

## **Slav W. HERMANOWICZ**

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**Department of Civil and Environmental Engineering**

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### **EDUCATION**

- 1982 **Ph.D.** Environmental Engineering,  
University of Toronto, Department of Civil Engineering
- 1978 **M.Sc.** Environmental Engineering, *summa cum laude*  
Warsaw Technical University, Department of Sanitary and Hydraulic Engineering

### **PROFESSIONAL EXPERIENCE**

#### **Tsinghua Berkeley Shenzhen Institute (TBSI)**

2016 - 2020 Core Principal Investigator

2019 - 2020 Associate Co-Director

#### **University of California, Berkeley**

since 1983 **Department of Civil and Environmental Engineering**

currently Professor of Graduate School

2013-2017 Environmental Engineering Program Leader

#### **Warsaw Technical University**

##### **Institute of Water Supply and Hydraulic Constructions**

1982 - 1983 Senior Research Associate and Instructor

#### **University of Toronto, Department of Civil Engineering**

1979 - 1982 Ph.D. Candidate in Environmental Engineering Program

#### **Warsaw Technical University, Institute of Water Supply**

1978 - 1979 Research Associate and Instructor

### **RESEARCH AND TEACHING AREAS**

- sustainability metrics
- membrane reactors
- water reuse
- biological activities in aquatic systems
- self-organization, complex systems
- analysis of full-scale treatment processes
- disinfection and disinfection contactors
- nitrogen control and phosphorus removal

## **AWARDS**

- Shanghai 1000 Talent Program Expert - 2015
- 111 Program Honorary Visiting Professor - Tongji University, Shanghai, 2013
- Visiting Fellow, Institute for Advanced Study, Technical University of Munich, 2013
- National High-End Foreign Expert of China – 2013
- Distinguished Fellow, Collegium of Eminent Scientists, Kosciuszko Foundation
- Minner Faculty Fellow 2012, University of California, Berkeley
- Distinguished Guest Professor 2010 - University of Natural Resources and Applied Life Sciences (BOKU), Vienna
- Distinguished Fulbright Chair in Sustainability, 2008 - University of Natural Resources and Applied Life Sciences (BOKU), Vienna
- Member, Institute of Advanced Studies on Sustainability, European Academy of Sciences and Arts (EASA) Member
- Research Achievements Award, 2006 - SF Bay California Water Environment Association
- Distinguished Visiting Professor, 2005 - Universitat de Girona, Spain
- Gaspar de Portola Scholar, 2000 - Universitat Politecnica de Catalunya, Barcelona, Spain
- Nishihara Distinguished Lecturer, 1998 - Hokkaido University, Sapporo, Japan

**LANGUAGES:** English, Polish, French, Russian, German

## **SELECTED COURSES**

- Dynamic Systems, Fractals and Chaos at TBSI - 2018 - 2019
- Sustainable Development and Entrepreneurship: Ethics, Physics and Technology – TBSI 2016 – 2019, MCI Innsbruck 2019
- Sustainable Water Management – Tongji University, 2013-2014
- Water and Soil - The Basis of Life and its Future - Alpbach European Forum, August 2011
- Sustainable Development: Ethics, Physics and Technology, BOKU, Vienna, 2008 and 2010
- CE211A Environmental Physical-Chemical Processes graduate course, Berkeley, 2014- 2019
- CE211B Environmental Bioengineering - graduate course, Berkeley, 2005- 2019
- CE212 Water Quality Engineering - graduate course, Berkeley, 2006 - 2010
- E10 Engineering Design and Analysis - lower division course, Berkeley, 2007- 2012
- CE112 Environmental Design - capstone undergraduate course, Berkeley, 1995- 2017
- CE215 Environmental Process Laboratory - graduate course, Berkeley, 1987 - 2007
- E101 Fractals, Chaos and Complexity - upper division course, Berkeley, 2000 - 2004

**PUBLICATIONS** from 80+ refereed papers, 110+ conference presentations, 2700+ citations

## Publications and Scholarly Presentations

### Refereed publications:

1. Liu P., Hermanowicz, S.W., Huang Y. (2021). "Shifting entrepreneurial landscape and development performance of water startups in emerging water markets." *PLOS ONE* doi: [10.1371/journal.pone.0246282](https://doi.org/10.1371/journal.pone.0246282)
2. Yao, M., L. Duan, Y. Song and S. W. Hermanowicz (2020). "Degradation Mechanism of Ibuprofen via a Forward Osmosis Membrane Bioreactor." *Bioresource Technology*: 124448. doi: <https://doi.org/10.1016/j.biortech.2020.124448>.
3. Yao, M., L. Duan, J. Wei, F. Qian and S. W. Hermanowicz (2020). Carbamazepine Removal from Wastewater and the Degradation Mechanism in a Submerged Forward Osmotic Membrane Bioreactor. *Bioresource Technology*: 123732. doi: [10.1016/j.biortech.2020.123732](https://doi.org/10.1016/j.biortech.2020.123732)
4. Wu, G., Yin, Q., Gu, M., Hermanowicz, S.W., Hu, H-Y. (2020). Potential interactions between syntrophic bacteria and methanogens via type IV pili and quorum-sensing systems. *Environment International*, 138, 105650 doi : [10.1016/j.envint.2020.105650](https://doi.org/10.1016/j.envint.2020.105650)
5. Yang, Y., Li, Y., Gu, Z., Lua, F., Xia, S., Hermanowicz, S. (2019). Quick start-up and stable operation of a one-stage deammonification reactor with a low quantity of AOB and ANAMMOX biomass. *Science of the Total Environment*. 654, 933-941 doi:[10.1016/j.scitotenv.2018.11.069](https://doi.org/10.1016/j.scitotenv.2018.11.069)
6. Gu, Z., Li, Y., Yang, Y., Xia, S., Hermanowicz, S.W., Alvarez-Cohen, L. (2018). Inhibition of Anammox by Sludge Thermal Hydrolysis and Metagenomic Insights. *Bioresource Technology*, 270, 46-54 doi:[10.1016/j.biortech.2018.08.132](https://doi.org/10.1016/j.biortech.2018.08.132)
7. Jeong, Y., Hermanowicz, S.W., Park, C. (2017). Treatment of food waste recycling wastewater using anaerobic ceramic membrane bioreactor for biogas production in mainstream treatment process of domestic wastewater. *Water Research*, 123, 86-95 doi:[10.1016/j.watres.2017.06.049](https://doi.org/10.1016/j.watres.2017.06.049)
8. Zhang, Z. Q., Zhou, Y., Zhang, J., Xia, S. Q., & Hermanowicz, S. W. (2016). Effects of short-time aerobic digestion on extracellular polymeric substances and sludge features of waste activated sludge. *Chemical Engineering Journal*, 299, 177-183. doi:[10.1016/j.cej.2016.04.047](https://doi.org/10.1016/j.cej.2016.04.047)
9. Zhou, Y.; Xia, S.; Zhang, J.; Zhang, Z.; Hermanowicz, S. W. (2016). Adsorption Characterizations of Biosorbent Extracted from Waste Activated Sludge for Pb(II) and Zn(II). *Desalination and Water Treatment*, 57 (20), 9343-9353. doi:[10.1080/19443994.2015.1028455](https://doi.org/10.1080/19443994.2015.1028455)

10. Zhou, Y., Xia, S., Zhang, J., Zhang, Z., Hermanowicz, S.W. (2016). Associated adsorption characteristics of Pb(II) and Zn(II) by a novel biosorbent extracted from waste activated sludge. *Journal Environ. Engineering, ASCE*, 142 (7): 04016032 doi:10.1061/(ASCE)EE.1943-7870.0001104
11. Yang, Y.; Xia, S.; Hermanowicz, S. W. (2015) Full-Scale Engineering Application of MBR System in Municipal Wastewater Treatment Plants around China's Tai Lake Basin. *Fresenius Environmental Bulletin* , 24 (11), 3616-3626.
12. Xia, S.; Zhou, L.; Zhang, Z.; Hermanowicz, S. W. (2015). Removal Mechanism of Low-Concentration Cr (VI) in a Submerged Membrane Bioreactor Activated Sludge System (vol 99, pg 5351, 2015). *Applied Microbiology and Biotechnology* 2015, 99 (12), 5361-5361
13. Jiang, W., Duan, L., Xia, S., Hermanowicz, S.W. (2015). Biofilm architecture in a novel pressurized biofilm reactor. *Biofouling. The Journal of Bioadhesion and Biofilm Research*, **31**, (4), 321–331, <http://dx.doi.org/10.1080/08927014.2015.1040779>
14. Xia, S., Zhou, L., Zhang, Z. Hermanowicz, S.W. (2015). Removal mechanism of low-concentration Cr (VI) in a submerged membrane bioreactor activated sludge system. *Applied Microbiology and Biotechnology*, **99** (12), 5361-5361 doi: 10.1007/s00253-015-6590-5
15. Xia, S., Gu, Z., Zhang, Z., Zhang, J., Hermanowicz, S.W. (2014). Removal of chloramphenicol from aqueous solution by nanoscale zero-valent iron particles. *Chemical Engineering Journal*, **257** 98-104
16. Guadie, A., Xia, S., Jiang, W., Zhou, L., Zhang, Z., Hermanowicz, S.W., Xu, X., Shen, S. (2014). Enhanced struvite recovery from wastewater using a novel cone-inserted fluidized bed reactor. *Journal of Environmental Sciences-China*, **26**(4), 765-774.
17. Guadie, A., Xia, S., Zhang, Z., Zeleke, J., Guo, W., Ngo, H.H., Hermanowicz, S.W. (2014). Effect of intermittent aeration cycle on nutrient removal and microbial community in a fluidized bed reactor-membrane bioreactor combo system. *Bioresource Technology*, **156**, 195-205.
18. Duan, L.; Song, Y. H.; Yu, H.B.; Xia, S. Q.; Hermanowicz, S. W. (2014). The effect of solids retention times on the characterization of extracellular polymeric substances and soluble microbial products in a submerged membrane bioreactor. *Bioresource Technology*, **163**, 395-398
19. Park, C.; Hermanowicz, S. W. (2014). A Multi-Point Electrical Resistance Measurement System for Characterization of Foam Drainage Regime and Stability. *AIChE Journal*, **60** (9) 3143-3150 doi: 10.1002/aic.14489
20. Guadie, A., Xia, S., Zhang, Z., Guo, W., Ngo, H.H., Hermanowicz, S.W. (2013). Simultaneous removal of phosphorus and nitrogen from sewage using a novel combo system of fluidized bed

- reactor-membrane bioreactor (FBR-MBR). *Bioresource Technology*, **149**, 276-285.
21. Park, C.; Hermanowicz, S. W.; Jolis, D. (2013). A novel technique for evaluating foam dynamics in anaerobic digesters. *Water Science and Technology* 2013, 67 (11), 2595-2601.
  22. Jiang, W.; Xia, S. Q.; Liang, J.; Zhang, Z. Q.; Hermanowicz, S. W. (2013). Effect of quorum quenching on the reactor performance, biofouling and biomass characteristics in membrane bioreactors. *Water Research*, 47 (1), 187-196.
  23. Guadie, A.; Xia, S. Q.; Zhang, Z. Q.; Guo, W. S.; Ngo, H. H.; Hermanowicz, S. W. (2013). Simultaneous removal of phosphorus and nitrogen from sewage using a novel combo system of fluidized bed reactor-membrane bioreactor (FBR-MBR). *Bioresource Technology*, 149, 276-285.
  24. Duan, L.; Song, Y. H.; Xia, S. Q.; Hermanowicz, S. W. (2013). Characterization of nitrifying microbial community in a submerged membrane bioreactor at short solids retention times. *Bioresource Technology*, 149, 200-207.
  25. Duan, L.; Song, Y. H.; Jiang, W.; Hermanowicz, S. W. (2013). Development of an Integrated Moving Bed Biofilm Reactor-Membrane Bioreactor for Wastewater Treatment. In *Sustainable Cities Development and Environment Protection, Pts 1-3*, Xu, N.; Tian, L.; Dai, F., Eds. 2013; Vol. 361-363, pp 611-614.
  26. Duan, L.; Jiang, W.; Song, Y. H.; Xia, S. Q.; Hermanowicz, S. W. (2013). The characteristics of extracellular polymeric substances and soluble microbial products in moving bed biofilm reactor-membrane bioreactor. *Bioresource Technology*, 148, 436-442
  27. Duan, L., Song, Y.H., Jiang, W., Hermanowicz, S.W. (2013). The Effect of Media Fill Ratio on Membrane Fouling in Moving Bed Bioreactors-Membrane Bioreactor. *Advanced Materials Research*, **726-731**, 470-473 doi:10.4028/www.scientific.net/AMR.726-731.470
  28. Duan, L., Song, Y.H., Jiang, W., Hermanowicz, S.W. (2013). Development of an Integrated Moving Bed Biofilm Reactor-Membrane Bioreactor for Wastewater Treatment. *Applied Mechanics and Materials* **361-363** 611-614
  29. Cho, J., Hermanowicz, S.W., Hur, J. (2012). Effects of Experimental Conditions on Extraction Yield of Extracellular Polymeric Substances (EPS) by Cation Exchange Resin. *The Scientific World Journal*, Article: 751965 DOI:10.1100/2012/751965
  30. Xia, S., Duan, L., Song, Y, Li, J., Piceno, Y.M., Andersen, G.L., Alvarez-Cohen, L., Moreno-Andrade, I., Huang, C-L., Hermanowicz, S.W. (2010). Bacterial Community Structure in Geographically Distributed Biological Wastewater Treatment Reactors. *Environmental Science and Technology*, **44** (19), 7391-7396

31. Isosaari, P., Hermanowicz, S.W. and Rubin, Y. (2010). Sustainable Natural Systems for Treatment and Disposal of Food Processing Wastewater. *Critical Reviews in Environmental Science and Technology*, **40**, (7), 662 - 697.
32. Duan, L.; Moreno-Andrade, I.; Huang, C-L.; Xia, S.; Hermanowicz, S.W. (2009). Effect of Solids Retention Time on Microbial Community in a Membrane Bioreactor. *Bioresource Technology*, **100**, 3489-3496
33. Trussell, R.S., Jang, N.J., Merlo, R.P., Kim, I.S., Hermanowicz, S.W., Jenkins, D. (2009). Changes in Mixed Liquor and Organic Foulant Properties Impact Membrane Fouling for Non-Nitrifying and Nitrifying Biological Conditions. *Water Environment Research*, **81**, 255-264.
34. Cho, J., J.Y. Kim, T.H. Jung, S.W. Hermanowicz and K.H. Ahn, "Mathematical Tool for Predicting Extraction Yield and Rate of Extracellular Polymeric Substances by Cation Exchange Resin from Activated Sludge," *Desalination*, January 2009.
35. Duan, L., Xia, S., Song, Y., Piceno, Y.M., Hermanowicz, S.W. (2009). Using High-density Universal 16S rRNA Microarray in Microbial Molecular Ecology Research. *Huanjing Kexue*, **30** (12), 3691-3697.
36. Duan, L., Xia, S., Song, Y., Hermanowicz, S.W. (2009). Kinetics model of extracellular polymeric substances extraction. *China Environmental Science*, **29** (9), 951-954.
37. Hermanowicz, S.W. (2008). Sustainability in Water Resources Management - Changes in Meaning and Perception. *Sustainability Science*, **3**, 181-188
38. Liu, S.X., Hermanowicz, S.W. (2008). Empirical Correlation of Volumetric Mass Transfer Coefficient for a Rectangular Internal-loop Airlift Bioreactor. *Journal of Environmental Engineering and Science*, **7**, 411-415
39. Merlo, R.P.; Trussell. R.S.; Hermanowicz, S.W.; Jenkins, D. (2007). A Comparison of the Physical, Chemical and Biological Properties of Submerged Membrane Bioreactor and Activated Sludges. *Water Environment Research*, **79**, 320-328
40. Merlo, R.P.; Trussell. R.S.; Hermanowicz, S.W.; Jenkins, D. (2007). Effects of Sludge Properties on the Thickening and Dewatering of Waste Activated Sludge. *Water Environment Research*, **79**, 2412-2419
41. Trussell. R.S.; Merlo, R.P.; Hermanowicz, S.W.; Jenkins, D. (2007). Influence of Mixed Liquor Properties and Aeration Intensity on Membrane Fouling in a Submerged Membrane Bioreactor at High Mixed Liquor Suspended Solids Concentrations. *Water Research*, **41**, (5), 947-1168

42. Trussell, R.S.; Merlo, R.P.; Hermanowicz, S.W.; Jenkins, D. (2006). The Effect of Organic Loading on Process Performance and Membrane Fouling in a Submerged Membrane Bioreactor Treating Municipal Wastewater. *Water Research*, **40**, 2675-2683
43. Hermanowicz, S.W.; Trussell, R.S.; Merlo, R.P. and Jenkins, D. (2006) Discussion of: A comparison of membrane bioreactor and conventional-activated-sludge mixed liquor and biosolids characteristics, R. David Holbrook, Kevin A Massie, John T. Novak, *77*, 323 (2005). *Water Environment Research* 78(13), 2524-2526.
44. Wozei, E., Hermanowicz, S.W. (2006). Application of a yeast-based assay protocol developed to monitor total oestrogenic activity induced by 17 $\beta$ -oestradiol in activated sludge supernatants from batch experiments. *Water SA*, **32**, 345-354
45. Wozei, E., Hermanowicz, S.W. (2006). Developing a yeast-based assay protocol to monitor total oestrogenic activity induced by 17 $\beta$ -oestradiol in activated sludge supernatants from batch experiments. *Water SA*, **32**, 355-364
46. Wozei, E., Hermanowicz, S.W., Holman, H-Y. N. (2006). Developing a Biosensor for Estrogens in Water Samples: Study of the Real-time Response of Live Cells of the Estrogen-sensitive Yeast Strain RMY/ER-ERE Using Fluorescence Microscopy. *Biosensors and Bioelectronics*, **21** (8): 1654-1658
47. Ng, H.Y., and Hermanowicz, S.W. (2005). Membrane Bioreactor Operation at Short Solids Retention Times: Performance and Biomass Characteristics. *Water Research*, **39** (6), 981-992
48. Ng, H.Y., and Hermanowicz, S.W. (2005). Specific Resistance to Filtration of Biomass from Membrane Bioreactor Reactor and Activated Sludge: Effects of Exocellular Polymeric Substances and Dispersed Microorganisms. *Water Environment Research*, **77** (2), 187-191
49. Liu, S.X., Hermanowicz, S.W., Peng M. (2003). Nitrate Removal from Drinking Water Through the Use of Encapsulated Microorganisms in Alginate Beads. *Environ. Technol.*, **24** (9) 1129-1134
50. Hermanowicz, S.W. (2002). Biofilm Structure: An Interplay of Models and Experiments. In: Wuertz, S. Wilderer, P.A., Bishop, P.L. (eds.) *Biofilms in Wastewater Treatment: An Interdisciplinary Approach*, International Water Association Publishing, ISBN: 1843390078
51. Hermanowicz, S.W., Sanchez Diaz, E., Coe, J. (2001). Prospects, Problems and Pitfalls of Urban Water Reuse: A Case Study. *Water Sci. Technol.*, **43** (10) 9-16
52. Hermanowicz, S.W. (2001). A Simple 2D Biofilm Model Yields a Variety of Morphological Features. *Mathematical Biosciences*, **169** (1), 1-14
53. Hermanowicz, S.W., Bellamy, W.D., Fung, L.C. (2000). Hydrodynamic Evaluation of a Turbine Ozone Contactor. *Ozone Sci. Engng*, **22** (4), 351-367

54. Sawyer, L.K., Hermanowicz, S.W. (2000). Detachment of *Aeromonas hydrophila* and *Pseudomonas aeruginosa* due to Variations in Nutrient Supply. *Water Sci. Technol.* 41 (4-5), 139-145
55. Lage Filho, F. A., Hermanowicz, S. W. (1999). Efeitos da Desinfecção na Aderência Microbiana e na Distribuição de Colônias em Superfícies de PVC. *Engenharia Sanitária e Ambiental*, 4 (4), 168 - 173, Out/Dez 1999.
56. Hermanowicz, S.W. (1999). 微生物起因の水質：規制、科学、工学 (Microbial Water Quality: Regulations, Science and Engineering). *Japanese Water Works Association Journal*, 68 (7), 53-63
57. Hermanowicz, S.W. (1999) 微生物による水質汚染とその管理 (Microbiological Water Quality). [in:] Asano, T., Tambo, N., Igarashi, T., Watanabe, Y. (Editors), **水環境の工学と再利用** (*Engineering of Water Environment and Water Reuse*), Hokkaido University Press, Sapporo, Japan, pp. 195-215
58. Hermanowicz, S.W., Asano, T. (1999). エーベル・ウルマンの「都市の代謝」を再訪して (Water Reuse and Metabolism of Cities). [in:] Asano, T., Tambo, N., Igarashi, T., Watanabe, Y. (Editors), **水環境の工学と再利用** (*Engineering of Water Environment and Water Reuse*), Hokkaido University Press, Sapporo, Japan, pp. 21-34
59. Hermanowicz, S.W., Asano, T. (1999). Abel Wolman's "The Metabolism of Cities" Revisited: A Case for Water Recycling and Reuse. *Water Sci. Technol.*, 40 (4-5), 29-36
60. Hermanowicz, S.W. (1999). Two-Dimensional Simulations of Biofilm Development: Effects of External Environmental Conditions. *Water Sci. Technol.*, 39:7, 107-114
61. Hermanowicz, S.W., Bellamy, W.D., Fung, L.C. (1999). Variability of Ozone Reaction Kinetics in Batch and Continuous Flow Reactors. *Water Research*, 33:9, 2130-2138
62. Sawyer, L.K., Hermanowicz, S.W. (1998). Detachment of Biofilm Bacteria due to Variations in Nutrient Supply. *Water Sci. Technol.*, 37:4-5, 211-214
63. Mousseau, F., Liu, S.X., Hermanowicz, S.W., Lazarova, V., Manem, J. (1998). Modeling of TURBOFLO - A Novel Biofilm Reactor for Wastewater Treatment. *Water Sci. Technol.*, 37:4-5, 177-181
64. Hermanowicz, S.W. (1998). A Model of Two-Dimensional Biofilm Morphology. *Water Sci. Technol.*, 37:4-5, 219-222

65. Hermanowicz, S.W. (1998). Chemical Phosphorus Removal. [in:] Water Environment Federation Task Force on Biological and Chemical Systems for Nutrient Removal. *Biological and Chemical Systems for Nutrient Removal*. Water Environment Federation, Alexandria, VA. pp. 39-58
66. Hermanowicz, S.W. (1998). Secondary Clarification of Activated Sludge: Development of Operating Diagrams. *Water Environment Research*, 70, 10:13.
67. Hermanowicz, S.W., Schindler, U., Wilderer, P. (1996). Anisotropic Morphology and Fractal Dimensions of Biofilms. *Water Research*, 30, 753-755
68. Hermanowicz, S.W., Schindler, U., Wilderer, P. (1995). Fractal Structure of Biofilms: New Tools for Investigation of Morphology. *Water Sci. Techn.*, 32:8, 99-105
69. Lage Filho, F., Hermanowicz, S.W. (1994). Effects of Disinfection on Attachment Strength of Bacteria on PVC. Geesey, G.G. *et al.* (Eds). *Biofouling/Biocorrosion in Industrial Water Systems*. Lewis Publishers, Chelsea, MI
70. Price, M.L., Bailey, R.W., Enos, A.K., Hook, M., Hermanowicz, S.W. (1993). Evaluation of Ozone/Biological Treatment for Disinfection Byproducts Control and Biologically Stable Water. *Ozone Sci. Eng.*, 15, 95-130
71. Hermanowicz, S.W. (1993). Theoretical Aspects of Bulking in Activated Sludge. *Water Environment Research*, 65, 245-249.
72. Hermanowicz, S.W., Lage Filho, F. (1992). Disinfection and Attachment of Bacterial Cells. *Water Sci. Techn.*, 26, 655-664.
73. Hermanowicz, S.W., Cheng, Y.W. (1990). Biological Fluidized Bed Reactor: Hydrodynamics, Biomass Distribution, and Performance. *Water Sci. Techn.*, 22, 193-202
74. Hermanowicz, S.W., Danielson, R.E., Cooper, R.C. (1989). Bacterial Deposition on and Detachment from Surfaces in Turbulent Flow. *Biotechn. Bioengng*, 33, 157-163.
75. Luedecke, C., Hermanowicz, S.W., Jenkins, D. (1988). Precipitation of Phosphate in Activated Sludge: A Chemical Model and Its Verification. *Water Sci. Technol.* 21, 325-338.
76. Logan, B.E., Hermanowicz, S.W., Parker, D.S. (1987). Fundamental Model for Trickling Filter Process Design. *Jour. Water Poll. Control Fed.*, 59, 1029-1049.
77. Logan, B.E., Hermanowicz, S.W., Parker, D.S. (1987). Engineering Implications of New Trickling Filter Model. *Jour. Water Poll. Control Fed.*, 59, 1017-1028.
78. Logan, B.E., Hermanowicz, S.W. (1987). Application of the Penetration Theory to Oxygen Transfer to Biofilms. *Biotechn. Bioengng*, XXIX, 762-766.

79. Hermanowicz, S.W. (1986). Dynamic Changes in Population of the Activated Sludge Community: Effects of Dissolved Oxygen Variations. *Water Sci. Techn.*, 19, 889-895.
80. Hermanowicz, S.W., Ganczarczyk, J.J. (1985). Mathematical modelling of biological packed and fluidized bed reactors. Jorgensen, S.E., Gromiec, M.J. (Eds.). *Mathematical Models in Biological Waste Water Treatment*. Elsevier, Amsterdam, pp. 473-524
81. Hermanowicz, S.W., Ganczarczyk, J.J. (1984). Dynamics of nitrification in a biological fluidized bed reactor. *Water Sci. Techn.*, 17, 351-366
82. Hermanowicz, S.W., Ganczarczyk, J.J. (1983). Some fluidization characteristics of biological beds. *Biotechn. Bioengng.*, XXV, 1321-1330
83. Hermanowicz, S.W., Ganczarczyk, J.J. (1981). Some hydrodynamic characteristics of three-phase fluidized beds. *Water Poll. Res. Jour. Canada*, 16, 23-31
84. Hermanowicz, S.W., Roman, M. (1980). A comparison of packed-bed and expanded-bed adsorption systems. Pawlowski, L. (Ed.). *Physicochemical methods for water and wastewater treatment*. Pergamon Press, Oxford. pp. 141-152

#### **Selected other publications and presentations:**

1. Hermanowicz, S.W. (2020). Simple model for Covid-19 epidemics - back-casting in China and forecasting in the US. *medRxiv 2020.03.31.20049486*;  
<https://doi.org/10.1101/2020.03.31.20049486>
2. Hermanowicz, S.W. (2020). Forecasting the Wuhan coronavirus (2019-nCoV) epidemics using a simple (simplistic) model. *medRxiv 2020.02.04.20020461*;  
<https://doi.org/10.1101/2020.02.04.20020461>
3. Hermanowicz, S.W. (2019). Entropy and Energy as Metrics of Physical Sustainability: Application to Water Quality Management. *Invited keynote WEF-EESS Conference on Advancement in Water and Wastewater Treatment and Reuse, AWWTR 2019 Singapore, 31st July – 1st August 2019*
4. Hermanowicz, S.W. (2019). Will Water Be the ‘Oil of the 21st Century’? A quest for sustainable water management in China and worldwide. *Invited keynote 3rd International Conference on Environmental and Energy Engineering (IC3E 2019) March 14- 16, 2019, Shanghai, China*
5. Liu, P., Hermanowicz, S.W. Huang, Y. (2019). Driving Forces Behind Water Technology

Startups in Emerging Water Markets. *8th IWA-ASPIRE Conference Smart Solutions for Water Resilience. Hong Kong, 31 October to 2 November 2019*

6. Zhao, Y. C., Zhang, X. H., Hermanowicz, S., & Mi, B. X. (2018). Size-dependent antimicrobial activities of chemically exfoliated MoS<sub>2</sub> nanosheets coated membrane surfaces. *Abstracts of Papers of the American Chemical Society, 255. Retrieved from <Go to ISI>://WOS:000435539900618*
7. Hermanowicz, S.W., Xiang, Y., Xia, S. (2018). Life Cycle Assessment of a Municipal Solid Waste Power Plant in China. *SUM2018 Fourth Symposium on Urban Mining, (Bergamo, Italy May 21-23, 2018)*
8. Li, Y. Gu, Z., Yang Y., Xia S., Hermanowicz, S.W. (2018). Inhibition of Nitritation Process by Sludge Thermal Hydrolysis. *15th Leading Edge Technology Conference 2018 (Nanjing, China, 27 -31 May 2018).*
9. Gu, Z., Li, Y., Yang Y., Xia S., Hermanowicz, S.W. (2018). Inhibition of Annamox Process by Sludge Thermal Hydrolysis. *15th Leading Edge Technology Conference 2018 (Nanjing, China, 27 -31 May 2018).*
10. Hermanowicz, S.W. (2017). Membrane Fouling: Current State and 20 Years of Experience. *Invited Keynote, ICEPC' 2017-The International Conference on Environmental Pollution Control 08-12 October 2017, Vancouver Canada*
11. Hermanowicz, S.W. (2017). Membrane Fouling: A Personal Journey of Two Decades. *Invited Keynote, IWA Membrane Technology Conference, Singapore Sept 5-9, 2017*
12. Hermanowicz, S.W., Xiang, Y., Xia, S. (2017). Life Cycle Assessment of Municipal Waste Management in China: Analysis of operation of Yuhuan Municipal Solids Processing Facility. *World Resources Forum, Geneva, Switzerland, October 24, 2017*
13. Waskaas, M., Hermanowicz, S.W. (2016). Study of the Technology Entrepreneurship Programs at University College of Southeast Norway and University of California, Berkeley. *presented at EDULEARN16, 8th annual International Conference on Education and New Learning Technologies, Barcelona (Spain) 4-6 July, 2016.*
14. Hermanowicz, S.W. (2014). Characterization of natural and regulated river flows through dynamic system theory. *Symposium on Directions in Ecological Modeling: Principles and Practice, IESP Workgroup on Modeling of Ecological Systems, TU Munich, December 4, 2014*
15. Hermanowicz, S.W. (2012). Urban Water Systems for the Future - New Models and Macro Trends. *invited panelist 3rd BlueTech Forum, May 30, 2012, Redwood City, CA*

16. Hermanowicz, S.W. (2012). How biology and membrane biofilm impact MBR System operations. *invited presentation Ovivo's 7th Annual MBR Operator's Workshop -The Fishbone (Cause and Effect) Approach to MBR Operations, April 19, 2012, Austin TX*
17. Hermanowicz, S.W., Muller, M.F, Jolis, D., Sierra, N. (2011) Life Cycle Assessment of Food Waste Management: A Conceptual Plan Analysis. *LCM2011 Life Cycle Management Conference, Berlin, Sept. 2011*
18. Hermanowicz, S.W. (2011). Water and Soil under Pressure - The Basis of our Life and its Future. *Invited six day seminar (with W. Blum), Alpbach European Forum, Alpbach, Austria, August 2011*
19. Hermanowicz, S.W. and Muller, M.F (2011). Entropy and Energy: Toward a Definition of Physical Sustainability. *ISIE 2011, 6th International Conference on Industrial Ecology Science, Systems, and Sustainability. Berkeley, June 2011*
20. Hermanowicz, S.W. (2011). Sustainable Water Management and the Role of Water Reuse. *Invited Keynote Speaker, 2nd Water Reuse Forum, Prince Khalid Bin Sultan Chair for Water Research (PKC), College of Engineering, King Saud University, Riyadh, Saudi Arabia, May 2011*
21. Hermanowicz, S.W. (2011). Membrane Bioreactors: Past, Present and Future. *Invited presentation, 2nd Water Reuse Forum, Prince Khalid Bin Sultan Chair for Water Research (PKC), College of Engineering, King Saud University, Riyadh, Saudi Arabia, May 2011*
22. Hermanowicz, S.W. (2011). Past, Present and Future of Water Management. *Invited panelist, Blue Tech Valley Water Conference, Water Innovation Alliance, Fresno, May 2011*
23. Hermanowicz, S.W. (2010). Energy and Materials from Water: New Technological Options. *Invited presentation, Corporate Water Vision Conference, Washington, DC June 2010,*
24. Liang, D., Yonghui, S., Siqing, X., Jixiang, L., Hermanowicz, S.W. (2010). The microbial community structures in two membrane bioreactors detected by microarray. *2010 4th International Conference on Bioinformatics and Biomedical Engineering (iCBBE 2010), June 18- 20, 2010 Chengdu, China.*
25. J. Comas, I. Rodríguez-Roda, T. Hug, J. Copp, X. Flores-Alsina, K.V. Gernaey, S.W. Hermanowicz, U. Jeppsson, K. Pagilla, M. Poch, C. Rosen, J.P. Steyer. Modelling of microbial-related operational problems in WWT. *WWTMod 2010 Conference, Mont-Sainte-Anne, Quebec, March 28-30, 2010*
26. Hermanowicz, S.W. (2010). Chair and organizer: Science and Technology Primer on Water Management Workshop, *Corporate Water Footprint Conference, February 24, 2010, San Francisco, CA*

27. Hermanowicz, S.W. (2010). Where is Our Water Coming From? - A New Look at Sustainable Water Management. *Invited presentation, Corporate Water Footprint Conference, February 24, 2010, San Francisco, CA*
28. Liang, D., Yonghui, S., Siqing, X., Hermanowicz, S.W. (2010). Detection of microbial communities in continuous and discontinuous membrane bioreactor using high-density oligonucleotide Microarray. *AIP Conference Proceedings, 1251.*
29. Hermanowicz, S.W. (2010). Conclusion - Will Water Be the Oil of the 21st Century? *Invited presentation, Corporate Water Footprint Conference, February 24, 2010, San Francisco, CA*
30. Hermanowicz, S.W. (2009). *Invited panelist, Green Power Conferences 2nd Annual Industry Leading Conference - Corporate Water Footprinting, San Francisco, 2-3 December 2009*
31. Hermanowicz, S.W. (2009). Metrics of Sustainability: Future of Recoverable Resources. *Invited presentation, Recoverable Resources Seminar, Tacoma, WA, July 31, 2009*
32. Hermanowicz, S.W. (2009). *Invited panelist "Global Water Distress: Factors Driving Growth in the Global Market" session at the Annual Water Finance & Investment Summit, Financial Research Associates, LLC, Atlanta, January 29-30, 2009*
33. Hermanowicz, S.W. (2009). Will Water Be "The Oil of the 21st Century"? *Fulbright BOKU Distinguished Chair in Sustainability Special Lecture, Universität für Bodenkultur, Vienna, January 9, 2009 <http://www.boku.ac.at/oilwater.html>*
34. Hermanowicz, S.W. (2008). Future of Water Treatment. *Invited presentation at The Water and Business Summit, Ethical Corporation, November 26-27, 2008, London*
35. Cho, J-W.; Kim, J-Y.; Jung, T-H.; Hermanowicz, S.W.; Ahn, K-H. (2008). Mathematical Tool for Predicting Extraction Yield and Rate of Extracellular Polymeric Substances by Cation Exchange Resin from Activated Sludge. *Presented at the International Conference on Membranes in Drinking Water Production and Wastewater Treatment. Toulouse October 20 - 22, 2008*
36. Hermanowicz, S.W. (2008). Membrane Biofilm Management: Membrane Bioreactors - What We Know and What We Don't. *Invited presentation at 4th Annual MBR Operator's Workshop and Forum November 5 -- 6, 2008 Austin, Texas*
37. Hermanowicz, S.W. (2008). Future and Sustainability of MBR. *Invited presentation, MBR Workshop at WEFTEC 2008, Chicago, October 2008*

38. Hermanowicz, S.W. (2008). Membrane Filtration - Dynamic Model. *Invited presentation at WWTmod2008 IWA/WEF Wastewater Treatment Modeling Seminar, Mont-Sainte-Anne, Quebec, June 2008*
39. Hermanowicz, S. W., Cho, J. W., Trussell, R. S., Merlo, R. P., Jenkins, D., Dozzi, R. (2008). Dynamics of Biomass Membrane Filtration. *Invited presentation at Membrane Technology for Water Treatment and Reuse Session, American Chemical Society Annual Meeting, New Orleans, April 2008*
40. Rubin, Y., Benito, P., Miller, G., McLaughlin, J., Hou, Z., Hermanowicz, S., Mayer, U. (2007). Modeling Land Application of Food-Processing Wastewater in the Central Valley, California. *Eos Trans. AGU, 88(52), Fall Meet. Suppl., Abstract H54D-01, San Francisco*
41. Rubin, Y., Benito, P., Miller, G., McLaughlin, J., Hou, Z., Hermanowicz, S., Mayer, U. Silin, D. (2007). Characterization of Wastewater Discharges from the Food Processing Industry in the San Joaquin Valley. [in:] Rubin, Y., Sunding, D., Berkman, M. (eds.), Hilmar Supplemental Environmental Project. *Submitted to the California Regional Water Quality Control Board - Central Valley Region, in compliance with Order No. R5-2006-0025, November 2007*
42. Trussell, R.S., Jang, N., Merlo, R.P., Kim, I.S., Hermanowicz, S.W., Jenkins, D. (2007). Why Are MBRs Commonly Designed To Nitrify? Because Changes in Organic Foulant Properties Impact Membrane Fouling. *Proceedings, WEF Annual National Conference WEFTEC 2007, San Diego, CA, October 2007.*
43. Hermanowicz, S.W. (2007). Percolation Theory, Colloid Filtration and Cake Formation. *Presented at the IWA International Conference on Particle Separation (PS2007), Toulouse (France), 9 – 11 July 2007*
44. Wozei, E.; Holman, H-Y.N.; Hermanowicz, S.W.; Borglin, S. (2007). Detecting estrogenic activity in water samples with estrogen-sensitive yeast cells using spectrophotometry and fluorescence microscopy. *SDW Symposium - Mar. 16-17, 2006*  
<http://www.osti.gov/bridge/purl.cover.jsp?purl=/889626-9WTw6w/>
45. Merlo, R.P.; Trussell, R.S.; Hermanowicz, S.W.; Jenkins, D. (2007). Properties Affecting Thickening and Dewatering of Biological Sludges. *WEF Residuals and Biosolids Conference. Denver, CO. April 15-17, 2007*
46. Hermanowicz, S W. (2006). Sustainable Development: Physical and Moral Issues. Water Resources Center Archives. Working Papers. Paper swr\_1206  
[http://repositories.cdlib.org/wrca/wp/swr\\_1206](http://repositories.cdlib.org/wrca/wp/swr_1206)
47. Hermanowicz, S.W. (2006). Is Scarcity a Real Driver for Water Reuse ? Water Resources Center Archives. Working Papers. Paper swr\_706.

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48. Merlo, R.P.; Trussell, R.S.; Cheng, S.; Jolis, D.; Sukapanpotharam, P.; Hermanowicz, S.W.; Jenkins, D. (2006). Treating Wet Weather Flows in a Membrane Bioreactor: Changes in Mixed Liquor Properties Cannot Be Neglected. *Proceedings, WEF Annual National Conference WEFTEC 2006, Dallas, TX, October 2006*  
<http://www.ingentaconnect.com/content/wef/wefproc/2006/00002006/00000011/art00025?toKen=0046158ddff187b76504c48763f2550232b6c78>
49. Hermanowicz, S.W. (2005). Sustainability in Water Resources Management: Changes in Meaning and Perception. (December 1, 2005). Water Resources Center Archives. Working Papers. Paper swr\_v3. [http://repositories.cdlib.org/wrca/wp/swr\\_v3](http://repositories.cdlib.org/wrca/wp/swr_v3)
50. Hermanowicz, S.W. (2005). Entropy and Energy: Toward a Definition of Physical Sustainability (December 1, 2005). Water Resources Center Archives. Working Papers. Paper swr\_v2. [http://repositories.cdlib.org/wrca/wp/swr\\_v2](http://repositories.cdlib.org/wrca/wp/swr_v2)
51. Hermanowicz, S.W. (2005). Sustainability in Water Resources Management. *Newsletter, Specialist Group on Water Reuse*, International Water Association, November 2005
52. Trussell, R.S.; Merlo, R.P.; Hermanowicz, S.W.; Jenkins, D. (2005). The Effect of High Mixed Liquor Suspended Solids Concentration, Mixed Liquor Properties, and Coarse Bubble Aeration Flow Rate on Membrane Permeability. *Proceedings, WEF Annual National Conference WEFTEC 2005, Washington, DC, November 2005*
53. Hermanowicz, S.W. Sustainability in Water Resources Management: Changes in Meaning and Perception. *6th International Conference EWRA 2005, Menton, France, September 2005*
54. Jang, N.J., Trussell, R.S., Merlo, R.P., Jenkins, D., Hermanowicz, S.W., Kim, I.S. (2005). Exocellular Polymeric Substances Molecular Weight Distribution and Filtration Resistance as a Function of Food to Microorganism Ratio in the Submerged Membrane Bioreactor. *International Congress on Membranes and Membrane Processes ICOM2005, August 2005, Seoul, Korea*
55. Hermanowicz, S.W., Trussell, S.R., Merlo, R.P., Jenkins, D. (2005). Mixed Liquor Properties and Process Performance of a Submerged Membrane Bioreactor at a Wide Range of Mean Cell Residence Times. *WEF 2nd Joint Specialty Conference for Sustainable Management of Water Quality Systems for the 21st Century, San Francisco, August 2005*
56. Asano, T., Hermanowicz, S.W. (2005). Sustainable Wastewater Reclamation and Reuse. *Engineering Sustainability 2005 Conference, Mascaro Sustainability Initiative, University of Pittsburgh, PA April 10-12, 2005*

57. Hermanowicz, S.W. (2005). Sustainable Development: Beyond Water Supply and Demand. *Engineering Sustainability 2005 Conference, Mascaro Sustainability Initiative, University of Pittsburgh, PA April 10-12, 2005*
58. Hermanowicz, S.W. (2004). Membrane Fouling in MBR Systems. *Invited Presentation, Pacific Northwest Clean Water Association 2004 Annual Conference, Pre-conference Workshop: Membranes in Wastewater Treatment - The Technology, Applications, Challenges, and Future. October 24, 2004, Seaside, OR*
59. Hermanowicz, S.W. (2004). Biofiltration and Biostability of Drinking Water. *Invited presentation at CA-NV AWWA Annual Conference, Sacramento, CA Oct. 15, 2004*
60. Hermanowicz, S.W. (2004). Assessment of Biostability in Drinking Water. *Invited presentation at CA-NV AWWA Annual Conference, Sacramento, CA Oct. 15, 2004*
61. Merlo, R.P., Trussell, R. S., Hermanowicz, S.W., Jenkins, D. (2004). Physical, Chemical And Biological Properties Of Submerged Membrane Bioreactor And Conventional Activated Sludges. *Proceedings, WEF Annual National Conference WEFTEC, New Orleans, Oct. 2004*
62. Trussell, R. S., Merlo, R.P., Hermanowicz, S.W., Jenkins, D. (2004). The Effects of the Food to Microorganism (F:M) Ratio on Membrane Fouling in a Submerged Membrane Bioreactor Treating Municipal Wastewater. *Proceedings, WEF Annual National Conference WEFTEC, New Orleans, Oct. 2004*
63. Hermanowicz, S.W. (2004) Biofilm Modeling: Invisible Hand or Self -Organization. *Invited presentation, Department of Physics, University of Illinois, Urbana Champaign, Sept. 28, 2004*
64. Hermanowicz, S.W. (2004). Biofilm Models and Structure. *Invited presentation at Environmental Engineering Program, Gwanju Institute of Science and Technology (GIST), June 10, 2004, Gwanju, South Korea*
65. Ng, H.Y.; Hermanowicz, S.W. (2004). Membrane Bioreactor at Short Mean Cell Residence Times - a New Mode of Operation. *Proceedings, Water Environment Membrane Technology 2004 Conference, June 9, 2004, Seoul, South Korea*
66. Hermanowicz, S.W. (2004). Membrane Filtration of Biological Solids: A Unified Framework and its Applications to Membrane Bioreactors. *Proceedings, Water Environment Membrane Technology 2004 Conference, June 9, 2004, Seoul, South Korea*
67. Trussell, R.S.; Merlo, R.P.; Hermanowicz, S.W.; Jenkins, D. (2004). Membrane Fouling and Biomass Properties in a Pilot-Scale Membrane Bioreactor. *Poster, Water Environment Membrane Technology 2004 Conference, June 9, 2004, Seoul, South Korea*

68. Hermanowicz, S.W. Definition of Physical Sustainability by Entropy and Energy. *Accepted for presentation at the International Eco-Efficiency Conference: Quantified methods for decision making, April 1-3, 2004, Leiden, the Netherlands*
69. Merlo, R.P., Trussell, R.S., Ng, H.Y., Hermanowicz, S.W., Jenkins, D. (2003). Biomass Characteristics in Membrane Bioreactors. *Proceedings, WEFTEC 2003, Workshop #W110: Los Angeles, October 11, 2003*
70. Ng, H.Y., Hermanowicz, S.W. (2003). Membrane Bioreactor Performance at Short Mean Cell Residence Times. *Proceedings, WEFTEC 2003, Session 73: Los Angeles, October 11, 2003*
71. Hermanowicz, S.W. (2003). Biofilm Structure: Theory and Experiments. *Invited presentation at Department of Civil and Environ. Engineering, University of California, Davis, June 9, 2003*
72. Hermanowicz, S.W. (2003). Sustainability: What is its place in environmental business? *Presentation at the Environmental Industry Summit 2003; March 19 - 21, 2003, San Diego, CA USA*
73. Hermanowicz, S.W. (2001). Models and Experiments for Biofilm Structure Elucidation. *Invited presentation at Center for Biofilm Engineering, Montana State University, Bozeman, September 2001*
74. Sanchez, D.S., Hermanowicz, S.W. (2000). Hydrodynamic Design of Ozone Contactors by Flow Stream Analysis. *Presented at the CA-NV AWWA Annual Conference, Monterey, CA*
75. Hermanowicz, S.W. (1998). Biofilm Modeling: An Invisible Hand or Self-Organization? *Invited presentation at the Symposium: "Biofilms in Aerobic Wastewater Treatment: An Interdisciplinary Approach", Technische Universitat Muenchen, Garching, Germany. November 1998*
76. Hermanowicz, S.W. (1998). Two-dimensional Simulations of Biofilm Development: Effects of External Environmental Conditions. *Proc. Microbial Ecology of Biofilms Conference, Lake Bluff, IL. October 1998*
77. Hermanowicz, S.W., Asano, T. (1998). Abel Wolman's "The Metabolism of Cities" Revisited: A Case for Water Recycling and Reuse. *Proc. 2nd Advanced Wastewater Treatment and Reuse Conference, Milan, Italy, September 1998*
78. Hermanowicz, S.W. (1998). Microbial Water Quality: Regulations, Science and Engineering. *Nishihara Distinguished Lecture, Hokkaido University, Tokyo University, Kyoto University. July 1998. Published in Japanese as Publication No. 10, International Center for Water Environmental Engineering, Hokkaido University, Sapporo, Japan*

79. Hermanowicz, S.W. (1997). Microbial Protection: U.S. Drinking Water Regulations. *Invited presentation at Ecotopia 97 Symposium, Ulsan University, Ulsan, South Korea, June 1997*
80. Mousseau, F., Liu, S.X., Hermanowicz, S.W., Lazarova, V. Manem, J. (1997). Modeling of Turboflo: a Novel Biofilm Reactor for Wastewater Treatment. *Proc. at 2nd International Conference on Microorganisms in Activated Sludge and Biofilm Processes., July 21 - 23, 1997, University of California, Berkeley, CA*
81. Sawyer, L.K., Hermanowicz, S.W. (1997). Detachment of Biofilm Bacteria in Response to Variation in Nutrient Supply. *Proc. 2nd International Conference on Microorganisms in Activated Sludge and Biofilm Processes., July 21 - 23, 1997, University of California, Berkeley, CA*
82. Hermanowicz, S.W. (1997). A Model of Two-dimensional Biofilm Morphology. *Proc. 2nd International Conference on Microorganisms in Activated Sludge and Biofilm Processes., July 21 - 23, 1997, University of California, Berkeley, CA*
83. Sawyer, L.K., Hermanowicz, S.W. (1996). Deachment of Bacteria under Low Nutrient Conditions. *Presented at ASM Specialty Conference on Biofilms, October, 1996, Snowbird, UT*
84. Crozes, G., Hagstrom, J., Clark, M., Ducoste, J., Hermanowicz, S.W., Huntamer, J. (1996). Hydraulic Modeling for Improved CT Contactor Design. *Presented at 1996 AWWA Annual Conference. Toronto, Ontario, June 1996*
85. Sawyer, L.K., Hermanowicz, S.W., Noble, P., Olson, B.H., Clark, D., (1996). Biological Stability of a Highly Colored Groundwater: Effects of Conventional Treatment, Membrane Filtration and Biofiltration. *Presented at 4th Intl. BOM Conference, Waterloo, Ontario, June 1996.*
86. Sawyer, L.K., Noble, P., Hermanowicz, S.W., Olson, B.H. (1995). Effects of Membrane Filtration on Biological Stability of Drinking Water. *Proc. AWWA Membrane Conference. Reno, NV, August 1995.*
87. Hermanowicz, S.W. (1993). Biological Stability of Drinking Water. *Newsletter. IAWQ Specialist Group on Biofilm Systems. No. 2, September 1993, pp.14-16.*
88. Hermanowicz, S.W. (1993). Evaluation of Ozone Mass Transfer. Metropolitan Water District Ozone Demonstration Project. Report to CH2M-HILL Consulting Engineers, 18 pp.
89. Hermanowicz, S.W. (1992). Evaluation of Ozone Contactor. El Sobrante Water Treatment Plant. Tracer Analysis. Report to CH2M-HILL Consulting Engineers, 40 pp.

90. Hermanowicz, S.W., Matsoyan, G. (1992). Effects of SulfControl on Performance of Aerobic Trickling Filters. Environmental Engineering and Health Sciences Laboratory Report, University of California, Berkeley.
91. Jolis, D., Hermanowicz, S.W., Price, M. (1992). Assessment of Biostability of Drinking Water with Attached Bacteria: Effects of Full- and Pilot Scale Ozonation and Filtration. *Proc. AWWA Water Quality Technol. Conf.*, Toronto, November 1992.
92. Hermanowicz, S.W., Jolis, D., Price, M. (1992). Ozonation and Biological Filtration: Effects on Biological Stability of Drinking Water. *Proc. AQTE Intl. Workshop on Wastewater Treatment*, Montreal, November 1992.
93. Lage-Filho, F., Hermanowicz, S.W. (1992). Effects of Disinfection on Attachment Strength of Bacteria on PVC. Presented at Symposium on Biofilms and Biofouling. Amer. Chem. Soc. Annual Meeting, Washington D.C., August 1992.
94. Hermanowicz, S.W. (1992). Evaluation of Ozone Contactor. El Sobrante Water Treatment Plant. Report to CH2M-Hill. 31pp.
95. Hermanowicz, S.W. (1992). Analysis of Ozone Contactor. Haworth Water Treatment Plant. Report to CH2M-HILL Consulting Engineers under a contract with Amer. Water Works Assoc. Research Foundation, 59 pp.
96. Hermanowicz, S.W., Jolis, D. (1992). Development and Testing of a Method for Assessment of Biological Stability of Drinking Water. Final Report to CH2M-Hill under a contract with Amer. Water Works Assoc. Research Foundation. 43pp.
97. Hermanowicz, S.W. (1992). Bulking of Activated Sludge: Application of Percolation Theory. *Newsletter, IAWPRC Specialist Group on Activated Sludge Population Dynamics*. v. 4, no. 1, 32-34.
98. Hermanowicz, S.W., Jolis, D., Price, M., Rohan, J. (1991). Growth of Attached Bacteria in Drinking Water: A Method for Assessment of Water Biostability. *Proc. AWWA Water Quality Technol. Conf.*, Orlando, November 1991.
99. Hermanowicz, S.W. (1991). Model Development for an Ozone Contactor. Haworth Water Treatment Plant. Report to CH2M-Hill under a contract with Amer. Water Works Assoc. Research Foundation, 23p.
100. Jenkins, D., Hermanowicz, S.W. (1991). Principles of Chemical Phosphorus Removal. Sedlak, R.I. (Ed.). *Phosphorus and Nitrogen Removal from Municipal Wastewater: Principles and Practice.*, 2nd ed., Lewis Publishers, Chelsea, MI.

- 101.Hermanowicz, S.W. (1990). Onset of Bulking in Activated Sludge: Theoretical Considerations. Presented at 64th Annual Water Poll. Control Fed. Conf., Washington, October 1990.
- 102.Cheng, Y.W., Hermanowicz, S.W. (1990). Hydrodynamic Characteristics of Particles in Biological Fluidized Beds. *Proc. 1990 Specialty Conf. Env. Engng., ASCE*, New York, pp.4-9.
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- 105.Characklis, W., Bouwer, E., Gujer, W., Hermanowicz, S., Wanner, O, Watanabe, Y., Wilderer, P. (1989). Modelling of Biofilm Systems. IAWPRC Scientific and Technical Report.
- 106.Gates, D., Hermanowicz, S.W, Jenkins, D. (1989). Precipitation of Aluminum Phosphate in Activated Sludge: A Chemical Model and Its Verification. Scheduled for presentation at 62nd WPCF Annual Conference, October 18, 1989 (cancelled due to an earthquake).
- 107.Hermanowicz, S.W., Cheng, Y.W. (1989). Biological Fluidized Bed Reactor: Hydrodynamics, Biomass Distribution and Performance. *Proceedings Intl. Conf. on Technical Advances in Biofilm Reactors.*, CFRP-AGHTM, Nice, April 1989
- 108.Hermanowicz, S.W., Cheng, Y.W. (1988). Biomass Distribution and Characteristics in a Fluidized Bed. Sanitary Engineering and Environmental Health Research Laboratory Report No. 88-5, University of California, Berkeley.
- 109.Hermanowicz, S.W. (1988). Biological Fluidized Bed Reactors: A Modelling Overview. [presented at] Computer Application in Wastewater Technology. Workshop at the Technical University Hamburg-Harburg, February 17-18, 1988.
- 110.Luedecke, C., Hermanowicz, S.W., Jenkins, D. (1987). Ferric Phosphate Precipitation in Activated Sludge. [presented at] 60th Annual Water Pollution Control Federation Conference, Philadelphia, October 1987
- 111.Logan, B.E., Hermanowicz, S.W., Parker, D.S. (1986). A Fundamental Model for Trickling Filter Process Design. [presented at] 59th Annual Water Pollution Control Federation Conference, Los Angeles, October 6, 1986

112. Logan, B.E., Hunt, J.R., Hermanowicz, S.W. (1986). Mass Transfer Mechanisms for Microorganisms in Aggregates and Biofilms. Report 86-7, Sanitary Engineering Environmental Health Research Laboratory, University of California, Berkeley. 305 p.
113. Hermanowicz, S.W. (1986). Biological Fluidized Bed Reactors. *Proc. AEEP Workshop on Engineering the Biofilm Environment*. May 12, 1986, Purdue University, West Lafayette, Indiana., chapter E., 42p.
114. Logan, B.E., Hermanowicz, S.W. (1986). Application of the Penetration Theory to Oxygen Transfer to Biofilms. Report 86-2, Sanitary Engineering Environmental Health Research Laboratory, University of California, Berkeley., 9p.
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