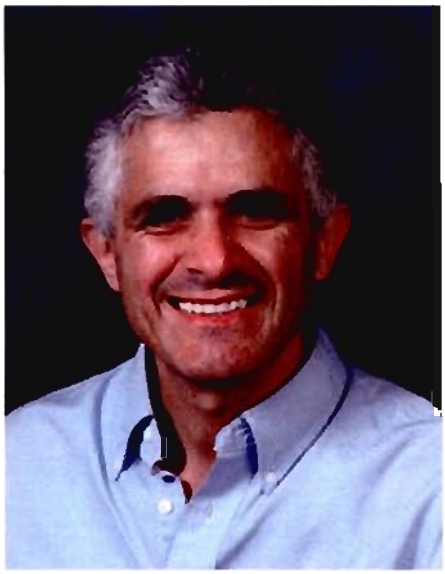
The Elimelech Lab

Menachem Elimelech

Chair, Department of Chemical Engineering
Director, Environmental Engineering Program
Roberto Goizueta Professor of Environmental and Chemical Engineering



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Prof. Elimelech's **Brief Bio (100 words)**

Prof. Elimelech's **Biographical Sketch**

Prof. Elimelech's **Résumé**

Menachem Elimelech holds a B.S. in Soil and Water Sciences and an M.S. in Environmental Science and Technology from the Hebrew University in Jerusalem and a Ph.D. in Environmental Engineering from Johns Hopkins University. As his first appointment, Elimelech served as professor and vice chair of the Department of Civil and Environmental Engineering at UCLA. Upon coming to Yale in 1998, he founded Yale's Environmental Engineering Program, of which he continues to serve as director. Professor Elimelech was elected to the National Academy of Engineering in 2006 and was awarded the Athalie Richardson Irvine Clarke Prize in 2005.

His research focuses on problems involving physicochemical and biophysical processes in engineered and natural environmental systems, including: (i) membrane separations

for desalination and water quality control, (ii) transport and adhesion of microbial pathogens, (iii) processes involving nanoparticles and biomacromolecules, and (iv) water, sanitation, and public health in developing countries.

Professor Elimelech has authored more than 140 refereed journal publications and is a co-author of the book *Particle Deposition and Aggregation* (1995). He currently serves on the Editorial Advisory Boards of *Colloids and Surfaces A*, *Desalination*, *Environmental Science & Technology*, *Environmental Engineering Science*, and *Separation Science and Technology*.

Courses taught at Yale include:

- ENVE 372a: Environmental Transport Processes
- ENAS 642: Physical & Chemical Processes in Environmental Engineering
- CENG 411 : Separation Processes
- CENG/ENVE 315b : Transport Phenomena
- ENVE/CENG 377: Water Quality Control

He has received the W.M. Keck Foundation Engineering Teaching Excellence Award and the Yale University Graduate Mentor Award.

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CURRICULUM VITAE

Menachem Elimelech

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Education

1989	Ph.D.	Environmental Engineering, The Johns Hopkins University; Dissertation: "The Effect of Particle Size on the Kinetics of Deposition of Brownian Particles in Porous Media"; Advisor: Professor Charles R. O'Melia
1985	M.Sc.	Environmental Science & Technology, The Hebrew University, Jerusalem, Israel (Summa Cum Laude)
1983	B.Sc.	Soil and Water Sciences, The Hebrew University, Jerusalem, Israel (Summa Cum Laude)

Awards

2008 The American Institute of Chemical Engineers Lawrence K. Cecil Award in Environmental Chemical Engineering

2007 Election to the Connecticut Academy of Science and Engineering

2006 Election to the National Academy of Engineering

2006 Association of Environmental Engineering and Science Professors (AEESP) Frontier of Research Award

2006 American Water Work Association (AWWA) First Place Best Doctoral Dissertation Award (Doctoral Student Nathalie Tufenkji)

2005 The Athalie Richardson Irvine Clarke Prize, National Water Research Institute

2005 Trendsetter, Public Work Magazine

2004 Excellence in Review Award, *Environmental Science & Technology*

2004 Yale University Graduate Mentor Award

2002 Association of Environmental Engineering and Science Professors (AEESP) Outstanding Paper Award

2002 Association of Environmental Engineering and Science Professors (AEESP) Doctoral Dissertation Award (Doctoral Student Eric M.V. Hoek)

1996 American Society of Civil Engineers, Walter L. Huber Civil Engineering Research Prize

1994 W.M. Keck Foundation, Engineering Teaching Excellence Award

1990 National Science Foundation, Research Initiation Award

1989 Environmental Engineering and Chemistry Graduate Student Award, American Chemical Society-Division of Environmental Chemistry

Honors and Recognitions

2008 Advisory Board of *Langmuir*

2004 Advisory Board of *Separation Science & Technology*

2004 Advisory Board of *Colloids and Surfaces A*

2003 Certificate of Merit Award for paper presentation (co-author with graduate student Sharon L. Walker) at the 226th American Chemical Society National Meeting, New Orleans, LA

2002 ExxonMobil Chair Professorship, National University of Singapore (summer 2002)

2002 Advisory Board of *Desalination*

2001 Certificate of Merit Award for paper presentation (co-author with graduate student J. Chen) at the 222nd American Chemical Society National Meeting, Chicago, IL.

2000 Certificate of Merit Award for paper presentation (co-author with graduate student E. Vrijenhoek) at the 220th American Chemical Society National Meeting, Washington, DC.

2000 Associate Editor, *Environmental Engineering Science*

1999 Certificate of Merit Award for paper presentation (co-author with graduate student C.-H. Ko) at the 217th American Chemical Society National Meeting, Anaheim, CA.

1998 Advisory Board of *Environmental Science & Technology*

1997 Advisory Board of the *Journal of Colloid and Interface Science* for the 1998-2000 period

1996 Certificate of Merit Award for paper presentation (co-author with graduate student S. Hong) at the 212th American Chemical Society National Meeting

1996 Certificate of Merit Award for paper presentation (co-author with graduate student A.E. Childress) at the 212th American Chemical Society National Meeting, Orlando, FL.

1996 Best poster presentation, American Desalting Association Biennial Conference, Monterey, California (with Graduate Student S. Hong)

1989 Best poster presentation in the international workshop on "*Aquatic Chemical Kinetics: Reaction Rates of Processes in Natural Waters*", March 19-23, 1989, Warth, Switzerland (with Prof. Charles R. O'Melia)

Professional Experience

2005-present	Chair, Chemical Engineering Department, Yale University
2005-present	Roberto C. Goizueta Professor, Department of Chemical Engineering, Environmental Engineering Program, Yale University
1998-2004	Llewellyn West Jones Professor, Department of Chemical Engineering, Environmental Engineering Program, Yale University

1998-present	Director, Environmental Engineering Program, Yale University
2003-present	Adjunct Professor, Kwangju Institute of Science and Technology (K-JIST), Korea
2002 (summer)	ExxonMobil Chair Professor, Department of Civil Engineering, National University of Singapore
2001 (summer)	Visiting Professor, Department of Civil Engineering, National University of Singapore
2000 (Fall)	Acting Chair, Dept. of Chemical Engineering, Yale University
1997 (Spring, Summer)	Guest Professor, Institute of Terrestrial Ecology, Soil Chemistry Group, Swiss Federal Institute of Technology (ETH-Zurich)
1997-1998	Professor, Dept. of Civil & Environmental Engineering, UCLA
1996 (Fall Quarter)	Visiting Associate, Environmental Engineering Science, California Institute of Technology
1994-1997	Associate Professor, Dept. of Civil & Environmental Engineering, UCLA
1989-1994	Assistant Professor, Dept. of Civil & Environmental Engineering, UCLA
1986-1989	Graduate Student Research Assistant, Department of Geography & Environmental Engineering, The Johns Hopkins University
1984 (summer)	Lab Research Assistant, Laboratory of Water Quality, Jerusalem Municipality, Israel
1983-1985	Graduate Student Research Assistant, Division of Environmental Sciences, The Hebrew University of Jerusalem, Israel
1982-1983	Research Assistant, Laboratory of Soil Physics, School of Agriculture, The Hebrew University of Jerusalem, Israel
1974-1980	Military Service, Israel

Professional Society Memberships

- American Chemical Society
- Association of Environmental Engineering Science Professors
- American Institute of Chemical Engineers
- American Society of Civil Engineers
- American Water Works Association

Research Interests and Activities

- Physicochemical processes for water quality control
- Membrane separation processes for desalination and water reuse
- Environmental implications and applications of nanomaterials
- Microbial adhesion to solid surfaces in aquatic systems
- Transport and fate of microbial pathogens in aquatic system
- Water and sanitation in developing countries

Past and Current Research Grants and Contracts

- American Chemical Society, The Petroleum Research Fund
- American Water Works Association Research Foundation
- Center for Clean Technology, UCLA,
- Fluid Systems Corporation
- Metropolitan Water District of Southern California
- Mitsubishi Heavy Industries, Ltd. (Japan)
- National Science Foundation
- National Water Research Institute
- Office of Naval Research
- State of California, Department of Water Resources
- The Camille and Henry Dreyfus Foundation
- Toyobo Company, Ltd.
- University of California, Water Resources Center
- U.S. Department of the Interior, Bureau of Reclamation
- W.M. Keck Foundation
- US Department of Agriculture
- U.S. Environmental Protection Agency

Graduate Student Supervision: Current Ph.D. Students at Yale

1. Anna Stirgwolt (NSF Graduate Fellowship)
   Research Area: Carbon nanotube based filters for water purification
2. Maggie Montgomery (NSF Graduate Fellowship)
   Research Area: Water, sanitation, and public health in the developing world
3. Robert McGinnis (NSF Graduate Fellowship)
   Research Area: Osmotic membrane processes for desalination and energy production
4. Meagan Mauter (NSF Graduate Fellowship)
   Research Area: Environmental applications of nanotechnology
5. Laura Sima (NSF Graduate Fellowship)
   Research Area: Water purification systems for developing countries
6. Alberto Tiraferri
   Research Area: Environmental nanotechnology

Current Post-doctoral Fellows

1. Dr. Seoktae (Steve) Kang (Ph.D., KAIST)
   Research Area: Microbial adhesion; Environmental nanotechnology
2. Dr. Debora F. Rodrigues (Ph.D., Michigan State University)
   Research Area: Environmental microbiology
3. Dr. Deb P. Jaisi (co-advised) (Ph.D., Miami University)
   Research Area: Biogeochemistry; Environmental nanotechnology

4. Dr. Chad Vecitis (Ph.D., Caltech)
   Research Area: Environmental nanochemistry/nanotechnology

Past Ph.D. Graduates

1. Lianfa Song (1993)
   Dissertation Title: Theoretical Aspects of Particle Deposition in Porous Media
   Title and Affiliation: Associate Professor, Dept. of Civil Engineering, National University of Singapore
2. Hsiao-Wei (David) Ching (1993)
   Dissertation Topic: Removal of Particles and THM Precursors from Surface Waters by Chemical Coagulation
   Title and Affiliation: Associate Professor, Department of Environmental Engineering, Tung-Nan Institute of Technology, Taipei, Taiwan
3. Daylin Liu (1994)
   Dissertation Title: Chemical Aspects of Particle Deposition Dynamics in Porous Media
   Title and Affiliation: Program Developer, Los Angeles, CA
4. Philip R. Johnson (1995)
   Dissertation Title: Modeling Colloidal Transport in Saturated Porous Media
   Title and Affiliation: *Previously* - Assistant Professor, Dept. of Civil Engineering and Geological Sciences, University of Notre Dame. *Currently* – unknown.
5. Xiaohua (Tracy) Zhu (1996)
   Dissertation Title: Chemical Aspects of Colloidal Fouling of Cellulose Acetate and Thin-Film Composite Reverse Osmosis Membranes
   Title and Affiliation: LEEI Consulting Engineers, Sunnyvale, California
6. Seungkwan Hong (1997)
   Dissertation Title: Natural Organic Matter and Colloidal Fouling in Crossflow Membrane Filtration
   Title and Affiliation: *Previously* – Associate Professor, Civil and Environmental Engineering Department, University of Central Florida. *Currently* – Korea University, Seoul, Korea.
7. Amy E. Childress (1997)
   Dissertation Title: Characterization and Performance of NF and RO Membranes
   Title and Affiliation: Associate Professor, Civil and Environmental Engineering Department, University of Nevada at Reno
8. Ning Sun (March, 1998)
   Dissertation Title: Colloid Transport in Physically and Geochemically Heterogeneous Porous Media: Modeling, Measurements, and parameter Identification
   Title and Affiliation: Research Scientist, School of Public Health, Yale University.
9. John J. Waypa (June, 1998)
   Dissertation Title: Separation of Ionic Species by Polymeric Nanofiltration Membranes in Crossflow Membrane Filtration: Implications for Arsenic Removal
   Title and Affiliation: Senior Member Technical Staff, TRW, One Space Park, Redondo Beach, CA 90278
10. Yann Le Gouellec (November, 1998)
    Dissertation Title: Calcium Sulfate Scale Formation and Control in Nanofiltration of Agricultural Drainage Water
    Title and Affiliation: Senior Engineer, Greater Cincinnati Water Works

11. Chun-Han Ko (July, 1999)
Dissertation Title: Particle Deposition in Heterogeneous Porous Media
Title and Affiliation: Assistant Professor, National Taiwan University

12. Albert (Sechurl) Kim (June, 2000) (co-adviser)
Dissertation Title: Dynamics of Particle Aggregation in Natural and Engineered Aquatic Systems
Title and Affiliation: Associate Professor, Civil and Environmental Engineering Department, University of Hawaii

13. Eric M.V. Hoek (formerly Vrijenhoek) (December 2001)
Dissertation Title: Mechanisms of Colloidal Fouling of RO and NF Membranes
Title and Affiliation: Associate Professor, Civil and Environmental Engineering Department, University of California, Los Angeles

14. Sharon L. Walker (November 2004)
Dissertation Title: Mechanisms of Bacterial Adhesion to Solid Surfaces in Aquatic Systems
Title and Affiliation: Assistant Professor, Department of Chemical and Environmental Engineering, University of California, Riverside

15. Nathalie Tufenkji (November 2004)
Dissertation Title: Spatial Distributions of Retained Colloidal and Microbial Particles in Porous Media: Measurements, Modeling, and Mechanisms
Title and Affiliation: Assistant Professor, Department of Chemical Engineering, McGill University, Canada

16. Jim C. Chen (July 2005)
Dissertation Title: Membrane Filtration of Interacting Colloidal Particles: Mechanisms, Modeling, and Applications
Title and Affiliation: Assistant Professor, Nanyang Technological University, Singapore

17. Zachary A. Kuznar (August 2005)
Dissertation Title: Adhesion Mechanisms of *Cryptosporidium parvum* Oocysts to Solid Surfaces in Aquatic Systems
Title and Affiliation Research scientist, GE Advanced Materials

18. Jane Hill (March 2006)
Dissertation Title: Organic Phosphorus Pollution: The Fate of Phytate in the Chesapeake Bay Watershed
Title and Affiliation: Assistant Professor, University of Vermont

19. Alexis de Kerchove (May 2007)
Dissertation Title: Deposition of Motile and Non-Motile Bacteria onto Conditioning Films: Measurements and Mechanisms
Title and Affiliation: R&D Engineer, DEGREMONT S.A.

20. Jeffrey R. McCutcheon (May 2007)
Dissertation Title: Osmotically Driven Membrane Processes: Characterization of Water Transport Phenomena through Asymmetric Polymeric Membranes
Title and Affiliation: Assistant Professor, Department of Chemical engineering, University of Connecticut.

21. Kai Loon Chen (January 2008)
Dissertation Title: Aggregation and Deposition of Nanoparticles in Aquatic Environments
Title and Affiliation: Assistant Professor, Johns Hopkins University.

22. Wui Seng Ang (July 2008)

Dissertation Title: Optimization of Chemical Cleaning of Organic-fouled Reverse Osmosis Membranes: Implications for Wastewater Reclamation
Title and Affiliation: Research Engineer, Singapore Public Utility Board.

23. Allegra da Silva (August 2008)
Dissertation Title: Norovirus Adsorption and Removal in Engineered and Natural Aquatic Environments
Title and Affiliation: Post-doctoral Reseacher, Unniversity of California, Berkeley.

Past Post-doctoral Researchers

1. Dr. Subir Bhattacharjee (2001)
Title and Affiliation: Professor, University of Alberta
2. Dr. Arza Seidel (2001)
Title and Affiliation: Technical Editor, John Wiley and Sons, New York
3. Dr. Steven Mylon (co-advised with Gaboury Benoit) (2002)
Title and Affiliation: Assistant Professor, Lafayette College
4. Dr. Pawel Weronski (co-advised with John Walz) (2003)
Title and Affiliation: Post-doctoral Research Associate. Los Alamos National Lab
5. Dr. How Ng (2003)
Title and Affiliation: Assistant Professor, National University of Singapore
6. Dr. Qilin Li (2003)
Title and Affiliation: Assistant Professor, Rice University (as of January 2006)
7. Dr. Jeremy Redman (2004)
Title and Affiliation: Assistant Professor, Californian State University, Long Beach
8. Dr. Sangyoup Lee (2005)
Title and Affiliation: Assistant Professor, Cheongju University, Korea
9. Dr. Thanh (Helen) Nguyen (2006)
Title and Affiliation: Assistant Professor, University of Illinois, UIUC
10. Dr. Moshe Herzberg (2007)
Title and Affiliation: Lecturer, Ben Gurion Universitry, Israel
11. Dr. Baoxia Mi (2008)
Title and Affiliation: Assistant Professor, George Washington University
12. Dr. Navid Saleh (2008)
Title and Affiliation: Assistant Professor, University of South Carolina

Past Visiting Graduate Students

1. Dr. Long Nghiem (2002-2003)
   Title and Affiliation: Lecturer, University of Wollongong, Australia
2. Bart Postmus (2003)
   Title and Affiliation: Doctoral student, Wageningen University, The Netherlands
3. Ana Rita Costa (2005)
   Title and Affiliation: Doctoral Student, Instituto Superior Técnico, Lisboa, Portugal
4. Esther Huertas (2005)
   Title and Affiliation: Doctoral Student, Universitat de Barcelona, Spain
5. Alberto Tiraferri (2007)
   Title and Affiliation: Graduate Student, Politecnico di Torino, Italy

Courses Taught at UCLA

- Physical and Chemical Processes (**CEE 255A**)
- Membrane Separations in Aquatic Systems (**CEE 258**)
- Colloidal Phenomena in Aquatic Systems (**CEE 261**)
- Water Treatment Plant Design (**CEE 157B**)
- Selected Topics in Environmental Engineering (**CEE 259A**)

Courses Taught at Yale

- Environmental Transport Processeses (**ENVE 372a**)
- Transport Phenomena (**CENG/ENVE 315b**)
- Water Quality Control (**CENG/ENVE 377**)
- Physical and Chemical Processes in Environmental Engineering (**ENAS 642**)
- Separation Processes (**CENG 411**)

Short Courses Taught at International Institutions

- Membrane Technology in Water and Wastewater Treatment, National University of Singapore, 4-6 July, 2001
- Particles and Surfaces: Fundamental Aspects and Applications, Swiss federal Institute of Technology (ETH), 17- 18 July, 1997
- Colloidal Transport in Heterogeneous Porous Media, Swiss federal Institute of Technology (ETH), June 19-20, 1997
- Particle Deposition onto Model Collectors, Swiss federal Institute of Technology (ETH), June 17, 1997
- Physico-Chemical Processes for Water and Wastewater Treatment: International Course on Wastewater Reclamation and Reuse, Institute of Desert Research, Ben Gurion University, Israel, 10-12 August 1996

Service on University Wide Committees at Yale

- Yale College Course of Study Committee (1999 – 2001)
- Studies in the Environment Committee (2000 – present)
- Advisory Committee of the Division of Physical Sciences and Engineering (2001 – 2002; 2003-2005)
- Yale College Study Abroad Committee (2006-present)
- Standing Advisory and Appointments Committee for the School of Forestry and Environmental Studies (2000 – present)
- Advisory Committee on Environmental Management

Reviewer for Scholarly Journals

ACS Nano; Advances in Environmental Research; Advances in Water Resources; American Institute of Chemical Engineers Journal; Analytical Chemistry; Aqua; Biomacromolecules; Carbon; Chemical Engineering Communications; Chemical Engineering Science; Chemosphere; Colloids and Surfaces A and B; Desalination; Environmental Engineering Science; Environmental Science & Technology; Environmental Technology; Geophysical Research Letters; Industrial and Engineering Chemistry Research; Journal of Adhesion; Journal American Water Works Association; Journal of the American Chemical Society; Journal of Chemical Engineering of Japan; Journal of Chemical Physics; Journal of Colloid and Interface Science; Journal of Contaminant Hydrology; Journal of Environmental Engineering, ASCE; Journal of Hazardous Metrials; Journal of Hydrology; Journal of Membrane Science; Journal of Physical Chemistry; Langmuir; Macromolecules; Powder Technology; Reviews in Chemical Engineering; Science; Separations Technology; Separation Science and Technology; Small; Transport in Porous Media; Water Environment Research; Water Research; Water Resources Research

Reviewer for Agencies, Review Panels, and Review Teams (Selected)

American Chemical Society, The Petroleum Research Fund; Department of Energy; Department of Energy, Subsurface Science Program; Environmental Protection Agency; Israel Science Foundation; Lawrence Livermore National Laboratory; National Research Council (NRC), Water Science and Technology Board; National Science Foundation (US); National Science and Engineering Research Council of Canada (NSERC); National Science and Technology Board of Singapore; Netherlands Science Foundation; National University of Singapore; University of Arizona Water Resources Center; UC Water Resources Center; Swiss National Science Foundation; State of Louisiana, NSF EPSCoR (Tulane, LSU, and University of New Orleans)

Selected Advisory Committees and Committee Memberships

- Advisory Board of NanoH2O Inc., Oasys Water Inc.
- Advisory Committee for the international symposium "Interfaces Against Pollution" (IUPAC), to be held in Granada, Spain, June 2006
- International Scientific Committee, International Symposium on Wastewater Reclamation & Reuse for Sustainability, Jeju, Korea, November 2005
- Advisory Committee 3th International Association on Water Quality (IWA) Membrane Conference, Seoul, Korea, June 7-10, 2004
- Advisory Committee for the international symposium "Interfaces Against Pollution" (IUPAC), to be held in Julich, Germany, May 2004
- Advisory Committee for the 13th Annual Meeting of the North American Membrane Society (NAMS), May 2001, Long Beach, California

- Advisory Committee for the International Conference on Membrane Technology for Wastewater Reclamation and Reuse, September 2001, Tel Aviv, Israel
- Advisory Committee for the international symposium "Interfaces Against Pollution" (IUPAC), Wageningen, The Netherlands, August 1997
- American Water Works Association, Research Committee on Membrane Technology, 1998 – present
- Titular Member of the IUPAC "Fundamentals of Environmental Chemistry", 1997-2001
- Scientific Advisory Board, Institute for Water Science and Technology, Israel, 2003-present
- Scientific Advisory Committee, Center for Water Research, Department of Civil Engineering, National University of Singapore, 2002-present
- Scientific Advisory Committee, Department of Earth and Environmental Engineering, Columbia University, 2002-present

Selected Editorial Services

- Guest Editor (with W.P. Ball, J.E. Tobiason) for a Special Issue in *Environmental Science & Technology* in Honor of Charles R. O'Melia (Volume 31, September 2005)
- Guest Editor (with M.R. Wiesner) for a special issue on "Membrane Technology", *Environmental Engineering Science* (Volume 19 (6), 2002)
- Guest Editor (with A.K. SenGupta) for the special issue "Colloids and Interfaces in Environmental Processes", *Colloids and Surfaces A* (Vol. 191, October 2001)
- Guest Editor (with J.G. Hering) for the special issue "Colloidal and Interfacial Phenomena in Aquatic Environments", *Colloids and Surfaces A* (Vol. 107, February 1996)
- Advisory Board, *Journal of Colloid and Interface Science* (1998-2001)
- Advisory Board, *Colloids and Surfaces A*
- Advisory Board, *Desalination*
- Advisory Board, *Environmental Science & Technology*
- Advisory Board, *Environmental Engineering Science*
- Advisory Board, *Separation Science and Technology*

Session Chair and Symposia Organizer (Selected)

- Session Chair: *22nd Annual Meeting of the Fine Particle Society*, July 29-August 2, 1991, San Jose, California.
- Session Chair: International conference on *Interfacial Phenomena in the Environment*, October 6-11, 1991, Davos, Switzerland.
- Poster session co-chair: American Chemical Society Meeting-Division of Environmental Chemistry, November 1992, San Francisco, California.
- Co-organizer of a symposium (with J.G. Hering and T.C. Harmon): *Physical-Chemical Processes Controlling Contaminant Mobility in Aquatic Environments*, American Chemical Society-Division of Environmental Chemistry, March 13-18, 1994, San Diego, California.
- Organizer of a symposium (with J.G. Hering): *Colloidal and Interfacial Phenomena in Aquatic Environments*, American Chemical Society-Division of Environmental Chemistry, April 1995, Anaheim, California

- Organizer of a symposium (with G.L. Amy and M.M. Clark): *Fundamentals of Membrane Separation Processes in Aquatic Systems*, American Chemical Society-Division of Environmental Chemistry, August 1996, Orlando, Florida
- Session Chair: *9th International Conference on Surface and Colloid Science*, July 6-12, 1997, Sofia, Bulgaria.
- Organizer of a symposium (with M. Borkovec and J.G. Hering): *Interfacial and Colloidal Phenomena in Aquatic Environments*, American Chemical Society-Division of Environmental Chemistry, March 1999, Anaheim, California
- Session Chair: *Interfacial Aspects Of Remediation Technology*, AIChE Annual Meeting, Dallas, Texas October 31 - November 5, 1999
- Session Chair: *Particle Separation And Membrane Processes*, AIChE Annual Meeting, Dallas, Texas October 31 - November 5, 1999
- Organizer of a symposium (with A. SenGupta): *Interfacial and Colloidal Phenomena in Aquatic Environments*, 74th Colloid and Surface Science Symposium, American Chemical Society, Lehigh University, June 2000.
- Organizer of a symposium (with M. Clark and G. Amy): *Membrane Separation Processes in Aquatic Systems*, 220th American Chemical Society National Meeting -Division of Environmental Chemistry, August 2000, Washington, DC.
- Organizer of a symposium (with M. Borkovec): *Surfactants, Polymers, and Colloids in the Aquatic Environment*, 220th American Chemical Society National Meeting-Division of Colloid and Surface Chemistry, August 2000, Washington, DC.
- Session Chair: *Environmental Colloids and Surfaces*, AIChE Annual Meeting, Los Angeles, California, November 2000
- Session Chair: *Colloidal Interactions in Membrane Systems*, AIChE Annual Meeting, Reno, Nevada, 2001
- Session Chair, IWA International Conference on Membrane Technology for Wastewater Reclamation and Reuse, September 2001, Tel Aviv, Israel
- Session Chair (with H. Ridgway): Membrane Fouling, 13th Annual Meeting of the North American Membrane Society, May 2001, Long Beach, CA.
- Organizer of a symposium (with M. Borkovec): *Processes Involving Colloids and Polymers in the Aquatic Environment*, 224th American Chemical Society National Meeting-Division of Colloid and Surface Chemistry, August 2002, Boston, MA.
- Co-organizer of a symposium (with K.F Hayes and T.M. Olson): *Interfacial and Colloidal Phenomena in Aquatic Systems*, 76th Colloid and Surface Science Symposium, American Chemical Society, University of Michigan, June 2002.
- Session Chair: AWWA Membrane Technology Conference, March 2-5, 2003, Atlanta, Georgia
- Session Chair: *Colloidal and Interfacial Phenomena in the Environment*, ", 77th ACS Colloid and Surface Science Symposium, Atlanta, GA, June 15-18, 2003.
- Co-organizer, 78th ACS Colloid and Surface Science Symposium, June 20-13, 2004, Yale University
- Organizer (with W.P. Ball and J.E. Tobiason) of a Symposium in Honor of Professor Charles R. O'Melia: *Particles and Interfaces in Aquatic Systems*, 228th American Chemical Society National Meeting-Division of Colloid and Surface Chemistry, August 22-24, 2004, Philadelphia, PA
- Chair of the sessions on "Nanoparticles, Colloids and Interfaces in the Environment", 79th Colloid and Surface Science Symposium, June 2005, Clarkson University, Potsdam, NY.

Refereed Journal Publications

1. McGinnis, R.L., and Elimelech, M. "Global Challenges in Energy and Water Supply: The Promise of Engineered Osmosis", Environmental Science & Technology, Environmental Science & Technology, Volume 42, December 2008, pages 8625–8629.

2. da Silva, A.K., Le Guyader, F.S., Le Saux, J.C., Pommepuy, M., Montgomery, M.A., and Elimelech, M. "Norovirus Removal and Particle Association in a Waste Stabilization Pond", Environmental Science & Technology, Volume 42, December 2008, pages 9151-9157.

3. Saleh, N.B., Pfefferle, L.P., and Elimelech, M. "Aggregation Kinetics of Multiwalled Carbon Nanotubes in Aquatic Systems: Measurements and Environmental Implications", Environmental Science & Technology, Environmental Science & Technology, Volume 42, November 2008, pages 7963–7969.

4. Jaisi, D.P., Saleh, N.B., Blake, R.E., and Elimelech, M. "Transport of Single-Walled Carbon Nanotubes in Porous Media: Filtration Mechanisms and Reversibility", Environmental Science & Technology, Volume 42, November 2008, pages 8317–8323.

5. Ang, W.S., and Elimelech, M. "Fatty Acid Fouling of Reverse Osmosis Membranes: Implications for Wastewater Reclamation", Water Research, Volume 42, October 2008, pages 4393-4403.

6. Chen, K.L., and Elimelech, M. "Interaction of Fullerene (C60) Nanoparticles with Humic Acid and Alginate Coated Silica Surfaces: Measurements, Mechanisms, and Environmental Implications", Environmental Science & Technology, Environmental Science & Technology, Volume 42, October 2008, pages 7607–7614.

7. Kang, S., Mauter, M.S., and Elimelech, M. "Physicochemical Determinants of Multiwalled Carbon Nanotube Bacterial Cytotoxicity", Environmental Science & Technology, Environmental Science & Technology, Volume 42, August 2008, pages 5843-5859.

8. Mauter, M.S., and Elimelech, M. "Environmental Applications of Carbon-Based Nanomaterials", Environmental Science & Technology, Volume 42, August 2008, pages 5843-5859.

9. Tiraferri, A. Chen, K.L., Sethi, R., and Elimelech, M. "Reduced Aggregation and Sedimentation of Zero-Valent Iron Nanoparticles in the Presence of Guar Gum", Journal of Colloid and Interface Science, Volume 324, August 2008, pages 71-79.

10. Mi, B., and Elimelech, M. "Chemical and Physical Aspects of Organic Fouling of Forward Osmosis Membranes", Journal of Membrane Science, Volume 320, July 2008, pages 292-302.

11. Kang, S., Herzberg, M., Rodrigues, D. F., and Elimelech, M. "Antibacterial Effects of Carbon Nanotubes: Size Does Matter!", Langmuir, Volume 24, June 2008, pages 6409-6413.

12. McCutcheon, J.R., and Elimelech, M. "Influence of Membrane Support Layer Hydrophobicity on Water Flux in Osmotically Driven Membrane Processes", Journal of Membrane Science, Volume 318, June 2008, pages 458-466.

13. Huertas, H, Herzberg, M., Oron, G. Elimelech, M, "Influence of Biofouling on Boron Removal by Nanofiltration and Reverse Osmosis Membranes", Journal of Membrane Science, Volume 318, June 2008, pages 264-270.

14. de Kerchove, A.J., and Elimelech, M. "Bacterial Swimming Motility Enhances Cell Deposition and Surface Coverage", Environmental Science & Technology, Volume 42, June 2008, pages 4371-4377.

15. Shannon, M.A., Bohn, P.W., Elimelech, M., Georgiadis, J.G., Mariñas, B.J. and Mayes, A.M. "Science and Technology for Water Purification in the Coming Decades", Nature, Volume 452, March 2008, pages 301-310.

16. de Kerchove, A.J. and Elimelech, M. "Calcium and Magnesium Cations Enhance the Adhesion of Motile and Non-Motile Pseudomonas aeruginosa on Alginate Films", Langmuir, Volume 24, March 2008, pages 3392-3399.

17. Brady-Estévez, A.S., Kang, S., and Elimelech, M. "A Single-Walled Carbon Nanotube Filter for Removal of Viral and Bacterial Pathogens", Small, Volume 4, April 2008, pages 481-484.

18. Weronski, P., and Elimelech, M. "A Novel Numerical Method for Calculating Initial Flux of Colloid Particle Adsorption through an Energy Barrier", Journal of Colloid and Interface Science, Volume 319, March 2008, pages 406-415.

19. Herzberg, M. and Elimelech, M. "Physiology and Genetic Traits of Reverse Osmosis Membrane Biofilms: A Case Study with Pseudomonas aeruginosa", The ISME Journal, Volume 2, February 2008, pages 180-194.

20. da Silva, A.K, Le Saux, J.C., Parnaudeau, S. Pommepuy, M. Elimelech, M., and Le Guyader, F.S. "Evaluation of Removal of Noroviruses during Wastewater Treatment, Using Real-Time Reverse Transcription-PCR: Different Behaviors of Genogroups I and II", *Applied and Environmental Microbiology*, Volume 73, December 2007, pages 7891–7897.

21. Hill, J.E., Kysela, D.T., and Elimelech, M. "Isolation and Assessment of Phytate-Hydrolyzing Bacteria from the DelMarVa Peninsula", *Environmental Microbiology*, Volume 9, December 2007, pages 3100-3107.

22. de Kerchove, A.J. and Elimelech, M. "Adhesion of Non-Motile Pseudomonas aeruginosa on "Soft" Polyelectrolyte Layer in a Radial Stagnation Point Flow System: Measurements and Model Prediction", *Langmuir*, Volume 23, November 2007, pages 12301-12308.

23. McGinnis, R.L., McCutcheon, J.R., and Elimelech, M. "A Novel Ammonia - Carbon Dioxide Osmotic Heat Engine for Power Generation", *Journal of Membrane Science*, Volume 305, November 2007, pages 13-19.

24. Kang, S., Pinault, M., Pfefferle, L.D., and Elimelech, M. "Single-Walled Carbon Nanotubes Exhibit Strong Antimicrobial Activity", *Langmuir*, Volume 23, August 2007, pages 8670-8673.

25. de Kerchove, A.J. and Elimelech, M. "Impact of Alginate Conditioning Film on Deposition Kinetics of Motile and Nonmotile *Pseudomonas aeruginosa* Strains", *Applied and Environmental Microbiology*, Volume 73, August 2007, pages 5227-5234.

26. McCutcheon, J.R., and Elimelech, M. "Modeling Water Flux in Forward Osmosis: Implications for Improved Membrane Design", *AIChE Journal*, Volume 53, June 2007, pages 1736-1744.

27. Asatekin, A., Kang, S, Elimelech, M., and Mayes, A.M. "Anti-fouling Ultrafiltration Membranes Containing Polyacrylonitrile-Graft-Poly(Ethylene Oxide) Comb Copolymer Additives" , *Journal of Membrane Science,* Volume 298, June 2007, pages 136-146.

28. Chen, K. L., Mylon, S. E., and Elimelech, M. "Enhanced Aggregation of Alginate-Coated Iron Oxide (Hematite) Nanoparticles in the Presence of Calcium, Strontium, and Barium Cations", *Langmuir*, Volumes 23, May 2007, pages 5920-5928.

29. Kang, S., Asatekin, A., Mays, A.M., and Elimelech, M. "Protein antifouling mechanisms of PAN UF membranes incorporating PAN-g-PEO additive" *Journal of Membrane Science*, Volume 296, June 2007, pages 42-50.

30. Ang, W.S., and Elimelech, M. "Protein (BSA) Fouling of Reverse Osmosis Membranes: Implications for Wastewater Reclamation", *Journal of Membrane Science*, Volume 296, June 2007, pages 83-92.

31. Herzberg, M. and Elimelech, M. "Biofouling of Reverse Osmosis Membranes: Role of Biofilm-Enhanced Osmotic Pressure", *Journal of Membrane Science*, Volume 295, May 2007, Pages 11-20.

32. Chen, K.L., and Elimelech, M. "Influence of Humic Acid on the Aggregation Kinetics of Fullerene (C_{60}) Nanoparticles in Monovalent and Divalent Electrolyte Solutions", *Journal of Colloid and Interface Science, Volume 309, May 2007, pages 126-134.*

33. Nguyen, T.H., and Elimelech, M. "Adsorption of Plasmid DNA to a Natural Organic Matter Coated Silica Surface: Kinetics, Conformation, and Reversibility" *Langmuir*, Volume 23, March 2007, pages 3273-3279.

34. Lee, S., and Elimelech, M. "Salt cleaning of Organic-Fouled Reverse Osmosis Membranes", *Water Research*, Volume 41, March 2007, pages 1134-1142.

35. Kuznar, Z.A. and Elimelech, M. "Direct Microscopic Observation of Particle Deposition in Porous Media: Role of the Secondary Energy Minimum", *Colloids and Surfaces A*, Vol. 294, February 2007, pages 156-162.

36. Montgomery, M.A., and Elimelech, M. "Water and Sanitation in Developing Countries: Including Health in the Equation", *Environmental Science and Technology*, Volume 41, January 2007, pages 17-24.

37. Nguyen, T.H., and Elimelech, M. "Plasmid DNA Adsorption on Silica: Kinetics and Conformational Changes in Mono and Divalent Salts" *Biomacromolecules*, Volume 8, January 2007, pages 24-32.

38. de Kerchove, A.J. and Elimelech, M. "Formation of Polysaccharide Gel Layers in Presence of Ca^{2+} and K^{+} Ions: Measurements and Mechanisms", *Biomacromolecules*, Volume 8, January 2007, pages 113-121.

39. McGinnis, R.L., and Elimelech, M. "Energy Requirements of Ammonia–Carbon Dioxide Forward Osmosis Desalination", *Desalination*, Volume 207, 2007, pages 370-382.

40. McGinnis, R.L., and Elimelech, M. "Energy Requirements of Ammonia–Carbon Dioxide Forward Osmosis Desalination", *Desalination*, Volume 207, 2006, pages 370-382.

41. Nghiem, L.D., Schäfer, A.I, and Elimelech, M. "Role of Electrostatic Interactions in the Retention of Pharmaceutically Active Contaminants by a Loose Nanofiltration Membrane", *Journal of Membrane Science*, Volume 286, December 2006, pages 52-59.

42. Chen, K.L., and Elimelech, M. "Aggregation and Deposition Kinetics of Fullerene (C_{60}) Nanoparticles", *Langmuir*, Volume 22, November 2006, pages 10994-11001.

43. Asatekin, A., Menniti, A., Kang, S. Elimelech, M., Morgenroth, E., and Mayes, A.M. "Antifouling Nanofiltration Membranes for Membrane Bioreactors from Self-Assembling Graft Copolymers", *Journal of Membrane Science*, Volume 285, November 2006, pages 81–89.

44. McCutcheon, J.R., and Elimelech, M. "Influence of Concentrative and Dilutive Internal Concentration Polarization on Flux Behavior in Forward Osmosis", *Journal of Membrane Science*, Volume 284, October 2006, pages 237-247.

45. de Kerchove, A.J. and Elimelech, M. "Structural Growth and Viscoelastic Properties of Adsorbed Alginate Layers in Monovalent and Divalent Salts", *Macromolecules*, Volume 39, September 2006, pages 6558-6564.

46. Cath, T.Y., Childress, A.E., and Elimelech, M. "Forward osmosis: Principles, Applications, and Recent Developments", *Journal of Membrane Science*, Volume 281, September 2006, pages 70-87.

47. Costa, A.R., de Pinho, M.N., and Elimelech, M. "Mechanisms of Colloidal Natural Organic Matter Fouling in Ultrafiltration", *Journal of Membrane Science*, Volume 281, September 2006, pages 716-725.

48. McCutcheon, J.R., McGinnis, R.L., and Elimelech, M. "Desalination by Ammonia-Carbon Dioxide Forward Osmosis: Influence of Draw and Feed Solution Concentrations on Process Performance", *Journal of Membrane Science*, Volume 278, July 2006, pages 114-123.

49. Gray, G.T., McCutcheon, J.R., and Elimelech, M. "Internal Concentration Polarization in Forward Osmosis: Role of Membrane Orientation", *Desalination*, Volume 197, June 2006, pages 1-8.

50. Li, Q., and Elimelech, M. "Synergistic Effects in Combined Fouling of a Loose Nanofiltration Membrane by Colloidal Materials and Natural Organic Matter", *Journal of Membrane Science*, Volume 278, July 2006, pages 72-82.

51. Kuznar, Z.A. and Elimelech, M. "*Cryptosporidium* Oocyst Surface Macromolecules Significantly Hinder Oocyst Attachment", *Environmental Science and Technology*, Volume 40, March 2006, pages 1837-1842.

52. Chen, K.L., Mylon, S.E., and Elimelech, M. "Aggregation Kinetics of Alginate-Coated Hematite Nanoparticles in Monovalent and Divalent Electrolytes", *Environmental Science and Technology*, Volume 40, March 2006, pages 1516-1523.

53. Lee, S., and Elimelech, M. "Relating Organic Fouling of Reverse Osmosis Membranes to Intermolecular Adhesion Forces", *Environmental Science and Technology*, Volume 40, February 2006, pages 980-987.

54. Ang, W.S., Lee, S., and Elimelech M., "Chemical and Physical Aspects of Cleaning of Organic-Fouled Reverse Osmosis Membranes", *Journal of Membrane Science*, Volume 272, March 2006, Pages 198-210.

55. Elimelech, M. "The Global Challenge for Adequate and Safe Water", *Journal of Water Supply: Research and Technology – AQUA*, Volume 55, February 2006, pages 3-10.

56. Lee, S., Ang, W.S., and Elimelech M., "Fouling of Reverse Osmosis Membranes by Hydrophilic Organic Matter: Implications for Water Reuse", *Desalination*, Volume 187, February 2006, pages 313-321.

57. Nghiem, L.D., Schäfer, A.I., and Elimelech, M. "Pharmaceutical Retention Mechanisms by Nanofiltration Membranes", *Environmental Science and Technology*, Volume 39, October 2005, pages 7698 – 7705.

58. Nghiem, L.D., Schäfer, A.I., and Elimelech, M. "Nanofiltration of Hormone Mimicking Trace Organic Contaminants", *Separation Science and Technology*, Volume 40, November 2005, pages 2633-2649.

59. Lee, S., Cho, J. and Elimelech M., "Combined Influence of Natural Organic Matter (NOM) and Colloidal Particles on Nanofiltration Membrane Fouling", *Journal of Membrane Science*, Volume 262, October 2005, pages 27-41.

60. Abudalo, R.A., Bogatsu, Y.G., Ryan, J.N., Harvey, R.W. Metge, D.W., and Elimelech, M. "The Effect of Ferric Oxyhydroxide Grain Coatings on the Transport of Bacteriophage PRD1 and *Cryptosporidium parvum* Oocysts in Saturated Porous Media." *Environmental Science and Technology*, Volume 39, September 2005, pages 6412 - 6419.

61. Walker, S.L., Redman, J.A., and Elimelech M. "Influence of Growth Phase on Bacterial Deposition: Interaction Mechanisms in Packed-Bed Column and Radial Stagnation Point Flow Systems", *Environmental Science and Technology*, Volume 39, September 2005, pages 6405 - 6411.

62. Lee, S., Cho, J. and Elimelech M., "A Novel Method for Investigating the Influence of Feed Water Recovery on Colloidal and NOM Fouling of RO and NF Membranes", *Environmental Engineering Science*, Volume 22, July 2005, pages 496-509.

63. de Kerchove, A.J. and Elimelech, M. "Relevance of Electrokinetic Theory for 'Soft' Particles to Bacterial Cells: Implications for Bacterial Adhesion", *Langmuir*, Volume 21, July 2005, pages 6462-6472.

64. Walker, S.L., Hill, J.E., Redman, J.A., and Elimelech M. "Influence of Growth Phase on the Adhesion Kinetics of *Escherichia coli* D21g", *Applied and Environmental Microbiology*, Volume 71, June 2005, pages 3093-3099.

65. Chen, J.C., Elimelech, M., and Kim, A.S., "Monte Carlo Simulation of Colloidal Membrane Filtration: Model Development with Application to Characterization of Phase Transition Phenomenon", *Journal of Membrane Science*, Volume 255, June 2005, Pages 291-305.

66. Tufenkji, N., and Elimelech M. "Spatial Distributions of *Cryptosporidium* Oocysts in Porous Media: Evidence for Dual Mode Deposition", *Environmental Science and Technology*, Volume 39, May 2005, pages 3620 - 3629.

67. McCutcheon, J.R., McGinnis, R.L., and Elimelech, M. "A Novel Ammonia-Carbon Dioxide Forward (Direct) Osmosis Desalination Process", *Desalination*, Volume 174, 2005, pages 1-11.

68. Tufenkji, N., and Elimelech M. "Breakdown of Colloid Filtration Theory: Role of the Secondary Energy Minimum and Surface Charge Heterogeneities", *Langmuir*, Volume 21, January 2005, pages 841-852.

69. Kuznar, Z.A. and Elimelech, M. "Role of Surface Proteins in the Deposition Kinetics of *Cryptosporidium parvum* Oocysts", *Langmuir*, Volume 21, January 2005, pages 710-716.

70. Kuznar, Z.A. and Elimelech, M. "Adhesion Kinetics of Viable *Cryptosporidium parvum* Oocysts to Quartz Surfaces", *Environmental Science and Technology*, Volume 38, December 2004, pages 6839-6845.

71. Tufenkji, N., and Elimelech M. "Deviation from Classical Colloid Filtration Theory in the Presence of Repulsive DLVO Interactions", *Langmuir*, Volume 20, December 2004, pages 10818-10828.

72. Tufenkji, N., Miller, G.F., Ryan, J.N., Harvey, R.W., and Elimelech M. "Transport of *Cryptosporidium* Oocysts in Porous Media: Role of Straining and Physico-Chemical Filtration", *Environmental Science and Technology*, Volume 38, November 2004, pages 5932-5938.

73. Ng, H.Y., and Elimelech, M. "Influence of Colloidal Fouling on Rejection of Trace Organics by Reverse Osmosis", *Journal of Membrane Science*, Volume 244, November 2004, pages 215-226.

74. Mylon, S.E., Chen, K.L., and Elimelech, M. "Influence of Natural Organic Matter and Ionic Composition on the Kinetics and Structure of Hematite Colloid Aggregation: Implications to Iron Depletion in Estuaries", *Langmuir*, Volume 20, October 2004, pages 9000-9006.

75. Li, Q. and Elimelech, M. "Organic Fouling and Chemical Cleaning of Nanofiltration Membranes: Measurements and Mechanisms", *Environmental Science and Technology*, Volume 38, September 2004, pages 4683-4693.

76. Walker, S.L., Redman, J.A., and Elimelech M. "Role of Cell Surface Lipopolysaccharides (LPS) in *Escherichia coli* K12 Adhesion and Transport", *Langmuir*, Volume 20, August 2004, pages 7736-7746.

77. Nghiêm, D.L., McCutcheon, J., Schäfer, A.I., and Elimelech, M. "The Role of Endocrine Disrupters in Water Recycling: Risk or Mania?", *Water Science and Technology*, Volume 50, 2004, pages 215-220.

78. Redman, J.A., Walker, S.L., and Elimelech, M., "Bacterial Adhesion and Transport in Porous Media: Role of the Secondary Energy Minimum", *Environmental Science and Technology*, Volume 38, March 2004, pages 1777-1785.

79. Nghiem, L.D., Schaefer, A.I., and Elimelech, M. "Removal of Natural Hormones by Nanofiltration Membranes: Measurement, Modeling, and Mechanisms", *Environmental Science and Technology*, Volume 38, March 2004, pages 1888-1896.

80. Chen, J.C., Li, Q., and Elimelech, M. "In-situ Monitoring Techniques for Concentration Polarization and Fouling in Membrane Filtration", *Advances in Colloid and Interface Science*, Volume 107, March 2004, pages 83-104.

81. Tufenkji, N. and Elimelech M. "Correlation Equation for Predicting Single-Collector Efficiency in Physicochemical Filtration in Saturated Porous Media", *Environmental Science and Technology*, Volume 38, January 2004, pages 529-536.

82. Lee, S., Cho, J. and Elimelech M., "Influence of Colloidal Fouling and Feed Water Recovery on Salt Rejection in RO and NF Membrane Separations", *Desalination*, Volume 160, January 2004, pages 1-12.

83. Hoek E.M.V., and Elimelech, M. "Cake-Enhanced Concentration Polarization: A New Fouling Mechanism for Salt Rejecting Membranes", *Environmental Science and Technology*, Volume 37, December 2003, pages 5581 - 5588

84. Loveland, J.P., Bhattacharjee, S., Ryan, J.N. Elimelech, M. "Colloid Transport in a Geochemically Heterogeneous Porous Medium: Aquifer Tank Experiment and Modeling", *Journal Contaminant Hydrology*, Volume 65, September 2003. pages 161-182.

85. Elimelech, M., Chen, J.Y., and Kuznar, Z. "Particle Deposition on Surfaces with Micropatterned Charge Heterogeneity: The Hydrodynamic Bump Effect, *Langmuir*, Volume 19, August 2003, pages 6594-6597.

86. Song, L., Hu, J. Y, Ong, S.L., Ng, W.J., Elimelech, M., and Wilf, M. "Emergence of Thermodynamic Restriction and its Implications for the Full-Scale Reverse Osmosis Process", *Desalination*, Vol. 155, July 2003, Pages 213-228

87. Weronski, P.; Walz, J.Y.; Elimelech, M. "Effect of Depletion Interaction on Transport of Colloidal Particles in Porous Media" *J. Colloid Interface Sci.*, Volume 262, June 2003, pages 372-383.

88. Hoek E.M.V., Bhattacharjee, S., and Elimelech, M. "Effect of Membrane Surface Roughness of Colloid-Membrane DLVO Interactions", *Langmuir*, Vol. 19, May 2003, pages 4836-4847.

89. Song, L., Hu, J. Y, Ong, S.L., Ng, W.J., Elimelech, M., and Wilf, M. "Performance Limitation in the Full-Scale Reverse Osmosis Process", *Journal of Membrane Science*, Vol. 214, April 2003, 239-244.

90. Tufenkji, N., Redman, J.A., and Elimelech, M. "Interpreting Deposition Patterns of Microbial Particles in Laboratory-Scale Column Experiments" *Environmental Science & Technology*, Volume 37, February 2003, pages 616-623.

91. Hoek, E.M.V., Kim, A.S., and Elimelech, M., "Influence of Crossflow Membrane Filter Geometry and Shear Rate on Colloidal Fouling in reverse Osmosis and Nanofiltration Separations", *Environmental Engineering Science*, Volume 19, December 2002, pages 357-372.

92. Le Gouellec, Y.A., and Elimelech, M. "Control of Calcium Sulfate (Gypsum) Scale in Nanofiltration of Saline Agricultural Drainage Water", *Environmental Engineering Science*, Volume 19, December 2002, pages 387-398.

93. Tufenkji, N., Ryan, J.N., and Elimelech M. "The Promise of Bank Filtration", *Environmental Science & Technology*, Volume 36, November 2002, pages 422A-428A.

94. Ryan, J.N., Harvey, R.H., Metge, D., Elimelech, M., Navigato, T., and Piper A.P. "Field and Laboratory Investigations of Inactivation of viruses (PRD1 and MS2) Attached to Iron Oxide-Coated Quartz Sand", *Environmental Science and Technology*, Volume 36, August 2002, pages 2403-2413.

95. LeGouellec, Y. and Elimelech, M. "Gypsum Scaling in Nanofiltration of Agricultural Drainage Water", *Journal of Membrane Science*, Volume 205, August 2002, 279-291.

96. Bhattacharjee, S., Ryan, J.N., and Elimelech, M. "Virus Transport in Physically and Geochemically Heterogeneous Subsurface Porous Media", *Journal of Contaminant Hydrology*, Volume 57, August 2002, 161-187.

97. Chen, J.Y., Klemic, J.F., Elimelech, M. "Micropatterning Microscopic Chemical Heterogeneity on Flat Surfaces for Studying the Interaction between Colloidal Particles and Heterogeneously Charged Surfaces", *Nano* Letters, Volume 2, April 2002, pages 393-396.

98. Seidel, A., and Elimelech, M. "Coupling between Chemical and Physical Interactions in NF Membrane Fouling by Natural Organic Matter: Implications for Fouling Control", *Journal of Membrane Science*, Volume 203, March 2002, pages 245-255.

99. Walker, S.L., Bhattacharjee, S., Hoek. E.M.V., and Elimelech, M. "A Novel Asymmetric Clamping Cell for Measuring Streaming Potential of Flat Surfaces", *Langmuir*, Volume 18, March 2002, pages 2193-2198.

100. Bunn, R.A., Ryan, J.N., and Elimelech, M. "Mobilization of Natural Colloids from an Iron Oxide Coated Sand Aquifer: Effect of pH and Ionic Strength", *Environmental Science and Technology*, Volume 36, February 2002, pages 314-322.

101. Bhattacharjee, S., Chen, J.C., and Elimelech, M. "Coupled Model of Concentration Polarization and Pore Transport in Crossflow Nanofiltration of Multi-Component Electrolytes", *AIChE Journal*, December 2001, Vol. 47, pages 2733-2745.

102. Chen, J.Y., Ko, C.-H., Bhattacharjee, S., and Elimelech, M. "Role of Spatial Distribution of Porous Medium Geochemical Heterogeneity in Colloid Transport", *Colloids and Surfaces A*, Volume 191, October 2001, pages 3-16

103. Grolimund, D., Elimelech, M., and Borkovec, M. "Aggregation and Deposition Kinetics of Mobile Colloidal Particles in Natural Porous Media", *Colloids and Surfaces A*, Volume 191, October 2001, pages 179-188.

104. Vrijenhoek, E.M., Hong, S., and Elimelech, M. "Influence of Membrane Surface Properties on Initial Rate of Colloidal Fouling of Reverse Osmosis and Nanofiltration Membranes", *Journal of Membrane Science*, Volume 188, June 2001, pages 115-128.

105. Sun, N., Elimelech, M., Sun, N.-Z., and Ryan, J.N. "A Novel Two-Dimensional Model for Colloid Transport in Physically and Geochemically Heterogeneous Porous Media", *Journal of Contaminant Hydrology*, Volume 49, June 2001, pages 173-199.

106. Seidel, A., Waypa, J.J. and Elimelech, M. "Role of Charge (Donnan) Exclusion in Removal of Arsenic from Water by a Negatively Charged Porous Nanofiltration Membrane", *Environmental Engineering Science*, Volume 18, May 2001, pages 105-113..

107. Sun, N., Sun, N.-Z ., Elimelech, M., and Ryan, J.N. "Sensitivity Analysis and Parameter Identifiability in Colloid Transport in Geochemically Heterogeneous Porous Media", *Water Resources Research*, Volume 37, February 2001, pages 209-222.

108. Kim, S., Bhattacharjee, S. and Elimelech, M. "Shear Induced Reorganization of Deformable Molecular Assemblages: Monte Carlo Studies, *Langmuir*, Vol. 17, January 2001, pages 552-561.

109. Kuhnen, F., Bhattacharjee, S., Elimelech, M, and Kretzschmar, R. "Transport and Deposition Dynamics of Iron Oxide Colloids in Packed Quartz Media: Monolayer and Multilayer Deposition" *Journal of Colloid and Interface Science*, Vol. 231, November 2000, pages 32-41.

110. Ko, C.-H., and Elimelech, M. "The Shadow Effect in Colloid Transport and Deposition Dynamics in Granular Porous Media: Measurements and Mechanisms", *Environmental Science and Technology*, Volume 34, September 2000, pages 3681-3689.

111. Ko, C.-H., Bhattacharjee, S., and Elimelech, M. "The Coupled Influence of Ionic Strength, Particle Size, and Flow Velocity on the RSA Dynamic Blocking Function during Colloid Deposition in a Packed Bed of Spherical Collectors", *Journal of Colloid and Interface Science*, Volume 229, September 2000, pages 554-567.

112. Childress, A.E., and Elimelech, M. "Relating Nanofiltration Membrane Performance to Membrane Charge (Electrokinetic) Characteristics", *Environmental Science and Technology*, Volume 34, September 2000, pages 3710-3716.

113. Ryan, J.N., Elimelech, M., Magelky, R.D., and Baseman, J.L., "Silica-Coated Titania and Zirconia Colloids for Subsurface Transport Field Experiments", *Environmental Science and Technology*, Volume 34, May 2000, pages 2000-2005.

114. Elimelech, M., Nagai, M., Ko, C.-H., and Ryan, J.N. " Relative Insignificance of Mineral Grain Zeta Potential to Colloid Transport in Geochemically Heterogeneous Porous Media", *Environmental Science and Technology*, Volume 34, June 2000, pages 2143-2148.

115. Bhattacharjee, S., Chen, J.Y., and Elimelech M. "DLVO Interaction between Spheroidal Particles and a Flat Surface", *Colloids and Surfaces A*, Volume 165, May 2000, pages 143-156.

116. Childress, A.E., Vrijenhoek, E.M., Elimelech, M. "Particulate and THM Precursor Removal with Ferric Chloride", *Journal of Environmental Engineering, ASCE*, Volume 125 (11), November 1999, pages 1054-1061.

117. Bhattacharjee, S., Kim, A.S., and Elimelech, M., "Concentration Polarization of Interacting Solute particles in Crossflow membrane Filtration", *Journal of Colloid and Interface Science*, Volume 212, April 1999, pages 81-99.

118. Kretzschmar, R., Borkovec, M., Grolimund, D., and Elimelech, "Mobile Subsurface Colloids and their Role in Contaminant Transport" (Review Paper), *Advances in Agronomy*, Volume 66, January 1999, pages 121-194.

119. Ryan J.N., Elimelech M., Ard R.A., Harvey R.W., and Johnson P.R., "Bacteriophage PRD1 and Silica Colloid Transport and Recovery in an Iron Oxide-Coated Sand Aquifer", *Environmental Science & Technology*, Volume 33, January 1999, pages 63-73.

120. Bhattacharjee, S., Elimelech, M., and Borkovec, M., "DLVO Interaction between Colloidal Particles: Beyond Derjaguin's Approximation", (Invited Paper for a Special Issue in Honor of Professor Egon Matijevic) *Croatica Chemica Acta*, Volume 71, December 1998, pages 883-903.

121. Grolimund, D., Elimelech, M., Borkovec, M., Barmettler, K., Kretzschmar, R., and Sticher, H., "Transport of *in-situ* Mobilized Colloidal Particles in Packed Soil Columns", *Environmental Science & Technology*, Volume 32, November 1998, pages 3562-3569.

122. Clark, M.M. *et al.* AWWA "Committee Report: Membrane Processes", *Journal American Water Works Association*, Volume 90, June 1998, pages 91-105.

123. Faibish, R.S., Elimelech, M., and Cohen, Y., "Effect of Interparticle Electrostatic Double Layer Interactions on Permeate Flux Decline in Crossflow Membrane Filtration of Colloidal Suspensions: An Experimental Investigation", *Journal of Colloid and Interface Science*, Volume 204, August 1998, pages 77-86.

124. Elimelech, M, and Bhattacharjee, S. "A Novel Approach for Modeling Concentration Polarization in Crossflow Membrane Filtration Based on the Equivalence of Osmotic Pressure Model and Filtration Theory", *Journal of Membrane Science*, Volume 145, July 1998, pages 223-241.

125. Bhattacharjee, S., Ko, C.-H., and Elimelech, M., "DLVO Interaction between Rough Surfaces, *Langmuir*, Volume 14, June 1998, pages 3365-3375.

126. Vrijenhoek, E., Childress, A.E., Elimelech, M, Tanaka, T.S., and Beuhler, M.D., "Removal of Particles and THM Precursors by Enhanced Coagulation", *Journal American Water Works Association*, Volume 90, April 1998, pages 139-150.

127. Mazzolani, G., Stolzenbach, K.D., and Elimelech, M. "Coagulation of Settling Aggregates of Different Size and Density", *Journal of Colloid and Interface Science*, Vol. 197, January 1998, pages 334-347.

128. Hong, S., Faibish, R.S., and Elimelech, M. "Kinetics of Permeate Flux Decline in Crossflow Membrane Filtration of Colloidal Suspensions", *Journal of Colloid and Interface Science*, Volume 196, December 1997, pages 267-277.

129. Zhu, X., and Elimelech M. "Colloidal Fouling of Reverse Osmosis Membranes: Measurements and Fouling Mechanisms", *Environmental Science & Technology*, Volume 31, December 1997, pages 3654-3662.

130. Bhattacharjee, S., and Elimelech, M., "Surface Element Integration: A Novel Technique for Evaluation of DLVO Interaction between a Particle and an Infinite Flat Plate", *Journal of Colloid and Interface Science*, Volume 193, October 1997, pages 273-285.

131. Waypa, J.J., Hering, J.G., and Elimelech, M. "Arsenic Removal from Water by Reverse Osmosis and Nanofiltration Membrane Processes", *Journal American Water Works Association*, Volume 89(10), October 1997, pages 102-114..

132. Hong, S., and Elimelech, M. "Chemical and Physical Aspects of Natural Organic Matter (NOM) Fouling of Nanofiltration Membranes", *Journal of Membrane Science*, Volume 132, September 1997, pages 159 - 181.

133. Hering, J.G., Chen P-Y., Wilkie, J.A., and Elimelech, M. "Arsenic Removal from Drinking Water During Coagulation", *Journal of Environmental Engineering, ASCE.*, Volume 123(8), August 1997, pages 800-807.

134. Elimelech, M., Zhu, X., and Childress, A.E. "Role of Surface Morphology in Colloidal Fouling of Polymeric Membranes", *Journal of Membrane Science*, Volume 127, April 1997, pages 101-109.

135. Johnson, P.R., Sun, N., and Elimelech, M. "Colloid Transport in Geochemically Heterogeneous Porous Media: Modeling and Measurements", *Environmental Science & Technology*, Volume 30, November 1996, pages 3284-3293.

136. Childress, A.E., and Elimelech, M. "Effect of Solution Chemistry on the Surface Charge of Polymeric Reverse Osmosis and Nanofiltration Membranes", *Journal of Membrane Science*, Volume 119(2), October 1996, pages 253-268.

137. Hering, J.G., Chen, P.-Y., Wilkie, J.A., Elimelech, M., and Liang, S. "Arsenic Removal by Ferric Chloride", Journal American Water Works Association, Volume 88, April 1996, pages 155-167.

138. Ryan, J.N., and Elimelech, M. "Colloid Mobilization and Transport in Groundwater", *Colloids and Surfaces A*, Volume 107, February 1996, pages 1-56.

139. Liu, D., Johnson, P.R., and Elimelech, M. "Colloid Deposition Dynamics in Flow Through Porous Media: Role of Electrolyte Concentration", *Environmental Science & Technology*, Volume 29, December 1995, pages 3021-3031.

140. Zhu, X., and Elimelech, M. "Fouling of Reverse Osmosis Membranes by Aluminum Oxide Colloids", *Journal of Environmental Engineering, ASCE.*, Volume 121, December 1995, pages 884-892..

141. Song, L. and Elimelech M. "Theory of Concentration Polarization in Crossflow Filtration", *Journal of the Chemical Society, Faraday Transactions* , Volume 91, October 1995; pages 3389-3398.

142. Song, L. and Elimelech M. "Particle Deposition onto a Permeable Surface in Laminar Flow" *Journal of Colloid and Interface Science* Vol. 173, July 1995, pages 165-180

143. Johnson, P.R., and Elimelech, M. "Dynamics of Colloid Deposition in Porous Media: Blocking Based on Random Sequential Adsorption", *Langmuir* Vol. 11, March 1995, pages 801-812.

144. Elimelech, M., "Particle Deposition on Ideal Collectors from Dilute Flowing Suspensions: Mathematical Formulation, Numerical Solution, and Simulations", *Separations Technology*, Vol. 4, October 1994, pages 186-212.

145. Song, L., and Elimelech, M., "Transient Deposition of Colloidal Particles in Heterogeneous Porous Media", *Journal of Colloid and Interface Science*, Vol. 167 October 1994, pages 222-234

146. Elimelech, M., Chen, W. H., and Waypa, J. J. "Measuring the Zeta (Electrokinetic) Potential of Reverse Osmosis Membranes by a Streaming Potential Analyzer", *Desalination.*, Vol. 95(3), July 1994, pages 269-286.

147. Glater J., Hong, S-K., and Elimelech, M. "The Search for a Chlorine Resistant Reverse Osmosis Membrane", *Desalination.*, Vol. 95(3), July 1994, pages 325-345.

148. Song, L., Johnson, P. R., and Elimelech, M. "Kinetics of Colloid Deposition onto Heterogeneously Charged Surfaces in Porous Media", *Environmental Science & Technology*,. Vol. 28(6), June 1994, pages 1164-1171.

149. Elimelech, M. "Effect of Particle Size on the Kinetics of Particle Deposition under Attractive Double Layer Interactions", *Journal of Colloid and Interface Science.*, Vol. 164, April 1994, pages 190-199.

150. Stolzenbach, K. D., and Elimelech, M., "The Effect of Particle Density on Collisions Between Sinking Particles: Implications for Particle Aggregation in the Ocean", *Deep-Sea Research*, Vol. 41(3), March 1994, pages 469-483.

151. Ching, H-W., and Elimelech, M., "Dynamics of Coagulation of Kaolin Particles with Ferric Chloride", *Water Research*, Vol. 28, March 1994, pages 559-569.

152. Ching, H-W., Elimelech, M., and Hering J. G., "Dynamics of Coagulation of Clay Particles with Aluminum Sulfate", *Journal of Environmental Engineering, ASCE.*, Vol. 120, January/February 1994, pages 169-189.

153. Song, L., and Elimelech, M., "Calculation of Particle Deposition Rate under Unfavorable Particle-Surface Interactions", *Journal of the Chemical Society, Faraday Transactions*, Vol. 89, September 1993, pages 3443-3452.

154. Song, L., and Elimelech, M., "Dynamics of Colloid Deposition in Porous Media: Modeling the Role of Retained Particles", *Colloids and Surfaces A*, Vol. 73, June 1993, pages 49-63.

155. van Zanten, J. H., and Elimelech, M., "Determination of Absolute Coagulation Rate Constants by Multiangle Light Scattering", *Journal of Colloid and Interface Science*, Vol. 154, November 1992, pages 1-7.

156. Song, L., and Elimelech, M., "Deposition of Brownian Particles in Porous Media: Modified Boundary Conditions for the Sphere-in-Cell Model", *Journal of Colloid and Interface Science*, Vol. 153, October 1992, pages 294-297.

157. Elimelech, M., and Song L., "Theoretical Investigation of Colloid Separation from Dilute Aqueous Suspensions by Oppositely Charged Granular Media", *Separations Technology*, Vol. 2, January 1992, pages 2-12.

158. Elimelech, M., "Predicting Collision Efficiencies of Colloidal Particles in Porous Media", *Water Research*, Vol. 26, January 1992, pages 1-8.

159. Elimelech, M., "Kinetics of Capture of Colloidal Particles in Packed Beds Under Attractive Colloidal Interactions", *Journal of Colloid and Interface Science*, Vol. 146, October 1991, pages 337-352.

160. Elimelech, M., and O'Melia C.R., "Kinetics of Deposition of Colloidal Particles in Porous Media", *Environmental Science & Technology*, Vol. 24, October 1990, pages 1528-1536.

161. Elimelech, M., "Indirect Evidence for Hydration Forces in the Deposition of Polystyrene Latex Colloids on Glass Surfaces", *Journal of the Chemical Society, Faraday Transactions*, Vol. 86(9), May 1990, pages 1623-1624.

162. Elimelech, M., and O'Melia C.R., "Effect of Particle Size on Collision Efficiency in the Deposition of Brownian Particles with Electrostatic Energy Barriers", *Langmuir*, Vol. 6(6), June 1990, pages 1153-1163.

163. Elimelech, M., and C.R., O'Melia, "Effect of Electrolyte Type on the Electrophoretic Mobility of Polystyrene Latex Colloids", *Colloids and Surfaces*, Vol. 44, March 1990, pages 165-177.

164. Adin, A., and Elimelech, M., "Particle Filtration for Wastewater Irrigation", *Journal of Irrigation and Drainage Engineering, ASCE*, Vol. 115, No. 3, June 1989, pages 474-487.

Discussions

Elimelech, M. Discussion of "Colloid Filtration in Fluidized Beds" by G. Sprouse and B. E. Rittmann, *Journal of Environmental Engineering, ASCE*, Vol. 117, No. 5., September/October 1991, pages 706-708.

Books

Elimelech, M., J. Gregory, X. Jia, and R. A. Williams (1995). "*Particle Deposition and Aggregation: Measurement, Modeling, and Simulation*", **Butterworth-Heinemann**, Oxford.

Book Chapters

1. Elimelech, M., and Song L., "Deposition of Colloids in Porous Media: Theory and Numerical Solution", In: *Transport and Remediation of Subsurface Environments: Colloidal, Interfacial, and Surfactant Phenomena*, Sabatini, D. A. and Knox, R. C. Editors, **ACS Symposium Series 491**, 1992, pages 26-39
2. Elimelech, M. "Deposition of Colloidal Particles in Porous Media in the Presence of Attractive Double Layer Interactions", In: *Manipulation of Groundwater Colloids for Environmental Restoration*, McCarthy, J. F. and Wobber, F. J. Editors, **Lewis Publishers**, 1993, pages 219-224.
3. Song, L., and Elimelech, M., "Dynamics of Colloid Deposition in Porous Media: Modeling the Role of Retained Particles", In: *Colloids in the Aquatic Environment* , Tadros, Th. F. and Gregory, J. Editors, Elsevier Science Publishers, 1993, pages 49-63
4. Elimelech M. and Ryan, J.N., "The Role of Mineral Colloids in the Facilitated Transport of Contaminants in Saturated Porous Media", Wiley Interscience, in press.

Papers in Conference Proceedings (not updated)

1. Elimelech, M., "The Role of Colloidal Interactions in the Filtration of Submicron Particles", *Proceedings of the Annual American Water Works Association Conference* , June 18-21, 1990, pages 1831-1840.
2. Elimelech, M., "Particle Filtration in the Presence of Attractive Double Layer Interactions", *Proceedings of the National Meeting of the American Filtration Society*, October 20-23, 1991, Volume 5, pages 13-16.
3. Elimelech, M., Liu, D., and Song, L., "Role of Retained Particles in Particle Deposition: Measurements and Modeling", *Proceedings of the National Meeting of the American Filtration Society*, W.W.-F. Leung, Editor, Volume 7, May 1993, pages 39-40.
4. Elimelech, M., and Ching, H-W., "Monitoring the Dynamics of Coagulation with Metal Salts by a Flow-Through Optical Technique", *Proceedings of the National Meeting of the American Filtration Society*, W.W.-F. Leung, Editor, Volume 7, May 1993, pages 576-580.
5. Elimelech, M., and Song, L., "A Model for the Dynamics of Particle Deposition in Packed Bed Filters", *Proceedings of the National Meeting of the American Filtration Society*, W.W.-F. Leung, Editor, Volume 7, May 1993, pages 208-211.
6. Elimelech, M., Chen, W. H. and Fairhurst, D. "Measuring the Electrokinetic (Zeta) Potential of Reverse Osmosis Membranes by a Streaming Potential Analyzer", *Proceedings of the National Meeting of the American Filtration Society*, W.W.-F. Leung, Editor, Volume 7, May 1993, page 382.
7. Ching, H-W., Elimelech, M., and Tanaka, T. S., "Use of Scattered Light Fluctuations to Monitor Coagulation Dynamics with Aluminum Sulfate", *Proceedings of the 1993 Annual American Water Works Association Conference*, June 1993, pages 373-380.
8. Elimelech, M., and Zhu, X., "Colloidal Fouling of Reverse Osmosis Membranes", *Proceedings of the ASCE-1994 National Conference on Environmental Engineering*, July 11-13, 1994, pages 329-335.
9. Glater, J., Hong, S., and Elimelech, M. "Reverse Osmosis Membrane Chlorine Sensitivity", *Proceedings of the 7th International Symposium on Synthetic Membranes in Science and Industry*, August 29-September 1, 1994, Tubingen, Germany, pages 238-241.
10. Waypa, J.J., Wilkie, J.A., and Elimelech, M. "Removal of Arsenic from Water by Membrane Processes" *Proceedings of the 1995 Annual American Water Works Association Conference*, June 1995.

11. Hering, J.G., and Elimelech, M. "International Perspectives on Arsenic in Groundwater: Problems and Treatment Strategies" *Proceedings of the 1995 Annual American Water Works Association Conference*, June 1995.

12. Zhu, X., Hong, S., Childress, A.E., and Elimelech, M. "Colloidal Fouling of Reverse Osmosis Membranes: Experimental Results, Fouling Mechanisms, and Implications for Water Treatment", *Proceedings of the 1995 AWWA Membrane Technology Conference*, August 1995, Reno, Nevada, pages 251-262.

13. Childress, A.E., Deshmukh, S.S., and Elimelech, M., "Zeta Potential Measurements of Reverse Osmosis and Nanofiltration Membranes", *American Desalination Association Biennial Conference and Exposition*, August 4-8, 1996, Monterey, California, pages 700-716.

14. Hong, S. and Elimelech, M. "Fouling of Nanofiltration Membranes by Natural Organic Matter", Proceedings of *American Desalting Association 1996 Biennial Conference and Exposition*, August 4-8, 1996, Monterey, California, pages 717-727.

15. Childress, A.E. and Elimelech, M., "Effects of Humics and Surfactants on the Zeta Potential of Polymeric Reverse Osmosis and Nanofiltration Membranes", *American Chemical Society 212th National Meeting*, August 25-29, 1996, Orlando, Florida, pages 106-108.

16. Hong, S. and Elimelech, M. "Chemical and Physical Aspects of Natural Organic Matter Fouling of Nanofiltration Membranes", *American Chemical Society 212th National Meeting*, August 25-29, 1996, Orlando, Florida, pages 89-81.

17. Hong, S., Elimelech, M, and Song, L. "Crossflow Membrane Filtration of Colloidal Suspensions", *American Chemical Society 212th National Meeting*, August 25-29, 1996, Orlando, Florida, pages 121-122.

18. Le Goullec, Y., Elimelech, M., and Glater, J. "High Performance Nanofiltration Membranes for Agricultural Wastewater reclamation", Proceedings of the *IDA World Congress ion Desalination and Reuse*, October 6-9, 1997, Madrid, Spain, pages 97-111.

19. **LeGouellec**, Y., Nagai M., and Elimelech M., "Calcium Sulfate Scale Formation and Control in Nanofiltration of Agricultural Drainage Water", *Proceedings of the American Water Works Association 1998 Annual Conference, Dallas, TX*, June 1998.

20. Elimelech, M., LeGouellec, Y., Nagai, M., and Glater, J. "Fouling of Nanofiltration Membranes due to Calcium Sulfate in Treatment of Agricultural Drainage", Proceedings of the *National Conference on Environmental Engineering, ASCE*, July 25-28, 1999, Norfolk, Virginia, pages 538-542.

21. Vrijenhoek, E.M., M. Elimelech, and S. Hong, "Influence of Membrane Properties, Solution Chemistry, and Hydrodynamics on Colloidal Fouling of Reverse Osmosis and Nanofiltration Membranes" *in Preprints of Extended Abstracts of the 220th American Chemical Society National Meeting*, Washington, DC, August 20-24, 40(2) (2000) 281-283.

22. Vrijenhoek, E.M., M. Elimelech and S. Bhattacharjee, "Influence of Membrane Surface Morphology on Colloidal Interactions in Membrane Systems" in *Proceedings of the American Institute of Chemical Engineers Annual Meeting –Colloidal Interactions in Membrane Systems Session*, Reno, NV, November 4-9, 2001.

23. Vrijenhoek, E.M., M. Elimelech and S. Bhattacharjee, "Effect of Crossflow Shear Rate on Initial Rate of Colloidal Fouling in Crossflow Membrane Filtration Processes" in *Proceedings of the Membrane Technology for Wastewater Reclamation and Reuse Conference*, Tel Aviv, Israel, September 9-13, 2001.

24. Seidel, A., and M. Elimelech, "Coupled Influence of Chemical and Physical Interactions in Natural Organic Matter (NOM) Fouling of NF Membranes" in *Proceedings of the Membrane Technology for Wastewater Reclamation and Reuse Conference*, Tel Aviv, Israel, September 9-13, 2001.

25. Vrijenhoek, E.M., M. Elimelech and S. Bhattacharjee, "Optimization of Channel Geometry for Control of Colloidal Fouling in Crossflow Membrane Filtration Processes" in *Proceedings of the AWWA Annual Conference*, Washington, DC, June 17-20, 2001.
26. Vrijenhoek, E.M., M. Elimelech and S. Bhattacharjee, "Optimization of Channel Height to Control Colloidal Fouling in Crossflow Membrane Filtration Processes" in *Proceedings of the AWWA Membrane Technology Conference*, San Antonio, TX, March 4-7, 2001.
27. Ryan J.N., Elimelech M., and Harvey R.W., "Attachment and inactivation during virus transport in groundwater", In 2001 STAR Drinking Water Progress Review Workshop, February 22-23, 2001, Silver Spring, Maryland, Report EPA/6/R-01/027, National Center for Environmental Research, U.S. Environmental Protection Agency, Washington, DC.
28. Ryan J.N., Elimelech M., Harvey R.W., Aronheim J.S., Bhattacharjee S., Bogatsu Y., Loveland J.P., Metge D.W., Navigato T., and Pieper A.P. (2002) "Transport of Viruses in Porous Media. In Colloids and Colloid-Facilitated Transport of Contaminants in Soils and Sediments, de Jonge L.W., Moldrup P., and Jacobsen O.H., eds., Danish Institute of Agricultural Sciences Plant Production Report No. 80, Tjele, Denmark, 93-99.
29. Nghiem, L.D.; Schäfer, A.I.; Elimelech, M., Mechanisms of steroid hormones and hormone mimicking compounds removal in nanofiltration, Environmental Engineering Research event 2003, Melbourne, Australia.
30. Nghiem, L.D.; Schäfer, A.I.; Elimelech, M., *Retention of emerging water and wastewater pollutants in nanofiltration, IMSTEC, November 11-13, 2003, Australia, Sydney.*
31. Nghiem, L.D.; McCutcheon, J.; Schäfer, A.I. ; Elimelech, M. The role of endocrine disrupters in water recycling – risk or mania?, IWA 4th International Symposium on Wastewater Reclamation and Reuse, November 12-14, 2003, Mexico, City.

Seminar, Conference, and Symposium Presentations

1. Elimelech, M., and C.R., O'Melia, "Kinetics of Deposition of Colloidal Particles in Porous Media", presented in: *Workshop on "Aquatic Chemical Kinetics: Reaction Rates of Processes in Natural Water"*, March 19-23, 1989, Kartause Ittingen, Warth, Switzerland.
2. Elimelech, M., and C.R., O'Melia, "The Effect of Particle Size on the Capture Efficiency of Colloids by Surfaces in the Presence of DLVO Energy Barriers", presented at: *ACS - 63rd Annual Colloid and Surface Science Symposium*, June 18-21, 1989, Seattle, Washington.
3. Elimelech, M., and C.R., O'Melia, "Electrokinetic Studies of Hydrophobic Latex Particles", presented at: *ACS - 63rd Annual Colloid and Surface Science Symposium*, June 18-21, 1989, Seattle, Washington.
4. Elimelech, M. (invited) "Kinetics of Deposition of Colloidal Particles in Porous Media", *Environmental Engineering Science, California Institute of Technology*, March 1990.
5. Elimelech, M., "The Role of Colloidal Interactions in the Filtration of Submicron Particles", presented at: *Annual American Water Works Association Conference*, June 18-21, 1990, Cincinnati, Ohio.
6. Elimelech, M., "Role of Particle Size in Liquid Filtration of Submicron Particles", presented at: *21st Annual Meeting of the Fine Particle Society*, August 19-25, 1990, San Diego, California.
7. Elimelech, M., "Deposition of Colloidal Particles in Porous Media in the Presence of Attractive Double Layer Interactions." presented in Department of Energy Workshop on: *Concepts in Manipulation of Ground Water Colloids for Environmental Restoration*, October 15-18, 1990, Manteo, North Carolina.

8. Elimelech, M., (invited) "Physicochemical Aspects of Colloid Deposition in Porous Media", *Department of Civil and Environmental Engineering, University of California, Irvine*, November, 1990.

9. Elimelech, M., (invited) "Chemical Aspects of Depth Filtration in Water Treatment", *Department of Civil and Environmental Engineering, University of Southern California* November, 1990.

10. Elimelech, M., (invited) "Kinetics of Particle Deposition in Porous Media under Attractive Double Layer Interactions", *Department of Civil and Environmental Engineering, University of California, Berkeley*, March, 1991.

11. Elimelech, M., and Song L., "Capture of Colloids in Porous Media: Theory, Numerical Solution, and Implications to the Transport of Colloidal Contaminants in Groundwaters", presented at: *ACS - 65th Annual Colloid and Surface Science Symposium;*, in the session of: **Colloid and Interfacial Aspects of Groundwater and Soil Cleanup**, June 17-19, 1991, Norman, Oklahoma.

12. Elimelech, M., "Kinetics of Colloid Deposition Under Attractive Double Layers", presented at: *22nd Annual Meeting of the Fine Particle Society*, July 29 - August 2, 1991, San Jose, California.

13. Elimelech, M., and H. Ching, "Effects of Organic Molecules on Electrokinetic Properties and Colloidal Stability of Aluminum Oxide Colloids", presented at: *22nd Annual Meeting of the Fine Particle Society*, July 29 - August 2, 1991, San Jose, California.

14. Elimelech, M., "Kinetics of Particle Deposition in Porous Media under Attractive Double Layer Interactions", presented in the international conference: *Interfacial Phenomena in the Environment*, October 6-11, 1991, Davos, Switzerland.

15. Elimelech, M., "Particle Filtration in the Presence of Attractive Double Layer Interactions", presented at: *1991 National Meeting of the American Filtration Society*, October 20-23, Atlanta, Georgia.

16. Ching, H.-W., and Elimelech, M., "Chemical Aspects of Coagulation in Natural Waters", presented at: *American Geophysical Union 1991 Fall Meeting*, December 9-13, 1991, San Francisco, California.

17. Song, L., and Elimelech, M., "Modeling of Particle Deposition in Porous Media", presented at: *American Geophysical Union 1991 Fall Meeting*, December 9-13, 1991, San Francisco, California.

18. Liu, D., and Elimelech, M., "Dynamics of Colloid Transport in Porous Media: Chemical-Colloidal Aspects", presented at: *American Geophysical Union 1991 Fall Meeting*, December 9-13, 1991, San Francisco, California.

19. Song, L., and Elimelech, M., "Deposition of Brownian Particles in Porous Media: Modified Boundary Conditions for the Sphere-in-Cell Model", presented at: *ACS - 66th Annual Colloid and Surface Science Symposium*, June 17-21, 1992, Morgantown, West Virginia.

20. Song, L., and Elimelech, M., "Dynamics of Particle Deposition in Porous Media: Role of Retained Particles", *presented at: ACS - 66th Annual Colloid and Surface Science Symposium*, June 17-21, 1992, Morgantown, West Virginia.

21. Elimelech, M., and Song L., "Dynamics of Colloid deposition in Porous Media", presented at: *Colloids in the Aquatic Environment: An International symposium*, September 7-9, 1992, London, United Kingdom.

22. Elimelech, M., (invited) "Dynamics of Colloid deposition in Porous Media", *Department of Chemical Engineering, University of Manchester Institute of Science and technology (UMIST), United Kingdom*, September 1992.

23. Elimelech, M. "Transport and Deposition of Colloids in Porous Media: Chemical Aspects", presented at: *Second Forum on NSF Research Activities in Subsurface Systems*, October 7-9, 1992, University of Michigan, Ann Arbor.

24. Elimelech, M., Liu, D., and Song, L., "Role of Retained Particles in Particle Deposition: Measurements and Modeling", presented at the *1993 National Meeting of the American Filtration Society*, May 1993, Chicago, Illinois.

25. Elimelech, M., and Ching, H-W., "Monitoring the Dynamics of Coagulation with Metal Salts by a Flow-Through Optical Technique", presented at the *1993 National Meeting of the American Filtration Society*, May 1993, Chicago, Illinois.

26. Elimelech, M., and Song, L., "A Model for the Dynamics of Particle Deposition in Packed Bed Filters", presented at the *1993 National Meeting of the American Filtration Society*, May 1993, Chicago, Illinois.

27. Elimelech, M., Chen, W. H. and Fairhurst, D. "Measuring the Electrokinetic (Zeta) Potential of Reverse Osmosis Membranes by a Streaming Potential Analyzer", presented at the *1993 National Meeting of the American Filtration Society*, May 1993, Chicago, Illinois.

28. Elimelech, M., Liu, D., and Song, L., "Role of Retained Particles in the Dynamics of Particle Deposition in Porous Media: Modeling and Measurements", presented at the *ACS-67th Annual Colloid and Surface Science Symposium*, June, 1993, Toronto, Canada.

29. Elimelech, M., and Song, L., "Role of Particle Size in the Kinetics of Particle Deposition under Attractive Electric Double Layer Interactions", presented at the *ACS-67th Annual Colloid and Surface Science Symposium*, June, 1993, Toronto, Canada.

30. Song, L., and Elimelech, M., "Deposition of Colloidal Particles from Flowing Suspensions onto Heterogeneous Solid Surfaces", presented at the *ACS-67th Annual Colloid and Surface Science Symposium*, June, 1993, Toronto, Canada.

31. Ching, H-W., Elimelech, M., and Tanaka, T. S., "Use of Scattered Light Fluctuations to Monitor Coagulation Dynamics with Aluminum Sulfate", presented at the *AWWA 1993 Annual Conference*, June 1993, San Antonio, Texas.

32. Elimelech, M., "Arsenic Removal by Membrane Processes", presented at the *1993 Arsenic Workshop of the Association of California Water Agencies*, May 1993, Diamond Bar, California.

33. Fairhurst, D., and Elimelech, M. "Use of Streaming Potential for the Determination of Zeta Potentials of Polymeric Membranes", presented at the *24th Annual Meeting of the Fine Particle Society*, August 1993, Chicago, Illinois.

34. Elimelech, M., "Particles in Water Treatment: Analysis, Removal, and Challenges", presented at *ALEX 93: The Analytical Laboratory and Exposition Conference*, October 4-8, 1993, San Francisco, California.

35. Stolzenbach, K. D., and Elimelech, M. "The Effect of Particle Density and Porosity on Particle Deposition by Differential Sedimentation" presented at the *Sixth International Symposium: Interactions Between Sediments and Water*, December 1993, Santa Barbara, California..

36. Liu, D. and Elimelech, "Effect of Retained Colloids on Particle Deposition Dynamics", presented at the *American Chemical Society Annual Meeting*, March 1994, San Diego, California.

37. Song, L., and Elimelech, M. "Colloid Deposition onto Heterogeneously Charged Surfaces in Porous " presented at the *American Chemical Society Annual Meeting*, March 1994, San Diego, California.

38. Stolzenbach, K. D., and Elimelech, M. "The Effect of Particle Density on Collisions Between Sinking Particles: Implications for particle Aggregation in the Ocean" presented at the *AGU, Ocean Sciences Meeting*, February 1992, San Diego, California..

39. Song, L., Hong, S., and Elimelech, M., "Particle Transport and Deposition in Porous Membrane Channels", presented at the *ACS-68th Annual Colloid and Surface Science Symposium*, June 12-15, 1994, Stanford, California.

40. Elimelech, M., and Song, L., "Transient Deposition of Colloidal Particles in Heterogeneous Porous Media", presented at the *ACS-68th Annual Colloid and Surface Science Symposium*, June 20-23, 1994, Stanford, California.

41. van Zanten, J. H., and Elimelech, M., "Determination of Absolute Coagulation Rate Constants by Multiangle Static Light Scattering ", presented at the *ACS-68th Annual Colloid and Surface Science Symposium*, June 12-15, 1994, Stanford, California.

42. Elimelech, M., and Zhu, X., "Colloidal Fouling of Reverse Osmosis Membranes", presented at the *ASCE-1994 National Conference on Environmental Engineering*, July 11-13, 1994, Boulder, Colorado.

43. Elimelech, M. "Transport and Deposition of Colloids in Groundwater: Theory and Applications", presented at the *ACS National Meeting*, August 21-25, 1994, Washington, D.C.

44. Glater, J., Hong, S., and Elimelech, M. "Reverse Osmosis Membrane Chlorine Sensitivity", presented at the *7th International Symposium on Synthetic Membranes in Science and Industry*, August 29-September 1, 1994, Tubingen, Germany.

45. Johnson, P.R., and Elimelech, M. "Colloid Deposition in Granular Porous Media Based on Random Sequential Adsorption " presented at the *American Chemical Society Annual Meeting*, March 2-7, 1995, Anaheim, California.

46. Johnson, P.R., Liu, D., and Elimelech, M. "Transient Deposition of Colloidal Particles onto Oppositely Charged Porous Media Surfaces: Experimental Investigation on the Role of lateral Double Layer Repulsion" presented at the *American Chemical Society Annual Meeting*, March 2-7, 1995, Anaheim, California.

47. Waypa, J.J., and Elimelech, M. "Removal of Arsenic from Water by Reverse Osmosis and Nanofiltration Membranes", Presented at the *1995 North American Membrane Society Meeting*, May 20-24, 1995, Portland, Oregon.

48. Hong, S. and Elimelech M. "Particle Transport and Deposition in a Semi-Permeable Membrane Channel", Presented at the *1995 North American Membrane Society Meeting*, May 20-24, 1995, Portland, Oregon.

49. Zhu, X. and Elimelech M. "Fouling of Reverse Osmosis Membranes by Colloidal Silica", Presented at the *1995 North American Membrane Society Meeting*, May 20-24, 1995, Portland, Oregon.

50. Childress, A.E. and Elimelech M. "Zeta Potential Characterization of Reverse Osmosis and Nanofiltration Membranes", Presented at the *1995 North American Membrane Society Meeting*, May 20-24, 1995, Portland, Oregon.

51. Waypa, J.J., Wilkie, J.A., and Elimelech, M. "Removal of Arsenic from Water by Membrane Processes" presented at the *1995 Annual American Water Works Association Conference*, June 18-22, 1995, Anaheim, California.

52. Hering, J.G., and Elimelech, M. "International Perspectives on Arsenic in Groundwater: Problems and Treatment Strategies" presented at the *1995 Annual American Water Works Association Conference*, June 18-22, 1995, Anaheim, California.

53. Hering, J.G., Elimelech, M., and Chen, P.-Y. "Arsenic Removal by Enhanced Coagulation and Membrane Processes" presented at the *1995 Annual American Water Works Association Conference*, June 18-22, 1995, Anaheim, California.

54. Elimelech, M. "Colloidal Fouling of Reverse Osmosis Membranes: Experimental Results and Fouling Mechanisms", presented at the: *1995 AWWA Membrane Technology Conference*, August 1995, Reno, Nevada.

55. Elimelech, M. (invited) "Colloidal Transport in Chemically Heterogeneous Porous Media", *Department of Chemical Engineering, University of Southern California*, November 1995.

56. Elimelech, M. (invited) "Colloid Mobilization and Transport in the Subsurface Aquatic Environment" presented at the *International Chemical Congress of Pacific Rim Societies (Pacifichem 95)*, December 17-22, 1996, Honolulu, Hawaii.

57. Elimelech, M. (invited) "Colloidal Transport in Geochemically Heterogeneous Porous Media", *Environmental Engineering Science, California Institute of Technology*, April 3, 1996.

58. Elimelech, M. "Colloidal Fouling of Reverse Osmosis Membranes: Experimental Results and Fouling Mechanisms", presented at: *Workshop on Colloid Science in Membrane Engineering*, May 13-15, 1996, Toulouse, France.

59. Elimelech, M. "Theory of Concentration Polarization of Non-interacting Particles in Crossflow Membrane Filtration", presented at: *Workshop on Colloid Science in Membrane Engineering*, May 13-15, 1996, Toulouse, France.

60. Hong, S., Song, L., and Elimelech, M. "Crossflow Membrane Filtration of Particle Suspensions: Theory and Experiments", *Annual Meeting of the North American Membrane Society*, May 19-23.

61. Hong, S., Tanaka, S., and Elimelech, M. "Role of Multivalent Cations in Natural Organic Matter Fouling of Nanofiltration Membranes", *Annual Meeting of the North American Membrane Society*, May 19-23.

62. Elimelech, M. and Hong, S. "On the 'Flux Paradox' and Particle Back-transport Mechanisms in Crossflow membrane Filtration", *ACS - 70th Colloid and Surface Science Symposium*, June 16-19, Potsdam, New York.

63. Johnson, P.R., Sun, N., and Elimelech, M. "Colloid Transport in Chemically Heterogeneous Porous Media", *ACS - 70th Colloid and Surface Science Symposium*, June 16-19, Potsdam, New York.

64. Waypa, J.J. and Elimelech, M. "Removal of Arsenic from Water Using Reverse osmosis and Nanofiltration Membranes", *1996 Biennial Conference of the American Desalting Association*, August 4-8, 1996, Monterey, California.

65. Childress, A.E. and Elimelech, M. "Zeta Potential Measurements of Reverse Osmosis and Nanofiltration Membranes", *1996 Biennial Conference of the American Desalting Association*, August 4-8, 1996, Monterey, California.

66. Hong, S. and Elimelech, M. "Fouling of Nanofiltration Membranes by Natural Organic Matter", *1996 Biennial Conference of the American Desalting Association*, August 4-8, 1996, Monterey, California.

67. Hong S. and Elimelech, M. "Chemical and Physical Aspects of Natural Organic Matter Fouling of Nanofiltration Membranes", *212th American Chemical Society National Meeting*, August 25-29, 1996, Orlando, Florida.

68. Childress, A.E. and Elimelech, M. "Effect of Humics and Surfactants on the Zeta Potential of Polymeric Reverse Osmosis and Nanofiltration Membranes", *212th American Chemical Society National Meeting*, August 25-29, 1996, Orlando, Florida.

69. Elimelech, M. and Song, S. "Crossflow Membrane Filtration of Colloidal Suspensions", *212th American Chemical Society National Meeting*, August 25-29, 1996, Orlando, Florida.

70. Elimelech, M. (invited) "Colloid Transport in Chemically Heterogeneous Porous Media", *Department of Geography and Environmental Engineering, Johns Hopkins University*, October 1996

71. Elimelech, M. (invited) "Interactions of Natural Organic Matter with Nanofiltration Membranes", *Environmental Engineering Science, California Institute of Technology*, November 1996

72. Long, J., Sun, N-Z., and Elimelech, M. "Colloidal Transport in Physically and Chemically Heterogeneous Porous Media", *American Geophysical Union Fall Meeting*, December 16-19, 1996, San Francisco, California.

73. Johnson, P.R. and Elimelech, M. "Modeling Colloid Transport in Geochemically Heterogeneous Porous Media", *American Geophysical Union Fall Meeting*, December 16-19, 1996, San Francisco, California.

74. Elimelech M. (invited) "Colloidal Fouling of Reverse Osmosis Membranes", March 1197, Montgomery-Watson Consulting Engineers, Pasadena, California.

75. Elimelech, M. (invited), "Colloid Transport in Geochemically Heterogeneous Porous Media", May 1997, ETH/EAWAG, Swiss Federal Institute of Environmental Science and Technology , Duebendorf, Switzerland

76. Elimelech, M. (invited), "Colloid Transport in the Subsurface Aquatic Environment", May 1997, Department of Inorganic, Analytical, and Environmental Chemistry, University of Geneva, Geneva, Switzerland

77. Elimelech, M. and Bhattacharjee, S. "Calculation of DLVO Interactions between Small Colloidal Particles", *9th International Conference on Surface and Colloid Science*, July 6-12, 1997, Sofia, Bulgaria.

78. Elimelech, M. and Hong, S., "NOM Fouling of NF Membranes", *9th International Conference on Surface and Colloid Science*, July 6-12, 1997, Sofia, Bulgaria.

79. Bhattacharjee, S., and Elimelech, M., "A Novel Technique for Evaluation of DLVO Interactions between a Small Colloidal Particle and a Planar Surface", *71st Colloid and Surface Science Symposium*, July 29-July 2, 1997, University of Delaware, Newark, Delaware.

80. Bhattacharjee, S., and Elimelech, M., "Determination of DLVO Interaction between Rough Surfaces", *71st Colloid and Surface Science Symposium*, July 29-July 2, 1997, University of Delaware, Newark, Delaware.

81. Ko, C-H., and Elimelech, M., "Colloid Transport and Mobilization in Heterogeneous Porous Media", *71st Colloid and Surface Science Symposium*, July 29-July 2, 1997, University of Delaware, Newark, Delaware.

82. Elimelech, M. "Colloid Transport in the Subsurface Aquatic Environment", IAP 97: International Symposium on Interfaces Against Pollution, August 10-13, 1997, Wageningen, the Netherlands.

83. Elimelech, M. (invited) "Colloid Transport in Heterogeneous Porous Media", September 1997, Polish Academy of Sciences, Institute of Catalysis and Surface Chemistry, Krakow, Poland

84. Elimelech, M. (invited) "Colloid Transport in Heterogeneous Porous Media", September 4, 1997, Polish Academy of Sciences, Institute of Catalysis and Surface Chemistry, Krakow, Poland

85. Bhattacharjee, S. and Elimelech M. "Accurate Evaluation of DLVO Interactions between Small Colloidal Particles", *214th American Chemical Society National Meeting*, September 7, 1997, Las Vegas, Nevada.

86, Bhattacharjee, S. and Elimelech M. "Prediction of DLVO Interaction Energy and Particle Deposition Rates for Rough Surfaces", *214th American Chemical Society National Meeting*, September 7, 1997, Las Vegas, Nevada.

87. Elimelech, M. (invited) "Physical and Chemical Aspects of NOM Fouling of NF Membranes", September 9, 1997, Institute of Water Research (IWW), University of Duisburg, Muelheim, Germany.

88. Elimelech, M. (invited) "Colloid Transport in Geochemically Heterogeneous Subsurface Porous Media", September 22, 1997, Department of Environmental Sciences, Weizmann Institute of Science, Rehovot, Israel.

89. Elimelech, M. (invited) "Colloid Transport in the Subsurface Aquatic Environment", September 22, 1997, Institute of Soils and Water, ARO, The Volcani Center for Agricultural Research, Bet Dagan, Israel.

90. Elimelech, M. (invited) "Colloid Transport in Geochemically Heterogeneous Subsurface Porous Media", October 1997, Environmental and Water Resources Engineering Program, University of Michigan, Ann Arbor.

91. Waypa, J.J., and Elimelech M. "Modeling the Transport and Separation of Ionic Species in Membrane Filtration", presented at the: *1997 AIChE Annual Meeting*, November 16-21, Los Angeles, California.

92. Faibish, R.S., Elimelech, M., and Cohen, Y., "Role of Interparticle Colloidal Interactions on Permeate Flux Decline in Crossflow Membrane Filtration of Colloidal Suspensions", presented at the: *1997 AIChE Annual Meeting*, November 16-21, Los Angeles, California.

93. Bhattacharjee, S., and Elimelech, M., "Solute Rejection by Membrane Pores in Presence of Attractive Interactions Between the Solute and the Membrane", presented at the: *1997 AIChE Annual Meeting*, November 16-21, Los Angeles, California.

94. Bhattacharjee, S., and Elimelech, M., "Surface Element Integration: A Novel Technique for Evaluation of DLVO Interaction between a Particle and a Flat Plate", presented at the: *1997 AIChE Annual Meeting*, November 16-21, Los Angeles, California.

95. Mazzolani, G., Stolzenbach, K.D., and Elimelech, M., "Gravity-Induced Coagulation of Spherical Particles of Different Size and Density", presented at the: *1997 AIChE Annual Meeting*, November 16-21, Los Angeles, California.

96. Bhattacharjee, S., Kim, A.S., and Elimelech, M., "Concentration Polarization of Protein Solutions in Crossflow Ultrafiltration: Effects of Intermolecular Interactions", presented at the: *1997 AIChE Annual Meeting*, November 16-21, Los Angeles, California.

97. Elimelech, M. (invited plenary lecture) "Interaction of Colloidal Particles with Surfaces: Concepts and Applications", presented at the Annual Meeting of the Swiss Group of Colloid and Interface Scientists", November 21, Lausanne, Switzerland.

98. Elimelech, M. (invited) "Colloid Transport in Geochemically Heterogeneous Subsurface Porous Media", January 30, 1998, Department of Chemical Engineering, Yale University.

99. Elimelech, M. (invited) "Colloid Transport in Subsurface Porous Media", March 6, 1998, Department of Chemical Engineering, Tulane University.

100. Le Gouellec Y., Nagai, M., Glater, J., and Elimelech, M. "Gypsum Scale Prevention in Agricultural Drainage Water Reclamation by Nanofiltration Membranes", *Annual Meeting of the North American Membrane Society*, May 16-20, 1998, Cleveland, Ohio.

101. Bhattacharjee, S. and Elimelech, M., "Influence of Intermolecular Interactions on Concentration Polarization during Crossflow Membrane Filtration", *Annual Meeting of the North American Membrane Society*, May 16-20, 1998, Cleveland, Ohio.

102. Bhattacharjee, S. and Elimelech, M., "A Novel Approach for Modeling Concentration Polarization in Crossflow Membrane Filtration Based on the Equivalence of Osmotic Pressure Model and Filtration Theory", *Annual Meeting of the North American Membrane Society*, May 16-20, 1998, Cleveland, Ohio.

103. Kim, S., Bhattacharjee, S. and Elimelech, M., "M Shear Induced Reorganization of Deformable Molecular Assemblages: Monte Carlo Studies", *Annual Meeting of the North American Membrane Society*, May 16-20, 1998, Cleveland, Ohio.

104. Sun, N., Sun, N.-Z., and Elimelech, M. "Colloid Transport in Physically and Geochemically Heterogeneous Porous Media: Sensitivity Analysis and Parameter Identifiability", *American Geophysical Union Spring Meeting*, May 26-29, 1998, Boston, Massachusetts

105. Leslie, G.L., Childress, A.E., and Elimelech, M., "Colloidal Fouling of Synthetic Membranes in Indirect Reuse Applications", presented at: *University of California Annual Water Reuse Research Conference*, June 4-5, 1998, Monterey, California.

106. Elimelech, M., and Ko, C.-H. "Colloid Transport Dynamics in Flow through Granular Porous Media", *72nd ACS Colloid and Surface Science Symposium*, June 21-24, 1998, University Park, Pennsylvania.

107. Elimelech, M., and Hong, S. "Natural Organic Matter of Nanofiltration Membranes", *72nd ACS Colloid and Surface Science Symposium*, June 21-24, 1998, University Park, Pennsylvania.

108. Le Gouellec, Y., Nagai, M., and Elimelech, M. "Gypsum Scale Formation and Control in Nanofiltration of Agricultural Drainage Water" Membranes", *Annual American Water Works Association meeting*, June 21-25, 1998, Dallas, Texas.

109. Childress, A.E., Deshmukh, S.S., and Elimelech, M., "Surface Characterization and Performance of Polymeric Reverse Osmosis and Nanofiltration Membranes", presented at: *International Water Services Association 1998 Conference on Membranes in Drinking and Industrial Water Production*, September 21-24, 1998, Amsterdam, The Netherlands.

110. Elimelech, M. (invited) "Natural Organic Matter Fouling of nanofiltration Membranes", October 23, 1998, Department of Civil and Environmental Engineering, University of Massachusetts, Amherst, MA.

111. Elimelech, M. (invited) "Colloid Transport in Geochemically Heterogeneous Subsurface Porous Media", October 30, 1998, Environmental Engineering Program, University of Connecticut, Storrs, CT.

112. Kim, A.S., Bhattacharjee, S., and Elimelech M. "Shear Induced Reorganization of Deformable Molecular Assemblages: Monte Carlo Studies", presented at the: *1998 AIChE Annual Meeting*, November 15-20, Miami Beach, Florida.

113. Ko, C.-H., and Elimelech M. "Dynamics of Colloid Deposition in Granular Porous Media: Effect of Solution Chemistry and Flow Intensity on Deposited Layer Structure", presented at the: *1998 AIChE Annual Meeting*, November 15-20, Miami Beach, Florida.

114. Elimelech, M., Ko, C.-H., and Nagai, M. "Colloidal Transport in Geochemically Heterogeneous Subsurface Porous Media: Implications for Colloid Facilitated Transport", presented at the: *1998 AIChE Annual Meeting*, November 15-20, Miami Beach, Florida.

115. Elimelech, M. (invited) "Fouling of Pressure-Driven Membranes: Measurements, Modeling, and Fouling Mechanisms", to be presented at the international workshop *"Fouling Mitigation in Membrane Processes"*, January 27-28, Haifa, Israel.

116. Waypa,J.J., Bhattacharjee, S., and Elimelech, M. "Separation of Ionic Species by Polymeric Nanofiltration Membranes during Crossflow Membrane Filtration", presented at: *American Water Works Association 1999 Membrane Technology Conference*, February 28-March 3, 1999, Long Beach, California.

117. Elimelech M. (invited keynote) "Particle Deposition and Release Processes in Environmental Engineering Science", presented at the *International Workshop Particles and Surfaces: Fundamentals, Techniques, and Applications*, March 13-16, 1999, Oud Poelgeest, The Netherlands.

118. Ko, C.-H., Bhattacharjee, S., and. Elimelech, M. "The 'Shadow Effect' in Colloid Transport and Deposition Dynamics in Granular Porous Media: Measurements and Mechanisms", presented at the: *217th American Chemical Society (ACS) National Meeting*, Anaheim, California, March 21-25, 1999.

119. Elimelech, M., and Bhattacharjee , S. "Effect Of Interparticle Interactions on Concentration Polarization during Crossflow Membrane Filtration", presented at the *International Congress on Membranes and Membrane Processes*, June 13-16, 1999, Toronto, Canada.

120. Elimelech, M., LeGouellec, Y., Nagai, M., "Nanofiltration Membrane Fouling By Calcium Sulfate Precipitation In Treatment Of Agricultural Drainage Water", ", presented at the *International Congress on Membranes and Membrane Processes*, June 1999, Toronto, Canada.

121. Elimelech, M. (invited) "Crossflow Membrane Filtration of Suspended Colloidal Particles: Mechanisms, Modeling, and Measurements", presented at: *American Water Works Association Annual Meeting*, June 21, 1999, Chicago, IL.

122. Bhattacharjee, S. and Elimelech, M. "A model of Virus Transport in Heterogeneous Porous Media", *31st Mid-Atlantic Industrial and Hazardous Waste Conference*, University of Connecticut, Storrs, CT, June 20-23,1999.

123. Bhattacharjee, S. and Elimelech, M., "Structure and Properties of Concentrated Colloidal Dispersions: Sedimentation and Mutual Diffusion, *ACS 73rd Colloid and Surface Science Symposium*, Cambridge, MA, June 13 – 16, 1999.

124. S. Bhattacharjee, S. and Elimelech, M., Concentration Polarization of Interacting Colloidal Particles in Crossflow Membrane Filtration", *ACS 73rd Colloid and Surface Science Symposium*, Cambridge, MA, June 13 – 16, 1999.

125. Bhattacharjee, S. and Elimelech, M., "Deformation of Molecular Assemblages in Presence of Hydrodynamic Shear", *ACS 73rd Colloid and Surface Science Symposium*, Cambridge, MA, June 13 – 16, 1999.

126. Elimelech, M., LeGouellec, Y., Nagai, M., and Glater J., "Fouling of Nanofiltration Membranes due to Calcium Sulfate Precipitation in Treatment of Agricultural Drainage Water", presented at the *American Society of Civil Engineers Conference on Environmental Engineering*, July 25-28, 1999, Norfolk, Virginia.

127. Elimelech, M. (invited), "Colloid Transport in Geochemically Heterogeneous Subsurface Porous Media", Department of Chemical Engineering, University of Alberta, October, 1999.

128. Bhattacharjee, S., and Elimelech, M., Structure and Properties of Colloidal Dispersions in a Concentration Polarization Layer: Influence on Permeate Flux Behavior during Crossflow Membrane Filtration, presented at the *AIChE Annual Meeting*, October 31 - November 5, 1999, Dallas, Texas.

129. Bhattacharjee, S., and Elimelech, M., A Model of Virus Transport in Heterogeneous Subsurface Porous Media, presented at the *AIChE Annual Meeting*, October 31 - November 5, 1999, Dallas, Texas.

130. Elimelech, M. (invited), "Colloid Transport in Geochemically Heterogeneous Porous Media", Department of Chemistry, Clarkson University, November 1999.

131. Elimelech, M. (invited), "Colloid Transport in Geochemically Heterogeneous Porous Media", Department of Chemical Engineering, Technion, Israel Institute of Technology, December 1999.

132. Elimelech, M. (invited), "Fouling Mechanisms of Nanofiltration Membranes", Institute of Applied Research, Ben Gurion University, Israel, December 1999.

133. Elimelech, M. (invited), "Colloid Transport and Mobilization in Subsurface Aquatic Environments", Graduate School of Applies Science, Environmental Science and technology Division, Hebrew University, December 1999.

134. Elimelech, M. (invited), "Colloid Transport in Geochemically Heterogeneous Subsurface Porous Media: Measurements, Mechanisms, and Modeling", Division of Engineering and Applied Science, Harvard University, February 18, 2000.

135. Vrijenhoek, E.M., Elimelech, M., and Hong, S. "Interplay between Physical and Chemical Interactions in Colloidal Fouling of Reverse Osmosis and Nanofiltration Membranes" *North American Membrane Society (NAMS2000) Meeting*, Boulder, CO, May 23-28, 2000.

136. Bhattacharjee, S., Ko, C.-H., and Elimelech, M. "Dynamics of Colloid Deposition based on Random Sequential Adsorption: Influence of Electrostatic and Hydrodynamic Interactions on Maximum Surface Coverage", *74th Colloid and Surface Symposium of the American Chemical Society*, Lehigh University, Bethlehem, Pennsylvania, June 2000.

137. Bhattacharjee, S., Elimelech, M., and Ryan, J.N. "Virus Transport in Heterogeneous Subsurface Porous Media", *74th Colloid and Surface Symposium of the American Chemical Society*, Lehigh University, Bethlehem, Pennsylvania, June 2000.

138. Loveland J.P., Ryan J.N., and Elimelech M., "Anionic surfactant adsorption and silica-coated colloid release in a geochemically heterogeneous porous media", *74th Colloid and Surface Symposium of the American Chemical Society*, Lehigh University, Bethlehem, Pennsylvania, June 2000.

139. Chen, J.Y., Bhattacharjee, S. and Elimelech, M. "DLVO Interaction Energy between Spheroidal Particles and a Flat Surface", *74th Colloid and Surface Symposium of the American Chemical Society*, Lehigh University, Bethlehem, Pennsylvania, June 2000.

140. Ko, C.-H and Elimelech, M. "The "Shadow Effect" in Colloid Transport in Granular Porous Media", *74th Colloid and Surface Symposium of the American Chemical Society*, Lehigh University, Bethlehem, Pennsylvania, June 2000.

141. Ko, C.-H and Elimelech, M., and Ryan, J.N. "The Role Of Mineral Grain Zeta Potential In Colloid Transport Through Geochemically Heterogeneous Porous Media", *74th Colloid and Surface Symposium of the American Chemical Society*, Lehigh University, Bethlehem, Pennsylvania, June 2000.

142. Vrijenhoek, E.M. and M. Elimelech, "Role of Physical and Chemical Interactions in Colloidal Fouling of Reverse Osmosis and Nanofiltration Membranes", *74th Colloid and Surface Symposium of the American Chemical Society*, Lehigh University, Bethlehem, Pennsylvania, June 2000.

143. Bhattacharjee, S. and Elimelech, M. Particle deposition dynamics in a bed of spherical collectors: Beyond random sequential adsorption, *220th American Chemical Society National Meeting*, Washington, DC, August 19-24, 2000.

144. Elimelech, M., and Ko, C.-H. The Relative Insignificance of Zeta Potential of Mineral Grains to Colloid Transport in Geochemically Heterogeneous Porous Media, *220th American Chemical Society National Meeting*, Washington, DC, August 19-24, 2000.

145. Vrijenhoek, E.M., M. Elimelech, and S. Hong, "Influence of Membrane Properties, Solution Chemistry, and Hydrodynamics on Colloidal Fouling of Reverse Osmosis and Nanofiltration Membranes" *220th American Chemical Society National Meeting*, Washington, DC, August 20-24, 2000.

146. Seidel A. and M. Elimelech, "Effect of Operational Parameters on NOM Fouling of a Negatively Charged NF Membrane", *220th American Chemical Society National Meeting*, Washington DC, August 20-24, 2000.

147. Bhattacharjee, S. and Elimelech, M. "Concentration polarization of interacting colloidal particles: Influence of interparticle and hydrodynamic interactions on permeate flux", *220th American Chemical Society National Meeting*, Washington, DC, August 19-24, 2000.

148. Vrijenhoek, E.M., M. Elimelech, and S. Hong, "Importance of Physical and Chemical Interactions in Colloidal Fouling of Reverse Osmosis and Nanofiltration Membranes" *Bi-annual Meeting of the European Membrane Society, EUROMEMBRANE 2000*, Jerusalem, Israel, September 24-27, 2000.

149. Chen, J.Y., Ko, C.-H., and Elimelech, M. "Effect of Spatial Distribution of Porous Media Geochemical Heterogeneity on Colloid Transport", *American Institute of Chemical Engineers Annual Meeting*, Los Angeles, CA, November 2000.

150. Elimelech, M. and Vrijenhoek, E. "Role of Physical and Chemical Interactions in Colloidal Fouling of Reverse Osmosis and Nanofiltration Membranes", *The International Chemical Congress of Pacific Basin Societies, Pacifichem 2000*, Honolulu, Hawaii, December 14-19, 2000.

151. Vrijenhoek, E.M., M. Elimelech and S. Bhattacharjee, "Optimization of Channel Height to Control Colloidal Fouling in Crossflow Membrane Filtration Processes" *American Water Works Association Membrane Technology Conference*, San Antonio, TX, March 4-7, 2001.

152. Elimelech, M. and Seidel, A. "Coupling between Chemical and Physical Interactions in NOM Fouling of NF Membranes: Implications for Fouling Control" *American Water Works Association Membrane Technology Conference*, San Antonio, TX, March 4-7, 2001.

153. Elimelech M. (invited) "Colloidal Fouling of Crossflow Pressure-Driven Membranes", Department of Environmental Science and Engineering, Rice University, March 20, 2001.

154. Elimelech M. (invited) "Colloidal Fouling of Pressure-Driven Membranes: Role of Membrane Surface Morphology", Department Civil Engineering, National University of Singapore, May 2001.

155. Elimelech M. (invited) "Nanofiltration Membrane Fouling by Calcium Sulfate Precipitation in Treatment of Agricultural Drainage Water", Department Civil Engineering, National University of Singapore, June 2001.

156. Elimelech M. (invited) "Natural Organic Matter (NOM) Fouling of NF Membranes", Department Civil Engineering, National University of Singapore, June 2001.

157. Vrijenhoek, E.M., S. Bhattacharjee and M. Elimelech, "Role of Morphological Surface Heterogeneity in Deposition of Colloidal Particles onto Semi-Permeable Polymeric Membrane Surfaces" *75th ACS Colloid and Surface Science Symposium*, Carnegie-Mellon University, Pittsburgh, PA, June 10-13, 2001.

158. Vrijenhoek, E.M. and M. Elimelech, "Role of Membrane Surface Roughness in Colloidal Fouling of Nanofiltration Membranes" *75th ACS Colloid and Surface Science Symposium*, Carnegie-Mellon University, Pittsburgh, PA, June 10-13, 2001.

159. Bunn, R., Magelky, R.D., Ryan, J.N., and Elimelech. M. "Effect of Chemical Perturbations on the Mobilization of Colloids in a Ferric Oxyhydroxide-Coated Sand Aquifer: Field Experiments", *75th ACS Colloid and Surface Science Symposium*, Carnegie-Mellon University, Pittsburgh, PA, June 10-13, 2001.

160. Chen, J.Y., Bhattacharjee, S., and Elimelech, M. "Influence of Surface Charge Nanoheterogeneity on the Attachment of Colloidal Particles to Solid Surfaces in a Stagnation Point Flow System", *75th ACS Colloid and Surface Science Symposium*, Carnegie-Mellon University, Pittsburgh, PA, June 10-13, 2001.

161. Chen, J.C., Bhattacharjee, S., and Elimelech, M. "A Coupled Model for Transport of Multi-component Ionic Species through Nanofiltration Membranes: Implications for Arsenic Removal", *75th ACS Colloid and Surface Science Symposium*, Carnegie-Mellon University, Pittsburgh, PA, June 10-13, 2001.

162. Vrijenhoek, E.M., M. Elimelech and S. Bhattacharjee, "Optimization of Channel Geometry for Control of Colloidal Fouling in Crossflow Membrane Filtration Processes" *American Water Works Association Annual Conference*, Washington, DC, June 17-21, 2001.

163. Chen, J.Y., Walker, S.L., and Elimelech, M. "A Novel Technique for Studying the Role of Microscopic Chemical Heterogeneity on Colloid and Bacterial Adhesion", *222nd American Chemical Society National Meeting*, Chicago, IL, August, 2001.

164. Logan, B.E., Chorover, J.D., Velegol, D., Kubicki, J., and Elimelech, M. "Molecular Level Analysis of Macromolecule-Surface Interactions in Bacterial Adhesion", *222nd American Chemical Society National Meeting*, Chicago, IL, August, 2001.

165. Vrijenhoek, E.M., M. Elimelech and S. Bhattacharjee, "Effect of Crossflow Shear Rate on Initial Rate of Colloidal Fouling in Crossflow Membrane Filtration Processes" *Membrane Technology for Wastewater Reclamation and Reuse Conference*, Tel Aviv, Israel, September 9-13, 2001.

166. Elimelech M., (invited keynote) "Colloidal Phenomena in Membrane Systems" *Membrane Technology for Wastewater Reclamation and Reuse Conference*, Tel Aviv, Israel, September 9-13, 2001.

167. Elimelech, M. and Seidel, A., "Coupled Influence of Chemical and Physical Interactions in Natural Organic Matter (NOM) Fouling of NF Membranes" *Membrane Technology for Wastewater Reclamation and Reuse Conference*, Tel Aviv, Israel, September 9-13, 2001.

168. Elimelech, M. (invited) "Transport of Colloidal Particles in Heterogeneous Subsurface Porous Media", Department of Civil and Environmental Engineering, University of Illinois at Urbana-Champaign, October 18, 2001.Elimelech, M. (invited) "Colloid Deposition and Aggregation", Cabot Corporation, Billerica, MA., October 23, 2001.

170. Vrijenhoek, E.M., S. Bhattacharjee, and M. Elimelech, "Influence of Membrane Surface Morphology on Colloidal Interactions in Membrane Systems" *American Institute of Chemical Engineers Annual Meeting*, Reno, NV, November 4-9, 2001.

171. Chen J.Y., and M. Elimelech, "Influence of Microscopic Surface Charge Heterogeneity on Colloid Deposition Kinetics in a Stagnation Point Flow System" *American Institute of Chemical Engineers Annual Meeting*, Reno, NV, November 4-9, 2001.

172. Elimelech M. (invited) "Transport of Colloidal Particles in Heterogeneous Subsurface Porous Media", Department of Civil and Environmental Engineering, University of Nevada, Reno, November 8, 2001

173. Walker, S.L., Chen, J.C.; Elimelech, M, "A Novel Technique for Synthesizing Microscopic Chemical Heterogeneity for Studying Colloidal and Bacterial Adhesion" Poster at the 5th Annual Environmental Chemistry Symposium, Pennsylvania State University, March 22-23, 2002, State College, PA

174. Hoek, E.M.V., and M. Elimelech, "DLVO Interactions between Colloidal Particles and Rough Membrane Surfaces," presented at the *13th Annual Meeting of the North American Membrane Society*, Long Beach, CA, May 11-15, 2002.

175. Hoek, E.M.V., and M. Elimelech, "Role of Cake-Enhanced Osmotic Pressure in Colloidal Fouling of Reverse Osmosis and Nanofiltration Membranes," presented at *13th Annual Meeting of the North American Membrane Society*, Long Beach, CA, May 11-15, 2002.

176. Walker, S.L., Bhattacharjee, S..; Elimelech, M, "Measuring the Streaming Potential of Flat Surfaces Using a Novel Asymmetric Clamping Cell" Presentation at the American Chemical Society 76th Colloid and Surface Science Symposium, June 20, 2002, Ann Arbor, MI.

177. Tufenkji, N; Redman, J. A.; Elimelech, M. "Interpreting biocolloid deposition patterns in laboratory-scale column experiments" presented at the American Chemical Society 76th Colloid and Surface Science Symposium, University of Michigan, Ann Arbor, Michigan, June 23, 2002.

178. Chen, J.C., Walker, S.L., Elimelech, M, "A Novel Technique for Investigation the Influence of Microscopic Surface Chemical Heterogeneity on the Kinetics Of Colloid and Bacterial Deposition" Presentation at the American Chemical Society 76th Colloid and Surface Science Symposium, June 20, 2002, Ann Arbor, MI.

179. Redman, J. A.; Walker, S.; Elimelech, M. "Tailing in particle and bacterial breakthrough curves in porous flow-through media" presented at the American Chemical Society 76th Colloid and Surface Science Symposium, University of Michigan, Ann Arbor, Michigan, June 23, 2002.

180. Weronski, P.; Walz, J.Y.; Elimelech, M. "Effect of Depletion Interaction on Transport of Colloidal Particles in Porous Media", *ACS 76th Annual Colloid and Surface Science Symposium*, June 23-26 , 2002, Ann Arbor, Michigan.

181. Elimelech, M. (invited) "Role of Geochemical Heterogeneity in the Transport of Colloids and Microbial Particles in Subsurface Environments", Gordon Research Conference on Environmental Sciences: Water, June 2002, Holderness School, Plymouth, New Hampshire.

182. Hoek, E.M.V., and M. Elimelech, "Cake-Enhanced Osmotic Pressure in Reverse Osmosis and Nanofiltration Separations," *76th ACS Colloid and Surface Science Symposium*, Ann Arbor, MI, June 23-26, 2002.

183. Lee, S. and Elimelech, M. "A novel method for investigating the influence of recovery on colloidal and NOM fouling of RO and NF membranes", 76th ACS Colloids & Surface Science Symposium, University of Michigan, Ann Arbor, Michigan, June 23-26, 2002

184. Elimelech, M. (invited) "Cake-Enhanced Osmotic Pressure: A Major Fouling Mechanism for Reverse Osmosis & Nanofiltration Membranes", Department of Civil Engineering, National University of Singapore, July 26, 2002

185. Elimelech, M. (invited) "A Novel Method for Investigating the Influence of Feed Water Recovery on Colloidal and NOM Fouling of RO and NF Membranes", Department of Civil Engineering, National University of Singapore, July 31, 2002

186. Elimelech, M. (invited) "Role of Chemical Heterogeneity in the Transport of Colloids & Microbial Particles in Subsurface Environments", Department of Civil Engineering, National University of Singapore, August 7, 2002

187. Weronski, P.; Walz, J.Y.; Elimelech, M. "Effect of Depletion Interaction on Transport of Colloidal Particles in Porous Media", presented at: *International Symposium on Electrokinetic Phenomena*, August 18-22, 2002, Krakow, Poland.

188. Elimelech, M. (keynote lecture) "Interactions and Transport of Colloidal Particles in Porous Media", Symposium in Honor of Professor Egon Matijevic, 224th ACS National Meeting, Boston, MA, August 18-22, 2002

189. Redman, J. A.; Walker, S.; Elimelech, M. "Observations of Tailing in particle breakthrough curves in porous media" presented at the 224th American Chemical Society National Meeting, Boston, Massachusetts, August 18, 2002.

190. Tufenkji, N; Redman, J. A.; Elimelech, M. "Interpreting biocolloid deposition patterns in laboratory-scale column experiments" presented at the 224th American Chemical Society National Meeting, Boston, Massachusetts, August 18, 2002.

191. Walker, S.L., Chen, J.C.; Elimelech, M, "Colloid and Bacterial Deposition Kinetics onto Chemically Micropatterned Surfaces in a Stagnation Point Flow System" Presentation at the 224th American Chemical Society National Meeting, August 18, 2002, Boston, MA

192. Ryan, J.N., Elimelech, M. and Harvey, R., "Virus Transport in Porous Media" International Workshop on Colloids and Colloid-Facilitated Transport of Contaminants in Soils and Sediments, Research Center Foulom, Tjele, Denmark, September 2002.

193. Tufenkji, N.; Redman, J. A.; Elimelech, M. (invited) "Microbial Deposition Patterns in Laboratory-Scale Column Experiments" presented at the National Institute of Public Health and the Environment, Bilthoven, The Netherlands, September 27, 2002.

194. Lee, S. Cho, J.. and Elimelech, M. "Simulation of feed water recovery and concentration factor and their influence on colloid and NOM fouling of NF membranes", AWWA Membrane Technology Conference, March 2-5, 2003, Atlanta, Georgia.

195. Walker, S.L., Redman, J.A., and Elimelech, M, The Role of LPS Composition on Bacterial Adhesion and Detachment under Flow Conditions, *225th American Chemical Society National Meeting*, March 24, 2003, New Orleans, LA.

196. Elimelech, M. (invited) "Transport of Colloidal Particles over Heterogeneously Charged Collector Surfaces: Coupling between Hydrodynamic and Colloidal Interactions", 3rd Chemical Engineering Conference for Collaborative Research in Easter Mediterranean, Thessaloniki, Greece, May 13-15, 2003

197. Li, Q., and Elimelech, M. "Chemical Cleaning of Organic-fouled Nanofiltration Membranes: Measurements and Mechanisms", *14th Annual Meeting of the North American Membrane Society*. Jackson Hole, Wyoming, May 17-21, 2003.

198. Nghiem, L.D.; Schäfer, A.I.; and Elimelech, M. "Removal Mechanisms of Steroid Hormones and Alkyl Phenols in Nanofiltration, Annual Meeting of the North American Membrane Society, May 17-21, 2003, Jackson Hole, WY.

199. Li, Q., and Elimelech, M. "Chemical Cleaning of Fouled Nanofiltration and Reverse Osmosis Membranes: Measurements and Mechanisms", *77th ACS Colloid and Surface Science Symposium*, Atlanta, GA, June 15-18, 2003.

200. Walker, S.L., Redman, J.A., Elimelech, M, "Measuring Effect of Bacterial Lipopolysaccharides on Adhesion and Detachment Under Flow Conditions", *American Chemical Society 77th Colloid and Surface Science Symposium*, June 16, 2003, Atlanta, GA.

201. Kuznar, Z.A.; Chen, J.Y.; Elimelech, M. "Transport of Colloidal Particles over Heterogeneously Charged Collector Surfaces", *American Chemical Society 77th Colloid and Surface Science Symposium*, June 16, 2003, Atlanta, GA.

202. Miller, G. and Elimelech, M. " Transport of *Cryptosporidium* in Saturated Porous Media", *American Chemical Society 77th Colloid and Surface Science Symposium*, June 16, 2003, Atlanta, GA.

203. Tufenkji, N and Elimelech, M. "A New Correlation Equation for Predicting Single-Collector Efficiency in Physicochemical Filtration in Saturated Porous Media" *American Chemical Society 77th Colloid and Surface Science Symposium*, Georgia Tech, Atlanta, Georgia, June 16, 2003.

204. .Nghiem, L.D. ; Schäfer, A.I.; and Elimelech, M. "Rejection of trace organic contaminants by nanofiltration membranes: role of membrane surface properties and contaminant chemical structure", *American Chemical Society 77th Colloid and Surface Science Symposium*, Georgia Tech, Atlanta, Georgia, June 16, 2003.

205. Elimelech, M., Chen, J.Y., and Kuznar, Z.A. (invited) "Particle Deposition onto Solid Surfaces with Microscopic Charge Heterogeneity: The 'Hydrodynamic Bump' Effect", *International Conference on MEMS, NANO and Smart Systems (ICMENS 2003)*, July 20 - 23, Banff, AB, Canada.

206. Walker, S.L, and Elimelech, M. "The Role of LPS in Bacterial Adhesion and Transport in Aquatic Systems", presented at the Gordon Research Conference, Molecular Mechanisms of Microbial Adhesion, Salve Regina University, July 27-August 1, 2003, Newport, RI.

207. Walker, S.L., Redman, J.A., Elimelech, M. "Role of Secondary Minimum on bacterial Adhesion and Transport", *226th American Chemical Society National Meeting*, Symposium in Honor of Professor Walter J. Weber Jr. , September 10, 2003, New York, NY

208. Elimelech, M., Chen, J.Y., and Kuznar, Z.A. "Deposition of Colloidal Particles on Chemically Heterogeneous Surfaces: Role of Microscopic Surface Charge Heterogeneity", *226th American Chemical Society National Meeting*, Symposium in Honor of Professor Walter J. Weber Jr. , September 10, 2003, New York, NY.

209. Tufenkji, N and Elimelech, M. "Relating Heterogeneities in Molecular-Scale Properties to Distributions in the Microbial Deposition Rate", *226th American Chemical Society Annual Meeting*, New York, New York, September 10, 2003.

210. Nghiem, L.D. ; Schäfer, A.I.; and Elimelech, M, "Removal of Natural Hormones by Nanofiltration Membranes: Measurement, Modeling, and Mechanisms," *226th American Chemical Society Annual Meeting*, New York, New York, September 10, 2003..

211. Li, Q. and Elimelech, M. "Revealing the Mechanisms of Organic Fouling and Chemical Cleaning of Nanofiltration Membranes", *226th ACS National Meeting*, New York, NY, September 7-11, 2003

212. Elimelech, M., Miller, G., and Kuznar, Z.A., "Transport and Removal of Cryptosporidium Oocysts in Subsurface Porous Media", National Water Research Institute, The Second International Riverbank Filtration Conference, Cincinnati, OH, September 16, 2003

213. Tufenkji, N and Elimelech, M. "Relating Physical and Chemical Heterogeneities of Microbial Particles to Distributions in the Deposition Rate" *11th International Conference on Surface and Colloid Science*, Iguassu Falls, Brazil, September 18, 2003.

214. Elimelech, M. and Lee, S. (invited) "Colloidal/NOM Fouling of Salt Rejecting Membranes: Measurements and Mechanisms", IWA International Conference on Nano and Microparticles in Water and Wastewater Treatment, Zurich, Switzerland, 22 - 24 September, 2003

215. Elimelech, M. (invited) "Chemical and Physical Aspects of Bacterial Adhesion in Aquatic Systems", Department of Chemistry, University of Geneva, September 25, 2003

216. Elimelech, M. (invited) "Chemical and physical Aspects of Bacterial Adhesion" , Department of Chemical Engineering, University of Virginia, October 16, 2003

217. Elimelech, M. (invited) "Physical and Chemical Aspects of Bacterial Transport and Adhesion", Department of Civil and Environmental Engineering, University of Delaware, October 17, 2003

218. Elimelech, M. (invited, CH2M Hill Distinguished Lecture) "Physical and Chemical Aspects of Microbial Transport and Adhesion", Department of Civil and Environmental Engineering, Auburn University, October 29, 2003

219. Elimelech, M. (invited) "Organic fouling and chemical cleaning of NF Membrane : Measurements and mechanisms", Department of Environmental Science and Engineering, Kwangju Institute of Science and Technology (K-JIST), Gwangju, Korea, December 3, 2003

220. Elimelech, M. (invited) "Chemical and Chemical Aspects of Bacterial Adhesion and Transport", Department of Environmental Science and Engineering, Kwangju Institute of Science and Technology (K-JIST), Gwangju, Korea, December 3, 2003

221. Elimelech, M. (invited) "Organic fouling and chemical cleaning of NF Membrane: Measurements and mechanisms", Department of Civil Engineering, Korea University, Seoul, Korea, December 6, 2003.

222. Sangyoup Lee, Boksoon Kwon, Menachem Elimelech, and Jaeweon Cho, "Characterization of NOM in NF and tight-UF permeates" Natural Organic Material Research: Innovations and Applications for Drinking Water, March 2-5, 2004, Victor Harbor, South Australia.

223. Elimelech, M. (invited) "Chemical and Physical Aspects of Bacterial Transport and Adhesion", Department of Civil and Environmental Engineering, Johns Hopkins University, March 9, 2004.

224. Abu-Dalo R.A., Bogatsu Y.G., Ryan J.N., Metge D.W., Elimelech M., and Harvey R.W. "Transport of bacteriophage PRD1 and Cryptosporidium parvum oocysts in saturated porous media: The importance of surface ferric oxyhydroxides", presented at the 1st Water Environment Federation/American Water Works Association Student Conference, Rocky Mountain Region, Golden, Colorado, May 2004

225. Abu-Dalo R.A., Bogatsu Y.G., Ryan J.N., Metge D.W., Harvey R.W., and Elimelech M., "The effect of ferric oxyhydroxide surface coatings on the transport of bacteriophage PRD1 and Cryptosporidium parvum oocysts in saturated porous media", presented at the 78th American Chemical Society Colloids and Surfaces Symposium, Yale University, New Haven, CT, June 2004.

226. H. Y. Ng, Q. Li and M. Elimelech, 2004. "Organic Fouling of RO Membranes for Water Reuse: Role of Proteins and Polysaccharides", IWA Specialty Conference: Water Environment-Membrane Technology, WEMT2004, June 7-10, 2004, Seoul, Korea.

227. Elimelech, M. (invited keynote) "Role of Electrostatic Interactions in Bacterial Adhesion and Transport in Aquatic Environments" presented at the International Electrokinetics Conference, ELKIN 2004, Pittsburgh, PA, June 13-17, 2004.

228. Walker, S.L., Redman, J.A., Elimelech, M, "Influence of Lipopolysaccharides on Bacterial Adhesion and Transport in Aquatic Systems" Presented at the American Chemical Society 78th Colloid and Surface Science Symposium, June 22, 2004, New Haven, CT.

229. Redman, J.A., Walker, S.L., Hill, J.E., Elimelech, M, "Influence of Growth Phase on Bacterial Adhesion and Transport" Presented at the American Chemical Society 78th Colloid and Surface Science Symposium, June 22, 2004, New Haven, CT.

230. Mylon, S.E. and Chen K.L., and M. Elimelech, "Influence of natural organic matter and ionic composition on the kinetics and structure of hematite colloid aggregation: Implications to iron depletion in estuaries" presented at the 78th ACS Colloid and Surface Science Symposium, Yale University, New Haven, CT, Jun 20-23, 2004

231. Li, Q. and Elimelech, M. Combined Colloidal and Organic Fouling and Chemical Cleaning of Nanofiltration Membranes. The 15th North America Membrane Society Annual Meeting. Honolulu, Hawaii, June 26-30, 2004.

232. Li, Q. and Elimelech, M. Combined Fouling of Nanofiltration Membranes by Colloidal Material and Natural Organic Matter and Chemical Cleaning of the Fouled Membranes. The 78th ACS Colloid and Surface Science Symposium. New Haven, Connecticut, June 20-23, 2004.

233. Kuznar, Z.A.; Elimelech, M. "Adhesion of Viable *Cryptosporidium* oocysts to Quartz Surfaces" presented at the 78th Colloid and Surface Science Symposium, Yale University, New Haven, CT, June 20 – 24, 2004.

234. Sangyoup Lee, Jaeweon Cho, and Menachem Elimelech, "Combined influence of natural organic matter and colloidal particles on nanofiltration membrane fouling" 78th ACS Colloids and Surface Science Symposium, June 20-23, 2004, New Haven, CT

235. de Kerchove, A. J. and Elimelech, M. "Application of Electrokinetic Theory for Soft Particles to Bacterial Cells" presented at the American Chemical Society 78th Colloid and Surface Science Symposium, Yale University, New Haven, Connecticut, June 2004

236. de Kerchove, A. J. and Elimelech, M. "Relevance of the Soft Particle Outer-Surface Potential to Bacterial-Surface Interactions in Aquatic Systems" presented at the American Chemical Society 78th Colloid and Surface Science Symposium, Yale University, New Haven, Connecticut, June 2004

237. Tufenkji, N. and Elimelech, M. "Deposition Patterns of Colloidal Particles in Saturated Porous Media – Deviation from Colloid Filtration Theory" presented at the American Chemical Society 78th Colloid and Surface Science Symposium, Yale University, New Haven, Connecticut, June 22, 2004.

238. McCutcheon, J.R.; Elimelech, M. "Forward (direct) osmosis desalination", presented at the 78th Colloid and Surface Science Symposium, Yale University, New Haven, Connecticut, June 20th-23rd, 2004

239. McCutcheon, J.R.; Elimelech, M. "Forward (direct) osmosis desalination", presented at the 15th annual meeting of the North American Membrane Society, Honolulu, Hawaii, June 26th-30th, 2004.

240. H. Y.Ng and M. Elimelech, 2004. "Effect of Colloidal Fouling on Removal of Trace Organics by RO", North American Membrane Society 15th Annual Meeting, June 26-30, 2004, Honolulu, Hawaii, USA.

241. McCutcheon, J.R.; Elimelech, M. "Forward (direct) osmosis desalination", presented at the Gordon Research Conference on Membranes, Colby Sawyer College, New London, New Hampshire, August 1-5, 2004.

242. Elimelech, M. (invited) "Organic Fouling and Chemical Cleaning of Polymeric Membranes: Measurements and Mechanisms", presented at the Gordon Research Conference on Membranes, Colby Sawyer College, New London, New Hampshire, August 1-5, 2004.

243. Sangyoup Lee and Menachem Elimelech, "Salt cleaning of organic fouled reverse osmosis membranes" ", presented at the Gordon Research Conference on Membranes, Colby Sawyer College, New London, New Hampshire, August 1-5, 2004.

244. Nghiem, L.D., Schäfer, A.I., *and* Elimelech, M., "Solute-membrane affinity in nanofiltration: natural hormones vs pharmaceuticals", ", presented at the Gordon Research Conference on Membranes, Colby Sawyer College, New London, New Hampshire, August 1-5, 2004.

245. McCutcheon, J.R.; Elimelech, M. "Forward (direct) osmosis desalination using polymeric membranes", presented at the 228th American Chemical Society National Meeting, Philadelphia, Pennsylvania, August 22nd – August 26th, 2004

246. de Kerchove, A. J. and Elimelech, M. "Relevance of the Soft Particle Outer-Surface Potential to Bacterial-Surface Interactions in Aquatic Systems" presented at the 227th American Chemical Society National Meeting, Philadelphia, Pennsylvania, August 2004

247. Mylon, S.E. and Chen K.L., and M. Elimelech "Influence of natural organic matter and ionic composition on the kinetics and structure of hematite colloid aggregation: Implications for iron depletion in estuaries" presented at the 228th ACS National Meeting, Philadelphia, PA, Aug 22-26, 2004

248. Kuznar, Z.A.; Elimelech, M. "Deposition Kinetics of *Cryptosporidium parvum* oocysts" presented at the 228th American Chemical Society National Meeting, Philadelphia, PA, August 22 – 26, 2004.

249. Walker, S.L., Redman, J.A., Elimelech, M, "Bacterial Transport and Deposition in Porous Media: Role of Cell Surface Lipopolysaccharides (LPS)" Presented at the 228th American Chemical Society National Meeting, Symposium in Honor of Professor Charles O'Melia, August 2004, Philadelphia, PA.

250. Tufenkji, N.; Redman, J. A.; Elimelech, M. "Deviation from Colloid Filtration Theory in the Presence of Repulsive DLVO Interactions – Implications to Microbial Transport" presented at the 227th American Chemical Society National Meeting, Philadelphia, Pennsylvania, August 23, 2004.

251. Sangyoup Lee, Wui Seng Ang, and Menachem Elimelech, "Role of divalent cations in organic fouling of reverse osmosis membranes" 228th ACS National Meeting, August 22-26, 2004, Philadelphia, PA.

252. Elimelech, M., and Li, Q. "Natural Organic Matter (NOM) Fouling and Chemical Cleaning of Nanofiltration Membranes", presented at the International Water Association 4th World Water Congress, September 19-24, Marrakech, Morocco.

253. Nghiem, L.D., Schäfer, A.I., and Elimelech, M. "Mechanisms of steroid hormones and hormone mimicking compounds removal in nanofiltration", presented at the International Water Association 4th World Water Congress, September 19-24, Marrakech, Morocco.

254. Elimelech, M., and Ng, H.Y. "Influence of Colloidal Fouling on removal of Trace Organics by RO Membranes", presented at the International Water Association 4th World Water Congress, September 19-24, Marrakech, Morocco.

255. Nghiem, L.D., Khan, S, Schäfer, A.I., and Elimelech, M. "Membrane-Organic solute affinity and its role in NF/RO separation, Euromembrane 2004, September 29- October 1, 2004, Hamburg, Germany.

256. M. Elimelech (invited) "A Novel Forward Osmosis Desalination Process", presented at the International Water Desalination and Purification Workshop, Office of Naval Research Global, October 14-15, 2004, London.

257. Elimelech, M. (invited) "Chemical and Physical Aspects of Bacterial Transport and Adhesion", Department of Civil and Environmental Engineering, Duke University, November 17, 2004.

258. Elimelech, M., (invited) "Chemical and Physical Interactions in Bacterial Adhesion and Transport", department of Earth and Environmental Engineering, Columbia University, NY, January 28, 2005.

259. Elimelech, M., (keynote) "Membrane Technology in Water Recycling Principles and Challenge", Symposium on Integrated Concepts in Water Recycling Wollongong, NSW, Australia, 13-17 February, 2005

260. Hill, J. and Elimelech, M. "Sulfur and Organic Phosphorus Cycling by Thiobacillus", The American Society of Limnology and Oceanography (ASLO) Aquatic Sciences Meeting, February 20-25, 2005, Salt Lake City, UT.

261. Chen, K.L. Mylon, S.E., and Elimelech, M., "Influence of Solution Chemistry on the Aggregation Kinetics of Alginate-Coated Hematite Colloids", American Chemical Society 229th National Meeting, March 13-17, 2005, San Diego, CA.

262. Ang, W.S., Lee, S., and Elimelech, M., "Chemical and Physical Aspects of Cleaning of Organic-fouled Reverse Osmosis Membranes", 2005 ACS Annual Meeting, March 13, San Diego, CA.

263. Chen, J.C., Kim, A.S, and Elimelech, M. "Monte Carlo Simulation of Colloidal Membrane Filtration: Model Development with Application to Characterization of Phase Transition Phenomenon", the 229th American Chemical Society National Meeting, San Diego, CA, March 13–17, 2005.

264. Kuznar, Z.A. and Elimelech, M., "Role of surface proteins in the deposition kinetics of *Cryptosporidium* parvum oocysts", American Chemical Society 229th National Meeting, March 13-17, 2005, San Diego, CA.

265. Lee, S. Ang, W.S., and Elimelech, M., "Novel salt cleaning of organic fouled reverse osmosis membranes", American Chemical Society 229th National Meeting, March 13-17, 2005, San Diego, CA.

266. Elimelech, M., (keynote) "Organic Fouling and Chemical Cleaning of RO Membranes: Role of Chemical and Physical Interactions", Symposium on Advanced Materials for Purification of Water with Systems, Atlanta, GA, April 13-15, 2005.

267. Kuznar, Z.A., and Elimelech, M. "Role of Surface Polymers in the Deposition Kinetics of *Cryptosporidium parvum* oocysts onto Quartz Surfaces", 79th American Chemical Society Colloid and Surface Science Symposium, June 12-15, 2005, Clarkson University, Potsdam, NY.

268. de Kerchove, A. J. and Elimelech, M. "Effect of Monovalent and Divalent Electrolytes on the Adsorption of Polysaccharides on Solid Surfaces in Aquatic Systems" Presented at the American Chemical Society 79th Colloid and Surface Science Symposium, June 2005, Clarkson University, Potsdam, NY.

269. de Kerchove, A. J. and Elimelech, M. "Multi-Layer Adsorption of Sodium Alginate on Quartz Surfaces: A QCM-D Study of Adsorbed Layer Properties" Presented at the American Chemical Society 79th Colloid and Surface Science Symposium, June 2005, Clarkson University, Potsdam, NY.

270. Li, Y., Chen, J.C., Elimelech, M., and Kim, A.S., "Monte Carlo Simulation of Colloidal Membrane Filtration: Principal Issues for Modeling", American Chemical Society, the 79th Colloid and Surface Science Symposium, Potsdam, NY, June 12–15, 2005.

271. Ang, W.S., Lee, S., and Elimelech, M., "Mechanisms of Chemical Cleaning of Organic-fouled Reverse Osmosis Membranes", 2005 Annual North American Membrane Society (NAMS) Meeting, June 11-15, Providence, RI.

272. Chen, K.L. Mylon, S.E., and Elimelech, M., "Influence of Alginate and Ionic Composition on the Stability of Hematite Colloids", 79th American Chemical Society Colloid and Surface Science Symposium, June 12-15, 2005, Clarkson University, Potsdam, NY.

273. Chen, K.L. Mylon, S.E., and Elimelech, M., "Aggregation Kinetics of Alginate-Coated Hematite Colloids in Divalent Electrolytes", 79th American Chemical Society Colloid and Surface Science Symposium, June 12-15, 2005, Clarkson University, Potsdam, NY.

274. McCutcheon, J.R., McGinnis, R.L., and Elimelech, M. "Desalination by a Novel Ammonia-Carbon Dioxide Forward Osmosis Process: Influence of Draw and Feed Solution Concentrations on Process Performance", 2005 Annual North American Membrane Society (NAMS) Meeting, June 11-15, Providence, RI.

275. Lee, S., and Elimelech, M. "AFM as a Tool to Characterize the Organic Fouling Potential of RO and NF Membranes", 2005 Annual North American Membrane Society (NAMS) Meeting, June 11-15, Providence, RI.

276. Elimelech, M., Walker, S.L. and de Kerchove, A.J. (Keynote), "Role of Electrostatic Interactions in Bacterial Deposition", 79th American Chemical Society Colloid and Surface Science Symposium, June 12-15, 2005, Clarkson University, Potsdam, NY.

277. Elimelech, M., "The Global Challenge for Adequate and Safe Water", The 2005 Clarke Prize Lecture, July 7, 2005, Danna Point, CA.

278. Elimelech, M., (invited) "Membrane Technology for Wastewater Reuse and Desalination", presented at the Israel Electric Company, Haifa, Israel, 7 August, 2005.

279. Chen, K.L. Mylon, S.E., and Elimelech, M., "Aggregation of Alginate-Coated Hematite Nanoparticles in Monovalent and Divalent Electrolytes", American Chemical Society 230th National Meeting, August 28 – September 1, 2005, Washington, DC.

280. Chen, K.L. Mylon, S.E., and Elimelech, M., "Influence of Alginate and Ionic Composition on Aggregate Structure of Hematite Colloids", American Chemical Society 230th National Meeting, August 28 – September 1, 2005, Washington, DC.

281. Da Siva, A.K., and Elimelech, M., "Adsorption kinetics of recombinant Norovirus nanoparticles to a quartz surface", American Chemical Society 230th National Meeting, August 28 – September 1, 2005, Washington, DC.

282. McCutcheon, J.R., McGinnis, R.L., and Elimelech, M. "Desalination Using a Novel Ammonia-Carbon Dioxide Forward Osmosis Process: Evaluation of Process Performance", 2005 Annual AIChE Meeting, November 2005, Cincinnati, OH.

283. Lee, S., and Elimelech, M. "Role of Foulant-Foulant Adhesion in Organic Fouling of Reverse Osmosis Membranes", 2005 Annual AIChE Meeting, November 2005, Cincinnati, OH.

284. Chen, K.L. Mylon, S.E., and Elimelech, M., "Enhanced Aggregation of Alginate-Coated Hematite Nanoparticles", The American Institute of Chemical Engineers (AIChE) 2005 Annual Meeting, October 30 – November 4, 2005, Cincinnati, Ohio.

285. Ang, W.S., Lee, S., and Elimelech, M., "Cleaning Mechanisms of Organic-fouled Reverse Osmosis Membranes", 2005 Annual AIChE Meeting, November 2, Cincinnati, OH.

286. de Kerchove, A. J. and Elimelech, M. "Structural Growth and Viscoelastic Properties of Polysaccharide Layers in Mono- and Divalent Salts" Presented at the 2005 AIChE Annual Meeting, Nov. 2005, Cincinnati, OH.

287. Elimelech, M., (plenary lecture) "Membrane Fouling and Cleaning: Role of Chemical and Physical Interactions", International Symposium on Wastewater Reclamation & Reuse for Sustainability, Jeju, Korea, November 8-11, 2005

288. Elimelech, M. "Transport of Biological Agents in the Subsurface Environment", Presentation at the International Conference on Hazardous Waste Management for a Sustainable Future, 10-12 January 2006, Bangkok, Thailand.

289. McGinnis, R.L., McCutcheon, J.R., Elimelech, M., "Pilot Scale Demonstration of Ammonia Carbon Dioxide Forward Osmosis Desalination Process", Presented at EUWP Program Funding Review Conference, January 17th - 18th, 2006, Long Beach, CA.

290. Nguyen, T.H. and Elimelech M. "Plasmid DNA Adhesion on Silica: Kinetics and Conformational Changes in Mono and Divalent Salts". Poster presentation at Gordon Research Conference on Bioanalytical Sensors, CA, USA, Feb. 2006.

291. Elimelech, M. "Transport and Adhesion of Microbes in Subsurface Aquatic Environments: Viruses, Bacteria, and *Cryptosporidium*", CESEP Distinguished Lecture, Colorado School of Mines, March 9, 2006.

292. Chen, K-L., and Elimelech, M., Aggregation and Deposition Kinetics of Fullerene Nanoparticles in Aquatic Environments, 26th New England Workshop on Complex Fluids, March 10, 2006, Yale University, New Haven, Connecticut.

293. Elimelech, M. "Relating Organic Fouling of Reverse Osmosis Membranes to Intermolecular Adhesion Forces", Presentation at the U.S. – Israeli Workshop on Nanotechnology for Water Purification, Arlington, VA, March 13-15, 2006

294. Elimelech, M. "Physical and Chemical Interactions in Adhesion and Transport of Microbes in Subsurface Aquatic Environments", Presentation at the Workshop on "Subsurface Transport of Microorganisms and other Colloids", RIVM, Bilthoven, The Netherlands, March 16, 2006.

295. Elimelech, M. "Aggregation of Alginate-Coated Hematite Nanoparticles in Aquatic Systems", Seminar, Department of Chemistry, University of South Carolina, March 31, 2006

296. Elimelech, M. "Mechanisms of Organic Fouling and Subsequent Cleaning of Fouled Membranes", Presentation at Procter and Gamble, Cincinnati, OH, April 17, 2006.

297. Elimelech, M. "Filtration Mechanisms of Microbial Pathogens in Flow through Porous Media", Presentation at Procter and Gamble, Cincinnati, OH, April 17, 2006.

298. Herzberg, M. and Elimelech, M.; "Influence of Biofouling on Reverse Osmosis Membrane Performance", *WATERCAMPWS 3rd Annual symposium*, April 17, 2006, San Francisco, CA.

299. McCutcheon, J.R.; Elimelech, M. "Modeling flux in forward osmosis: Influence of feed and draw solution concentration and membrane structural properties on performance.", poster presented at the 17th annual meeting of the North American Membrane Society, Chicago, IL, May 12-17, 2006.

300. McCutcheon, J.R.; Elimelech, M. "Influence of concentrative and dilutive internal concentration polarization on flux behavior in forward osmosis", Keynote lecture at the 17th annual meeting of the North American Membrane Society, Chicago, IL, May 12-17, 2006.

301. Ang W-S., and Elimelech, M. Protein Fouling of Reverse Osmosis Membranes, Annual NAMS Meeting, May 16, 2006, Chicago, Illinois.

302. McGinnis, R.L., McCutcheon, J.R., Elimelech, M., "Energy Requirements of Forward Osmosis Desalination", Poster Presented at 2006 National Meeting of the North American Membrane Society, May 16th, 2006, Chicago, IL.

303. Elimelech, M. (plenary) "Microbial Adhesion and Transport in Aquatic Environments", Presentation at the 4th International Conference: *Interfaces Against Pollution*, June 4-7, 2006, Granada, Spain.

304. Chen, K-L., and Elimelech, M., Aggregation and Deposition Kinetics of Fullerene Nanoparticles in Aquatic Environments, Interfaces Against Pollution 4th International Conference, June 4–7, 2006, Granada, Spain.

305. Nguyen, T.H. and Elimelech, M. "Plasmid DNA Adhesion on Silica: Kinetics and Conformational Changes in Mono and Divalent Salts", presented at the 80th Colloid and Surface Science Symposium, University of Colorado, Boulder, June 17-21, 2006.

306. Chen, K-L. and Elimelech, M., Aggregation and Deposition Kinetics of Fullerene Nanoparticles in Monovalent and Divalent Electrolytes, 80th American Chemical Society Colloid and Surface Science Symposium, June 18–21, 2006, Colorado University, Boulder, Colorado.

307. Chen, K-L., Mylon, S.E., and Elimelech, M., Enhanced Aggregation of Alginate-Coated Hematite Nanoparticles: Influence of Divalent Cations on Gel-Network Formation, 80th American Chemical Society Colloid and Surface Science Symposium, June 18–21, 2006, Colorado University, Boulder, Colorado.

308. Elimelech, M. "Water, Sanitation, and Health in Developing Countries", Presentation at the Gordon Research Conference, Environmental Sciences: Water, June 25-30, 2006, Holderness School, Plymouth, NH.

309. McGinnis, R.L., McCutcheon, J.R., Elimelech, M., "Pilot Scale Demonstration of Ammonia Carbon Dioxide Forward Osmosis Desalination Process", Presented at EUWP Program Funding Review Conference, June 27th - 29th, 2006, Washington, D.C.

310. McGinnis, R.L., McCutcheon, J.R., Elimelech, M., "Pilot Scale Demonstration of Ammonia Carbon Dioxide Forward Osmosis Desalination Process", Presented at EUWP Industry-Academia Workshop, June 28th, 2006, Washington, D.C.

311. McCutcheon, J.R.; Elimelech, M. "Modeling flux in forward osmosis: Influence of feed and draw solution concentration and membrane structural properties on performance.", poster presented at the Gordon Research Conference, Colby Sawyer College, New London, NH, August 6 - 10, 2006.

312. Elimelech, M. "Mechanisms of Organic Fouling and Chemical Cleaning of RO/NF Membranes", Presentation at Sandia National Lab, Albuquerque, NM, August 17, 2006.

313. de Kerchove, A. J. and Elimelech, M. "Role of Alginate Conditioning Film in the Deposition Kinetics of *Pseudomonas aeruginosa* in a Radial Stagnation Point Flow Chamber" Presented at the American Chemical Society 232th National Meeting, San Francisco, CA, September 10-14, 2006.

314. de Kerchove, A. J. and Elimelech, M. "Role of Divalent Cations in the Deposition Kinetics of *Pseudomonas aeruginosa* on Quartz Surfaces" Presented at the American Chemical Society 232th National Meeting, San Francisco, CA, September 10-14, 2006.

315. Herzberg, M. and Elimelech, M.; "Biofouling of reverse osmosis membrane: Mechanisms and performance", *232nd American Chemical Society National Meeting*, September 10-14, 2006, San Francisco, CA.

316. Herzberg, M. and Elimelech, M.; "Dynamics of biofilm growth on reverse osmosis membranes", *232nd American Chemical Society National Meeting*, September 10-14, 2006, San Francisco, CA.

317. Elimelech, M. "Microbial Adhesion and Transport in Aquatic Environments", Presentation at the University of Minnesota, Civil Engineering Department, October 27, 2006.

318. Elimelech, M. "Aggregation Kinetics of Hematite Nanoparticles in Aquatic Systems", Seminar, Department of Civil and Environmental Engineering, Virginia Tech, Nov. 3, 2006.

319. Nguyen, T.H., Chen, K-L., and Elimelech, M., Adhesion of Plasmid DNA to Natural Organic Matter Coated Mineral Surfaces, The American Institute of Chemical Engineers 2006 Annual Meeting, November 12–17, 2006, San Francisco, California.

320. Chen, K-L. and Elimelech, M. Aggregation and Deposition Kinetics of Fullerene Nanoparticles onto Quartz Surface, The American Institute of Chemical Engineers 2006 Annual Meeting, November 12–17, 2006, San Francisco, California.

321. Chen, K-L., Mylon, S.E., and Elimelech, M., Mechanism of Enhanced Aggregation of Alginate-Coated Hematite Nanoparticles in the Presence of Calcium, Strontium, and Barium Cations, The American Institute of Chemical Engineers 2006 Annual Meeting, November 12–17, 2006, San Francisco, California.

322. McCutcheon, J.R.; Elimelech, M. "Influence of concentrative and dilutive internal concentration polarization on flux behavior in forward osmosis", oral presentation at the American Institute of Chemical Engineers national meeting, San Francisco, CA. November 12-17, 2006.

323. McCutcheon, J.R.; Elimelech, M. "The ammonia-carbon dioxide forward osmosis desalination process: A high recovery alternative to reverse osmosis", oral presentation at the American Institute of Chemical Engineers national meeting, San Francisco, CA. November 12-17, 2006.

324. McCutcheon, J.R.; Elimelech, M. "The ammonia-carbon dioxide forward osmosis desalination process: Performance and modeling", poster presented at the American Institute of Chemical Engineers national meeting, San Francisco, CA. November 12-17, 2006.

325. Nguyen, T.H., Chen K.L. and Elimelech, M. "Adhesion of Plasmid DNA to Natural Organic Matter Coated Mineral Surfaces", presented at the 2006 AIChE Annual Meeting, San Francisco, California, November 12-17, 2006.

326. Nguyen, T.H., and Elimelech, M. "Plasmid DNA Adhesion on Silica: Kinetics and Conformational Changes in Mono and Divalent Salts", presented at the 2006 AIChE Annual Meeting, San Francisco, California, November 12-17, 2006.

327. Ang W-S. and Elimelech, M., Effect of Ca^{2+} on Fouling of RO Membranes by Combined Organic Foulants in Wastewater Reclamation, AIChE Annual Meeting, November 14, 2006, San Francisco, California.

328. Elimelech, M. (plenary) "The Global Challenge for Adequate and Clean Water", AIChE Annual Meeting, San Francisco, California, November 15, 2006.

329. Elimelech, M. "Mechanisms of Organic Fouling and Chemical Cleaning of RO/NF Membranes", Presentation at the Department of Civil and Environmental Engineering, Arizona State University, December 7, 2006.

330. Elimelech, M. "Aggregation and Deposition Behavior of Carbon-Based Nanomaterials in Aquatic Environments", 2007 NSF Nanoscale Science and Engineering Grantees Conference, Arlington, VA, December 3-6, 2007

331. Elimelech, M. "Carbon-Based Nanomaterials in Aquatic Environments: Aggregation, Deposition, and Cytotoxicity", Rice University, Department of Civil and Environmental Engineering, November 30, 2007.

332. Elimelech, M. Kang, S., Asatekin, A., Mayes, A.M. "AFM as a Tool to Characterize Membrane Fouling Mechanisms by Biomacromolecules", Presentation at the MRS Fall Meeting, Boston, MA, November 27, 2007.

333. Elimelech, M. (keynote) "Water, Sanitation, and Health in Developing Countries", Department of Geography and environmental Engineering Alumni Day, Johns Hopkins University, Baltimore, MD, September 29, 2007.

334. Elimelech, M. (invited/keynote) "Interaction of Carbon Nanotubes with Bacterial Cells", UCLA/CNSI workshop *"Bio-physicochemical Interactions of Engineered Nanomaterials"*, September 10, 2007

335. Elimelech, M. (keynote) "Nanoparticles and Biomacromolecules in Natural and Engineered Aquatic Environments", AEESP Education and Research Conference, Virginia Tech, Blacksburg, VA, July 31, 2007.

336. Elimelech, M. "Nanoparticles and Nanomaterials in Aquatic Environments", Presentation at Ben Gurion University, Beer Sheva, Israel, July 5, 2007.

337. Elimelech, M. (Distinguished Lecture)"Nanoparticles and Nanomaterials in Aquatic Environments: Transport, Aggregation, and Environmental Implications", MWH Distinguished Lecture, Department of Civil & Environmental Engineering, UCLA, May 29, 2007.

338. Elimelech, M. "Aggregation Kinetics of Nanoparticles in Aquatic Systems ", Lindsay Lecture Series, Department of Chemical Engineering, Texas A&M University, April 20, 2007

339. Elimelech, M. "Aggregation Kinetics of Nanoparticles in Aquatic Systems", Department of Civil and Environmental Engineering, University of Connecticut, April 13, 2007.

340. Elimelech, M. "Aggregation Kinetics of Nanoparticles in Aquatic Systems", Department of Civil and Environmental Engineering, University of Michigan, March 22, 2007.

341. Elimelech, M. (invited) "Environment – Water: The Water and Sanitation Challenge", BioVision 2007, 11-14 March, 2007, Lyon, France.

342. Elimelech, M. "Mechanisms of Organic Fouling and Chemical Cleaning of Reverse Osmosis and Nanofiltration Membranes", Presentation at the Department of Chemistry, Stony Brook University, February 23, 2007.

343. Elimelech, M. (keynote) "Environmental Engineering in the New Millennium Opportunities and Challenges", International Conference on "Civil Engineering in the New Millennium: Opportunities and Challenges (CENeM-2007)", Bengal Engineering and Science University, January 11-14, 2007, Kolkata, India

344. McCutcheon, J.R.; Elimelech, M. "Wetting phenomenon and internal concentration polarization in pressure retarded osmosis", oral presentation at the 18thth annual meeting of the North American Membrane Society, Orlando, FL, May 12-16, 2007.

345. McCutcheon, J.R.; McGinnis, R.L., Elimelech, M. "The ammonia-carbon dioxide forward osmosis desalination process: A high recovery, sustainable desalination alternative" oral presentation at the American Water Works Association: Membrane Technology Conference & Exposition, March 18-21, 2007.

346. McCutcheon, J.R.; Elimelech, M. "Wetting phenomenon in engineered osmosis", poster presented at the Engineering Conference International Water Treatment and Reuse II, Tomar, Portugal, February 11-17, 2007. "Honorable Mention" in poster competition.

347. McCutcheon, J.R.; Elimelech, M. "Modeling of membrane performance in forward osmosis desalination: Implications for improved membrane design", oral presentation at the Engineering Conference International Water Treatment and Reuse II, Tomar, Portugal, February 11-17, 2007.

348. Mi, B. and Elimelech, M. "Organic fouling of forward osmosis membranes" Presented at the North American Membrane Society Annual Meeting, April 14-17, 2007, Orlando, FL.

349. Mi, B. and Elimelech, M. "Mechanisms of organic fouling of forward osmosis (FO)membranes" Presented at the Materials Research Society Fall Meeting, November 26-30, 2007, Boston, MA.

350. Tiraferri, A., Chen, K.L., Sethi, R., Elimelech, M., "Reduced Aggregation and Sedimentation of Zerovalent Iron Nanoparticles in the Presence of Guar Gum" Presented at the 3rd International Symposium on Permeable Reactive Barriers and Reactive Zones, November 8-9, 2007, Rimini, Italy

351. Kang, S., Asatekin, A., Mayes, A.M., and Elimelech, M. "Protein Antifouling Mechanisms of PAN UF Membranes Incorporating PAN-g-PEO Additive" Presented at the American Chemical Society 233rd National Meeting, March 27th, Chicago, IL, 2007

352. Kang, S., Asatekin, A., Mayes, A.M., and Elimelech, M. "Application of AFM Force Measurements for the Selection of Antifouling UF Membranes Containing Polyacrylonitrile-graft-Poly(ethylene oxide) Comb Copolymer Additives" Presented at the North American Membrane Society 2007 Meeting, May 14th, Orlando, FL, 2007

353. Kang, S., Pinault, M., Pfefferle, L. D., and Elimelech, M. "Single-walled Carbon Nanotubes Exhibit Strong Antimicrobial Activity" Presented at the American Chemical Society 234th National Meeting, August 20th, Boston, MA, 2007

354. Montgomery, M.A., Elimelech, M. "Enhancing Trachoma Elimination with Environmental Prevention Measures." In Collaboration with the World Health Organization (WHO), Geneva Switzerland. Presented at Unite for Sight 2007 International Health Conference, April 2007, Stanford University, CA.

355. Herzberg, M. and Elimelech, M. "The role of EPS in biofouling of reverse osmosis membranes" Presented at the American Chemical Society 233rd National Meeting, Chicago, IL, 2007

356. Herzberg, M. and Elimelech, M. "Gene expression in reverse osmosis membrane biofilms" Presented at the American Chemical Society 233rd National Meeting, Chicago, IL, 2007.

357. Herzberg, M. and Elimelech, M. "Gene expression in reverse osmosis membrane biofilms" Presented at the 4th American Society for Microbiology Conference on Biofilms, Quebec, Canada, 2007.

358. Chen, K. L. and Elimelech, M., Aggregation Kinetics of Fullerene (C_{60}) Nanoparticles in the Presence of Humic Acid, The American Institute of Chemical Engineers 2007 Annual Meeting, November 4–9, 2007, Salt Lake City, Utah.

359. Chen, K. L. and Elimelech, M., Electrokinetic Properties and Stability of Engineered Fullerene (C_{60}) Nanoparticles in Aqueous Solutions, The American Institute of Chemical Engineers 2007 Annual Meeting, November 4–9, 2007, Salt Lake City, Utah.

360. Chen, K. L. and Elimelech, M., Influence of Humic Acid on the Aggregation Kinetics of Fullerene (C_{60}) Nanoparticles in Monovalent and Divalent Electrolyte Solutions, American Chemical Society 234th National Meeting, August 19–23, 2007, Boston, Massachusetts *(Invited Talk)*.

361. Chen, K. L. and Elimelech, M., Aggregation and Deposition Kinetics of Fullerene (C_{60}) Nanoparticles in Aquatic Environments, Association of Environmental Engineering and Science Professors Conference, July 28–August 1, 2007, Virginia Tech, Blacksburg, Virginia.

362. Chen, K. L. and Elimelech, M., Influence of Humic Acid on the Aggregation Kinetics of Fullerene (C_{60}) Nanoparticles, 81st American Chemical Society Colloid and Surface Science Symposium, June 24–27, 2007, University of Delaware, Newark, Delaware.

363. Chen, K. L. and Elimelech, M., Influence of Synthesis Technique on Electrokinetic Properties of Fullerene (C_{60}) Nanoparticles in Aqueous Solutions, 81st American Chemical Society Colloid and Surface Science Symposium, June 24–27, 2007, University of Delaware, Newark, Delaware.

364. da Silva, A.K., Le Saux, J.C., Parnaudeau, S., Elimelech, M., Pommepuy, M., Le Guyader, S.F. "Annual gastroenteritis outbreak in France: tracking norovirus GI and GII through sewage treatment," Presented at the 7th National Congress of the French Society of Microbiology, Nantes, France, May 30 – June 1, 2007.

365. da Silva, A.K., Le Saux, J.C., Parnaudeau, S., Elimelech, M., Pommepuy, M., Le Guyader, S.F. "Removal of norovirus in wastewater treatment using real-time RT-PCR: different behavior of genogroup I (GI) and genogroup II (GII)," Presented at the International Water Association 14th

Int'l Symposium on Health-related Water Microbiology ("WaterMicro 2007"), Tokyo, Japan, September 9-15, 2007.

366. da Silva, A.K., Le Saux, J.C., Parnaudeau, S., Elimelech, M., Pommepuy, M., Le Guyader, S.F. "Removal of norovirus genogroup I (GI) and genogroup II (GII) in wastewater treatment using real-time RT-PCR," Presented at the 3rd International Calicivirus Conference, Cancun, México, November 10-13, 2007.

367. Brady-Estevez, A. S., Kang, S., Elimelech, M. "A Single-Walled Carbon Nanotube Hybrid Filter for Removal of Microbial Contaminants" Presented at the 2007 Fall Meeting of the Materials Research Society, Boston, MA, 2007.

368. Brady-Estevez, A. S., Kang, S., Elimelech, M. "A Single-Walled Carbon Nanotube Hybrid Filter for Removal of Microbial and Viral Contaminants" Poster Presented at NT '07 The Eighth International Conference on the Science and Application of Nanotubes, Ouro Preto, Brazil, 2007.

369. Asatekin, A., S. Kang, M. Elimelech, M.F. Rubner, A.M. Mayes, "Anti-fouling ultrafiltration membranes containing polyacrylonitrile-graft-poly(ethylene oxide) comb copolymer additives", North American Membrane Society (NAMS) 2007 Annual Meeting, Orlando, FL, May 14, 2007.

370. Asatekin, A., S. Kang, E. Olivetti, M. Elimelech, M.F. Rubner, A.M. Mayes, "Amphiphilic comb copolymers for better water purification membranes", Millipore Research & Development Center, Bedford, MA, July 26th, 2007.

371. Asatekin, A., S. Kang, M. Elimelech, M.F. Rubner, A.M. Mayes, "Anti-fouling ultrafiltration membranes containing polyacrylonitrile-graft-poly(ethylene oxide) comb copolymer additives", MRS 2007 Fall Meeting, Boston, MA, November 27, 2007.

372. Asatekin, A., S. Kang, M. Elimelech, M.F. Rubner, A.M. Mayes "Amphiphilic comb copolymers for fouling resistant ultrafiltration (UF) membranes", MIT Materials Day 2007, Cambridge, MA, October 16, 2007.

373. McGinnis, R., McCutcheon, J., Elimelech, M. "Pilot Scale Demonstration of Ammonia / Carbon Dioxide Forward Osmosis Desalination Process", oral presentation to the EUWP Desalination Program, Las Cruces, NM, September 2007.

374. McGinnis, R., McCutcheon, J., Elimelech, M. "Forward Osmosis Desalination", oral presentation to the employees of Membrane Technology & Research, Menlo Park, CA. August 2007.

375. McGinnis, R., McCutcheon, J., Elimelech, M. "Forward Osmosis Desalination: Current Research and Future Prospects", oral presentation at the American Membrane Technology Association conference, Las Vegas, NV. July 2007.

376. McGinnis, R., Elimelech, M. "Osmotic Heat Engine (Closed Cycle NH3/CO2 PRO)", oral presentation at the ACS Green Chemistry and Engineering conference, Washington, D.C. June, 2007.

377. McGinnis, R., McCutcheon, J., Elimelech, M. "Forward Osmosis Energy Use: Comparisons to RO, MSF, and MED", oral presentation at the North American Membrane Society conference, Orlando, Fl. May, 2007.

378. McCutcheon, J.R., McGinnis, R.L., Elimelech, M. "Influence of membrane support layer hydrophilicity on water flux in pressure retarded osmosis applications", Presented at the International Congress on Membranes and Membrane Processes, Honolulu, HI, June 12-18, 2008.

379. Rodrigues, D. F., Elimelech, M. Influence of D-mannose on Biofilm Formation. Presented at the Gordon Research Conference on Environmental Sciences: Water, Holderness, NH, 2008.

380. Rodrigues, D.F., Elimelech, M. Influence of Carbon Source on Biofilm Formation. Presented at the 235th ACS meeting, New Orleans, LA, 2008.

381. McGinnis, R., Elimelech, M. "Osmotically Driven Membrane Processes" Presented at the 1st annual Osmosis Membrane Summit, October 27-28, 2008, Amsterdam, Netherlands.

382. Adout, A. Kang, S. Mayes,A. M. and Elimelech M. Antibiofouling Ultrafiltration Membranes Incorporating PAN-g-PEO Comb Copolymer Additives. Presented at the 235th American Chemical Society National meeting & exposition, New Orleans, LA, 2008

383. Saleh, N. B., Pfefferle, L. D., Elimelech, M. "Aggregation Kinetics of Carbon Nanotubes in the Presence of Biomacromolecules" Presented at the American Institute of Chemical Engineers 100th Annual Meeting, November 16-21, 2008, Philadelphia, PA.

384. Saleh, N. B., Pfefferle, L. D., Elimelech, M. "Aggregation Kinetics of Multi-walled Carbon Nanotubes in Aquatic Systems" Presented at the American Institute of Chemical Engineers 100th Annual Meeting, November 16-21, 2008, Philadelphia, PA.

385. Jaisi, P. D., Saleh, N. B., Blake, R. E., Elimelech, M. "Filtration Mechanisms of Single-walled Carbon Nanotubes in Porous Media" Presented at the American Institute of Chemical Engineers 100th Annual Meeting, November 16-21, 2008, Philadelphia, PA.

386. Saleh, N. B., Pfefferle, L. D., Elimelech, M. "Effect of Biomacromolecules on Aggregation Kinetics of Carbon Nanotubes" Presented for the Best Poster Award at the Gordon Research Conference, Environmental Sciences: Water, June 22-27, Holderness School, Holderness, NH.

387. Saleh, N. B., Pfefferle, L. D., Elimelech, M. "Aggregation Kinetics of Multi-walled Carbon Nanotubes in Aquatic Systems." Presented at the American Chemical Society 235th National Meeting, April 6-10, New Orleans, LA.

388. Tiraferri, A., Chen, K.L., Sethi, R. and Elimelech, M., "Guar gum reduces aggregation of zerovalent iron nanoparticles and enhances their mobility in porous media", Poster presented at 2008 nanoECO "Nanoparticles in the environment - Implications and Applications", March 2nd-7th, 2008, Monte Verità, Switzerland

389. Kang, S., Herzberg, M., Rodrigues, D. F., and Elimelech, M. "Carbon Nanotube Bacterial Cytotoxicity: Does the Type of Carbon Nanotubes Matter?" Presented at the 2008 AIChE Annual Meeting, Philadelphia, PA, 2008

390. Kang, S., Asatekin, A., Mayes, A. M., and Elimelech, M. "Atomic Force Microscopy as a Tool to Characterize the Antifouling Properties of Polymer-Grafted membranes" Presented at the Gordon Research Conference on Membranes: Materials and Processes, New London, NH, 2008

391. Kang, S. and Elimelech, M. "Bacterial Toxicity of Multi-Walled Carbon Nanotubes" Presented at the American Chemical Society 235th National Meeting, New Orleans, LA, 2008

392. Kang, S. and Elimelech, M. "Cellular Toxicity of Single-Walled Carbon Nanotubes (SWNT) Deposited Surfaces" Presented at the American Chemical Society 235th National Meeting, New Orleans, LA, 2008

393. Kang, S., Asatekin, A., Mayes, A.M., Elimelech, M. "Implication of AFM force measurements for the various blends of antifouling UF membranes containing polyacrylonitrile-graft-poly(ethylene oxide) comb copolymer additives" Presented at the American Chemical Society 235th National Meeting, New Orleans, LA, 2008

394. Kang, S., Mauter, M.S., Elimelech, M., "Physiochemical Determinants of CNT toxicity. Gordon Research Conference", Poster Presented at 2008 Gordon Research Conference, Environmental Sciences: Water, June 23rd 2008, Holderness, NH.

395. Kang, S., Mauter, M.S., Elimelech, M., Carbon-based Nanotechnologies in River Water and Wastewater. Poster Presented at Chemodynamics of Ecosystems Conference, October 28th 2008, Ascona, Switzerland

396. Jaisi, D.P., Saleh, N.B., Blake, R.B., Elimelech, M. "Transport and filtration of carbon nanotubes in porous media" Poster presented at *Goldschmidt 2008* Vancouver, Canada, 2008.

397. Chen, K. L. and Elimelech, M., Aggregation of Fullerene (C60) Nanoparticles in Monovalent and Divalent Electrolytes: Implications for Fate, Transport, and Bioavailability, The American Institute of Chemical Engineers 2008 Annual Meeting, November 16–21, 2008, Philadelphia, Pennsylvania.

398. Chen, K. L. and Elimelech, M., Interaction of Fullerene (C60) Nanoparticles with Humic Acid and Alginate Coated Silica Surfaces: Implications for Fate and Transport, The American Institute of Chemical Engineers 2008 Annual Meeting, November 16–21, 2008, Philadelphia, Pennsylvania.

399. Chen, K. L. and Elimelech, M., Deposition Kinetics of Fullerene (C60) Nanoparticles on Silica Surfaces: Influence of Surface Modification with Humic Acid and Alginate, Chemodynamics of Ecosystems, October 26–31, 2008, Monte Verità, Ascona, Switzerland.

400. Chen, K. L. and Elimelech, M., Deposition Kinetics of Fullerene Nanoparticles on Silica Surfaces Coated with Humic Acid and Alginate, 82nd American Chemical Society Colloid and Surface Science Symposium, June 15–18, 2008, North Carolina State University, Raleigh, North Carolina.

401. Chen, K. L. and Elimelech, M., Deposition Kinetics of Fullerene (C60) Nanoparticles on Silica Surfaces: Influence of Surface Modification with Humic Acid and Alginate, Poster Presented at Chemodynamics of Ecosystems, October 26–31, 2008, Monte Verità, Ascona, Switzerland.

402. Chen, K. L. and Elimelech, M., Deposition Kinetics of Fullerene Nanoparticles on Silica Surfaces Coated With Humic Acid and Alginate, Poster Presented at Gordon Research Conference 2008 – Environmental Sciences: Water, June 22–27, 2008, Holderness, New Hampshire.

403. Rodrigues, D. F., Elimelech, M. Influence of D-mannose on Biofilm Formation. Presented at the Gordon Research Conference on Environmental Sciences: Water, Holderness, NH, 2008.

404. Rodrigues, D.F., Elimelech, M. Influence of Carbon Source on Biofilm Formation. Presented at the 235th ACS meeting, New Orleans, LA, 2008.

405. McCutcheon, J.R., McGinnis, R.L., Elimelech, M. "Influence of membrane support layer hydrophilicity on water flux in pressure retarded osmosis applications", Presented at the International Congress on Membranes and Membrane Processes, Honolulu, HI, June 12-18, 2008.

406. Montgomery, M., Desai, M., Elimelech, M. "Relationship between use and quality of latrines and risk of trachoma among children in rural Tanzania." Presentation given at Sustainable and Safe Drinking Water, UNC-Chapel Hill, November 5-6, 2008, Chapel Hill, North Carolina.

407. Montgomery, M., Elimelech, M. "Three Pillars of Sustainability: A framework for provision of water and sanitation in rural Africa." Presentation given at Sanitation Challenge. Wageningen University, May 19-21, 2008, Wageningen, Netherlands.

408. Montgomery, M., Desai, M., Elimelech, M. "Associations between latrines, hygiene, and trachoma". Presentation given at Stanford Water and Development Conference. Stanford University, April 29-30, 2008, Stanford, California.

409. Montgomery, M., Desai, M., Elimelech, M. "Preliminary results of environment and trachoma research in rural Tanzania." Presentation given at World Health Organization Expert Meeting of Global Alliance for Elimination of Blinding Trachoma, April 16-19th, 2008, Geneva, Switzerland.

410. Elimelech, M. (invited) "Aggregation and Cytotoxicity of Carbon-Based Nanomaterials in Aquatic Environments" Department of Chemical and Environmental Engineering, University of California, Riverside, December 5, 2008.

411. Elimelech, M. (invited) "Aggregation and Cytotoxicity of Carbon-Based Nanomaterials in Aquatic Environments", Sigma Xi Seminar, NIST, December 11, 2008

412. Elimelech, M. (invited) "Mechanisms of Organic Fouling and Subsequent Cleaning of Fouled Membranes", Doosan Desalination R&D Center, Dubai, UAE, November 24, 2008.

413. Elimelech, M. (invited) "Advanced Membrane Technologies for Desalination and Water Reuse", Doosan Desalination R&D Center, Dubai, UAE, November 24, 2008.

414. M. Elimelech, "Aggregation and Deposition Behavior of Carbon Nanotubes (CNTs) in Aquatic Systems", Interagency Environmental Nanotechnology Grantees Workshop, Tampa, Florida, November 19-21, 2008.

415. Elimelech, M. (invited) "Science and Technology for Sustainable Water Supply", Lawrence K. Cecil Award Lecture, AIChE Environmental Division, AIChE Annual Meeting, November 19, 2008, Philadelphia, PA.

416. Elimelech, M. "Membrane Technologies for Sustainable Wastewater Reuse", BSF Workshop: Ensuring the Sustainable Reuse of Wastewater for Agricultural Irrigation in Semi-Arid/Arid Regions, November 8-13, 2008, Haifa University (Israel).

417. Elimelech, M., Chen, K. L., Saleh, N., and Kang, S., (invited) "Aggregation Kinetics of Carbon-Based Nanomaterials in Aquatic Systems: Measurements and Environmental Implications", Chemodynamics of Ecosystems, October 26–31, 2008, Monte Verità, Ascona, Switzerland.

418. Elimelech, M. (invited), "Energy Demand of Seawater Desalination: Implications for the Middle East", Princeton University, Oil, Energy, and the Middle East Program, October 22, 2008.

419. Elimelech, M. (keynote) "Advances in Water Treatment Technologies", Seoul International Symposium on Waterworks Technology, Korea Chamber of Commerce & Industry, Seoul, Korea, September 1-3, 2008.

420. Elimelech, M. (keynote) "Forward Osmosis Desalination", IWA North American Membrane Conference, University of Massachusetts, Amherst, August 10-13, 2008.

421. Elimelech, M. "Water, Nanotechnology, and Health", PepsiCo Leading with Purpose Program, Yale University, July 29, 2008.

422. Elimelech, M. (invited), "Forward Osmosis Desalination: Progress and Challenges", Seminar at Nanyang Technological University, Singapore, June 30, 2008.

423. Elimelech, M. (keynote) "What the Future Needs to Bring for Water Treatment Technologies", Singapore International Water Week (SIWW), Singapore, June 24, 2008.

424. Elimelech, M. (invited), "Deposition of Motile and Non-Motile Bacteria onto Conditioning Films", Nagoya Institute of Technology, Japan, June 6, 2008.

425. Elimelech, M. (invited), "Aggregation Kinetics of Carbon-Based Nanomaterials in Aquatic Systems", Kyoto University, June 5, 2008.

426. Elimelech, M. (keynote) "Antibacterial Effects of Carbon Nanotubes", Iterfaces Against Pollution (IAP) 2008, Kyoto, Japan, June 2008.

427. Elimelech, M. "Forward Osmosis Desalination", EMCC5, Cetraro, Italy, May 29, 2008.

428. Elimelech, M. (invited) "Aggregation Kinetics and Cytotoxicity of Carbon-Based Nanomaterials in Aquatic Environments", Chemical Engineering Department, UMASS, April 29, 2008.

429. Elimelech, M. (invited), "Aggregation Behavior and Cytotoxicity of Carbon-Based Nanomaterials in Aquatic Environments", Department of Civil and Environmental Engineering, Michigan State University, March 13, 2008.

430. Elimelech, M. (invited), "Aggregation Behavior and Cytotoxicity of Carbon-Based Nanomaterials in Aquatic Environments", Department of Civil and Environmental Engineering, Stevens Institute of Technology, March 5, 2008.