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Publications (chronological order)

1. Rittmann, B. E. and P. L. McCarty (1978). Variable-order model of bacterial-film kinetics. *J. Environ. Engr.* 104: 889-900.
2. Rittmann, B. E. and P. L. McCarty (1980). Model of steady-state-biofilm kinetics. *Biotechnol. Bioengr.* 22: 2343-2357.
3. Rittmann, B. E. and P. L. McCarty (1980). Evaluation of steady-state-biofilm kinetics. *Biotechnol. Bioengr.* 22: 2359-2373.
4. Rittmann, B. E., P. L. McCarty, and P. V. Roberts (1980). Trace-organics biodegradation in aquifer recharge. *Ground Water* 18: 236-243.
5. Rittmann, B. E. and P. L. McCarty (1980). Utilization of dichloromethane by suspended and fixed-film bacteria. *Applied and Environmental Microbiology* 39: 1225-1226.
6. Rittmann, B. E. and P. L. McCarty (1980). Design of fixed-film processes with steady-state-biofilm model. *Prog. Water Technol.* 12: 271-281.
7. Rittmann, B. E. and S. J. Randtke (1980). Discussion of role of adsorption in biological extended activated carbon columns. *J. Water Poll. Control Fedn.* 52: 2816-2818.
8. Rittmann, B. E., E. J. Bouwer, J. E. Schreiner, and P. L. McCarty (1980). Biodegradation of trace organic compounds in ground water systems. Technical Report No. 255, Dept. of Civil Engineering, Stanford Univ. Stanford, CA.
9. McCarty, P. L., B. E. Rittmann, and M. Reinhard (1981). Trace organics in groundwater. *Environ. Sci. Technol.* 15: 40-51.
10. Rittmann, B. E. and P. L. McCarty (1981). Substrate flux into biofilms of any thickness. *J. Environ. Engr.* 107: 831-849.
11. Bouwer, E. J., B. E. Rittmann, and P. L. McCarty (1981). Anaerobic degradation of halogenated 1- and 2-carbon organic compounds. *Environ. Sci. Technol.* 15: 40-49.
12. Rittmann, B. E. (1982). Comparative performance of biofilm reactor types. *Biotechnology and Bioengineering* 24: 1341-1370.
13. Rittmann, B. E. and H. Kobayashi (1982). Microbiological separations for trace-organics

- removal. In J. Exner, ed., *Detoxication of Hazardous Wastes*, Ann Arbor Science Publ., Inc., Ann Arbor MI., pp. 323-348.
14. Rittmann, B. E. (1982). The effect of shear stress on biofilm loss rate. *Biotechnology and Bioengineering* 24: 501-506.
 15. Kobayashi, H. and B. E. Rittmann (1982). Microbial removal of hazardous organic chemicals. *Environ. Sci. Technol.* 16: 170A-181A.
 16. Rittmann, B. E., C. E. Strubler, and T. Ruzicka (1982). Anaerobic-filter pre-treatment kinetics. *J. Environ. Engr.* 108: 900-912.
 17. Rittmann, B. E. (1982). Applicability of two-thirds law to plume rise from industrial-size sources. *Atmospheric Environ.* 16: 2575-2579.
 18. McCarty, P. L., E. J. Bouwer, M. Montgomery, B. E. Rittmann, and L. LaPat-Polasko (1982). Trace organics degradation in biofilm processes. Technical Report No. 268, Dept. of Civil Engineering, Stanford Univ. Stanford, CA.
 19. Rittmann, B. E. and C. W. Brunner (1982). Long-term capacity for organic-substrate removal by bacterial films. Research Report No. 172, University of Illinois Water Resources Center, Urbana, IL.
 20. Stratton, R., E. Namkung, and B. E. Rittmann (1983). Secondary utilization of trace-organics by biofilms on porous media. *J. Amer. Water Works Assn.* 75: 463-469.
 21. McCarty, P. L., B. E. Rittmann, and E. J. Bouwer (1983). Microbial processes affecting chemical transformations in groundwater. In Bitton, G. and C. Gerba, eds., *Groundwater Pollution Microbiology*, Wiley-Interscience, New York, pp. 89-115.
 22. Namkung, E., R. G. Stratton, and B. E. Rittmann (1983). Predicting removal of trace-organic compounds by biofilms. *J. Water Poll. Control Fedn.* 55: 1366-1372.
 23. Rittmann, B. E. and K. Dovantzis (1983). Dual limitation of biofilm kinetics. *Water Research* 17: 1727-1734.
 24. Rittmann, B. E., R. Suozzo, and B. Romero (1983). Effect of temperature on oxygen transfer to rotating biological contactors. *J. Water Poll. Control Fedn.* 55: 270-277.
 25. Rittmann, B. E. (1983). Needs and strategies for genetic control: municipal wastes. In *Genetic Control and Environmental Pollutants*, Plenum Press, Inc., Washington, D.C., pp. 215-228.
 26. Wang, Y. T., M. T. Suidan, and B. E. Rittmann (1983). Microbial attachment properties in expanded-bed, activated carbon anaerobic filters. Research Report No. 181, University of Illinois Water Resources Center, Urbana, IL.
 27. Rittmann, B. E. and C. W. Brunner (1984). The nonsteady-state-biofilm process for advanced organics removal. *J. Water Poll. Control Federation* 56: 874-880.
 28. Rittmann, B. E. and V. L. Snoeyink (1984). Achieving biologically stable drinking water. *J. American Water Works Association* 76 (10): 106-114.
 29. Rittmann, B. E. (1984). Choosing and determining loading types for fixed-film reactors. *Proc. Second Intl. Conf. on Fixed-Film Biological Processes*, Washington, DC., pp. 565-577.

30. Severin, B. F., M. T. Suidan, B. E. Rittmann, and R. S. Engelbrecht (1984). Inactivation kinetics in a flow-through UV reactor. *J. Water Pollution Control Federation* 56: 164-169.
31. Severin, B. F., M. T. Suidan, R. S. Engelbrecht, and B. E. Rittmann (1984). Mixing effects on UV disinfection. *J. Water Poll. Control Fedn.* 56:881-888. (see also p. 649a.)
32. Rittmann, B. E. (1984). Factors affecting apparent plume rise entrainment. *J. Environ. Engr.* 110: 1013-1017.
33. Rittmann, B. E. (1985). The effect of load fluctuations on the effluent concentration produced by fixed-film reactors. *Water Science Technol.* 16: 45-55.
34. Rittmann, B. E. and W. E. Langeland (1985). Simultaneous denitrification with nitrification in single-channel oxidation ditches. *J. Water Poll. Control Fedn.* 57: 300-308.
35. Rittmann, B. E. and D. E. Baskin (1985). Theoretical and modeling aspects of anaerobic treatment of sewage. *Proc. Intl. Seminar on Anaerobic Treatment of Sewage, Amherst, MA.*, pp. 55-94.
36. Wang, Y. T., M. T. Suidan, and B. E. Rittmann (1985). Performance of an expanded-bed methanogenic reactor. *J. Environ. Engr.* 111: 460-471.
37. Snoeyink, V. L. and B. E. Rittmann (1985). Drinking water and wastewater treatment to remove ammonia. In E. A. Glysson, D. E. Swan, and E. J. Way, Eds., *Innovations in the Water and Wastewater Fields*, Butterworth Publ., Stoneham, MA, pp. 45-58.
38. McCarty, P. L., B. E. Rittmann, and M. Reinhard (1985). Processes affecting the movement and fate of trace organic compounds in the subsurface environment. In T. Asano, ed., *Artificial Recharge of Groundwater*, Butterworth Publ., Stoneham, MA, pp. 627-646.
39. Rittmann, B. E. (1985). The relationships between genetic-control and process-control strategies in municipal waste treatment. *Proc. Bio Expo '85*, pp. 401-410.
40. Rittmann, B. E. (1985). Biological processes and organic micropollutants in treatment processes. *The Science of the Total Environment* 47: 99-113.
41. Ewing, B. B., L. T. Brand, R. A. Minear, B. E. Rittmann, and J. J. Stukel (1985). Health and environmental aspects of institutional refuse incineration with steam recovery. *Staff Report No. 25*, Institute for Environmental Studies, University of Illinois, Urbana, IL.
42. Rittmann, B. E. (1986). Algorithm for steady-state-biofilm model. In J. C. Crittenden, ed., *Computer Software Manual*, Association of Environmental Engineering Professors, Houghton, MI, 72-73.
43. Rittmann, B. E. (1986). Algorithm for modeling biofilms not at steady state. In J. C. Crittenden, ed., *Computer Software Manual*, Association of Environmental Engineering Professors, Houghton, MI, 74-75.
44. Wang, Y.-T., M. T. Suidan, and B. E. Rittmann (1986). Anaerobic treatment of phenol by an expanded-bed reactor. *J. Water Poll. Control Fedn.* 58: 227-233.
45. Namkung, E. and B. E. Rittmann (1986). Soluble microbial products (SMP) formation kinetics by biofilms. *Water Research* 20: 795-806.
46. Chang, H. T. and B. E. Rittmann (1986). Comment on biofilm cryopreparation for scanning electron microscopy. *Water Research* 20: 1201.

47. Wang, Y.-T., M. T. Suidan, and B. E. Rittmann (1986). Kinetics of methanogens in an expanded-bed reactor. *J. Environmental Engr.* 112: 155-170.
48. Rittmann, B. E. (1986). Detoxification of hazardous organic contaminants in low concentrations in waters and wastewaters. *Proc. Bio Expo '86* (Boston, MA, 1 May 1986) pp. 497-506.
49. Rittmann, B. E. (1986). Research needs in chemical and biological treatment of hazardous wastes. *Proc. Research Needs Workshop on Hazardous Wastes Treatment and Disposal*, Drexel University, Philadelphia, PA, pp. 43-69.
50. Chang, H. T. and B. E. Rittmann (1986). Biofilm loss during sample preparation for scanning electron microscopy. *Water Research* 20: 1451-1456.
51. Rittmann, B. E., L. Crawford, C. K. Tuck, and E. Namkung (1986). *In situ* determination of kinetic parameters for biofilms: isolation and characterization of oligotrophic biofilms. *Biotechnology and Bioengineering* 28: 1753-1760.
52. Gantzer, C. J., III, B. E. Rittmann, and E. E. Herricks (1986). The role of streambed biofilms in the removal of biodegradable contaminants from shallow streams. *University of Illinois Water Resources Center Report No. 203*, Urbana, Illinois.
53. Rittmann, B. E., D. T. Kampmeier, and H. T. Chang (1986). Trends of biofilm-modeling research with computers. Invited paper at the Fifth Environmental Engineering Education Conference, Association of Environmental Engineering Profesors, Houghton, MI, July, 1986.
54. Namkung, E. and B. E. Rittmann (1986). A study estimating VOC emissions from the Calumet Sewage Treatment Plant in the Chicago Area. *Illinois Department of Energy and Natural Resources, Springfield, IL (ILENR/RE-AQ-85/15)*.
55. Rittmann, B. E., W. Bae, E. Namkung, and C.-J. Lu (1987). A critical evaluation of microbial product formation in biological processes. *Water Sci. Technol.* 19: 517-528.
56. Tanaka, K., A. Oshima, and B. E. Rittmann (1987). Performance evaluation of rotating biological contactor process. *Water Sci. Technol.* 19: 483-494.
57. Wang, Y. T., M. T. Suidan, and B. E. Rittmann (1987). Modeling biofilm kinetics for a low-loaded expanded-bed anaerobic reactor. *Biotechnol. Bioengr.* 30: 15-21.
58. Suidan, M.T., B. E. Rittmann, and U. K. Traegner (1987). Criteria establishing biofilm-kinetic types. *Water Research* 21: 491-498.
59. Engelbrecht, R. S. and B. E. Rittmann (1987). Treatment of hazardous wastewaters. *Proc. of Regional Symp. Management Indust. Wastes in Asia and Pacific*, Environ. Management Res. Assc. of Malaysia, Kuala Lumpur, Malaysia, 17-20 Nov. 1986, pp. 9-18.
60. Chang, H. T. and B. E. Rittmann (1987). Mathematical modeling of biofilm on activated carbon. *Environ. Sci. Technol.* 21: 273-279.
61. Chang, H. T. and B. E. Rittmann (1987). Verification of the model of biofilm on activated carbon. *Environ. Sci. Technol.* 21: 280-288.
62. Rittmann, B. E. (1987). Aerobic biological treatment. *Environmental Science & Technology*, 21: 128-136.

63. Namkung, E. and B. E. Rittmann (1987). Modeling bisubstrate removal by biofilms. *Biotechnology and Bioengineering* 29: 269-278.
64. Namkung, E. and B. E. Rittmann (1987). Evaluation of bisubstrate secondary utilization kinetics by biofilms. *Biotechnology and Bioengineering* 29: 335-342.
65. Namkung, E. and B. E. Rittmann (1987). Estimating volatile organic compound (VOC) emissions from publically owned treatment works (POTWs). *J. Water Pollution Control Federation* 59: 670-678.
66. Namkung, E. and B. E. Rittmann (1987). Removal of taste and odor compounds by humic-substances-grown biofilms. *J. American Water Works Association* 79(7): 107-112.
67. Rittmann, B. E. and G. B. Sprouse (1987). Fate of particulate organic matter in fixed-film anaerobic processes. *Proc. GRUTTEE Conference on Processus et Procédés Conduisant à la Méthanisation, Station de Lagunage de Mèze, France, October 1987*, pp. 1-34.
68. Rittmann, B. (1987). Potential for controlling SOCs through biotransformations. *Proceedings of the Seminar on Treatment Processes for Control of Synthetic Organic Chemicals, American Water Works Association Meeting, Kansas City, MO, June 1987*, pp. 233-246.
69. Rittmann, B. E. (1988). Biodegradation processes to make drinking water biologically stable. In R. A. Larson, ed., *Biohazards of Drinking Water*, Lewis Publishers, Ann Arbor, MI, pp. 257-264.
70. Namkung, E. and B. E. Rittmann (1988). Effects of SMP on biofilm-reactor performance. *J. Environmental Engineering (ASCE)* 114: 199-210.
71. Gantzer, C. J., H. P. Kollig, B. E. Rittmann, and D. L. Lewis (1988). Predicting the rate of trace-organic compound removal by natural biofilms. *Water Research* 22: 191-200.
72. Sáez, P. B. and Rittmann, B. E. (1988). An improved pseudo-analytical solution for steady-state-biofilm kinetics. *Biotechnol. Bioengr.* 32: 379-385.
73. Rittmann, B. E., D. Jackson, and S. L. Storck (1988). Potential for treatment of hazardous organic chemicals with biological processes. In D. L. Wise, ed., *Biotreatment Systems, Vol. III*, CRC Press, Boca Raton, FL, pp. 15-64.
74. Chang, H. T. and B. E. Rittmann (1988). Comparative study of biofilm kinetics on different adsorptive media. *J. Water Pollution Control Federation* 60: 362-368.
75. Herricks, E. E. and B. E. Rittmann (1988). Application and limits of toxicity testing in control technology improvement. Presented at the IAWPRC Specialists Group Workshop on Monitoring and Control of Environmental Contaminants, 20 July 1988, Brighton, England.
76. Gantzer, C. J., B. E. Rittmann, and E. E. Herricks (1988). Mass transport to streambed biofilms. *Water Research* 22: 709-722.
77. Zaghoul, H. H., B. E. Rittmann, and R. J. Scholze (1988). Removal mechanisms for particulate and soluble BOD in soil infiltration. *On-Site Wastewater Treatment, Vol. 5*, American Society of Agricultural Engineers, St. Joseph, MI, pp. 57-67.
78. Rittmann, B. E., A. J. Valocchi, J. E. Odencrantz, and W. Bae (1988). In Situ

Bioreclamation of Contaminated Groundwater. Illinois Hazardous Waste Research and Information Center, Champaign, IL and Univ. of Illinois Water Resources Center, Urbana, IL.

79. Sáez, P. B., H. T. Chang, and B. E. Rittmann (1989). Modeling steady-state substrate-inhibited biofilms. In Proc. Intl. Conf. Physicochemical and Biological Detoxification of Hazardous Wastes, Atlantic City, NJ (May, 1988), 567-586.
80. Rittmann, B. E. and N. M. Johnson (1989). Rapid biological clean-up of soils contaminated with lubricating oil, *Water Science & Technology*, 21: 209-219.
81. Rittmann, B. E. and P. M. Huck (1989). Biological treatment of public water supplies. *CRC Critical Reviews in Environmental Control* 19(2): 119-184.
82. Rittmann, B. E. (1989). Mathematical modeling of fixed-film growth. In G. Patry and D. Chapman, eds., *Dynamic Modeling and Expert Systems in Wastewater Engineering*, Lewis Publ., Ann Arbor, MI, pp. 39-58.
83. Sáez, P. B. and B. E. Rittmann (1989). Discussion of kinetics and stoichiometry of activated sludge treatment of toxic organic wastewater. *J. Water Pollution Control Federation* 61: 357-358.
84. Chang, H. T. and B. E. Rittmann (1989). Discussion of transient responses incorporating products formation. *J. Environmental Engineering (ASCE)* 115: 476-479.
85. Rittmann, B. E. (1989). Detachment from biofilms. In *Structure and Function of Biofilms*, W. G. Characklis and P. A. Wilderer, eds., John Wiley & Sons, Inc., Chichester, England, pp. 49-58.
86. Gantzer, C. J., A. B. Cunningham, W. Gujer, B. Gutekunst, J. J. Heijnen, E. N. Lightfoot, G. Odham, B. E. Rittmann, E. Rosenberg, K. D. Stolzenbach, and A. J. B. Zehnder (1989). Group report: Interfacial processes at biofilm surfaces. In *Structure and Function of Biofilms*, W. G. Characklis and P. A. Wilderer, eds., John Wiley & Sons, Inc., Chichester, England, pp. 73-90.
87. Rittmann, B. E. (1989). Discussion of biochemical processes in water. In Proc. *Fundamental Research Directions in Environmental Engineering*, R. G. Luthy and M. J. Small, eds., Association of Environmental Engineering Professors, Arlington, VA, (Nov. 1988), pp. 100-101.
88. Sáez, P. B. and B. E. Rittmann (1989). Discussion of kinetics of low solids bio-denitrification of water supplies. *Res. J. Water Pollution Control Federation*, 61: 1612-1614.
89. Rittmann, B. E. and J. A. Manem (1989). Removal of synthetic and natural organic compounds by biological filtration. Proc. *First Macau Workshop on Water Treatment*, Sociedade De Abastecimento De Aguas De Macau, Macau (November 1989), pp. 353-364.
90. Manem, J. A. and B. E. Rittmann (1990). Scaling procedure for biofilm processes. *Water Sci. Technol.* 22: 329-346.
91. Schwartz, F. W., C. B. Andrews, D. L. Freyberg, C. T. Kincaid, L. F. Konikow, C. R. McKee, D. B. McLaughlin, J. W. Mercer, E. J. Quinn, P. S. C. Rao, B. E. Rittmann, D. D. Runnells, P. K. M. van der Heijde, and W. J. Walsh (1990). *Ground Water Models*.

- Scientific and Regulatory Applications. National Academy Press, Washington, D.C.
92. Heath, M. S., S. A. Wirtel, and B. E. Rittmann (1990). Simplified design of biofilm processes using normalized loading curves. *Res. J. Water Poll. Control Fedn.* 62: 185-192.
 93. Smets, B. F. and B. E. Rittmann (1990). Sorption equilibria for trichloroethene on algae. *Water Research* 24: 355-359.
 94. Odencrantz, J. E., W. Bae, A. J. Valocchi, and B. E. Rittmann (1990). Stimulation of biologically active zones (BAZs) in porous media by electron-acceptor injection. *J. Contaminant Hydrology* 6: 37-52.
 95. Bae, W. J. E. Odencrantz, B. E. Rittmann, and A. J. Valocchi (1990). Transformation kinetics of trace-level halogenated organic contaminants in a biologically active zone (BAZ) induced by nitrate injection. *J. Contaminant Hydrology* 6: 53-68.
 96. Rittmann, B. E., B. Smets, and D. A. Stahl (1990). Genetic capabilities of biological processes. Part I. *Environ. Sci. Technol.* 24: 23-29.
 97. Smets, B., B. E. Rittmann, and D. A. Stahl (1990). Genetic capabilities of biological processes. Part II. *Environ. Sci. Technol.* 24: 162-169.
 98. Sprouse, G. B. and B. E. Rittmann (1990). Colloid filtration in fluidized beds. *J. Environmental Engineering (ASCE)* 116: 299-313.
 99. Sprouse, G. B. and B. E. Rittmann (1990). Colloid removal in a fluidized-bed biofilm reactor. *J. Environmental Engineering (ASCE)* 116: 314-329.
 100. Rittmann, B. E. (1990). Biotechnological control of hazardous organic contaminants in sewage works. *Proc. 4th WPCF/JSWA Joint Technical Seminar, Tokyo, May, 1990*, pp. 21-36.
 101. Rittmann, B. E. (1990). Biofilm-process analysis of design and performance of biological filters used in drinking-water treatment. *Proc. Emerging Technology in Practice, Amer. Water Works Assn., Cincinnati, OH, June, 1990*, pp. 131-152.
 102. Sáez, P. B. and B. E. Rittmann (1990). Error analysis of limiting-case solutions of the steady-state-biofilm model. *Water Research* 24: 1181-1185.
 103. Rittmann, B. E. (1990). Underground chemical waste: our legacy and our future. *Environmental Perspectives* 2(4): 24-25.
 104. Bae, W. and B. E. Rittmann (1990). Effects of electron acceptor and electron donor on biodegradation of CCl₄ by biofilms. *Proc. 1990 Specialty Conf. on Environmental Engineering, American Society of Civil Engineers, Arlington, VA, 8-11 July, 1990*, pp. 390-397.
 105. Rittmann, B. E. (1990) Analyzing biofilm processes used in biological filtration. *J. Amer. Water Works Assn.* 82(12): 62-66.
 106. Odencrantz, J. E., A. J. Valocchi, and B. E. Rittmann (1990). Modeling two-dimensional solute transport with different biodegradation kinetics. *Proc. Petroleum Hydrocarbons and Organic Chemicals in Groundwater: Prevention, Detection, and Restoration. Houston, TX, Oct. 31-Nov. 2, 1990*, pp. 355-368.

107. Sáez, P. B., B. E. Rittmann, and Q.-B. Zhang (1991). Biodegradation kinetics of a self-inhibitory substrate by stable steady-state biofilms. Proc. Purdue Industrial Waste Conference, May 1990, Lewis Publishers, Inc., Ann Arbor, MI, pp. 273-279.
108. Gantzer, C. J., B. E. Rittmann, and E. E. Herricks (1991). Effect of long-term water velocity changes on streambed biofilm activity. Water Research 25: 15-20.
109. Herricks, E. E., B. E. Rittmann, C. P. L. Grady, Jr., D. Pascoe, L. Somlyódy, E. Fliet, J. Olah, M. van der Gaag, C. van de Guchte, W. Verstraete, and D. Schowanek (1991). Advancements in toxicity testing applied to design and control of biological processes. Water Science & Technology 23: 271-282.
110. Trinet, F., R. Heim, D. Amar, H. T. Chang, and B. E. Rittmann (1991). Study of biofilm and fluidization of bioparticles in a three-phase liquid-fluidized-bed reactor. Water Science & Technology 23: 1347-1354.
111. Heath, M.S., S. A. Wirtel, B.E. Rittmann, and D.R. Noguera (1991). Closure to simplified design of biofilm processes using normalized loading curves. Res. J. Water. Pollution Control Federation 63: 91-92.
112. Rittmann, B. E. and S. A. Wirtel (1991). Effect of biofilm accumulation on colloid cohesion. J. Environ. Engr., ASCE, 117: 692-695.
113. Sáez, P. B. and B. E. Rittmann. (1991) The biodegradation kinetics of 4-chlorophenol, an inhibitory co-metabolite. Res. J. Water Poll. Control Fedn. 63: 838-847.
114. Kyosai, S. and B. E. Rittmann (1991). Effect of water-surface desorption on volatile compound removal under bubble aeration. Res. J. Water Poll. Control Fedn. 63: 887-894.
115. Chang, H. T., B. E. Rittmann, D. Amar, O. Ehlinger, and Y. Lesty (1991). Biofilm detachment mechanisms in a liquid-fluidized bed. Biotechnol. Bioengr. 38: 499-506.
116. Sprouse, G. and B. E. Rittmann (1991). Closure for colloid filtration in fluidized beds. J. Environ. Engr. 117: 708-711.
117. Rittmann, B. E. (1992). Microbial detoxification of hazardous organic contaminants: The crucial role of substrate interactions. Water Sci. Technol. 25(11): 403-410.
118. Rittmann, B. E., A. J. Valocchi, C. Ray, E. Seagren, and B. Wrenn (1992). A Critical Review of *In Situ* Bioremediation. Gas Research Institute, Chicago, Ill.
119. Rittmann, B. E. (1992). Innovations in biological processes for pollution control. In Environmental Microbiology, R. Mitchell, ed., Wiley-Liss, New York, pp. 265-286.
120. Bouwer, E. J. and B. E. Rittmann (1992). Correspondance on use of colloid filtration theory in modeling movement of bacteria through a contaminated sandy aquifer. Environ. Sci. Technol. 26: 400-401.
121. Sáez, P. B. and B. E. Rittmann (1992). Model-parameter estimation using least squares. Water Research 26: 789-796.
122. MacDonald, J. A., B. Smets, and B. E. Rittmann (1992). The effects of energy availability on the conjugative-transfer kinetics of plasmid RP4. Water Research 26: 461-468.
123. Manem, J. A. and B. E. Rittmann (1992). The effects of fluctuations in biodegradable organic matter on nitrification filters. J. Amer. Water Works Assn. 84 (4): 147-151.

124. Manem, J. A. and B. E. Rittmann (1992). Removing trace-level pollutants in a biological filter. *J. Amer. Water Works Assn.* 84(4): 152-157.
125. Sáez, P. B. and B. E. Rittmann (1992). Accurate pseudoanalytical solution for steady-state biofilms. *Biotechnol. Bioengr.* 39: 790-793.
126. Rittmann, B. E. and J. A. Manen (1992). Development and experimental evaluation of a steady-state, multi-species biofilm model. *Biotechnol. Bioengr.* 39: 914-922.
127. Rittmann, B. E., F. Trinet, D. Amar, and H. T. Chang (1992). Measurement of the activity of a biofilm: Effects of surface loading and detachment on a three-phase, liquid-fluidized-bed reactor. *Water Sci. Technol.* 26 (3-4): 585-594.
128. Furumai, H. and B. E. Rittmann (1992). Advanced modeling of mixed populations of heterotrophs and nitrifiers considering the formation and exchange of soluble microbial products. *Water Sci. Technol.* 26 (3-4): 493-502.
129. Weisner, M. R., M. M. Clark, J. G. Jacangelo, B. W. Lykins, Jr., B. J. Mariñas, C. R. O'Melia, B. E. Rittmann, and M. J. Semmens (1992). Committee Report: Membrane processes in potable water treatment. *J. Amer. Water Works Assn.* 84 (1): 59-67.
130. Rittmann, B. E., J. A. Sutfin, and B. Henry (1992). Biodegradation and sorption properties of polydisperse acrylate polymers. *Biodegradation* 2: 181-192.
131. Rittmann, B. E., B. Henry, J. E. Odencrantz, and J. A. Sutfin (1992). Biological fate of polydisperse acrylate polymer in anaerobic sand-medium transport. *Biodegradation* 2: 171-180.
132. Freyburg, D. L., B. E. Rittmann, D. D. Runnells, M. P. Anderson, J. W. Mercer, F. W. Schwartz, and S. S. Papadopoulos (1992). A Review of Ground Water Modeling Needs for the U. S. Army, Water Science and Technology Board, National Research Council, Washington, D.C.
133. Sáez, P. B. and B. E. Rittmann (1992). Closure to biodegradation kinetics of 4-chlorophenol, an inhibitory co-metabolite. *Water Environment Research* 64: 745.
134. Wirtel, S. A., D. R. Noguera, D. T. Kampmeier, M. S. Heath, and B. E. Rittmann (1992). Explaining widely varying biofilm-process performance with normalized loading curves. *Water Environ. Res.* 64: 706-711.
135. Rittmann, B. E. (1993). Concept and application of fixed-film technology for biodegradation of hazardous organic waste. *Proc. Intl. Conf. Hazardous Waste Management: Technology, Perception, and Reality.* Newark, NJ (May 7, 1992).
136. Sáez, P. B. and B. E. Rittmann (1993). Biodegradation kinetics of a mixture containing a primary substrate (phenol) and an inhibitory co-metabolite (4-chlorophenol). *Biodegradation* 4: 3-23.
137. Seagren, E. A., B. E. Rittmann, and A. J. Valocchi (1993). Quantitative evaluation of flushing and biodegradation for enhancing *in situ* dissolution of nonaqueous phase liquids. *Journal of Contaminant Hydrology* 12: 103-132.
138. Rittmann, B. E. and P. B. Sáez (1993). Modeling biological processes involved in degradation of hazardous organic substrates. In M. Levin and M. Gealt, *Biotreatment of*

- Industrial and Hazardous Wastes, McGraw-Hill Book Co., New York, pp. 113-136.
139. Valocchi, A. J., J. E. Odencrantz, and B. E. Rittmann (1993). Computational studies of the transport of reactive solutes: interaction between adsorption and biotransformation. *Adv. in Hydro-Science and -Engineering*, Vol. 1. S. Y. Wang, ed., Proc. First Intl. Conf. on Hydro-Science and -Engineering, July 7-11, 1993, Washington, DC, pp. 1845-1852.
 140. Odencrantz, J. E., A. J. Valocchi, and B. E. Rittmann (1993). Modeling the interaction of sorption and biodegradation on transport in ground water *in situ* bioremediation systems. Proc. Intl. Ground Water Modeling Conference, June, 1993, Golden. Col., pp. 2-3 - 2-12.
 141. Rittmann, B. E. (1993). The significance of biofilms in porous media. *Water Resources Research*, 29: 2195-2202.
 142. Block, J. C. and B. E. Rittmann (1993). Introduction to biological processes in drinking water production. Proc. Environmental Biotechnology, European Environmental Research Organization, Wageningen, The Netherlands. (revised edition, 1994)
 143. Smets, B. F., B. E. Rittmann, and D. A. Stahl (1993). The specific growth rate of *Pseudomonas putida* (TOL) influences the conjugal transfer rate of the TOL plasmid. *Appl. Environ. Microb.* 59: 3430-3437.
 144. National Research Council (1993). *In Situ Bioremediation: When Does It Work?* National Academy Press, Washington, D.C. (B. E. Rittmann, chairman)
 145. MacDonald, J. A. and B. E. Rittmann (1993). Performance standards for in situ bioremediation. *Environ. Sci. Technol.* 27: 1974-1979.
 146. Rittmann, B. E. and J. A. MacDonald (1993). Improving the image of bioremediation. *Water Quality International*, No. 4, pp. 25-27, 1993.
 147. Rittmann, B. E. (1993). Landfill leachate treatment. Proc. Landfill Tomorrow--Bioreactors or Storage, S. K. Ouki and C. J. Sollars, eds, Nov. 17, 1993, Imperial College, London, England, pp. 13-24.
 148. Lee, K.-C. and B. E. Rittmann (eds.) (1993). Proc. Workshop on Biodegradation and Treatment of Nitroaromatics, U. S. Army Construction Engineering Research Laboratory Publication, Champaign, Ill.
 149. Rittmann, B. E. (1993). Putting microbes to work on waste, Op-Ed piece published in 14 newspapers nationwide (1 page).
 150. Gadani, V., P. Villon, J. Manem, and B. E. Rittmann (1993). A new method to solve non-steady-state multispecies biofilm model. *Bull. Mathematical Biology* 55: 1039-1061.
 151. Furumai, H. and B. E. Rittmann (1994). Evaluation of multiple-species biofilm and floc processes using a simplified aggregate model. *Water Sci. Technol.* 29 (10-11): 439-446.
 152. Chang, H. T. and B. E. Rittmann (1994). Predicting bed dynamics in three-phase, fluidized-bed biofilm reactors. *Water Sci. Technol.*, 29 (10-11): 231-241.
 153. Rittmann, B. E. and R. Whiteman (1994). Bioaugmentation comes of age. *Water Quality International*, No. 1, pp. 22-26.
 154. Rittmann, B. E., E. Seagren, B. A. Wrenn, A. J. Valocchi, C. Ray, and L. Raskin (1994). *In Situ Bioremediation*, second edition, Noyes Publishers, Inc., Park Ridge, NJ.

155. MacDonald, J. A. and B. E. Rittmann (1994). In situ bioremediation: when does it work? *Industrial Wastewater* 2 (6): 32-38.
156. Rittmann, B. E. (1994). Aerobic biodegradation of petroleum hydrocarbons. In *Environmental Issues and Solutions in Exploration, Production and Refining*. K. L. Sublette, T. M. Harris, and F. S. Manning, eds., PennWell Books, Inc., pp 529-541.
157. Raskin, L., L. K. Poulson, D. R. Noguera, B. E. Rittmann, and D. A. Stahl (1994). Quantification of methanogenic groups in anaerobic biological reactors using oligonucleotide probe hybridizations. *Appl. Environ. Microb.* 60: 1241-1248.
158. Raskin, L., J. M. Stromley, B. E. Rittmann, and D. A. Stahl (1994). Group-specific 16S-rRNA hybridization probes to describe natural communities of methanogens. *Appl. Environ. Microb.* 60: 1232-1240.
159. Seagren, E. A., B. E. Rittmann, and A. J. Valocchi (1994). Quantitative evaluation of the enhancement of NAPL-pool dissolution by flushing and biodegradation. *Environ. Sci. Technol.* 28: 833-839.
160. Noguera, D. R., N. Araki, and B. E. Rittmann (1994) Soluble microbial products (SMP) in anaerobic chemostats. *Biotechnology and Bioengineering* 44: 1040-1047.
161. Teske, A., E. Alm, J. M. Regan, S. Toze, B. E. Rittmann, and D. A. Stahl (1994). Evolutionary relationships among ammonia- and nitrite-oxidizing bacteria. *J. Bacteriology* 176: 6623-6630.
162. Furumai, H. and B. E. Rittmann (1994). Evaluation of substrate removal activity in biofilm filters at low organic levels. *Proc. Japan Soc. Civil Engr.* (in Japanese).
163. Seagren, E. A., B. E. Rittmann, and A. J. Valocchi (1994). Comparative abilities of flushing and in situ biodegradation to accelerate NAPL dissolution. pp. 37-48 In *Proc. Water Env. Fedn. 67th Annual Conf. and Expos., WEFTEC'94, Vol. 2, Chicago, IL, Oct. 15-19, 1994.* Water Environ. Fedn., Alexandria, VA.
164. Abbasi, S. and B. E. Rittmann (1994). Role of direct biodegradation of sorbed organics in activated-sludge treatment. In *Proc. Water Env. Fedn. 67th Annual Conf. and Expos., WEFTEC'94, Chicago, IL, Oct. 15-19, 1994.* Water Environ. Fedn., Alexandria, VA.
165. Rittmann, B. E., J. M. Regan, and D. A. Stahl (1994). Nitrification as a source of soluble organic substrate in biological treatment. *Water Sci. Technol.* 30 (6): 1-8.
166. Smets, B. F., B. E. Rittmann, and D. A. Stahl (1994). Stability and conjugal transfer kinetics of a TOL plasmid in *Pseudomonas aeruginosa* PAO 1162. *FEMS Microb. Ecol.* 15: 337-350.
167. Furumai, H. and B. E. Rittmann (1994). Interpretation of bacterial activities in nitrification filters by a biofilm model considering the kinetics of soluble microbial products. *Water Sci. Technol.* 30 (11): 147-156.
168. Rittmann, B. E., C. J. Gantzer, and A. Montiel (1995). Biological treatment to control taste and odor compounds in drinking-water treatment. In M. Suffett and J. Mallevalle, eds., *Advances in the Control of Tastes and Odors in Drinking Water.*, Amer. Water Works Assn., Denver, CO, pp. 203-240.

169. Rittmann, B. E. (1995). Fundamentals and Application of Biofilm Processes in Drinking-Water Treatment. Quality and Treatment of Drinking Water, J. Hrubec, Ed., The Handbook of Environmental Chemistry, Vol 5B, pp 61-87.
170. Rittmann, B. E. (1995). Transformation of organic micropollutants by biological processes. Quality and Treatment of Drinking Water, J. Hrubec, Ed., The Handbook of Environmental Chemistry, Vol. 5B, pp 31-60.
171. Rittmann, B. E. and B. A. Wrenn (1995). Kinetics of Reductive Dechlorination of Trichloroethane (TCA) by Anaerobic Biofilms. Illinois Hazardous Waste Research and Information Center, Champaign, IL.
172. Melcer, H., W. J. Parker, and B. E. Rittmann (1995). Modeling of volatile organic contaminants in trickling filter systems. Water Sci. Technol. 31(1): 95-104.
173. Raskin, L., R. I. Amann, L. K. Poulson, B. E. Rittmann, and D. A. Stahl (1995). Use of ribosomal RNA-based molecular probes for characterization of complex microbial communities in anaerobic biofilms. Water Sci. Technol. 31(1): 261-272.
174. Malmstead, M. J., F. Brockman, A. J. Valocchi, and B. E. Rittmann (1995). Modeling biofilm biodegradation requiring cosubstrates: the quinoline example. Water Sci. Technol. 31(1): 71-84.
175. Bae, W. and B. E. Rittmann (1995). Accelerating the rate of cometabolic degradations requiring an intracellular electron source--model and biofilm application. Water Sci. Technol. 31(1): 29-39.
176. Rittmann, B. E., B. F. Smets, J. A. MacDonald, and D. A. Stahl (1995). Plasmid transfer for enhancing degradation capabilities. Environmental Health Perspectives 103(Suppl. 5): 113-115.
177. Wrenn, B. A. and B. E. Rittmann (1995). A model for the effects of primary substrates on the kinetics of reductive dehalogenation. Biodegradation 6: 295-305.
178. Rittmann, B. E. (1995). Dissolution and cosubstrate effects in the transfer of biodegradation kinetics to the field. In: R. E. Hinchee, F. J. Brockman, and C. M. Vogel, eds., Microbial Processes for Bioremediation, Battelle Press, Richland, WA., pp. 1-6.
179. Wooschlager, J. and B. E. Rittmann (1995). Evaluating what is measured by BDOC and AOC Tests. Revue Science de l'Eau 8: 371-385.
180. Smets, B.F., B.E. Rittmann, and D.A. Stahl (1995). Quantification of the effect of substrate concentration on the conjugal transfer rate of the TOL plasmid in short-term batch mating experiments. Letters in Applied Microbiology 21: 167-172.
181. Ohashi, A., D. G. V. de Silva, B. Mobarry, J. A. Manem, D. A. Stahl, and B. E. Rittmann. (1995) Influence of substrate C/N ratio on the structure of multi-species biofilms consisting of nitrifiers and heterotrophs. Water Science Technology 32 (8): 75-84.
182. Bishop, P. L. and B. E. Rittmann (1995). Modelling heterogeneity in biofilms. Water Sci. Technol. 32 (8): 263-265.
183. Wrenn, B. A. and B. E. Rittmann (1996). Evaluation of a mathematical model for the effects of primary substrates on reductive dehalogenation kinetics. Biodegradation 7: 49-

64.

184. Rittmann, B. E. (1996). How input active biomass affects the sludge age and process stability. *J. Environmental Engineering* 122: 4-8.
185. Raskin, L., W. C. Capman, M. D. Kane, B. E. Rittmann, and D. A. Stahl (1996). Critical evaluation of membrane supports for use in quantitative hybridizations. *Appl. Environ. Microb.* 62: 300-303.
186. Bae, W. and B. E. Rittmann. (1996). Responses of intracellular cofactors to single and dual substrate limitations. *Biotechnol. Bioengr.* 49: 690-699.
187. Bae, W. and B. E. Rittmann (1996). A structured model of dual-limitation kinetics. *Biotechnol. Bioengr.* 49: 683-689.
188. Rittmann, B. E. and J. E. Wooschlag (1996). Fundamental components for modeling BOM and regrowth. *Proc. 4th Intl. Conf. on Biodegradable Organic Matter*, University of Waterloo, Waterloo, Ontario, June 20-21, 1996., pp. 66-69.
189. Rittmann, B. E., I. R. Fleming, and R. K. Rowe (1996). Leachate chemistry: its implications for clogging. *Proc. North American Water and Environment Congress '96*, Anaheim, California, 22-28 June, 1996, paper 4 (CD Rom) 6p, Session GW-1, Biological Processes in Groundwater Quality
190. Rittmann, B. E. (1996). Back to bacteria: a more natural filtration. *Civil Engineering* 66(7): 50-52.
191. Mobarry, B. K. , M. Wagner, V. Urbain, B. E. Rittmann, and D. A. Stahl (1996). Phylogenetic probes for analyzing abundance and spatial organization of nitrifying bacteria. *Applied Environ. Microb.* 62: 2156-2162.
192. Rittmann, B. E. and J. M. VanBriesen (1996). Microbiological processes in reactive modeling. In P. C. Lichtner, C. I. Steefel, and E. H. Oelkers, eds., *Reactive Transport in Porous Media*, Reviews in Mineralogy, Vol. 34, pp. 311-334.
193. deSilva, D. G. V., V. Urbain, D. A. Stahl, and B. E. Rittmann (1996). Modeling the response of effluent quality to loading changes in a mixed-culture CSTR. *Proc. WEFTEC '96*, Vol. 1, pp 83-90.
194. Rittmann, B. E., M. C. Kavanaugh, and J. A. MacDonald (1996). "Do nothing" title misleading. *Civil Engineering*, Nov. 1996, pp. 36-38.
195. Rittmann, B. E. (1996). State-of-the-art in bioremediation methods: Promise and challenge. *Proc. Eco-Infoma '96*, Lake Buena Vista, Florida, 6 Nov. 1996, pp. 429-434, Environmental Research Institute of Michigan, Ann Arbor, Michigan.
196. Raskin, L., D. A. Stahl, and B. E. Rittmann (1996). Competition and co-existence of sulfate-reducing and methanogenic populations in anaerobic biofilms. *Appl. Environ. Microb.* 62: 3847-3857.
197. Rittmann, B. E. (1996). What is the WSTB's Job? *Annual Report of the Water Science and Technology Board*, 1996-1997, National Research Council, Washington, DC.
198. Seagren, E.A., D.J. Hollander, D.A. Stahl, and B.E. Rittmann (1996). Innovative evaluation methods for bioremediation. In: L.N. Reddi (Editor), *Non-Aqueous Phase Liquids (NAPLs)*

- in the Subsurface Environment: Assessment and Remediation, Washington, DC, November 12-14, 1996. American Society of Civil Engineers, New York, NY, p. 381-392.
199. Guschin, D. Y., B. K. Mobarry, D. Proudnikov, D. A. Stahl, B. E. Rittmann, and A. D. Mirzabekov (1997). Oligonucleotide microchips as genesensors for determinative and environmental studies in microbiology. *Appl. Environ. Microb.* 63: 2397-2402.
 200. Brusseau, G. A., B. E. Rittmann, and D. A. Stahl (1997). Addressing the microbial ecology of marine biofilms. In K. E. Cooksey, ed., *Molecular Approaches to the Study of the Oceans*, Chapman and Hall, London, pp. 449 - 470.
 201. Rowe, R. K., A. J. Cooke, B. E. Rittmann, and I. Fleming (1997). Some considerations in numerical modeling of leachate collection systems clogging. *Proc. Sixth Intl. Symp. Numerical Methods Geomechanics*, Montreal, Quebec, July, 1997, pp. 277-282.
 202. Yu, H. and B. E. Rittmann (1997). Predicting bed expansion and phase holdups for three-phase, fluidized-bed reactors with and without biofilm. *Water Research* 31: 2604-2616.
 203. Kemp, J. R., J. Bell, W. Parker, B. E. Rittmann, D. Thompson, and R. G. Zytner (1997). A protocol for measuring VOC biotransformation rates. *Proc. 89th Annual Air & Waste Management Assoc. Conf.*, June 23-28, Nashville, TN, paper no. 97-TP29B.01 in CD-ROM.
 204. Rowe, R. K., I. R. Fleming, M. D. Armstrong, A. J. Cooke, R. D. Cullimore, B. E. Rittmann, P. Bennett, and F. J. Longstaffe, F.J. (1997). "Recent advances in understanding the clogging of leachate collection systems," *Proceedings, Sardinia '97, Sixth International Landfill Symposium*, S. Margherita di Pula, Cagliari, Italy, October, Vol. 3, pp. 383-390.
 205. Seagren, E. A., G. Bourgon, J. Flax, A. Riffel, D. J. Hollander, D. A. Stahl, and B. E. Rittmann (1997). Integrated bioremediation performance evaluation. *Fourth Intl. In Situ and On-Site Bioremediation Symp.*, Battelle Press, Columbus, OH, pp. 379-384.
 206. Banaszak, J. E. and B. E. Rittmann (1998). Review of 'Biotechnology for Waste and Wastewater Treatment.' *Environmental Progress* 17 (1): S9 - S10.
 207. Urbain, V., B. K. Mobarry, D. G. V. deSilva, D. A. Stahl, B. E. Rittmann, and J. Manem (1998). Integration of performance, molecular biology, and modeling to describe the activated sludge process. *Water Sci. Technol.* 37 (3): 223-229.
 208. Banaszak, J.E., D. T. Reed, and B. E. Rittmann (1998). Speciation-dependent toxicity of Neptunium(V) towards *Chelatobacter heintzii*. *Environ. Sci. Technol.* 32: 1085-1091.
 209. Becker, J. G., G. Berardesco, B. E. Rittmann, and D. A. Stahl. (1998) Molecular and metabolic characterization of a 3-chlorobenzoate degrading anaerobic microbial community. IN: Wickraamanayake, G. B. and Hinchee, R. E., eds. *Natural Attenuation*, Battelle Press, Columbus, Ohio, pp. 93-98.
 210. Seagren, E. A., B. F. Smets, D. J. Hollander, D. A. Stahl, and B. E. Rittmann. (1998) Total alkalinity as a bioremediation monitoring tool. IN: Wickraamanayake, G. B. and Hinchee, R. E., eds. *Natural Attenuation*, Battelle Press, Columbus, Ohio, pp. 117-122.
 211. Noguera, D. R., G. A. Brusseau, B. E. Rittmann, and D. A. Stahl (1998). A unified model describing the role of hydrogen in the growth of *Desulfovibrio vulgaris* under different environmental conditions. *Biotechnol. Bioengr.* 59: 732-746.

212. Lee, K. C., B. E. Rittmann, J. Shi, and D. McAvoy. (1998). Advanced steady-state model for the fate of hydrophobic and volatile compounds in activated sludge wastewater treatment. *Water Environment Research* 70: 1118-1131.
213. Rittmann, B. E. (1998). Molecular understanding. *Water Environment Research* 70: 1107.
214. Logan, B. E. and B. E. Rittmann (1998). Finding solutions for tough environmental problems. *Environ. Sci. Technol.* 32: 502A – 507A.
215. Rittmann, B. E. (1998). Opportunities with membrane bioreactors. *Proc. Intl. Conf. Microfiltration II*, San Diego, Nov. 12 – 13, 1998, pp. 141-146.
216. Tebes-Stevens, C., A. J. Valocchi, J. M. VanBriesen, and B. E. Rittmann (1998). Multicomponent transport with coupled geochemical and microbiological reactions: Model description and example simulations. *J. Hydrology*. 209: 8-26.
217. Banaszak, J. E., J. VanBriesen, B. E. Rittmann, and D. T. Reed (1998). Mathematical modeling of the effects of aerobic and anaerobic chelate biodegradation on actinide speciation. *Radiochimica Acta* 82: 445-451.
218. Urbain, V., B. Mobarry, V. deSilva, D. Stahl, B. Rittmann, and J. Manem (1998). Performance evaluation of the membrane-bioreactor activated sludge process using molecular tools, modeling, and chemical analyses. *Proc. Intl. Symp. Environ. Biotech.* Brussels, Belgium.
219. deSilva, V. D. G., V. Urbain, R. Abeysinghe, and B. E. Rittmann. (1999) Advanced analysis of membrane-bioreactor performance with aerobic-anoxic cycling. *Water Sci. Technol.* 38(4-5): 505-512.
220. Rittmann, B. E (1999). In Situ Bioremediation: Basics and Applications. *Proc. Future Research Direction of Soil Environmental Management Towards the Years 2000s*. National Institute of Environmental Research, Seoul, Korea, June 8, 1999, pp. 115 – 130.
221. Banaszak, J. E., D. T. Reed, and B. E. Rittmann (1999). Subsurface interactions of actinide species and microorganisms: implications on bioremediation of actinide-organic mixtures. *J. Radioanalytical and Nuclear Chem.* 241: 385-435.
222. Noguera, D. R., G. Pizarro, D. A. Stahl, and B. E. Rittmann (1999). Simulation of multispecies development in three dimensions. *Water Sci. Technol.* 39(7): 123-130.
223. Rittmann, B. E., M. Pettis, H. Reeves, and D. Stahl. (1999). How biofilm clusters affect substrate flux and ecological selection. *Water Sci. Technol.* 39(7): 99-105.
224. Cooke, A. J., R. K. Rowe, B. E. Rittmann, and I. R. Fleming (1999). Modeling biochemically driven mineral precipitation in anaerobic biofilms. *Water Sci. Technol.* 39(7): 60-67.
225. Rittmann, B. E., C. S. Lapidou, J. Flax, D. A. Stahl, V. Urbain, J. J. van der Waarde, B. Geurtnick, M. J. C. Hensen, H. Brouwer, A. Klamwijk, and M. Wetterauw. (1999). Molecular and modeling analyses of the structure and function of nitrifying activated sludge. *Water Sci. Technol.* 39(1): 51-59.
226. Seagren, E. A., B. E. Rittmann, and A. J. Valocchi. (1999) An experimental investigation of NAPL-pool dissolution enhancement by flushing. *J. Contaminant Hydrology* 37: 111-

137.

227. Rittmann, B. E. (1999). International specialty conference on the microbial ecology of biofilms. *Water Science and Technology* 39(7): 1-3.
228. Seagren, E. A., M. N. Booher, and B. E. Rittmann (1999). Evaluation of NAPL-pool dissolution flux under nonequilibrium conditions in the presence of biological activity. Proc. 31st Mid-Atlantic Industrial and Hazardous Waste Conference, Technomic Publ. Co, Lancaster, Penn., pp. 387-396.
229. Seagren, E. A., B. E. Rittmann, and A. J. Valocchi (1999). A critical evaluation of the local-equilibrium assumption in modeling NAPL-pool dissolution. *J. Contaminant Hydrology* 39: 109-135.
230. Minz, D., S. J. Green, G. Muyzer, Y. Cohen, B. E. Rittmann, and D. A. Stahl (1999). Molecular characterization of diurnal changes in a marine microbial mat community. Proc. Halifax Intl. Conf. on Microbial Ecology.
231. Woolschlager, J., B. Rittmann, L. Kiene, P. Piriou, and B. Schwarz (1999). Comprehensive water quality analysis focusing on chloramine chemistry and nitrification reactions. Proc. Annual Conf. Amer. Water Works Assn. (June 20-24, 1999, Chicago, Ill.), available on CD-ROM.
232. Lazarova, V., D. Bellahcen, D. Rybacki, B. Rittmann, and J. Manem (1999). Population dynamics and biofilm composition in a new three-phase circulating bed reactor. *Water Sci. Technol.* 37(4-5): 149-158.
233. Rittmann, B. E. and J. Woolschlager, III (1999). Drinking-water distribution microbiology. Proc. Quantitative Microbiology and Risk Assessment, Dept. of Urban Engineering, University of Tokyo, Tokyo, pp. 133-146.
234. Minz, D., J. L. Flax, S. J. Green, G. Muyzer, Y. Cohen, M. Wagner, B. E. Rittmann, and D. A. Stahl (1999). Diversity of sulfate-reducing bacteria in oxic and anoxic regions of a microbial mat characterized by comparative analysis of dissimilatory (bi-) sulfite reductase genes. *Appl. Environ. Microb.* 65: 4666-4671.
235. Minz, D., S. Fishbain, S. J. Green, G. Muyzer, Y. Cohen, B. E. Rittmann, D. A. Stahl (1999). Unexpected population distribution in a microbial mat community: Sulfate-reducing bacteria localized to the highly oxic chemocline in contrast to a eukaryotic preference for anoxia. *Appl. Environ. Microb.* 65: 4659-4665.
236. Becker, J. G., D. A. Stahl, and B. E. Rittmann (1999). Reductive dehalogenation and production of 3-chlorobenzoate in a 2-chlorophenol-degrading methanogenic sediment community: implications for predicting the environmental fate of chlorinated pollutants. *Appl. Environ. Microb.* 65: 5169-5172.
237. Laspidou, C. S., D. F. Lawler, E. F. Gloyna, and B. E. Rittmann (1999). Heater effects on cyclone performance for the separation of solids from high temperature and pressure effluents. *Separation Science and Technology* 34: 3059-3076.
238. McAvoy, D. J. Shi, W. Schecher, B. E. Rittmann, and K.-C. Lee (1999). ASTREAT: A Model for Calculating Chemical Loss Within an Activated Sludge Treatment System, Version 1. The Procter & Gamble Co, Cincinnati, OH.

239. Banaszak, J. E., B. E. Rittmann, S. M. Webb, J.-F. Gaillard, and D. T. Reed (1999). Fate of neptunium in an anaerobic, methanogenic microcosm. *Material Res. Soc. Symp. Proc.*, vol. 556, 1141-1149.
240. Rittmann, B. E. (ed.). (1999). *Microbial Ecology of Biofilms*. IWA Publishing, London.
241. Yu, H., B. J. Kim, and B. E. Rittmann (1999). Gas-phase removal by a three-phase, circulating-bed biofilm reactor. *Proc. Biofilm Specialists Conference, International Association on Water Quality, New York City, October 17-20, 1999*, 4 pages.
242. VanBriesen, J. M. and B. E. Rittmann (2000). Mathematical description of microbiological reactions involving intermediates. *Biotechnology and Bioengineering* 67: 18 - 52.
243. Rittmann, B. E., R. Nerenberg, and I. Najm (2000). Autohydrogenotrophic perchlorate reduction. *Proc. AWWA Inorganics Conf., Albuquerque, New Mexico, Feb. 28, 2000* (10 pages).
244. Rittmann, B. E. (2000). The role of natural attenuation. *Water Environment Research* 72: 131.
245. Rittmann, B. E., A. O. Schwarz, and P. B. Sáez (2000). Biofilms applied to hazardous waste treatment. In J. Bryers, ed., *Biofilms II*, John Wiley & Sons, Inc., pp.207-234.
246. VanBriesen, J. M. and B. E. Rittmann (2000). Modeling speciation effects on biodegradation in mixed metal/chelate systems. *Biodegradation* 10: 315-330.
247. National Research Council (2000). *Natural Attenuation for Groundwater Remediation*, National Academy Press, Washington, DC. (B. E. Rittmann, chairman).
248. Rowe, R. K., I. R. Fleming, B. E. Rittmann, F. J. Longstaffe, D. R. Cullimore, R. McIsaac, P. Bennett, A. J. Cooke, M. D. Armstrong, and J. vanGulck (2000). Multidisciplinary study of clogging of leachate collection systems. *Proc. 6th Canadian Environ. Engr. Conf.*, June, 2000, pp. 57-65.
249. Cooke, A. J., R. K. Rowe, and B. E. Rittmann (2000). Modeling of clogging of leachate collection systems. *Proc. 6th Canadian Environ. Engr. Conf.*, London, Ontario, June, 2000, pp. 74-81.
250. Rittmann, B. E. and J. A. MacDonald (2000) National Research Council guidance on natural attenuation. In G. B. Wickrananayake, A. R. Gavaskar, and M. E. Kelley, eds., *Natural Attenuation Considerations and Case Studies: Remediation of Chlorinated and Recalcitrant Compounds*, Battelle Press, Columbus, Ohio, pp. 1 - 8.
251. VanBriesen, J. M. and B. E. Rittmann (2000). Modeling recalcitrant intermediate formation during biodegradation. In G. B. Wickrananayake, A. R. Gavaskar, and M. E. Kelley, eds., *Natural Attenuation Considerations and Case Studies: Remediation of Chlorinated and Recalcitrant Compounds*, Battelle Press, Columbus, Ohio, pp. 25 - 32.
252. Kim, B. J., B. E. Rittmann, and H. Yu (2000). Removal of volatile organic compounds and nitroglycerin using a three-phase circulating-bed biofilm reactor. *U.S. Army Construction Engineering Research Laboratory Technical Report*, Champaign, Ill.
253. Kemp, J., R. G. Zytner, J. Bell, W. Parker, D. Thompson, and B. E. Rittmann (2000). A method for determining VOC biotransformation rates. *Water Res.* 34: 3531-3542.

254. Rittmann, B. E. (2000) Natural attenuation's promise and application. *Water* 21, August 2000, pp. 20 - 22.
255. Lee, K. C. and B. E. Rittmann (2000). A novel hollow-fiber membrane biofilm reactor for autohydrogenotrophic denitrification of drinking water. *Water Sci. Technol.* 41(4-5): 219 - 226.
256. de Silva, D. G. V. and B. E. Rittmann (2000). Nonsteady-state modeling of multispecies activated sludge processes. *Water Environment Research* 72: 545 - 553.
257. de Silva, D. G. V. and B. E. Rittmann (2000). Interpreting the response to loading changes in a mixed-culture completely stirred tank reactor. *Water Environment Research* 72: 554 - 565.
258. Nerenberg, R., B. E. Rittmann, and W. J. Soucie (2000). Ozone/Biofiltration for Removing MIB and Geosmin. *J. Amer. Water Works Assn.* 92(12): 85 - 95.
259. Dahlen, E. P. and B. E. Rittmann (2000). Analysis of oxygenation reactions in a multi-substrate system - a new approach for estimating substrate-specific true yields. *Biotechnol. Bioengr.* 70: 685-692.
260. Woo, S. H. and B. E. Rittmann (2000). Microbial energetics and stoichiometry for biodegradation of aromatic compounds involving oxygenation reactions. *Biodegradation* 11: 213-227.
261. VanBriesen, J. M., B. E. Rittmann, L. Xun, D. C. Girvin, and H. Bolton, Jr. (2000) The rate-controlling substrate of nitrilotriacetate for biodegradation by *Chelatobacter heintzii*. *Environ. Sci. Technol.* 34: 3346-3353.
262. Rittmann, B. E., D. T. Reed, S. B. Aase, and A. J. Knopt (2000). Oxidation/reduction of multi-valent actinides in the subsurface. *Plutonium Futures – The Science*, K. K. S. Pillay and K. C. Kim, eds., American Institute of Physics, Melville, NY.
263. Rittmann, B. E. and P. L. McCarty (2001). *Environmental Biotechnology: Principles and Applications*. McGraw-Hill Book Co., New York.
264. Rittmann, B. E. (2001) Guidelines for natural attenuation. *Proc. Vintemode om Jord- og Grundvandsforurening, ATV*, 6 - 7 March, 2001, Vejle, Denmark, pp. 6 - 20.
265. Yu, H., B. J. Kim, and B. E. Rittmann (2001). Contributions of biofilm versus suspended bacteria in an aerobic, circulating-bed biofilm reactor. *Water Sci. Technol.* 43 (1): 303-310.
266. Wooschlager, J. B. E. Rittmann, P. Piriou, L. Kiene, and B. Schwartz. Using a comprehensive model to identify the major mechanisms of chloramine decay in distribution systems. *Water Sci. Technol: Water Supply* 1(4): 103-110.
267. Bekins, B., B. E. Rittmann, and J. A. MacDonald (2001). Natural attenuation: a groundwater remediation strategy based on demonstrating cause and effect. *EOS* 82(5): 53-58.
268. Rittmann, B. E. (2001) Is bioremediation the natural way to cleanup contamination. *RITE NOW* 39: 14.
269. Woo, S. H., J. M. Park, and B. E. Rittmann (2001). Evaluation of the interaction between

- biodegradation and sorption of phenanthrene in soil-slurry systems. *Biotechnol. Bioengr.* 73: 12-24.
270. Cooke, A. J., R. K. Rowe, B. E. Rittmann, J. vanGulck, and S. Millward (2001). Biofilm growth and mineral precipitation in synthetic leachate columns. *J. Geotechnical. Geoenviron. Engr.* 127: 849-856.
 271. Rittmann, B. E., P. Tularak, K.-C. Lee, T. W. Federle, N. R. Itrich, S. K. Kaiser, J. Shi, and D. C. McAvoy. (2001) How adaptation and mass transfer control the biodegradation of linear alkylbenzene sulfonate by activated sludge. *Biodegradation* 12: 31-37. (Also see Vol. 12, No. 5, 2001 for an Errata.)
 272. Becker, J. G., G. Berardesco, B. E. Rittmann, and D. A. Stahl (2001). Successional changes in an evolving anaerobic chlorophenol-degrading community used to infer relationships between population structure and system-level processes. *Appl. Environ. Microb.* 67: 5705-5714.
 273. Woolschlager, J. E., B. E. Rittmann, P. Piriou, and B. Schwartz (2001). Developing an effective strategy to control nitrifier growth using the Comprehensive Disinfection and Water Quality Model (CDWQ). *Proc. World Water and Environmental Resources Congress, Orlando, Florida, 30-24 May, 2001, 14 pages.*
 274. Yu, H., B. J. Kim, and B. E. Rittmann (2001). The role of intermediates and oxygen in biodegradation of benzene, toluene, and p-xylene by *Pseudomonas putida* F1. *Biodegradation* 12: 455-463.
 275. Yu, H., B. J. Kim, and B. E. Rittmann (2001). A two-step model for the kinetics of BTX degradation and intermediate formation by *Pseudomonas putida* F1. *Biodegradation* 12: 465-475.
 276. Seagren, E. A., B. E. Rittmann, and A. J. Valocchi (2002). Bioenhancement of NAPL-pool dissolution in porous medium: experimental evaluation. *J. Contam. Hydrol.* 55 (1/2): 57-85.
 277. Rittmann, B. E. and D. Stilwell (2002). Modeling biological processes in water treatment: the integrated biofiltration model. *Journal of Water Supply: Research and Technology -- AQUA* 51: 1-14.
 278. Rittmann, B. E. and C. S. Laspidou (2002). Biofilm Detachment. In: *The Encyclopedia of Environmental Microbiology*, G. Bitton, ed., John Wiley & Sons, Inc., New York, pp. 544-550.
 279. Nerenberg, R. and B. E. Rittmann (2002). Perchlorate as a secondary substrate in a denitrifying hollow-fiber membrane biofilm reactor. *Water Sci. Technol.: Water Supply* 2(2): 259-265.
 280. Rittmann, B. E., R. Nerenberg, T. E. Gillogly, G. E. Lehman, and S. Adham (2002). Membrane bioreactors for perchlorate removal, *Proc. Microfiltration III*, Costa Mesa, CA, National Water Research Institute. May 6, 2002, pp. 59-62.
 281. Laspidou, C. S. and B. E. Rittmann (2002). A unified theory for extracellular polymeric substances, soluble microbial products, and active and inert biomass. *Water Research* 36: 2711-2720.

282. Laspidou, C. S. and B. E. Rittmann (2002). Non-steady state modeling of microbial products and active and inert biomass. *Water Research* 36: 1983-1992.
283. Abeysinghe, D. H., V. deSilva, D. A. Stahl, and B. E. Rittmann (2002). The effectiveness of bioaugmentation in nitrifying systems stressed by washout conditions and cold temperatures. *Water Environment Research* 74: 187-199.
284. Rittmann, B. E., D. Stilwell, and A. Ohashi (2002). The transient-state, multiple-species biofilm model for aerobic biofiltration processes. *Water Research* 36: 2342-2356.
285. Kemp, J., R. G. Zytner, L. Sterne, and B. E. Rittmann (2002). Measuring and modelling VOC biotransformation rates. *Environ. Technol.* 23: 547-551.
286. Yu, H., B. J. Kim, and B. E. Rittmann (2002). Effects of substrate and oxygen limitation on gas-phase toluene removal in a three-phase biofilm reactor. *Water Environ. Res.* 74: 288-294.
287. Rittmann, B. E., D. Stilwell, J.C. Garside, G.L. Amy, C. Spangenberg, A. Kalinsky, and E. Akiyoshi (2002). Treatment of a high-color groundwater by ozone-biofiltration: pilot studies and modeling interpretation. *Water Research* 36: 3387-3397.
288. Lee, K.-C. and B. E. Rittmann (2002). Applying a novel autohydrogenotrophic hollow-fiber membrane biofilm reactor for denitrification of drinking water. *Water Research* 36: 2040-2052.
289. Rittmann, B. E., R. Nerenberg, K.-C. Lee, I. Najm, T. E. Gillogly, G. E. Lehman, and S. S. Adham (2002). The hydrogen-based hollow-fiber membrane biofilm reactor (HFMBfR) for Reducing Oxidized Contaminants. *Proc. Intl. Specialized Conf. on Creative Water and Wastewater Treatment Technologies for Densely Populated Urban Areas*, G. Chen, J.-C. Huang, and D. Shang, Eds, Hong Kong University of Science and Technology, Hong Kong, pp. 151-158.
290. Dahlen, E. P. and B. E. Rittmann (2002). Two-tank activated sludge process for accelerating the detoxification kinetics of hydrocarbons requiring initial monooxygenation reactions. *Biodegradation* 13: 91-99.
291. Dahlen, E. P. and B. E. Rittmann (2002). A detailed analysis of the mechanisms controlling the acceleration of 2,4-DCP monooxygenation in the two-tank activated sludge process. *Biodegradation* 13: 101-116.
292. Rittmann, B. E. (2002). Applying NRC Guidance for Natural Attenuation of MTBE. *J. Soil and Sediment Contamination* 11: 687-700.
293. Nerenberg, R., B. E. Rittmann, and I. Najm (2002). Perchlorate reduction in a hydrogen-based membrane-biofilm reactor. *J. Amer. Wat. Works Assn.* 94(11): 103-114.
294. Songkasiri, W., D. T. Reed, and B. E. Rittmann (2002). Biosorption of neptunium(V) by *Pseudomonas fluorescens*. *Radiochimica Acta* 90: 785-789.
295. Rittmann, B. E. (2002). The role of molecular methods in evaluating processes used in environmental biotechnology. *Water Environment Research* 74: 421-427 + inside front cover.
296. Rittmann, B. E. (2002). Molecular biology and special issues. *Water Environment*

Research 74: 419.

297. Rittmann, B. E. (2002). Hydrogen-based membrane-biofilm reactor solves thorny problems of oxidized contaminants. *Membrane Technology*, November 2002, pp. 6–10.
298. Rittmann, B. E. (2002). Applying NRC guidelines for natural attenuation of MTBE. Chapter 14 in *Contaminated Soils*, Vol. 7, P. T. KostECKi, E. J. Calabrese, and J. Dragan, eds., Amherst Scientific Publishers, Amherst, Massachusetts, pp. 199-212.
299. Rittmann, B. E., J. E. Banaszak, J. M. VanBriesen, and D. T. Reed (2002). Mathematical modeling of precipitation and dissolution reactions in microbiological systems. *Biodegradation* 13: 239-250.
300. Rittmann, B. E., J. E. Banaszak, and D. T. Reed (2002). Reduction of Np(V) and precipitation of Np(IV) by an anaerobic microbial consortium. *Biodegradation* 13: 329-342.
301. Rittmann, B. E. (2003). Monitored natural attenuation of MTBE. Chapter 16 in *Handbook for Managing Releases of Gasoline Containing MTBE*, E. E. Moyer and P. T. KostECKi, eds., Association for Environmental Health and Sciences, Amherst, Massachusetts, Vol. 2, pp. 329-345.
302. Lee, K.-C. and B. E. Rittmann (2003). Effects of pH and precipitation on autohydrogenotrophic denitrification using the hollow-fiber membrane-biofilm reactor. *Water Research* 37: 1551-1556.
303. Sang, B.-I., E.-S. Yoo, B.-J. Kim, and B. E. Rittmann (2003). The trade-offs and effect of carrier size and oxygen loading on gaseous toluene removal-performance of a three-phase circulating-bed biofilm reactor. *Applied Microbiology and Biotechnology* 61: 214-219.
304. Rittmann, B. E. (2003). Environmental biotechnology and molecular biology. *BIO TECH International* 15(2): 5-8.
305. Rittmann, B. E., K.-C. Lee, J. Shi, and D. C. McAvoy (2003). Modeling nonsteady-state conditions and kinetics of mass transport for hydrophobic compounds in activated-sludge treatment. *Water Environment Research* 75: 273-280.
306. Willett, I. A. and B. E. Rittmann (2003). Slow complexation kinetics for ferric iron and EDTA complexes render EDTA non-biodegradable. *Biodegradation* 14: 105-121.
307. Chapelle, F. H., D. E. Ellis, E. K. Nyer, K. A. Lovelace, and B. E. Rittmann (2003). Monitored natural attenuation forum: a panel discussion. *Remediation*, summer 2003, pp. 113-121.
308. Rittmann, B. E., J. E. Banaszak, A. Cooke, and R. Kerry Rowe (2003). Mechanisms controlling $\text{CaCO}_{3(s)}$ precipitation in landfill leachate-collection systems. *J. Environmental Engineering* 129: 723-730.
309. VanGulck, J. F., R. K. Rowe, B. E. Rittmann, and A. J. Cooke (2003). Predicting biogeochemical calcium carbonate precipitation in landfill leachate collection systems. *Biodegradation* 14: 331-346.
310. Rittmann, B. E. (2004). Biofilms in the water industry. Chapter 19 in M. A. Ghannoum and G. A. O'Toole, eds., *Microbial Biofilms*, ASM Press, Washington, DC., pp. 359-378.

311. Rittmann, B.E., F. Kremer, B. Bekins (2004). Monitored natural attenuation forum: a panel discussion, *Remediation* 14(2): 153-158.
312. Nerenberg, R., B. E. Rittmann, T. E. Gillogly, G. E. Lehman, and S. S. Adham (2004) Perchlorate reduction using the hollow-fiber membrane-biofilm reactor: bench and pilot-scale studies. Proc. 2003 Battelle Symposium on In Situ and On Site Bioremediation, Orlando, FL, June 2003. Paper C-08 on CD-ROM.
313. Songkasiri, W., A. Willett, D. T. Reed, B. E. Rittmann, and S. Koenigsberg (2004). Bioremediation of Neptunium(V) using lactate, hydrogen (H₂), or hydrogen release compound (HRC). Proc. 2003 Battelle Symposium on In Situ and On Site Bioremediation, Orlando, FL, June 2003. Paper L-09 on CD-ROM.
314. Rittmann, B. E., R. Nerenberg, K.-C. Lee, I. Najm, T. E. Gillogly, G. E. Lehman, and S. S. Adham (2004). The hydrogen-based hollow-fiber membrane biofilm reactor (HFMBfR) for Reducing Oxidized Contaminants. *Water Science and Technology: Water Supply* 4(1): 127-133.
315. DiGiano, F., A., G. Andreoltola, S. Adham, C. Buckley, P. Cornel, G. T. Daigger, A. G. Fane, N. Galil, J. Jacangelo, A. Pollice, B. E. Rittmann, A. Rozzi, T. Stephenson, and Z. Ujang (2004). Safe water for everyone: membrane bioreactor technology. *Science in Africa* (online): <http://www.scienceinAfrica.co.za/june/membrane.htm>.
316. DiGiano, F. A., G. Andreottola, S. Adham, C. Buckley, P. Cornel, G. T. Daigger, A. G. Fane, N. Galil, J. Jacangelo, A. Pollice, B. E. Rittmann, A. Rozzi, T. Stephenson, and Z.Ujang (2004). Safe water for everyone, *Water Environ. Technol.*, June, 2004, pp. 31-35.
317. Lapidou, C. S. and B. E. Rittmann (2004). Modeling the development of biofilm density including active bacteria, inert biomass, and extracellular polymeric substances. *Water Research* 38: 3349-3361.
318. Lapidou, C. S. and B. E. Rittmann (2004). Evaluating trends in biofilm density using the UMCCA model. *Water Research* 38: 3362-3372.
319. Rittmann, B. E., A. O. Schwarz, H. Eberl, E. Morgenroth, J. Perez, M. L. van Loosdrecht, and O. Wanner (2004). Results from the multi-species benchmark problem (BM3) using one-dimensional models. *Water Sci. Technol.* 49(11-12): 163-168.
320. Morgenroth, E., H. Eberl, D. Noguera, C. Picioreanu, B. E. Rittmann, A. O. Schwarz, M. L. M. van Loosdrecht, and O. Wanner (2004). Results of the single-species benchmark problem (BM1). *Water Sci. Technol.* 49(11-12): 145-154.
321. Eberl, H., E. Morgenroth, M. van Loosdrecht, D. Noguera, C. Picioreanu, B. Rittmann, A. Schwarz, and O. Wanner (2004). Modelling a spatially heterogeneous biofilm and the bulk fluid – results from the fluid-flow benchmark problem (BM2). *Water Sci. Technol.* 49(11-12): 155-162.
322. Nerenberg, R. and B. E. Rittmann (2004). Reduction of oxidized water contaminants with a hydrogen-based, hollow-fiber membrane biofilm reactor. *Water Sci. Technol.* 49(11-12): 223-230.
323. Zhang, Y., X. Quan, B. E. Rittmann, J. Wang, H. Shi, Y. Qian, and J. Yu (2004). IAL-CHS reactor used for biodegradation of 2,4-dichlorophenol and phenol. *Water Sci. Technol.*

- 49(11-12): 247-254.
324. Rittmann, B. E. (2004). Definition, objectives, and evaluation of natural attenuation. *Biodegradation* 15: 349-357.
 325. Maurer, M. and B. E. Rittmann (2004). Modeling intrinsic bioremediation to interpret observable biogeochemical footprints of BTEX biodegradation: the need for fermentation and abiotic chemical processes. *Biodegradation* 15: 405-417.
 326. Maurer, M. and B. E. Rittmann (2004). Modeling intrinsic bioremediation to interpret observable biogeochemical footprints of BTEX biodegradation: mathematical modeling and examples. *Biodegradation* 15: 419-434.
 327. Lapidou, C. S. and B. E. Rittmann (2004). Modeling biofilm complexity by including active and inert biomass and EPS. *Biofilms* 1: 285-291.
 328. Rittmann, B. E. (2004). Biofilm technology for improving water quality. *J. Shanghai Normal Univ.* 33(4): 1-8.
 329. Rittmann, B. E. (2004). The new frontier of oxidized contaminants." Proc. 4th Intl. Conf. Remediation of Chlorinated and Recalcitrant Compounds. Battelle Press, Columbus, Ohio, CD-ROM.
 330. Becker, J. G., G. Barardesco, B. E. Rittmann, and D. A. Stahl (2005). The role of syntrophic associations in sustaining anaerobic mineralizations of chlorinated organic compounds. *Environ. Health Persp.* 113(3):310-3166.
 331. Adham, S., T. Gillogly, G. Lehman, B. Rittmann, and R. Nerenberg (2005). Membrane Biofilm Reactor Process for Nitrate and Perchlorate Removal. American Water Works Association Research Foundation, Denver, Colorado and IWA Publishing Online (<http://www.iwaponline.com>)
 332. Adham, S. K.-P. Chiu, G. Lehman, B. E. Rittmann, and J. Chung (2005). Novel Membrane Biofilm Reactor for Groundwater Treatment and Remediation. National Water Research Institute, Irvine, California.
 333. Zhang, Y., B. E. Rittmann, J. Wang, Y. Sheng, J. Yu, H. Shi, and Y. Qian (2005). High-carbohydrate wastewater treatment by IAL-CHS with immobilized *Candida tropicalis*. *Process Biochemistry* 40: 857-863.
 334. Wilson, J. T., C. J. Newell, J. Seaberg, B. E. Rittmann, T. H. Weidermeier, W. Z. Dickson, and P. E. Haas (2005). Monitored natural attenuation panel: The use of modeling to predict MNA and social issues of active remediation versus MNA. *Remediation* 15(3): 121-137.
 335. Karadagli, F. and B. E. Rittmann (2005). Kinetic characterization of *Methanobacterium bryantii* M.o.H. *Environ. Sci. Technol.* 39 (13): 4900-4905.
 336. de Grey, P. J. Alvarez, R. O. Brady, A. M. Cuervo, W. G. Jerome, P. L. McCarty, R. A. Nixon, B. E. Rittmann, and J. Sparrow (2005). Medical bioremediation: prospects for the application of microbial catabolic diversity to aging and several major age-related diseases. *Aging Res. Rev.* 2005 Jul 21.
 337. Marcus, A, R. M. Lueptow, and B. E. Rittmann (2005). Preliminary investigation of generating electricity from wastewater via a single-compartment microbial fuel cell," *SAE*

Paper 05-ICES-302, 2005.

338. Cooke, A. J., R. K. Rowe, and B. E. Rittmann (2005). Modelling species fate and porous media effects for landfill leachate flow. *Canad. Geotech. J.* 42: 1116-1132.
339. Daigger, G. T., B. E. Rittmann, S. S. Adham, and G. Andreottola (2005). Are membrane bioreactors ready for widespread application? *Environ. Sci. Technol.* 39: 399A-406A.
340. Woolschlager, J. B. E. Rittmann, and P. Piriou (2005). Water quality decay in distribution systems: problems, causes, and new modeling tools. *Urban Water J.* 2(2): 69-79.
341. Woolschlager, J., B. E. Rittmann, P. Piriou, and B. Schwartz (2005). Developing a simple factor to evaluate microbiological stability in distribution systems. In W. Lauer (ed.), *Water Quality in the Distribution Systems*, Amer. Water Works Assn., Denver, CO, pp. 103-113.
342. Lapidou, C., B. E. Rittmann, and S. A. Karamanos (2005). Finite-element modeling to expand the UMCCA model to describe biofilm mechanical strength. *Water Sci. Technol.* 52(7): 161-166.
343. Cooke, A. J., R. K. Rowe, J. VanGulck, and B. E. Rittmann (2005). Application of the Bioclog model for landfill leachate clogging of gravel-packed soil columns. *Canadian Geotech. J.* 42: 1600-1614.
344. Kelly, J. J., S. Siripong, J. McCormack, P. A. Noble, L. R. Janus, H. Urakawa, S. El-Fantroussi, P. A. Noble, L. Sappelsa, B. E. Rittmann, and D. A. Stahl (2005). DNA-microarray detection of nitrifying bacterial 16S rRNA in wastewater treatment plant samples. *Water Research* 39: 3229-3238.
345. Cowman, J. C. Torres, and B. E. Rittmann (2005). Total nitrogen removal in an aerobic/anoxic membrane biofilm reactor system. *Water Sci. Technol.* 52(7): 115-120.
346. Rittmann, B. E., R. Nerenberg, B. Stinson, D. Katehis, E. Leong, and J. Anderson (2005). Hydrogen-based membrane biofilm reactor for wastewater treatment. *Water Intelligence Online*, No. 200504029.
347. Becker, J. G., G. Berardesco, B. E. Rittmann, and D. A. Stahl (2006). The effects of endogenous substrates on the adaptation of anaerobic microbial communities to 3-chlorobenzoate. *Appl. Environ. Microb.* 72: 449-456.
348. Rittmann, B. E. M. Hausner, F. Löffler, N. G. Love, G. Muyzer, S. Okabe, D. B. Oerther, J. Peccia, L. Raskin, and M. Wagner (2006). A vista for microbial ecology and environmental biotechnology. *Environ. Sci. Technol.* 40: 1096-1103.
349. Chung, J., R. Nerenberg, and B. E. Rittmann (2006). Bio-reduction of selenate a hydrogen-based membrane biofilm reactor. *Environ. Sci. Technol.* 40: 1664-1671.
350. Rittmann, B. E. (2006). The membrane biofilm reactor: the natural partnership of membranes and biofilm, *Water Sci. Technol.* 53(3): 219-226.
351. Wanner, O., H. Eberl, E. Morgenroth, D. Noguera C. Picioreanu, B. E. Rittmann, and M. C. M. van Loosdrecht (2006). Deciphering and using biofilms. *Water* 21, June 2006, pp. 34-35.
352. Wanner, O., H. Eberl, E. Morgenroth, D. Noguera C. Picioreanu, B. E. Rittmann, and M. C. M. van Loosdrecht (2006). Mathematical Modeling of Biofilms. Report of the IWA

- Biofilm Modeling Task Group, Scientific and Technical Report No. 18, IWA Publishing, London.
353. Rittmann, B. E. and M. C. M. van Loosdrecht, eds. (2006). Leading-Edge Technology 2005 – Wastewater Treatment, Water Sci. Technol. 53(3).
 354. Rittmann, B. E. (2006) Microbial ecology to manage processes in environmental biotechnology. Trends in Biotechnology April 28, 2006, pp 261-268.
 355. Chung J., H. Ryu, M. Abbaszadegan, and B. E. Rittmann (2006). Community structure and function in an H₂-based membrane biofilm reactor capable of bio-reduction of selenate and chromate. Appl. Microb. Biotechnol. 72: 1330-1339.
 356. Dahlen, E. and B. E. Rittmann (2006). The ACCEL model for accelerating the detoxification kinetics of hydrocarbons requiring initial monooxygenase reactions. Biodegradation 17: 237-250.
 357. Schwarz, A., B. E. Rittmann, G. Crawford, A. Klein, and G. Daigger (2006). A critical review of the effects of mixed liquor suspended solids on membrane bioreactor operation. Separation Sci. Technol. 41: 1489-1511.
 358. Chung, J., R. Nerenberg, C. Torres, and B. E. Rittmann (2006). Bio-reduction of soluble chromate using a hydrogen-based membrane biofilm reactor. Water Res. 40: 1634-1642.
 359. Siripong, S., J. J. Kelly, D. A. Stahl, and B. E. Rittmann (2006). Impact of pre-hybridization amplification on microarray detection of nitrifying bacteria in wastewater treatment plant samples. Environmental Microbiology 8: 1564-1574.
 360. Rittmann, B. E. (2006). Monitored natural attenuation forum: environmental remediation Applications of molecular biology tools – part II. Remediation 16(3): 123-124.
 361. Rittmann, B. E. (2006). Future directions for environmental biotechnology. J. Shanghai Normal Univ. 35(6): 1-8.
 362. Lee, H.-S., J. Chung, and B. E. Rittmann (2006). Comment on fermentative hydrogen production with *Clostridium butyricum* CGS5 isolated from anaerobic sludge. Intl. J. Hydrogen Energy 31: 1797-1798.
 363. Chung, J., X. Li, and B. E. Rittmann (2006). Bio-reduction of arsenate using a hydrogen-based membrane biofilm reactor. Chemosphere 40: 24 – 34.
 364. Nerenberg, R., Y. Kawagoshi, and B. E. Rittmann (2006). Kinetics of an autotrophic, hydrogen-oxidizing perchlorate-reducing bacterium. Water Res. 40: 3290-3296.
 365. Chung, J., B. E. Rittmann, W. F. Wright, and R. H. Bowman (2007). Simultaneous bio-reduction of nitrate, perchlorate, selenate, chromate, arsenate, and dibromochloropropane using a hydrogen-based membrane biofilm reactor. Biodegradation 18: 199-209.
 366. Chung, J., W. Bae, Y.-W. Lee, and B. E. Rittmann (2007). Shortcut biological nitrogen removal is hybrid biofilm/suspended growth reactors. Process Biochemistry 42: 320-328.
 367. Siripong, S. and B. E. Rittmann (2007). Diversity study of nitrifying bacteria in full-scale municipal wastewater treatment plants. Water Res. 41: 1110-1120.
 368. Schwarz, A. O. and B. E. Rittmann. (2007). Analytical-modeling analysis of how pore-water gradients of toxic metals confer community resistance, Adv. Water Res. 30: 1562-

1570.

369. Torres, C. I., A. Kato-Marcus, and B. E. Rittmann (2007). Kinetics of consumption of fermentation products by anode-respiring bacteria. *Appl. Microb. Biotechnol.* 77: 689-697.
370. Chung, J. and B. E. Rittmann (2007). Bio-reductive dechlorination of 1,1,1-trichloroethane and chloroform using a hydrogen-based membrane biofilm reactor. *Biotechnol. Bioengr.* 97: 52-60.
371. Ren, N., D. Xing, B. E. Rittmann, L. Zhao, T. Xie, and X. Zhao (2007). Microbial community structure of ethanol-type fermentation in bio-hydrogen production. *Environ. Microb.* 9: 1112-1125.
372. Rittmann, B. E. (2007). Where are we with biofilms now? Where are we going? *Water Sci. Technol.* 55(8-9): 1-7.
373. Chung, J., R. Nerenberg, and B. E. Rittmann (2007). Simultaneous biological reduction of nitrate and perchlorate in brine water using the hydrogen-based membrane biofilm reactor. *J. Environ. Engr.* 133: 157-164.
374. Marsolek, M. D., M. J. Kirisits, and B. E. Rittmann (2007). Biodegradation of 2,4,5-trichlorophenol by mixed microbial communities: Biorecalcitrance, inhibition, and adaptation. *Biodegradation* 18: 351-358.
375. Siripong, S., J. J. Kelly, D. A. Stahl, and B. E. Rittmann (2007). Response to correspondance on influence on grid placement on melting profiles obtained from gel-pad microarrays. *Environ Microb.* 9: 1866-1867.
376. Rittmann, B. E. and J. Schloendorn (2007). Engineering away lysosomal junk – medical bioremediation. *Rejuvenation Research* 10: 359-365.
377. Karadagli, F., and B. E. Rittmann (2007). Thermodynamic and kinetics analysis of H₂ threshold for *Methanobacter bryantii* M.o.H. *Biodegradation* 18: 439-452.
378. Karadagli, F. and B. E. Rittmann (2007). Mathematical model for the kinetics of H₂ utilization by *Methanobacter bryanitt* M.o.H. considering hydrogen thresholds. *Biodegradation* 18: 453-464.
379. Rittmann, B. E. (2007). Environmental biotechnology's essential role in water sustainability. *Proc. 3rd International Conference on Sustainable Water Environment: Integrated Water Resources Management – New Steps*, Hokkaido University, Sapporo, Japan, 24-25 October 2007, pp. 121-128.
380. Rittmann, B. E. (2007) The membrane biofilm reactor is a versatile platform for water and wastewater treatment. *Environ. Engr. Res. (Korea)* 12(4): 157-175.
381. Marcus, A. K., C. I. Torres, and B. E. Rittmann (2007). Conduction-based modeling of the biofilm anode of a microbial fuel cell. *Biotech. Bioengr.* 98: 1117-1182.
382. Rittmann, B. E., R. G. Ford, R. T. Wilkin, J. W. Everett, and L. Kennedy (2007). Monitored natural attenuation forum: MNA of metals and radionuclides. *Remediation* 18 (1): 121-129.
383. Schwarz, A. O. and B. E. Rittmann (2007). A biogeochemical framework for metal detoxification in sulfidic systems. *Biodegradation* 18: 675-692.

384. Schwarz, A. O. and B. E. Rittmann (2007). Modeling bio-protection and the gradient-resistance mechanism using CCBATCH. *Biodegradation* 18: 693-701.
385. Reed D. T., S. E. Pepper, M. K. Richmann, G. Smith, R. Deo, and B. E. Rittmann (2007). Subsurface bio-mediated reduction of higher-valent uranium and plutonium. *J. Alloys Compounds* 444-445: 376-384.
386. Chung, J., C.-H. Ahn, Z. Chen, and B. E. Rittmann (2008). Bio-reduction of *N*-nitrosodimethylamine (NDMA) using a hydrogen-gas based membrane biofilm reactor. *Chemosphere* 70(3): 516-520.
387. Chung, J., R. Krajmalnik-Brown, and B. E. Rittmann (2008). Bio-reduction of trichloroethene using a hydrogen-based membrane biofilm reactor. *Environ. Sci. Technol.* 42(2): 477-483.
388. Xing, D., N. Ren, and B. E. Rittmann (2008). Genetic diversity of hydrogen-producing bacteria in acidophilic ethanol-H₂ co-producing system analyzed by [Fe]-hydrogenase gene. *Appl. Environ. Microb.* 74: 1232-1239.
389. Rittmann, B. E., G. Galjaart, and S. Adham (2008). Leading edge technologies for sustainable water provision. *Water21*, February 2008, pp. 3-34.
390. Nerenberg, R., Y. Kawagoshi, and B. E. Rittmann (2008). Microbial ecology of a hydrogen-based membrane biofilm reactor reducing perchlorate in the presence of nitrate or oxygen. *Water Research* 42: 1151-1159.
391. Lee, H.-S., P. Parameswaran, A. Kato Marcus, C. I. Torres, and B. E. Rittmann (2008). Evaluation of energy-conversion efficiencies in microbial fuel cells (MFCs) utilizing fermentable and non-fermentable substrates. *Water Research* 42: 1501-1510.
392. DiBaise, J. K., H. Zhang, M. D. Crowell, R. Krajmalnik-Brown, G. A. Decker, and B. E. Rittmann (2008). The gut microbiota and its relationship to obesity. *Mayo Clinic Proc.* 83(4): 460-469.
393. Rittmann, B. E., N. Love, and H. Siegrist (2008). Making wastewater a sustainable resource. *Water21*, April 2008, pp. 22 – 23.
394. Rittmann, B. E. (2008). Opportunities for renewable bioenergy using microorganisms. *Biotechnol. Bioengr.* 100: 203-212.
395. Krasner, S. W., P. Westerhoff, B. Chen, G. Amy, S.-N. Nam, Z. K. Chowdhury, S. Sinha, and B. E. Rittmann (2008). Contribution of wastewater to DBP formation. Publ. 91206. American Water Works Association Research Foundation, Denver, CO.
396. Rittmann, B. E., H.-S. Lee, H. Zhang, J. Alder, J. E. Banaszak, and D. Emon (2008). Full-scale application of focused-pulse pre-treatment for improving biosolids digestion and conversion to methane. Proc. 2008 Leading Edge Technology Conference (Zürich), on CD, International Water Association, London.
397. Lee, H.-S., M. Salerno, and B. E. Rittmann (2008). Thermodynamic evaluation of hydrogen production in glucose fermentation. *Environ. Sci. Technol.* 42: 2401-2407.
398. Torres, C. I., A. Kato-Marcus, and B. E. Rittmann (2008). Proton transport inside the biofilm limits electrical current generation by anode-respiring bacteria. *Biotechnol.*

- Bioengr. 100: 872-881.
399. Westerhoff, P. A. and B. E. Rittmann. Tiny particles causing big concern. *Water Environ. Res.* 80(6): 483.
 400. Sang, B.-I., E.-S. Yoo, B. J. Kim, and B. E. Rittmann (2008). The effect of carrier size on the performance of a three-phase circulating-bed biofilm reactor for removing toluene in gas stream. *J. Microb. Biotechnol.* 18: 1121-1129.
 401. Rittmann, B. E., R. Krajmalnik-Brown, and R. U. Halden (2008). Pre-genomic, genomic, and post-genomic study of microbial communities involved in bioenergy. *Nature Rev. Microb.* 6: 604-612.
 402. Karatas, I., E. Kavazanjian, Jr., and B. E. Rittmann (2008). Microbially induced precipitation of calcite using *Pseudomonas denitrificans*. Proc. First Intl. Conf. Biogeotechnical Engineering, Delft, The Netherlands (on CD ROM)
 403. Mathieu, J., J. Schloendorn, B. E. Rittmann, A. de Grey, and P. J. J. Alvarez (2008). Microbial degradation of 7-ketocholesterol. *Biodegradation* 19: 807-813.
 404. Rittmann, B. E., C. I. Torres, and A. K. Marcus (2008). Understanding the distinguishing features of a microbial fuel cell as a biomass-based renewable energy technology. *Emerging Environmental Technologies*, V. Shah, ed., Springer, pp. 1 – 28.
 405. Hasar, H., S. Xia, C.-H. Ahn, and B. E. Rittmann (2008). Simultaneous removal of organic matter and nitrogen compounds by an aerobic/anoxic membrane biofilm reactor. *Water Research* 42: 4109 – 4116.
 406. Torres, C. I., A. K. Marcus, P. Parameswaran, B. E. Rittmann (2008). Kinetic experiments for evaluating the Nernst-Monod model for anode-respiring bacteria (ARB) in a biofilm anode. *Environ. Sci. Technol.* 42(17): 6593-6597.
 407. Chung, J. and B. E. Rittmann (2008). Simultaneous bio-reduction of trichloroethene, trichloroethane, and chloroform using a hydrogen-based membrane biofilm reactor. *Wat. Sci. Technol.* 58(30): 495-501.
 408. Marsolek, M. D., C. I. Torres, M. Hausner, and B. E. Rittmann (2008). Intimate coupling of photocatalysis and biodegradation in a photocatalytic circulating-bed biofilm reactor. *Biotechnol. Bioengr.* 101: 83-92.
 409. Rittmann, B. E., H-S. Lee, H. Zhang, J. Alder, J. E. Banaszak, and R. Lopez. Full-scale application of focused-pulsed pre-treatment for improving biosolids digestion and conversion to methane (2008). *Water Sci. Technol.* 58(10): 1895 – 1902.
 410. Van Ginkel, S. W., C. H. Ahn, M. Badruzzaman, D. J. Roberts, S. G. Lehman, S. Adham, and B. E. Rittmann (2008). Kinetics of nitrate and perchlorate reduction in ion exchange brine using the membrane biofilm reactor (MBfR). *Water Research* 42: 4197-4205.
 411. Torres, C. I., H.-S. Lee, and B. E. Rittmann (2008). Carbonate species as OH⁻ carriers for decreasing the pH gradient between cathode and anode in bio-fuel cells. *Environ. Sci. Technol.* 42, 8773 – 8777.
 412. Zhang, H., J. K. DiBaise, A. Zuccolo, D. Kudrna, M. Braidotti, Y. Yu, P. Parameswaran, M. D. Crowell, R. Wing, B. E. Rittmann, and R. Krajmalnik-Brown (2009). Human gut

- microbiota in obesity and after gastric bypass. *Proc. Nat. Acad. Sci.* 106 (7): 2365-2370.
413. Salerno, M. B., H.-S. Lee, P. Parameswaran, and B. E. Rittmann (2009). Using a pulsed electric field pretreatment for improved biosolids digestion and methane production. *Biosolids Technical Bulletin*, 14 (1): 11 – 15.
 414. Lee, H.S. and B. E. Rittmann (2009). Evaluation of metabolism using stoichiometry in fermentative biohydrogen. *Biotechnol. Bioengr.* 102: 749-758.
 415. Ahn, C. H., H. Oh, D. Ki, S. Van Ginkel, B. E. Rittmann, and J. Park (2009). Biofilm-community selection during autohydrogenotrophic reduction of nitrate and perchlorate in ion-exchange brine. *Appl. Microb. Biotechnol.* 81: 1169-1177.
 416. Ziv-El, M. C. and B. E. Rittmann (2009). Systematic evaluation of nitrate and perchlorate bioreduction kinetics in groundwater using a hydrogen-based membrane biofilm reactor. *Water Research* 43: 173-181.
 417. Krasner, S. W., P. Westerhoff, B. Chen, B. E. Rittmann S.-N. Nam, and G. Amy (2009). Impact of wastewater treatment processes on organic carbon, organic nitrogen, and DBP precursors in effluent organic matter. *Environ. Sci. Technol.* 43: 2911-2918.
 418. Ni, B.-J., F. Fang, H.-Q. Yu, and B. E. Rittmann (2009). Modeling microbial products in activated sludge under feast-famine conditions. *Environ. Sci. Technol.* 43: 2489-2497.
 419. Parameswaran, P., C. I. Torres, H.-S. Lee, R. Krajmalnik-Brown, and B. E. Rittmann (2009). Syntrophic interactions between anode respiring bacteria (ARB) and non-ARB in a biofilm anode: electron balances. *Biotechnol. Bioengr.* 103: 513-523.
 420. Merkey, B. V., B. E. Rittmann, and D. L. Chopp (2009). Modeling how soluble microbial products (SMP) support heterotrophs in autotroph-based biofilms. *J. Theoretical Biology* 259: 670-683.
 421. Mathieu, J., J. Schloendorn, B. E. Rittmann, and P. J. J. Alvarez (2009). Medical bioremediation of age-related diseases. *Microbial Cell Factories* 8: 21; doi:10.1186/1475-2859-8-21.
 422. Karadagli, F., D. McAvoy, and B. E. Rittmann (2009). Development of a mathematical model for physical disintegration of flushable consumer products in sewerage systems. *Water Environment Res.* 81: 459-465.
 423. Salerno, M. B., H.-S. Lee, P. Parameswaran, and B. E. Rittmann (2009). Using a pulsed electric field as a pretreatment for improved biosolids digestion and methanogenesis. *Water Environment Research* 81: 831-839.
 424. Zhang, H., J. E. Banaszak, P. Parameswaran, J. Alder, R. Krajmalnik-Brown, and B. E. Rittmann (2009). Changes in a methanogenic microbial community after Focused Pulsed sludge pre-treatment. *Water Research* 43: 4517-4526.
 425. Park, S., B. E. Rittmann, and W. Bae (2009). Life-cycle model for endospore-forming bacteria including germination and sporulation. *Biotechnol. Bioengr.* 104: 1012-1024.
 426. Lee, H.-S., C. I. Torres, and B. E. Rittmann (2009). Fate of H₂ in an upflow single-chamber microbial electrolysis cell using a metal-catalyst-free cathode. *Environ. Sci. Technol.* 43: 7971-7976.

427. Lee, H.-S., R. Krajmalnik-Brown, H. Zhang, and B. E. Rittmann (2009). An electron-flow model can predict complex redox reactions in mixed-culture fermentative BioH₂: microbial ecology evidence. *Biotechnol. Bioengr.* 104: 687-697.
428. Krasner, S. W., P. Westerhoff, B. Chen, B. E. Rittmann, and G. Amy (2009). The occurrence of disinfection byproducts in USA wastewater treatment plant effluent. *Environ. Sci. Technol.* 43: 8320-8325.
429. Torres, C. I., R. Krajmalnik-Brown, P. Parameswaran, A. K. Marcus, G. Wanger, Y. Gorby, and B. E. Rittmann (2009). Selecting anode-respiring bacteria based on anode potential: phylogenetic, electrochemical, and microscopic characterization. *Environ. Sci. Technol.* 43: 9519-9524.
430. Schloendorn, J., T. Webb, K. Kemmish, M. Hamalainen, D. Jackmeyer, L. Jiang, J. Mathieu, J. Rebo, J. Sankman, L. Sherman, L. Tontson, A. Qureshi, P. Alvarez, and B. E. Rittmann (2009). Medical bioremediation – a concept moving towards reality. *Rejuvenation Res.* 12: 411 – 419.
431. Ziv-El, M. and B. E. Rittmann (2009). Water-quality assessment after treatment in a membrane biofilm reactor. *J. Amer. Water Works Assn.* 101 (12): 77 – 83.
432. Ahn, C. H. and B. E. Rittmann (2009). Assessment of the efficiency of intermittent ozone disinfection. *Ozone Science and Engineering* 31: 436-444.
433. Park, S., B. E. Rittmann, and W. Bae (2009). Kinetics of photocatalytic reactions with porous carriers coated with nano-TiO₂ particles. *J. Korean Soc. Environ. Engrs.* 31(10): 927-932.
434. Lee, H.-S., C. I. Torres, and B. E. Rittmann (2009). Effects of substrate diffusion and anode potential on kinetic parameters for anode-respiring bacteria in a microbial electrochemical cell. *Environ. Sci. Technol.* 43: 7571-7577.
435. Parameswaran, P., H. Zhang, C. I. Torres, B. E. Rittmann, and R. Krajmalnik-Brown (2010). Microbial community structure in a biofilm anode fed with a fermentable substrate: the significance of hydrogen scavengers. *Biotechnol. Bioengr.* 105: 69-78.
436. Torres, C. I., Andrew K. Marcus, H.-S. Lee, P. Parameswaran, R. Krajmalnik-Brown, and B. E. Rittmann (2010). A kinetic perspective on extracellular electron transfer by anode-respiring bacteria. *FEMS Microb. Rev.* 34: 3 – 17.
437. Park, S., W. Bae, and B. E. Rittmann (2010). Operational boundaries for nitrite accumulation in a nitrification process by using minimum/maximum substrate concentrations that include effects of oxygen limitation, pH, and inhibition. *Environ. Sci. Technol.* 44: 335 – 342.
438. Park, S. W. Bae, B. E. Rittmann, S. Kim, and J. Chung (2010). Operation of suspended-growth shortcut biological nitrogen removal (SSBNR) based on the minimum/maximum substrate concentration. *Water Res.* 44: 1419-1428.
439. Van Ginkel, S. W., R. Lamendella, W. P. Kovacik, Jr., J. W. Santo Domingo, and B. E. Rittmann (2010). Microbial community structure during nitrate and perchlorate reduction in ion-exchange brine using the hydrogen-based membrane biofilm reactor (MBfR). *Bioresource Technol.* 101: 3747-3750.

440. Schwarz, A. O. and B. E. Rittmann (2010). The diffusion-active permeable reactive barrier. *J. Contaminant Hydrology* 112: 155-162.
441. Park, S., B. E. Rittmann, and W. Bae (2010). Novel differential-elimination method for determining kinetic coefficients under substrate self-inhibition. *Biodegradation* 21: 203-216.
442. Ni, B.-J., B. E. Rittmann, and H.-Q. Yu (2010). Modeling predation processes in activated sludge. *Biotechnol. Bioengr.* 105: 1021-1030.
443. Rittmann, B. E. (2010). The role of biotechnology in water and wastewater treatment. *J. Environ. Engr. (ASCE)* 136: 348 – 353.
444. Lee, H.-S. and B. E. Rittmann (2010). Characterization of energy losses in an upflow single-chamber microbial electrolysis cell. *Intl. J. Hydrogen Energy* 35: 920-927.
445. Lee, H.-S. and B. E. Rittmann (2010). Significance of biological H₂ oxidation in a continuous single-chamber microbial electrolysis cell. *Environ. Sci. Technol.* 44: 948-954.
446. Lee, H.-S., W. Vermaas, and B. E. Rittmann (2010). Biological hydrogen production: perspectives and challenges. *Trends in Biotechnology* 28(5): 262-271.
447. Zhang, Y., L. Wang, and B. E. Rittmann (2010). Integrated photocatalytic-biological reactor for accelerated phenol mineralization. *Appl. Microb. Biotechnol.* 86: 1977-1985.
448. Kiser, M. A., J. Oppenheimer, J. DeCarolis, Z. M. Hirani, and B. E. Rittmann (2010). Quantitatively understanding the performance of membrane bioreactors. *Separations Sci. Technol.* 45: 1003-1013.
449. Ni, B.-J., B. E. Rittmann, and H.-Q. Yu (2010). Impacts of predators on biomass components and oxygen uptake rates. *Water Research* 44: 4616 – 4622.
450. Reed, D. T., R. P. Deo, and B. E. Rittmann (2010). Subsurface interactions of actinide species with microorganisms. Chapter 33 in Vol. 6 of *The Chemistry of the Actinide and Transactinide Elements*, Vol. 6, L. R. Morss, N. Edelstein, and J. Fuger, Eds., Springer, New York, pp. 3595 – 3664.
451. Rittmann, B. E. and P. J. Alvarez (2010). *Environmental Bio- and Nano-Technologies. A World of Opportunities – Work in the International Water Sector*, IWA Publishing, London, pp. 14 – 16.
452. Tang, Y. N., M. Ziv-El, C. Zhou, J.-H. Shin, C.-H. Ahn, K. Meyer, D. Candalaria, P. Swaim, D. Friese, R. Overstreet, R. Scott, and B. E. Rittmann (2010). Bioreduction of nitrate in groundwater using a pilot-scale hydrogen-base membrane biofilm reactor. *Frontiers Environ. Sci. Engr.* 4: 280-285.
453. Lehman, S. G., M. Badruzzaman, S. S. Adham, D. J. Roberts, D. A. Clifford, G. Zuo, A. Patel, B. E. Rittmann, C. Ahn, and S Van Ginkel (2010). *Biological Destruction of Perchlorate and Nitrate in Ion Exchange Concentrate*. Water Research Foundation, Denver, CO.
454. Meyer, K. J., P. D. Swaim, W. D. Bellamy, B. E. Rittmann, Y. Tang, and R. Scott (2010). *Biological and Ion Exchange Nitrate Removal*. Water Res. Found., Denver, CO.
455. Zhang, H., M. Ziv-El, B. E. Rittmann, and R. Krajmalnik-Brown (2010). The effect of

- dechlorination and sulfate reduction on the microbial community structure in denitrifying membrane biofilm reactors. *Environ. Sci. Technol.* 44: 5159-5164.
456. Park, S., B. E. Rittmann, and W. Bae (2010). Multi-species nitrifying biofilm model (MSNBM) including free ammonia and free nitrous oxide inhibition and oxygen limitation. *Biotechnol. Bioengr.* 105: 1115-1130.
457. Kim, H.-W., R. Vannela, C. Zhou, and B. E. Rittmann (2010). Photoautotrophic nutrient utilization and limitation during semi-continuous growth of *Synechocystis* sp. PCC6803. *Biotechnol. Bioengr.* 106: 553-563.
458. Marcus, A. K., C. I. Torres, and B. E. Rittmann (2010). Evaluating the impacts of migration in the biofilm anode using the model PCBIOFILM. *Electrochimica Acta* 55: 6964 – 6972.
459. Lee, I., P. Parameswaran, J. Alder, and B. E. Rittmann (2010). Feasibility of Focused-Pulsed-treated WAS as a supplemental electron donor for denitrification. *Water Environ. Res.* 82: 2316 – 2324.
460. Zhang, Y., H. Liu, W. Shi, X. Pu, Zhang, H., and B. E. Rittmann (2010). Photobiodegradation of phenol with ultraviolet irradiation of new ceramic biofilm carriers. *Biodegradation* 21: 881 - 887.
461. Ni, B.-J., B. E. Rittmann, F. Fang, J. Xu, and H.-Q (2010). Yu.: Long-term formation of microbial products in a sequencing batch reactor. *Water Res.* 44: 3787 – 3791.
462. Deo, R., W. Songkasiri, B. E. Rittmann, and D. Reed (2010). Surface complexation of Neptunium (V) onto whole cells and cell components of *Shewanella alga*: modeling and experimental study. *Environ. Sci. Technol.* 44: 4930 – 4935.
463. Torres, C. I., E. I. Garcia-Peña, R. Krajmalnik-Brown, and B. E. Rittmann (2010). Microbial electrochemical cells as a research tool to probe microbial and biofilm kinetics. *Proc. Water Environ. Federation's Biofilms 2010 Conf.*, doi.org/10.2175/193864710798208476.
464. Marcus, A. K., C. I. Torres, and B. E. Rittmann (2011). Analysis of a microbial electrochemical cell using the proton condition in biofilm (PCBIOFILM) model. *Bioresources Technol.* 102: 253 – 262.
465. Parameswaran, P., C. I. Torres, H.-S. Lee, B. E. Rittmann, and R. Krajmalnik-Brown (2011). Hydrogen consumption in microbial electrochemical systems (MXCs): the role of homo-acetogenic bacteria. *Bioresource Technology* 102: 263-271.
466. Sheng J., R. Vannela, and B. E. Rittmann (2011). Evaluation of methods to extract and quantify lipids from *Synechocystis* PCC 6803. *Bioresource Technology* 102: 1697-1703.
467. Van Ginkel, S. W., C. Zhou, and B. E. Rittmann (2011). Hydrogen-based nitrate and selenate bioreductions in flue-gas desulfurization brine. *J. Environ. Engr.* 137: 63 – 68.
468. Lee, I. And B. E. Rittmann (2011). Effect of low solids retention time and Focused Pulsed pre-treatment on anaerobic digestion of waste activated sludge. *Bioresource Technology* 102: 2542 – 2548.
469. Kim, H.-W., R. Vannela, C. Zhou, and B. E. Rittmann (2011). Nutrient acquisition and limitation for the photoautotrophic growth of *Synechocystis* PCC6803 as a renewable

- biomass source. *Biotechnol. Bioengr.* 108: 277 – 285.
470. Tang, Y., C. Zhou, M. Ziv-El, and B.E. Rittmann (2011). A pH-control model for heterotrophic and hydrogen-based autotrophic denitrification. *Water Res.* 45: 232 – 240.
471. Ji, E., H. Moon, J. Piao, P. T. Ha, J. An, D. Kim, J.-J. Woo, Y. Lee, S.-H. Moon, B. E. Rittmann, and I. S. Choi (2011). Interface resistances of anion exchange membranes in microbial fuel cells with low ionic strength. *Biosensors and Bioelectronics* 26: 3266 – 3271.
472. Wu, Y., J. Zhou, N. Fishkin, B. E. Rittmann, and J. Sparrow (2011). Enzymatic degradation of A2E, an RPE lipofuscin bisretinoid. *J. Amer. Chem. Soc.* 133(4): 849-857.
473. Tang, Y. N., M. Ziv-El, C. Zhou, J.-H. Shin, C.-H. Ahn, K. Meyer, J. McQuarrie, D. Candalaria, P. Swaim, R. Scott, and B. E. Rittmann (2011). Using the carrier-surface loading to design heterotrophic denitrification reactors. *J. Amer. Water Works Assn.* 103 (3): 68 – 78.
474. Zhang, H., P. Parameswaran, J. Badalamenti, B. E. Rittmann, and R. Krajmalnik-Brown (2011). Integrating high-throughput pyrosequencing and quantitative real-time PCR to analyze complex microbial communities. Chapter 8 in *High-Throughput Sequencing: Methods in Molecular Biology*, Vol 733. Y. M. Kwon and S. C. Ricke, eds, Humana Press, New York, pp. 107 – 128.
475. Van Ginkel, S. W., B. Kim, Z. Yang, and B. E. Rittmann (2011). The removal of selenate to low levels from flue-gas desulfurization bring using the H₂-based membrane biofilm reactor (MBfR). *Bioresource Technology* 102: 6360-6364.
476. Van Ginkel, S.W., Y.N. Tang, and B.E. Rittmann (2011). Impact of precipitation on the treatment of real ion-exchange brine using the H₂-based membrane biofilm reactor. *Wat. Sci. Technol.* 63(7): 1453-1458.
477. Sutton, P. M., B. E. Rittmann, O. J. Schraa, J. E. Banaszak, and A. P. Togna (2011). Wastewater as a resource: a unique approach to achieving energy sustainability. *Wat. Sci. Technol.* 63(9): 2004-2009.
478. Hamdan, N., E. Kavazanjian, and B. E. Rittmann (2011). Carbonate mineral precipitation for soil improvement through microbial denitrification. *Proc. GeoFrontiers 2011: Advances in Geotechnical Engineering*, J. Han and D. E. Alzamoro, eds., Amer. Soc. Civil Engrs. Geotechnical Special Publication 211, pp. 3925-3955.
479. Rittmann, B. E. (2011). Giving a little help to our prokaryote friends. *Microbial Biotechnology* 4(2): 127 – 128.
480. Zhang, W., B. E. Rittmann, and Y. Chen (2011). Size effects on adsorption of hematite nanoparticles on *E. coli* cells. *Environ. Sci. Technol.* 45: 2172 – 2178.
481. Sheng, J., R. Vannela, and B. E. Rittmann (2011). Evaluation of cell-disruption effects of pulsed-electric-field treatment of *Synechocystis* PCC6803. *Environ. Sci. Technol.* 45: 3795 – 3802.
482. Vermaas, W., S. Cheney, R. Krajmalnik-Brown, H. Lamb, D. Nielsen, B. E. Rittmann, R. Roberson, W. Roberts, and D. Thompson (2011). Cyanobacteria as solar-powered biocatalysts for production of biofuels. *J. Phycol.* 47: S6-S6.

483. Sahinkaya, E., H. Hasar, A. H. Kaksonen, and B. E. Rittmann (2011). Performance of a sulfide-oxidizing and sulfur-recovering membrane biofilm reactor treating sulfidogenic effluent. *Environ. Sci. Technol.* 45: 4080 – 4087.
484. Choi, S., H.-S. Hyung-Sool Lee, Y. Yang, P. Parameswaran, C. I. Torres, B. E. Rittmann, and J. Chae (2011). A μL -scale micromachined microbial fuel cell having high power density. *Lab in a Chip* 11: 1110 – 1117.
485. Kim, H.-W., A. K. Marcus, J.-H. Shin, and B. E. Rittmann (2011). Advanced control for photoautotrophic growth and CO_2 -utilization efficiency using a membrane-carbonation photobioreactor (MCPBR). *Environ. Sci. Technol.* 45: 5032-5038.
486. Rittmann, B. E., B. Mayer, P. Westerhoff, and M. Edwards (2011). Capturing the lost phosphorus. *Chemosphere* 84: 846-853.
487. Lee, Y.-W., J. Lee, B. E. Rittmann, and J. Chung (2011). Wastewater recycling at an electronics company using a combined system of membrane bioreactor and reverse osmosis membrane processes. *Canadian J. Civil Engineering* 38: 762-771.
488. Ni, B.-J., B. E. Rittmann, and H.-Q. Yu (2011). Soluble microbial products and their implications in mixed culture biotechnology. *Trends Biotechnol.* 29: 254-263.
489. Zhao, H., Van Ginkel, S., Tang, Y., Kang, D.-W., Rittmann, B. E., and Krajmalnik-Brown, R. (2011) Interactions between perchlorate and nitrate reductions in the biofilm of a hydrogen-based membrane biofilm reactor. *Environ. Sci. Technol.* 45: 10155-10162.
490. Deo, R. P., B. E. Rittmann, and D. T. Reed (2011). Pu(V) reduction in the presence of Fe(III)-NTA: modeling and experimental approach. *Biodegradation* 22: 921-929.
491. Sheng, J., H.-W. Kim, J. P. Badalamenti, C. Zhou, S. Sridharakrishnan, R. Krajmalnik-Brown, B. E. Rittmann, and R. Vannela (2011). Temperature effects on growth and lipids of *Synechocystis* sp. PCC6803 in a photobioreactor. *Bioresource Technology* 102: 11218-11225.
492. Li, G., S. Park, D. Kang, R. Krajmalnik-Brown, and B. E. Rittmann (2011). 2, 4, 5-trichlorophenol degradation using a novel TiO_2 -coated biofilm carrier: Roles of adsorption, photocatalysis, and biodegradation. *Environ. Sci. Technol.* 45: 8359-8367.
493. Van Ginkel, S. W., Z. Yang, B. Kim, and B. E. Rittmann (2011). Effect of pH on nitrate and selenate reduction in flue-gas desulfurization brine using the H_2 -based membrane biofilm reactor (MBfR). *Water Sci. Technol.* 63 (12): 2923 – 2928.
494. Hamdan, N., E. Kavazanjian, Jr., and B. E. Rittmann, B.E. (2011) Sequestration of radionuclide and metal contaminants through microbially-induced carbonate precipitation,” *Proceedings of the 14th Pan American Conference on Soil Mechanics and Geotechnical Engineering*, Canadian Geotechnical Society, 5 pages (on CD ROM).
495. Biyela, P. T., H. Ryu, A. Brown, A. Alum, M. Abbaszadegan, and B. E. Rittmann (2012). Distribution systems as reservoirs of *Naegleria fowleri* and other amoebae. *J. Amer. Water Works Assn.* 104(1):49-50 + dx.doi.org:10.5942/jawwa.2012.104.1006.
496. Zhang, Y., X. Sun, L. Chen, and B. E. Rittmann (2012). Integrated photocatalytic-biological reactor for accelerated 2,4,6-trichlorophenol degradation and mineralization. *Biodegradation* 23: 189-198.

497. Ha, P., T. K. Lee, B. E. Rittmann, J. Park, and I. S. Chang (2012). Treatment of alcohol distillery wastewater using a *Bacterioidetes*-dominated thermophilic microbial fuel cell. *Environ. Sci. Technol.* 46: 3022-3030.
498. Li, G., S. Park, and B. E. Rittmann (2012). Degradation of reactive dyes in a photocatalytic circulating-bed biofilm reactor. *Biotechnol. Bioengr.* 109: 884-843.
499. Sheng, J., R. Vannela, and B. E. Rittmann (2012). Disruption of *Synechocystis* PCC 6803 for lipid extraction. *Water Sci. Technol.* 65(30): 567-576.
500. Yan, N., S. Xia, L. Xu, J. Zhu, Y. Zhang, and B. E. Rittmann (2012). Internal loop photobiodegradation reactor (ILPBR) for accelerated degradation of sulfamethoxazole (SMX). *Appl. Microb. Biotech.* 94: 527-535.
501. Zhang, Y., R. Yan, Z Zou, and B. E. Rittmann (2012). Improved nitrogen removal in dual-contaminated surface water by means of photocatalysis. *Front. Environ. Sci. Engr.* 6: 428-436.
502. Wen, D., G. Li, R. Xin, S. Park, and B. E. Rittmann (2012). 2,4-DNT degradation in intimately coupled photocatalysis: the roles of adsorption, photolysis, and biotransformation. *Appl. Microb. Biotechnol.* 95: 263-272.
503. Popat, S. C., D. Ki, B. E. Rittmann, and C. I. Torres (2012). Importance of OH⁻ transport from cathodes in microbial fuel cells. *ChemSusChem* 15: 1071-1079.
504. Karadagli, F., B. E. Rittmann, D. C. McAvoy, and J. E. Richardson (2012). Effect of turbulence on the disintegration rate of flushable consumer products. *Water Environ. Res.* 84: 424-433.
505. Deo, R. P. and B. E. Rittmann (2012). A biogeochemical framework for bioremediation of plutonium(V) in the subsurface environment. *Biodegradation* 23: 525-534.
506. Zhang, Y., X. Pu, M. Fang, J. Zhu, and B. E. Rittmann (2012). TCP photobiodegradation and its effects on community structure. *Biodegradation* 23: 575-583.
507. Tang, Y., M. Ziv-El, K. Meyer, C. Zhou, J. H. Shin, C. H. Ahn, J. McQuarrie, D. Candelaria, P. Swaim, R. Scott, and B. E. Rittmann (2012). Comparison of heterotrophic and hydrogen-based autotrophic denitrification of groundwater. *Water Sci. Technol.: Water Supply* 12 (2): 227 – 233.
508. Tang, Y., H. Zhao, A. K. Marcus, and B. E. Rittmann (2012). A steady-state biofilm model for simultaneous reduction of nitrate and perchlorate -- Part 1: model development and numerical solution. *Environ. Sci. Technol.* 46: 1598 – 1607.
509. Tang, Y., H. Zhao, A. K. Marcus, R. Krajmalnik-Brown, and B. E. Rittmann (2012). A steady-state biofilm model for simultaneous reduction of nitrate and perchlorate -- Part 2: parameter optimization and results and discussion. *Environ. Sci. Technol.* 46: 1608 – 1615.
510. Ziv-El, M., K. Cai, R. Halden, R. Krajmalnik-Brown, and B. E. Rittmann (2012). Managing methanogens and homoacetogens to promote reductive dechlorination of trichloroethene with direct delivery of H₂ in a membrane biofilm reactor. *Biotechnol. Bioengr.* 109: 2200 – 2210.
511. Ziv-El, M., S. C. Popat, P. Parameswaran, D.-W. Kang, A. Polasko, R. U. Halden, B. E.

- Rittmann, and R. Krajmalnik-Brown (2012). Using electron balances and molecular techniques to assess trichloroethene-induced shifts to a dechlorinating microbial community. *Biotechnol. Bioengr.* 109: 2230 – 2239.
512. Tang, Y., C. Zhou, S. Van Ginkel, A. Ontiveros, J. Shin, and B.E. Rittmann (2012). Hydrogen-permeabilities of the fibers used in a H₂-based membrane biofilm reactor. *J. Membrane Sci.* 407-408: 176 – 183.
 513. Van Ginkel, S. W., B. Kim, Z. Yang, R. Sittmann, M. Sholin, J. Miceli, and B. E. Rittmann (2012). Effect of NaCl on nitrate removal from ion-exchange spent brine in the membrane biofilm reactor (MBfR). *Water Sci. Technol.* 65 (1): 100 – 104.
 514. Li, G., S. Park, and B. E. Rittmann (2012). Developing an efficient TiO₂-coated biofilm carrier to intimate coupling of photocatalysis and biodegradation. *Water Research* 46: 6489 – 6496.
 515. Parameswaran, P., C. I. Torres, D. Kang, B. E. Rittmann, and R. Krajmalnik-Brown (2012). The role of homo-acetogenic bacteria as efficient hydrogen scavengers in microbial electrochemical cells (MXCs). *Water Sci. Technol.* 65 (1): 1 – 6.
 516. Parameswaran, P. and B. E. Rittmann (2012). Feasibility of anaerobic co-digestion of pig waste and paper sludge. *Bioresource Technology* 124: 163-168.
 517. Rittmann, B. E., Y. Tang, K. Meyer, W. D. Bellamy, and R. Nerenberg. *Biological Processes*. Chpt. 17 in *Water Treatment Plant Design*, fifth ed., S. J. Randtke and M. B. Horsely, eds., Amer. Water Works Assn., Denver, CO., pp. 17.1 – 17.43.
 518. Vijayaraghavan, K., S. Van Ginkel, C. I. Torres, H.-S. Lee, P. Parameswaran, Z. Zhou, and B. E. Rittmann (2012). Effect of pH and hydraulic residence time on fermentation product distribution and subsequent treatment in a microbial electrolysis cell. *TERI Information Digest on Energy and Environment* 11(3): 355-358.
 519. Ontiveros-Valencia, A., M. Ziv-El., H.-P. Zhou, L. Feng, B. E. Rittmann, and R. Krajmalnik-Brown (2012). Interactions between nitrate-reducing and sulfate-reducing bacteria coexisting in a hydrogen-fed biofilm. *Environ. Sci. Technol.* 46: 11289 – 11298.
 520. Tang, Y., A. Ontiveros-Valencia, L. Feng, C. Zhou, R. Krajmalnik-Brown, and B. E. Rittmann (2012). A biofilm model to understand the onset of sulfate reduction in denitrifying membrane biofilm reactors. *Biotechnol. Bioengr.* 110: 763 – 772.
 521. Yan, N., S. Xia, L. Xu, J. Zhu, Y. Zhang, and B. E. Rittmann (2012). Internal loop photobiocatalysis reactor (ILPBR) for accelerated degradation of sulfamethoxazole. *Appl. Micro. Biotechnol.* 94: 527 – 535.
 522. Kim, H. W., R. Vannela, B. E. Rittmann (2013). Responses of *Synechocystis* sp. PCC 6803 to total dissolved solids in long-term continuous operation of a photobioreactor. *Bioresource Technol.* 128: 378-384.
 523. Mayer, B. K., D. Gerrity, B. E. Rittmann, D. Reisinger, S. Brandt-Williams (2013). Innovative strategies to achieve low total phosphorus concentrations in high water flow. *Critical Reviews in Environmental Science and Technology* 43(4): 409-441.
 524. Young, M. N., R. Krajmalnik-Brown, W. Liu, M. L. Doyle, and B. E. Rittmann (2013). The role of anaerobic sludge recycle in improving anaerobic digester performance. *Bioresource*

- Technol. 128: 731-737.
525. Rittmann, B. E. (2013) The energy issues in urban water management. Chpt. 2. in Wastewater Management: Source Separation and Decentralisation. T. Larsen, K. Udert, and J. Liener, eds., IWA Publishing, London, pp. 13-28.
 526. Yuan, W., M. Wiehn, Y. Wang, H-W. Kim, B. E. Rittmann, and D. R. Nielsen (2013). Solid-phase extraction of long-chain fatty acids from aqueous solution. Separation and Purification Technology 106: 1 – 7.
 527. Zhao, H.-P., A. Ontiveros-Valencia, Y. Tang, B.-O. Kim, Z.-E. Ilhan, R. Krajmalnik-Browh, and B. E. Rittmann (2013). Using a two-stage hydrogen-based membrane biofilm reactor (MBfR) to achieve complete perchlorate reduction in the presence of nitrate and sulfate. Environ. Sci. Technol. 47: 1565 – 1572.
 528. Almeida, P. G. S., A. K. Marcus, B. E. Rittmann, and C. A. L. Chernicharo (2013). Performance of plastic- and sponge-based trickling filters treating effluents from a UASB reactor. Water Sci. Technol. 67(5): 1034- 1042.
 529. Young, M. N., A. K. Marcus, and B. E. Rittmann (2013). A Combined Activated Sludge Anaerobic Digestion Model (CASADM) to Understand the Role of Anaerobic Sludge Recycling in Wastewater Treatment Plant Performance. Bioresource Technology 136: 196-204.
 530. Parameswaran, P., T. Bry, S. Popat, B. Lusk, B. E. Rittmann, and C. I Torres (2013). Kinetic, electrochemical, and microscopic characterization of the thermophilic, anode-respiring bacterium *Thermincola ferriacetica*. Environ. Sci. Technol. 47: 4934-4940.
 531. Wang, J., Y. Zhang, N. Yan, J. Chen, and B. E. Rittmann (2013). Enhanced phenol bioavailability by means of photolysis. Biodegradation 24: 597-602.