analysis of a sanitation innovation in a peri-urban household in Durban, South Africa. *Science of the Total Environment*, 143284.
Wielinski, J., Marafatto, F.F., Gogos, A., Scheidegger, A., Voegelin, A., Muller, C.R., Morgenroth, E. and Kaegi, R. (2020) Synchrotron hard X-ray chemical imaging of trace element speciation in heterogeneous samples: development of criteria for uncertainty analysis. *Journal of Analytical Atomic Spectrometry* 35(3), 567-579.
Ziemba, C., Larivé, O., Reynaert, E., Huisman, T. and Morgenroth, E. (2020) Linking transformations of organic carbon to post-treatment performance in a biological water recycling system. *Science of the Total Environment*, 137489.
Benstöm, F., Meda, A., Baumann, P., Derlon, N., Lackner, S., Layer, M., Morgenroth, E., Parravicini, V., Rocktäschel, T. and Wichern, M. (2021) Aerobe Verfahren mit granuliertem Schlamm zur Abwasserbehandlung - Arbeitsbericht der DWA-Arbeitsgruppe KA-6.3 „Biofilmverfahren“) – Teil 1. *Korrespondenz Abwasser* 68(4), 281-288.
Gruber, W., Niederdorfer, R., Ringwald, J., Morgenroth, E., Bürgmann, H. and Joss, A. (2021a) Linking seasonal N2O emissions and nitrification failures to microbial dynamics in a SBR wastewater treatment plant. *Water Research X*, 100098.

Gruber, W., von Kanel, L., Vogt, L., Luck, M., Biolley, L., Feller, K., Moosmann, A., Krahenbuhl, N., Kipf, M., Loosli, R., Vogel, M., Morgenroth, E., Braun, D. and Joss, A. (2021b) Estimation of countrywide N_2O emissions from wastewater treatment in Switzerland using long-term monitoring data. *Water Research X* 13, 100122.
Hausherr, D., Niederdorfer, R., Morgenroth, E. and Joss, A. (2021) Robustness of mainstream anammox activity at bench and pilot scale. *Science of the Total Environment* 796, 148920.
Hess, A. and Morgenroth, E. (2021) Biological activated carbon filter for greywater post-treatment: Long-term TOC removal with adsorption and biodegradation. *Water Research X*, 100113.
Hess, A., Baum, C., Schiessl, K., Besmer, M.D., Hammes, F. and Morgenroth, E. (2021) Stagnation leads to short-term fluctuations in the effluent water quality of biofilters: A problem for greywater reuse? *Water Research X*, 100120.
Morgenroth, E. (2021) Ressourcen aus Abwasser direkt im Gebäude zurückgewinnen. *Wohnen* (September), 9.
Reynaert, E., Hess, A. and Morgenroth, E. (2021) Making Waves: Why water reuse frameworks need to co-evolve with emerging small-scale technologies. *Water Research X*, 100094.
Riechmann, M.E., Ndwandwe, B., Greenwood, E.E., Reynaert, E., Morgenroth, E. and Udert, K.M. (2021) On-site urine treatment combining Ca(OH)2 dissolution and dehydration with ambient air. *Water Research X* 13, 100124.
Russo, S., Besmer, M.D., Blumensaat, F., Bouffard, D., Disch, A., Hammes, F., Hess, A., Lürig, M., Matthews, B., Minaudo, C., Morgenroth, E., Tran-Khac, V. and Villez, K. (2021) The value of human data annotation for machine learning based anomaly detection in environmental systems. *Water Research* 206, 117695.
Stoffel, D., Rigo, E., Derlon, N., Staaks, C., Heijnen, M., Morgenroth, E. and Jacquin, C. (2021) Low maintenance gravity-driven membrane filtration using hollow fibers: Effect of reducing space for biofilm growth and control strategies on permeate flux. *Science of the Total Environment* 811, 152307.
Sutherland, C., Reynaert, E., Sindall, R.C., Riechmann, M.E., Magwaza, F., Lienert, J., Buthelezi, S., Khumalo, D., Dhlamini, S., Morgenroth, E. and Udert, K.M. (2021b) Innovation for improved hand hygiene: Field testing the Autarky handwashing station in collaboration with informal settlement residents in Durban, South Africa. *Science of the Total Environment* 796, 149024.
Sutherland, C., Reynaert, E., Dhlamini, S., Magwaza, F., Lienert, J., Riechmann, M.E., Buthelezi, S., Khumalo, D., Morgenroth, E., Udert, K.M. and Sindall, R.C. (2021c) Socio-technical analysis of a sanitation innovation in a peri-urban household in Durban, South Africa. *Science of the Total Environment* 755(Pt 2), 143284.
Tang, X., Pronk, W., Traber, J., Liang, H., Li, G. and Morgenroth, E. (2021) Integrating granular activated carbon (GAC) to gravity-driven membrane (GDM) to improve its flux stabilization: Respective roles of adsorption and biodegradation by GAC. *Science of the Total Environment* 768, 144758.
Ward, B.J., Andriessen, N., Tembo, J.M., Kabika, J., Grau, M., Scheidegger, A., Morgenroth, E. and Strande, L. (2021) Predictive models using "cheap and easy" field measurements: Can they fill a gap in planning, monitoring, and implementing fecal sludge management solutions? *Water Research* 196, 116997.
Wielinski, J., Voegelin, A., Grobéty, B., Müller, C.R., Morgenroth, E. and Kaegi, R. (2021a) Transformation of TiO_2 (nano)particles during sewage sludge incineration. *Journal Of Hazardous Materials* 411, 124932.
Wielinski, J., Gogos, A., Voegelin, A., Muller, C.R., Morgenroth, E. and Kaegi, R. (2021b) Release of gold (Au), silver (Ag) and cerium dioxide (CeO2) nanoparticles from sewage sludge incineration ash. *Environmental Science-Nano*, 13.
Ziemba, C., Sharma, P., Ahrens, T., Reynaert, E. and Morgenroth, E. (2021) Disruptions in loading and aeration impact effluent chlorine demand during biological greywater recycling. *Water Research X*, 100087.
Braun, D., von Känel, L., Biolley, L., Bauer, H., Gahler, D., Gruber, W., Joss, A. and Morgenroth, E. (2022) Dynamische Regelung der ARA Hofen. Infrawatt-Innovationspreis für mehr Leistung und weniger Emissionen. *Aqua & Gas* 102(1), 26-31.
Derlon, N., Desmond, P., Rühs, P.A. and Morgenroth, E. (2022a) Cross flow frequency determines the physical structure and cohesion of membrane biofilms developed during gravity-driven membrane ultrafiltration of river water: Implication for hydraulic resistance. *Journal Of Membrane Science* 643, 120079.
Derlon, N., Villodres, M.G., Kovacs, R., Brison, A., Layer, M., Takacs, I. and Morgenroth, E. (2022b) Modelling of aerobic granular sludge reactors: the importance of hydrodynamic regimes, selective sludge removal and gradients. *Water Science and Technology* 86(3), 410-431.
Dueholm, M.K.D., Nierychlo, M., Andersen, K.S., Rudkjøbing, V., Knutsson, S., Arriaga, S., Bakke, R., Boon, N., Bux, F., Christensson, M., Chua, A.S.M., Curtis, T.P., Cytryn, E., Erijman, L., Etchebehere, C., Fatta-Kassinos, D., Frigon, D., Garcia-Chaves, M.C., Gu, A.Z., Horn, H., Jenkins, D., Kreuzinger, N., Kumari, S., Lanham, A., Law, Y., Leiknes, T., Morgenroth, E., Muszyński, A., Petrovski, S., Pijuan, M., Pillai, S.B., Reis, M.A.M., Rong, Q., Rossetti, S., Seviour, R., Tooker, N., Vainio, P., van Loosdrecht, M., Vikraman, R., Wanner, J., Weissbrodt, D., Wen, X., Zhang, T., Nielsen, P.H., Albertsen, M., Nielsen, P.H. and Mi, D.A.S.G.C. (2022) MiDAS 4: A global catalogue of full-length 16S rRNA gene sequences and taxonomy for studies of bacterial communities in wastewater treatment plants. *Nature Communications* 13(1), 1908.

Gruber, W., Niederdorfer, R., Bürgmann, H., Joss, A., von Känel, L., Braun, D., Mohn, J. and Morgenroth, E. (2022a) Lachgasemissionen aus ARA. Reduktionsmassnahmen zeichnen sich ab. *Aqua & Gas* 102(1), 14-22.
Gruber, W., Joss, A., von Känel, L., Biolley, L., Braun, D. and Morgenroth, E. (2022b) Abluftmessungen in der biologischen Abwasserreinigung. *Aqua & Gas* 102(1), 24-25.
Gruber, W., Magyar, P.M., Mitrovic, I., Zeyer, K., Vogel, M., von Kanel, L., Biolley, L., Werner, R.A., Morgenroth, E., Lehmann, M.F., Braun, D., Joss, A. and Mohn, J. (2022c) Tracing N_2O formation in full-scale wastewater treatment with natural abundance isotopes indicates control by organic substrate and process settings. *Water Research X* 15, 11.
Hadengue, B., Morgenroth, E., Larsen, T.A. and Baldini, L. (2022a) Performance and dynamics of active greywater heat recovery in buildings. *Applied Energy* 305, 117677.
Hadengue, B., Morgenroth, E. and Larsen, T.A. (2022b) How to get your feet wet: Integrating urban water and building engineering for low-energy domestic hot water systems. *Energy and Buildings* 271, 6.
Hadengue, B., Morgenroth, E. and Larsen, T.A. (2022c) Screening innovative technologies for energy-efficient domestic hot water systems. *Journal of Environmental Management* 320, 9.
Hausherr, D., Niederdorfer, R., Bürgmann, H., Lehmann, M.F., Magyar, P., Mohn, J., Morgenroth, E. and Joss, A. (2022a) Successful mainstream nitritation through NOB inactivation. *Science of the Total Environment*, 153546.
Hausherr, D., Niederdorfer, R., Burgmann, H., Lehmann, M.F., Magyar, P., Mohn, J., Morgenroth, E. and Joss, A. (2022b) Successful year-round mainstream partial nitritation anammox: Assessment of effluent quality, performance and N_2O emissions. *Water Research X* 16, 11.
Layer, M., Brison, A., Villodres, M.G., Stähle, M., Házi, F., Takács, I., Morgenroth, E. and Derlon, N. (2022) Microbial conversion pathways of particulate organic substrate conversion in aerobic granular sludge systems: limited anaerobic conversion and the essential role of flocs. *Environmental Science-Water Research & Technology* 8(6), 1236-1251.
Sam, S.B., Ward, B.J., Niederdorfer, R., Morgenroth, E. and Strande, L. (2022) Elucidating the role of extracellular polymeric substances (EPS) in dewaterability of fecal sludge from onsite sanitation systems, and changes during anaerobic storage. *Water Research* 222, 118915.
Stoffel, D., Rigo, E., Derlon, N., Staaks, C., Heijnen, M., Morgenroth, E. and Jacquin, C. (2022) Low maintenance gravity-driven membrane filtration using hollow fibers: Effect of reducing space for biofilm growth and control strategies on permeate flux. *Science of the Total Environment* 811, 13.
Joss, A., Kipf, M., Morgenroth, E., Baggenstos, M. and Salzgeber, D. (2023) Modifiziertes Anammox-Verfahren. *Aqua & Gas*.
Kizgin, A., Schmidt, D., Joss, A., Hollender, J., Morgenroth, E., Kienle, C. and Langer, M. (2023) Application of biological early warning systems in wastewater treatment plants: Introducing a promising approach to monitor changing wastewater composition. *Journal of Environmental Management* 347, 12.
Kollmann, J., Nath, S., Singh, S., Balasubramanian, S., Reynaert, E., Morgenroth, E. and Contzen, N. (2023) Acceptance of on-site wastewater treatment and reuse in Bengaluru, India: The role of perceived costs, risks, and benefits. *Science of the Total Environment* 895, 165042.
Reynaert, E., Gretener, F., Julian, T.R. and Morgenroth, E. (2023a) Sensor Setpoints that Ensure Compliance with Microbial Water Quality Targets for Membrane Bioreactor and Chlorination Treatment in On-Site Water Reuse Systems. *Water Research X*, 100164.
Reynaert, E., Steiner, P., Yu, Q., D'Olif, L., Joller, N., Schneider, M.Y. and Morgenroth, E. (2023b) Predicting microbial water quality in on-site water reuse systems with online sensors. *Water Research* 240, 120075.
Sam, S.B., Morgenroth, E. and Strande, L. (2023) Changes in organic fractions, cations, and stabilization from feces to fecal sludge: implications for dewatering performance and management solutions. *Journal of Water, Sanitation and Hygiene for Development* 13(9), 699-710.
Stoffel, D., Derlon, N., Traber, J., Staaks, C., Heijnen, M., Morgenroth, E. and Jacquin, C. (2023) Gravity-driven membrane filtration with compact second-life modules daily backwashed: An alternative to conventional ultrafiltration for centralized facilities. *Water Research X* 18.
Gruber, W., Niederdorfer, R., Ganesanandamoorthy, P., Bürgmann, H., Morgenroth, E. and Joss, A. (2024) Nitrit-Akkumulation auf Nitrifizierenden Belebtschlammanlagen. Wie kann der NO₂[–] - Richtwert eingehalten werden? *Aqua & Gas* 104(1), 18-24.
Reynaert, E., Nagappa, D., Sigrist, J.A. and Morgenroth, E. (2024a) Ensuring microbial water quality for on-site water reuse: Importance of online sensors for reliable operation. *Water Research X* 22, 100215.
Reynaert, E., Sylvestre, E., Morgenroth, E. and Julian, T.R. (2024b) Greywater recycling for diverse collection scales and appliances: Enteric pathogen log-removal targets and treatment trains. *Water Research* 264, 13.
Sylvestre, E., Jahne, M.A., Reynaert, E., Morgenroth, E. and Julian, T.R. (2024) A critical evaluation of parametric models for predicting faecal indicator bacteria concentrations in greywater. *Microbial Risk Analysis* 26, 100297.