

## **Mark Clark, Ph.D.**

Clinical Professor of Civil and Environmental Engineering  
TECH 2145 Sheridan Rd #A321, 847-467-4540, mark-clark@northwestern.edu

### **1. Publications**

#### **a1. Books Authored or Co-Authored, Original Editions**

1. Clark, M.M., *Transport Modeling for Environmental Engineers and Scientists*, Wiley-Interscience, New York, 1996.

#### **a2. Books Authored or Co-Authored, Revisions**

1. Clark, M.M. *Transport Modeling for Environmental Engineers and Scientists – Second Edition*, John Wiley & Sons, New York, 2009.

#### **b1. Books Edited or Co-Edited, Original Editions**

1. Amirtharajah, A., M.M. Clark, and R. Trussell (eds.), *Mixing in Coagulation and Flocculation*, American Water Works Association Research Foundation, Denver, CO, 1991.

#### **b2. Books Edited or Co-Edited, Revisions**

#### **c. Chapters in Books**

\*\* 1. Clark, M.M. and F. Fiessinger, "Mixing and Scale-up," In *Mixing in Coagulation and Flocculation*, pp. 282-308, American Water Works Association Research Foundation, February, 1991.

\*\* 2. Nauman, E. B. and M.M. Clark, "Residence Time Distributions," In *Mixing in Coagulation and Flocculation*, pp. 127-169, American Water Works Association Research Foundation, February, 1991.

\*\* 3. David, R. and M.M. Clark, "Micromixing," In *Mixing in Coagulation and Flocculation*, pp. 170-216, American Water Works Association Research Foundation, February, 1991.

\*\* 4. Clark, M.M., "Ultrafiltration of Lake Water: Optimization of TOC Removal and Flux," Chapter 23 of *Influence and Removal of Organics in Drinking Water*, Lewis Publishers, May 1992.

\*\* 5. Clark, M.M., I. Baudin, I., and C. Anselme, "Membrane-Powdered Activated Carbon Reactors," in *Membrane Processes in Water Treatment*, McGraw-Hill, New York, 1996.

#### **d. Monographs [longer than an article, but shorter than a book]**

#### **e1. Articles in Journals**

\* 1. Snodgrass, W., M.M. Clark, and C. O'Melia, "Particle Formation and Growth in Aluminum Solutions," *Water Research*, 18, pp. 479-488, 1982.

- \* 2. Clark, M.M., "A Critique of Camp and Stein's R.M.S. Velocity Gradient," *Journal of Environmental Engineering* (ASCE), EE6, pp. 741-754, December 1985.
- \* 3. Clark, M.M., "Drop Breakup in a Turbulent Flow: II. Experiments in a Small Mixing Vessel," *Chemical Engineering Science*, 43, pp. 681-692, 1988. (based on Ph.D.)
- \* 4. Clark, M.M., "Drop Breakup in a Turbulent Flow: I. Conceptual and Modeling Considerations," *Chemical Engineering Science*, 43, pp. 671-679, 1988. (based on Ph.D.)
- \* 5. Wiesner, M. and M.M. Clark, "Membrane Filtration of Coagulated Suspensions," *Journal of Environmental Engineering*, 115, EE1, 1989.
- \* 6. Laine, J.M., J.P. Hagstrom, M.M. Clark, and J. Mallevalle, "Effect of Ultrafiltration Membrane Composition," *Journal of American Water Works Association*, 81:11, pp. 61-67 (1989).
- \* 7. Laine, J.M., M.M. Clark, and J. Mallevalle, "Ultrafiltration of Lake Water: Effect of Pretreatment on Organic Partitioning, THMFP, and Flux," *Journal American Water Works Association* 82:12, pp. 82-87 (1990).
- 8. Clark, M.M. and K.S. Heneghan, "Ultrafiltration of Lake Water for Potable Water Production," special issue of *Desalination*, 80, pp. 243-249 (1991).
- \* 9. Clark, M.M., J.M. Laine, M.R. Wiesner, and J. Mallevalle, "Hydrodynamic Conditioning of Aluminum-Humic Acid Floc," *Fluid/Particle Separation Journal*, 4:3, pp. 154-161 (1991).
- \* 10. Adham, S.S., V.L. Snoeyink, M.M. Clark, and J.L. Bersillon, "Prediction and Verification of the Performance of Powdered Activated Carbon for Removal of Organic Compounds in the PAC/UF Process," *Journal of the American Water Works Association*, 83:12, pp. 81-89 (1991).
- \* 11. Clark, M.M., and J.R.V. Flora, "Floc Restructuring in Varied Turbulent Mixing," *Journal Colloid and Interface Science*, 147:2, pp. 407-421 (1991).
- \* 12. Adham, S.S., V.L. Snoeyink, M.M. Clark, and C. Anselme, "Predicting and Verifying TOC Removal by PAC in Pilot-Scale UF Systems," *Journal of the American Water Works Association*, 85:12, pp. 58-68 (1993).
- \* 13. Jones, K.L., E.S. Odderstol, G.E. Wetterau, G.E., and M.M. Clark, "Using a Hydraulic Model to Predict Hollow-Fiber UF Performance," *Journal of American Water Works Association*, 85:10, pp. 87-97 (1993).
- \* 14. Clark, M.M., R. Srivastava, and R. David, "Mixing and Aluminum Precipitation," *Environmental Science and Technology*, 27:10, pp. 2181-2189 (1993).
- \* 15. Jucker, C. and M.M. Clark, "Adsorption of Aquatic Humic Substances on Hydrophobic Ultrafiltration Membranes," *Journal of Membrane Science*, 97, pp. 37-52 (1994).
- \* 16. Kramer, T.A. and M.M. Clark, "The Measurement of Particles Suspended in a Stirred Vessel Using Microphotography and Digital Image Analysis," *Particles and Particle Systems Characterization*, 13, 3-9 (1996).

- \* 17. Wetterau, G.E., M.M. Clark, and C. Anselme, "A Dynamic Model for Predicting Fouling During the Ultrafiltration of a Natural Water," *Journal of Membrane Science*, 109, 185-204 (1996).
- \* 18. Kramer, T.A. and M.M. Clark, "Influence of Strain Rate on Coagulation Kinetics," *J. Environmental Engineering (ASCE)*, 123, 5: 444-452 (1997).
- \* 19. Ducoste, J.J., M.M. Clark, and R.J. Weetman, "Turbulence in Flocculators: Effect of Tank Size and Impeller Type," *AIChE Journal*, 43, 2: 328-338 (1997).
- \* 20. Lee, Y. and M.M. Clark, "A Numerical Model of Flux Decline Behavior During the Crossflow Ultrafiltration Membrane Process," *Desalination*, 109, 241-251 (1997).
- \* 21. Clark, M.M., and Lucas, P., "Diffusion and Partitioning of Humic Acid in a Porous Ultrafiltration Membrane," *Journal of Membrane Science*, 143, 13-25 (1998).
- \* 22. Atenas, M, Clark, M.M., and V. Lazarova, "Characterization of Bubbles in a Rectangular Air-Lift Bioreactor," *Particles and Particle Systems Characterization*, 15, 191-199 (1998).
- \* 23. Ducoste, J.J., and M.M. Clark, "The Influence of Tank Size and Impeller Geometry on Turbulent Flocculation: I. Experimental," *Environmental Engineering Science*, 15, 3: 215-224 (1998).
- \* 24. Ducoste, J.J., and M.M. Clark, "The Influence of Tank Size and Impeller Geometry on Turbulent Flocculation: II. Model," *Environmental Engineering Science*, 15, 225-235 (1998).
- \* 25. Jack, A.M., and Clark, M.M., "PAC/UF to Treat a Low Quality Surface Water," *J. American Water Works Association*, 90, 11: 83-95 (1998).
- \* 26. Lee, Y., and Clark, M.M., "Modeling of Flux Decline during Crossflow Ultrafiltration of Colloidal Suspensions," *J. Membrane Science*, 149, 181-201 (1998).
- \* 27. Combe, C., Molis, E., Lucas, P., Riley, R., and Clark, M., "The Effect of CA Membrane Properties on Adsorptive Fouling by Humic Acid," *Journal of Membrane Science*, 154, 73-87 (1999).
- \* 28. Atenas, M, Clark, M.M., and V. Lazarova, "Holdup and Liquid Circulation Velocity in a Rectangular Air-Lift Bioreactor," *Industrial and Engineering Chemistry Research*, 38, 944-949 (1999).
- \* 29. Ducoste, J.J., and M.M. Clark, "Turbulence in Flocculators: Comparison of Measurements and CFD Simulations," *AIChE Journal*, 45, 2:432-436 (1999).
- \* 30. Kramer, T.A., and M.M. Clark, "Incorporation of Aggregate Breakup in the Simulation of Orthokinetic Coagulation," *Journal of Colloid and Interface Science*, 216, 116-126 (1999).
- \* 31. Kramer, T.A., and M.M. Clark, "Modeling Orthokinetic Coagulation in Spatially Varying Laminar Flow," *Journal of Colloid and Interface Science*, 227, 251-261 (2000).
- \* 32. Wang, Y., Combe, C., and M.M. Clark, "The Effects of pH and Calcium on the Diffusion Coefficient of Humic Acid," *Journal of Membrane Science*, 183, 49-60 (2001).
- \* 33. Howe, K.J. K.P. Ishida, and M.M. Clark, "Use of ATR/FTIR Spectrometry to Study Fouling of Microfiltration Membranes by Natural Waters," *Desalination*, 147, 251-255 (2002).

- \* 34. Howe, K.J. and M.M. Clark. "Fouling of Microfiltration and Ultrafiltration Membranes by Natural Waters," *Environmental Science and Technology*, 36, 3571-3576 (2002).
- \* 35. Menniti, A, Rajagopalan, K., Kramer, T., and M.M. Clark, "An Evaluation of the Colloidal Stability of Metal Working Fluid," *Journal of Colloid and Interface Science*, 284, 477-488 (2005).
- \* 36. Koh, M., Clark, M.M., Howe, K.J., "Filtration of Lake Natural Organic Matter: Adsorption Capacity of a Polypropylene Microfilter," *Journal of Membrane Science*, 256, 169-175 (2005).
- \* 37. Clark, M.M. Ahn, W.Y., Li, X., Sternisha, N. and Riley, R.L., "Formation of Polysulfone Colloids for Adsorption of Natural Organic Foulants," *Langmuir*, 21, 7207-7213 (2005).
38. Koh, M., Clark, M.M., K. P. Ishida. "Adsorptive Fouling of a Polypropylene Microfiltration Membrane with Dissolved Natural Organic Matter: Do Membranes Possess an Adsorption Capacity?" *Water Science and Technology*, 6, 2: 25-30, (2006).
- \* 39. Howe, K., and M.M. Clark, "Effect of Coagulation Pretreatment on Membrane Filtration Performance," *J. American Water Works Association*, 98, 4: 133-146 (2006).
- \* 40. Koh, L.C, Ahn, W-J., and M.M. Clark, "Selective Adsorption of Natural Organic Foulants by Polysulfone Colloids: Effect on Ultrafiltration Fouling," *J. Membrane Science*, 281, 1-2: 472-479 (2006).
- \* 41. Ladner, D., Lee, B., and Clark, M.M., "Laser Scanning Cytometry for Fluorescent Microsphere Enumeration," *J. American Water Works Association*, 99, 3: 110 (2007).
- \* 42. Kumar, M., Grzelakowski, M., Zilles, J., Clark, M., and W. Meier, "Highly Permeable Polymeric Membranes based on the Incorporation of the Functional Water Channel Protein Aquaporin Z," *Proc. National Academy of Sciences*, 104, 52: 20723-20728 (2007).
- \* 43. Ahn, W.-Y., Kalinichev, A.G, and M. M. Clark, "Effects of Background Cations on the Fouling of Polyethersulfone Membranes by Natural Organic Matter: Experimental and Modeling Study," *J. Membrane Science*, 309, 128-140 (2008).
- \* 44. D.A. Ladner, A. Subramani, M. Kumar, S.S. Adhan, and M.M. Clark, "Bench-scale evaluation of seawater desalination by reverse osmosis," *Desalination* 250, 490-499 (2010)..
- \* 45. D.R. Vardon, D.A. Ladner, and M.M. Clark. Laser scanning cytometry for algal monitoring in seawater desalination plant feedwater. Submitted to *Water Research*.
- \* 46. D.A. Ladner, D.R. Vardon, and M.M. Clark. Effects of shear on microfiltration and ultrafiltration fouling by marine algae. *J. Membr. Sci.* 356, 33-43 (2010).
- \* 47 Kalinichev, A.G., E. Iskrenova-Tchoukova, W-Young Ahn, M. M. Clark, R. J. Kirkpatrick, "Effects of Ca<sup>2+</sup> on Supramolecular Aggregation of Natural Organic Matter in Aqueous Solutions: A Comparison of Molecular Modeling Approaches," *Geoderma*: in press, 2010

**e2. Articles in Conference Proceedings (\*\* indicates an invited submission)**

1. Eigner, J., and M.M. Clark, "Hazardous Wastes and Energy Recovery," *Proceedings of the Third Annual UMR-MEC Conference on Energy*, University of Missouri, Rolla, Missouri, 1976.

2. Clark, M., "Turbulence Structure in a Small Mixing Vessel," *Proceedings of National Conference on Environmental Engineering* (ASCE), Los Angeles, California, June 25, 1984.
3. Clark, M.M., "Scale-up of Laboratory Flocculation Results," *Proceedings of American Water Works Association Annual Conference*, Denver, Colorado, June 22-26, 1986.
4. Wiesner, M. and M.M. Clark, "Membrane Filtration of Coagulated Suspensions," *Proceedings of the American Water Works Association Annual Conference*, Kansas City, Missouri, June 14-17, 1987.
5. Clark, M.M., R. David, and M. Wiesner, "Effect of Micromixing on Product Selectivity in Rapid Mix," *Proceedings of the American Water Works Association Annual Conference*, Kansas City, Missouri, June 14-17, 1987.
6. Clark, M.M., J.-M. L  n  , M. Wiesner, and J. Mallevalle, "Hydrodynamic Conditioning of Aluminum - Humic Acid Flocc," *Proceedings of the American Water Works Association Annual Conference*, Orlando, Florida, June 19-23, 1988.
- \*\* 7. Clark, M.M., "Ultrafiltration of Lake Water: Optimization of TOC Removal and Flux," proceedings of the *First Macau Workshop on Water Treatment*, Macau, November 3-4, 1989.
8. Srivastava, R., C. Nieman, and M.M. Clark, "Fast Hydrolysis Kinetics of Aluminum and the Impact of Mixing on Product Speciation," *Proceedings of the American Water Works Association Annual Conference*, Cincinnati, Ohio, June (1990).
- \*\* 9. Clark, M. M., "Treatment Research Summary," invited research summary, U.S. Environmental Protection Agency Workshop on "Membranes for Drinking Water Treatment," Cincinnati, Ohio, August 6, 1990.
10. Clark, M.M., and K.S. Heneghan, "Ultrafiltration of Lake Water for Potable Water Production," *Proceedings of the 1990 International Conference on Membranes and Membrane Processes*, Chicago, Illinois, August 20-24, 1990.
11. Heneghan, K. and M.M. Clark, "Surface Water Treatment by Combined Ultrafiltration/PAC Adsorption/Coagulation for Removal of Natural Organics, Turbidity, and Bacteria," *Proceedings of the American Water Works Association Membrane Processes Conference*, Orlando, Florida, March 10-13, 1991.
12. Adham, S.S., V.L. Snoeyink, M.M. Clark, and J-L. Bersillon, "Ultrafiltration of Groundwater with Powdered Activated Carbon Pretreatment for Organics Removal," *Proceedings of the American Water Works Association Conference on Membrane Technologies in the Water Industry*, Orlando, Florida, March 10-13, 1991.
13. Trussell, R.R., J.S. Lang, L. McCollum, G. Zfira, D. Bailey, and M.M. Clark, "Testing the Performance of Vertical Flocculation Impellers," *Proceedings of the Annual Meeting of the American Water Works Association*, Vancouver, B.C., June 18-22, 1992.
14. Clark, M.M., and C. Jucker, "Interactions between Hydrophobic Ultrafiltration Membranes and Humic Substances," *Proceedings of the AWWA Membrane Technology Conference*, Baltimore, MD, August 1-4 (1993).

15. Adham, S.S., V.L. Snoeyink, M.M. Clark, D. Anselme, and I. Baudin, "Predicting and Verifying Organic Removal by Powdered Activated Carbon in Full-scale Ultrafiltration Systems," *Proceedings of the AWWA Membrane Technology Conference*, Baltimore, MD, August 1-4 (1993).
16. Kramer, T.A. and M.M. Clark, "Particle Size Measurement in Turbulent Suspensions using Microphotography and Digital Image Analysis," *Proceedings of the American Filtration and Separations Society*, Vol. 9, 1995.
17. Ducoste, J.J., M.M. Clark, and R.J. Weetman, "The Evaluation of the Fluid Mechanics Generated in the Flocculation Process: Effects of Tank Size and Impeller Type," *Proceedings of the Annual Meeting of the American Water Works Association*, Anaheim, CA, June 18-22, 1995.
18. Lee, J., M.M. Clark, and B.J. Kim, "Removal of Colloidal Materials from NC Wastewater Using UF/MF Membrane: Characterization of NC Wastewater and Minimization of Fouling," *Proceedings of the 1995 Membrane Technology Conference*, Reno, NV, August 13-16, 1995.
19. Wetterau, G.E., M.M. Clark, and C. Anselme, "A Dynamic Model for Predicting Fouling during the Ultrafiltration of a Natural Water," *Proceedings of Membrane Technology Conference*, Reno, NV, August 13-16, 1995.
20. Kramer, T.A., and Clark, M.M., "Coagulation Modeling in a Dynamic Fluid Flow: Theory and Criticism," *Proceedings of the Annual Meeting of the American Water Works Association*, Toronto, Ontario, June 22-26, 1996.
21. Clark, M.M., and Jucker, C., "Diffusion and Partitioning of Humic Acid in a Hydrophobic UF Membrane," extended abstract published in *Proceedings of American Chemical Society National Meeting*, Orlando, FL, August 25-29, 1996.
22. Lee, Y, Clark, M.M., and Kim, B.J., "A Numerical Model for Flux Decline During Crossflow Ultrafiltration," extended abstract published in *Proceedings of American Chemical Society National Meeting*, Orlando, FL, August 25-29, 1996.
23. Marriott, W.D., and Clark, M.M., "Piloting for Optimal Operation of Ultrafiltration," *Proceedings of the AWWA 1997 Membrane Technology Conference*, New Orleans, LA, February 23-26, 1997.
24. Lee, Y., and Clark, M.M., "Modeling of Flux Decline during Cross-flow Ultrafiltration of Colloidal Suspensions," *Proceedings of North American Membrane Society Meeting*, Baltimore Maryland, June 1-5, 1997.
25. Ducoste, J.J., and Clark, M.M., "The Influence of Tank Size and Impeller Type on Floc Size Distribution," *Proceedings of the AWWA Annual Conference*, Atlanta, Ga, June 15-18, 1997.
26. Hagstrom, J., Crozes, G., Reddy, S., Vergnes, V., Clark, M., Ducoste, J., and Burns, C., "The Use of Computational Fluid Dynamics for Improving Clearwell Design for CT Compliance," *Proceedings of the AWWA Annual Conference*, Atlanta, Ga, June 15-18, 1997.
27. Ducoste, J.J., and Clark, M.M., "A Population Balance Model for Turbulent Flocculation," *Proceedings of the AWWA Water Quality Technology Conference*, Denver, CO, November 8-11, 1997.
28. Kramer, T.A., and M.M. Clark, "Coagulation in Spatially Varying Laminar Flow," Johns Hopkins Conference in Environmental Fluid Mechanics, The Johns Hopkins University, April 2-4, 1998.

29. C. Combe, E. Molis, R. Riley, P. Lucas, and M. Clark, "Relationship of CA Membrane Surface Properties to Fouling by Natural Organic Matter," 10th Annual Meeting of the North American Membrane Society, Cleveland, Ohio, May 16-20, 1998.
30. Hagstron, J., Crozes, G., Clark, M., and C. Burns, "Modeling and Enhancement of Disinfection Contactor Hydromechanics using Computational Fluid Dynamics," *Proceedings of the AWWA Annual Conference*, Dallas, TX, June 20-25, 1998. **Name CLARK, Mark Michael**
31. Hackman, B., Clark, M.M., and K. Carns, "Removal of Nitrates and Pesticides from a Midwestern Water Supply with Reverse Osmosis," *Proceedings of the AWWA 1999 Membrane Technology Conference*, Long Beach, CA, February 27 to March 3, 1999.
32. Lee, Y., Combe, C., Kumar, M., Wang, Y., Riley, R., and M.M. Clark, "Characterization and Fouling of SPEES/PES-PS UF Membranes," 11th Annual Meeting of the North American Membrane Society, Boulder, Colorado, May 23-27, 2000.
33. Wang, Y., Combe, C., and M.M. Clark, "Measuring Diffusivity of Humic Acid and Modeling Adsorptive Fouling of Ultrafiltration Membranes by Humic Acid," extended abstract, 220th American Chemical Society (ACS) National Meeting, Washington, DC, August 20-25, 2000.
34. Clark, M.M., Kim, K-S., and Y. Lee, "Visualization of Colloidal Deposition and Cake Formation on Membrane Surfaces," extended abstract, 220th American Chemical Society (ACS) National Meeting, Washington, DC, August 20-25, 2000
35. Howe, K.J., Clark, M.M., and Y. Wang, "Effect of Coagulation on Ultrafiltration Membrane Performance," *Proceedings 2001 AWWA Membrane Technology Conference*, San Antonio, TX, March 4-7, 2001.
36. Clark, M.M., Kim, K.S., Choi, Y.K., and Y. Lee, "Visualization of Colloidal Particles Near Membrane Surfaces," *Proceedings 2001 AWWA Membrane Technology Conference*, San Antonio, TX, March 4-7, 2001
37. Howe, K.J. and M.M. Clark. "Integrating Coagulation Pretreatment with Membrane Filtration: Mechanisms for Fouling by Dissolved Organic Matter." In *Proceedings of the 2001 AWWA Annual Conference*, Washington D.C. June, 2001.
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39. Clark, M.M., Li, X, and R.L. Riley, "Polymer Colloid Adsorbent for Limiting Membrane Fouling by Natural Organic Matter," extended abstract, 226th American Chemical Society (ACS) National Meeting, New York, NY, September 7-11, 2003.
40. Lee, B.E., Clark, M.M., Ahn, K-H., and S.H. Lee, "Membrane Integrity: Direct Monitoring of Bacteria in Permeate Using Fluorescence Detection," AWWA WQTC: Water Quality Technology Conference & Exposition, Philadelphia, PA, November 2 – 6, 2003.

41. Ladner, D., Thompson, K., Lee, B., and M.M. Clark, "Indirect membrane integrity monitoring using online fluorescence based bacteria detection," 15th Annual Meeting of the North American Membrane Society, Honolulu, Hawaii, June 26-30, 2004.
42. Ahn, W.Y., Sternisha, N., Li, X., Clark, M.M., and Riley, R.L., "Development of polysulfone colloid adsorbent to reduce membrane fouling by natural organic matter (NOM)," 15th Annual Meeting of the North American Membrane Society, Honolulu, Hawaii, June 26-30, 2004.
43. Clark, M.M., Li, X., Ahn, W.Y., Sternisha, N., Sandhu, G., and R.L. Riley, "Adsorption of natural organic matter by a tunable polymer colloid," extended abstract, 228th American Chemical Society (ACS) National Meeting, Philadelphia, PA, August 22-26, 2004.
44. Melvin Koh, Mark M. Clark, Kenneth P. Ishida. "Adsorptive fouling of a polypropylene microfiltration membrane with dissolved natural organic matter: Do membranes possess an adsorption capacity?" Conference Proceedings, 1st International Water Association - Asia Pacific Regional Group (IWA-ASPIRE) Conference and Exhibition, Singapore, July 10-15, 2005.
45. Ladner, D. and M.M. Clark, "Bench-Scale Studies to Characterize Organic Foulants in Seawater Reverse Osmosis Desalination," Proceedings 17th Annual Meeting of the North American Membrane Society, Chicago, IL, May 14-16, 2006.
46. W -Y. Ahn, A. G. Kalinichev, M. M. Clark, "Molecular dynamics simulations of the NOM adsorption on polymeric membrane surface in the presence of metal ions," extended abstract, 233rd ACS National Meeting, Chicago, IL, March 25-29, 2007.
47. Ladner, D., Vardon, D., Kumar, M., and M.M. Clark, "Fouling by alogogenic organic matter in seawater reverse osmosis desalination," American Water Works Association Annual Conference, Atlanta, GA (2008).
48. Y. Ahn, A. G. Kalinichev, M. M. Clark, "Supramolecular Aggregation of Natural Organic Matter (NOM) Promoted by Complexation with Ca<sup>2+</sup>, Mg<sup>2+</sup>, and Na<sup>+</sup> Ions in Aqueous Solutions," ACS National Meeting, New Orleans, April 6-10, 2008.
49. W-Y. Ahn, A. G. Kalinichev, M. M. Clark, "Supramolecular aggregation of natural organic matter promoted by complexation with Ca<sup>2+</sup>, Mg<sup>2+</sup>, and Na<sup>+</sup> ions in aqueous solutions," Goldschmidt-2008 Conference, Vancouver, BC, July 2008.
50. Ladner, D., Jurevis, J., and M.M. Clark, "Characterization of a highly fouling fraction of algogenic organic matter in low- and high-pressure membrane filtration," American Water Works Association Water Quality Technology Conference, Seattle, WA (2009).
51. D. A. Ladner, D. R. Vardon, and M. M. Clark. 2009. Effects of shear on microfiltration and ultrafiltration fouling by bloom-forming algae in a seawater desalination treatment train. AWWA Membrane Technology Conference, Memphis, TN.
52. D. A. Ladner, D. R. Vardon, M. Kumar, and M. M. Clark. 2008. Fouling by Algogenic Organic Matter in Seawater Reverse Osmosis Desalination. AWWA Annual Conference and Exhibition, Atlanta, GA



**f. Publications in above categories that have been submitted for publication but not yet accepted**

1. Kumar, M; Grzelakowski, M; Clark, M; Meier, W; Zilles, J. 2009. Biological role for bacterial aquaporin gating discovered in block copolymer membranes (submitted)

**g. Other**

1. Clark, M.M., "Brownian Motion Coagulation of Clay Hydrosols," Masters Thesis, University of Missouri, Columbia, Missouri, (1978).

2. Clark, M.M., Discussion of "Forces Acting on Floc and Strength of Floc," by Tamonori Matsuo and Kideaki Unno, *Journal of the Environmental Engineering Division (ASCE)*, Volume 108, Number EE3, June (1982).

3. Clark, M.M., "Resuspension of Sediments on the Ocean Shelf," internal report, Tetra Tech, Inc., Arlington, Virginia, (1986).

4. Contributor to "Committee Report: Membrane Processes in Potable Water Treatment," American Water Works Association Membrane Technology Research Committee, published in *Journal American Water Works Association*, 84, 1:59-67 (1992).

5. Clark, M.M., R.M. Srivastava, J.S. Lang, R.R. Trussell, L.J. McCollum, D. Bailey, J.D. Christie, and G. Stolarik, "Selection and Design of Mixing Processes for Coagulation," final project report published by the American Water Works Association Research Foundation, Denver, Colorado, (1994).

6. Kim, B.J., Clark, M.M., and Lee, Y., "Comparative Evaluation of Ultrafiltration/Microfiltration for Removal of Nitrocellulose (NC) Fines from Wastewater," US Army Corps of Engineers Technical Report 97/116, July 1997.

7. Hackman, B., Clark, M.M., and K. Carns, "Membrane Technologies for Nitrate and Atrazine Removal from a Surface Water Source," EPRI final report, publication #TR-111650, Palo Alto, California, 1998.

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10. Amy, G., Cho, J., Yoon, Y., Wright, S., Clark, M., Molis, E., Combe, C., Wang, Y, Lucas, P., Lee, Y, Kumar, M., Howe, K., and K. Kim, "NOM Rejection by, and Fouling of, NF and UF Membranes," final project report published by American Water Works Research Association Foundation, Denver, CO, 2001.

11. Howe, K.J. and M.M. Clark. "Coagulation Pretreatment for Membrane Filtration," final project report, published by AWWA and American Water Works Research Association Foundation, Denver, CO, 2003.