MANISH KUMAR
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EDUCATIONAL HISTORY

Doctor of Philosophy in Environmental Engineering, Department of Civil and Environmental Engineering, University of Illinois, Urbana, IL, 08/2006 – 07/2010.
Master of Science in Environmental Engineering, Department of Civil and Environmental Engineering, University of Illinois, Urbana, IL, 08/1998 – 01/2000.
Bachelor of Technology in Chemical Engineering, Department of Chemical Engineering, National Institute of Technology, Trichy, India, 08/1994 – 05/ 1998

EXPERIENCE

Assistant Professor, Department of Chemical Engineering, Pennsylvania State University, University Park, PA (Fall 2011 -current)
Postdoctoral Fellow, Department of Cell Biology, Harvard Medical School, Tom Walz Group (August 2010 – July 2011)
Visiting Researcher, Wolfgang Meier. Department of Chemistry, University of Basel, Switzerland, Summer 2007 and Fall 2008
US Environmental Protection Agency (EPA) Science to Achieve Results (STAR) Fellow, University of Illinois, Urbana, IL, 2008 – 2010, *Project:* Development of highly-efficient Aquaporin-based water treatment membranes for desalination and contaminant removal
University of Illinois Fellow and Research Assistant, University of Illinois, Urbana, IL, 2007 - 2008, *Project:* Characterization of US Seawaters and Development of Standardized Protocols for Evaluation of Foulants in Seawater Reverse Osmosis Desalination (project in addition to dissertation research).
Senior Engineer, Applied Research Department, MWH, Pasadena, CA, 2001 – 2006, *Expertise and Focus:* Membrane water and wastewater treatment

LICENSES

Professional Engineer – Civil, California, P.E. License #69423, expiration July 2016

AWARDS

- University of Illinois Young Alumni Award, Department of Civil and Environmental Engineering, 2014
- EPA Science to Achieve Results (STAR) Graduate Fellowship (to Patrick Saboe, 2014-2016)
- Elias Klein Founders' Travel Award (to Hasin Feroz), North American Membrane Society (May 2014)
- Dow Sustainability Innovation Student Challenge Award (SISCA), First prize, Team Advisor—Advisor to team of graduate students (Kar, A, Guha, R, Meng, Y, Feroz, H*) (November 2013)
- Leighton Reiss Graduate Fellowship (to Yuexiao Shen)- 2013
- Dow Sustainability Innovation Student Challenge Award (SISCA), Runner-up, Team Advisor—Advisor to team of graduate students (Shen Y,* Saboe, P,* Erbakan, M,* Ferlez, B, Escotet, M*) (November 2012)
- Myriant Corporation Scholarship for Excellence in Bio-Energy and Energy Sustainability (to Ashley Edwards*)— (September 2012)

- Larson Aquatic Research Scholarship (to Yuexiao Shen*), American Water Works Association, 2012
- Academic Achievement Award, First Place (Doctoral), American Water Works Association, 2011
- Richard and Mary Engelbrecht Fellowship, Department of Civil and Environmental Engineering, UIUC, 2009
- Mavis Memorial Fund Scholarship, College of Engineering, UIUC, 2009
- European Union Marie Curie Training Course Fellowship to attend 7th NCCR Practical Course on 2D Membrane Protein Crystallization and Observation , October 2008, Switzerland
- US Environmental Protection Agency STAR Fellowship, 2008 – 2011, USEPA
- Abel Wolman Fellowship, 2008-2009, American Water Works Association
- Henry Ford II Scholar, 2008, College of Engineering, UIUC
- National Water Research Institute Fellowship for Advanced Water and Wastewater Treatment Technologies, 2007 – 2008, NWRI
- Dissertation Travel Grant, Summer 2007, UIUC
- University of Illinois Fellowship, 2006 – 2007, UIUC

* current or past advisees

INVENTION DISCLOSURES AND PATENT APPLICATIONS

1. (Invention Disclosed, joint with Applied Biomimetic Inc.) Kumar, M; Sines, I; Grzelakowski, M. Polybutadiene-poly 2-methyloxazoline polymers for biomimetic membrane formation. Assignees; Penn State University and Applied Biomimetic Inc., Corresponding Inventors: Manish Kumar and Mariusz Grzelakowski.
2. (Provisional Patent Filed) Velegol, D; Kar, A; Guha, R; Kumar, M. Membrane fouling reduction using chemical micropumps, Assignee: Penn State University, Corresponding Inventor: Darrell Velegol, October 2013
3. (US Patent Filed) Kumar, M; Walz T. High Density Membrane Protein Membranes, Assignee: Penn State University, Corresponding Inventor: Manish Kumar, February 2012
4. Kumar, M; Meier, W.; Zilles, J.; Clark, M.; Grzelakowski, M.; Nehring, R. Highly permeable polymer membranes, Assignee: University of Illinois, Corresponding Inventor: Manish Kumar, Pub date Feb 24, 2011, Pub number: US 2011/0046074 A1
5. Kumar, M; Poust, S; Meier, W; Clark, M; Zilles, J; Cropek, D; McAllister, I. Environmental remediation with functionalized vesicles, disclosed to the University of Illinois, Dec 14th, 2009, Corresponding Inventor: Manish Kumar

PUBLICATIONS

Submitted

1. Kowalik M, Sines I,* Maranas J, & Kumar M. (2014) Developing transferable potentials for coarse-grained simulations of block copolymer biomimetic membranes, Langmuir (corresponding author, *author supervised by candidate)
2. Grzelakowski, M., Cherenet M, Shen Y,* & Kumar M. (2014) A framework for accurate evaluation of the promise of aquaporin based biomimetic membranes, Journal of Membrane Science (corresponding author, *author supervised by candidate)
3. Cho SH, Du J, Sines I,* Poosarla VG, Kafle K, Park YB, Kim SH, Roberts AW, Kumar M, Nixon BT. *In vitro* synthesis of cellulose microfibrils by membrane protein from protoplasts of the non-vascular plant *Physcomitrella patens*, Biochemical Journal (corresponding author, *author supervised by candidate)

4. Guha R,* Shang X,* Zydney A, Velegol D, Kumar M. (2014) Diffusiophoresis Contributes Significantly to Colloidal Fouling in Low Salinity Reverse Osmosis Systems, Journal of Membrane Science (corresponding author, *author supervised by candidate)
5. Xiong B,* Richard T, Kumar M. (2014) Integrated Acidogenic Digestion and Carboxylic Acid Separation by Nanofiltration Membranes for the Lignocellulosic Carboxylate Platform, Journal of Membrane Science (corresponding author, *author supervised by candidate)
6. Erbakan M,* Curtis B, Nixon BT, Kumar M, Curtis WR. (2014) Advancing *Rhodobacter sphaeroides* as a platform for expression of functional membrane proteins, Biotechnology and Bioengineering (corresponding author, *author supervised by candidate)

In press or published

1. Saboe P;* Lubner C; McCool N; Vargas-Barbosa N; Yan H; Chan S; Ferlez B; Bazan GC; Golbeck J; Kumar M. † Two-dimensional Protein Crystals for Solar Energy Conversion, Advanced Materials (published online 25th August 2014) (corresponding author, *author supervised by candidate)
2. Kaufman Y, Grinberg S, Linder C, Heldma,E, Gilron J, Shen Y,* Kumar M, Lammertink R and Freger V (2014) Towards Supported Bolaamphiphile Membranes for Water Filtration: Roles of Lipid and Substrate, Journal of Membrane Science (available online Jan 25th, 2014)
3. Erbakan M, Shen Y, Grzelakowski M, Kumar M,† Curtis WR (2014) Molecular cloning, overexpression and characterization of a novel water channel protein from *Rhodobacter sphaeroides*, PLOS One (available online Jan 31st, 2014)
4. Kar, A., Guha, R., Dani, N. S., Velegol, D., & Kumar, M.† Particle deposition on Microporous Membranes can be Enhanced or Reduced by Salt Gradients. Langmuir (2014).
5. Shen, Y. X., Saboe, P. O., Sines, I. T., Erbakan, M., & Kumar, M.† Biomimetic membranes: A review. Journal of Membrane Science 454 (2014): 359-381.
6. Hutchison J, Poust S, Kumar M, Cropek D, Macallister I, Arnett C, Zilles J. Perchlorate reduction using free and encapsulated *Azospira oryzae* enzymes Environmental Science and Technology. (2013) 47:9934–9941.
7. Kumar M, Shen Y,* & Saboe P.* Biological and biomimetic membranes. In Encyclopedia of Membrane Science and Technology, Eds. V. Tarabara and E. Hoek, Wiley Interscience, Invited Book Chapter. (2013)
8. Itel, F; Al-Samir, S; Öberg, F; Chami, M; Kumar, M; Supuran, C; Deen, P; Meier, W; Hedfalk, K; Gros, G; Endeward V. CO_2 permeability of cell membranes is regulated by membrane cholesterol and protein gas channels FASEB J. (2012) 26:5182-5191.
9. Kumar, M;† Habel, J; Shen, Y;* Meier, W; Walz, T. High-density reconstitution of functional membrane proteins into vesicular and planar block copolymer membranes, Journal of the American Chemical Society (2012) 134:18631-18637.
10. Kumar, M;† Marincel, M; Poust, S; Zilles, J. 2012. Polymer-Based Biomimetic Membranes for Desalination. In Biomimetic Membranes for Sensor and Separation Applications, Ed. Claus H. Nielsen, Springer, 43-62
11. Ladner, DA; Subramani, A; Kumar, M; Adham, S; and Clark, MM. 2010. Bench-scale evaluation of seawater desalination by reverse osmosis, Desalination. Volume 250, Issue 2, 15 January 2010, Pages 490-499
12. Grzelakowski, M., Onaca, O., Rigler, P., Kumar, M., & Meier, W. (2009) Immobilized Protein-Polymer Nanoreactors. Small, published online August 13, 2009.
13. Badruzzman M; Oppenheimer, J; Adham, S; and Kumar, M. 2009. Innovative Beneficial Reuses of Reverse Osmosis Concentrate Using Bipolar Membrane Electrodialysis and Electrochlorination Processes, Journal of Membrane Science. 326 (2009) 392 – 399
14. Kumar, M; Grzelakowski, M; Zilles, J; Clark, M; Meier, W. 2007. Highly permeable polymeric membranes based on the incorporation of the functional water channel protein Aquaporin Z, Proceedings of the

National Academy of Sciences. 2007;104(52):20719 – 20724. (featured on cover and in a commentary article in PNAS issue, also on Sciencedaily.com and several other sites)

15. Kumar, M;† Adham, S; Pearce, W. 2007. Comparative seawater reverse osmosis pretreatment evaluation using bench and pilot scale testing, Journal of the American Water Works Association. 99:9: 168 – 178
16. Kumar, M;† Adham, S; and DeCarolis, J. 2007. Reverse Osmosis Integrity Monitoring, Desalination, 214: 138 – 149
17. Kumar, M;† Badruzzaman, M; Adham, S; Oppenheimer, J. 2007. Beneficial phosphate recovery from reverse osmosis (RO) concentrate of an integrated membrane system using polymeric ligand exchanger (PLE). Water Research 41, (10), 2211 – 2219
18. Kumar, M;† Adham, S; & Pearce, W. 2007. An Integrated Approach to Pretreatment Evaluation for Seawater Reverse Osmosis using Bench and Pilot Scale Testing, in Membrane Treatment for Drinking Water and reuse Applications: A Compendium of Peer-Reviewed Papers, Ed. Kerry Howe, AWWA, Denver Co.
19. Kumar, M;† Adham, S, and Pearce, W. 2006. Development of a protocol for evaluation of new generation RO membranes, Journal of the American Water Works Association, 98, 4, 22 – 132
20. Kumar, M;† Adham, S, and Pearce, W. 2006. Investigation of Seawater Reverse Osmosis Fouling And Its Relationship To Pretreatment Type, Environmental Science and Technology, 40, 2037 – 2044. (featured in a news story in ES&T)
21. Kumar, M;† Adham, S, and Pearce, W. 2006. Evaluation of New Generation RO membranes for Brackish Groundwater Desalination, In Desalination of Seawater and Brackish Water, William Lauer (ed), Edition: 2006, Hardback, ISBN 1583213287
22. DeCarolis, J, Kumar, M, Adham, S, Pearce, W, Wasserman, L. 2005 Double Filtered for Freshness: An Integrated membrane System could expand water reuse options without excessive maintenance, Water Environment and Technology, March 2005, pg.41 – 47
23. Adham S; Kumar, M; and Pearce, W. 2005. Model Developed for Brackish and Reclaimed Water, Desalination and Water Reuse, 15(3)38 – 46

†Corresponding author, *Advisee

PROFESSIONAL MEMBERSHIPS, SERVICE AND ACTIVITIES

- Director, NSF Research Experiences for Undergraduates (REU) Site, Chemical Engineering at the Penn State (2014 – 2017)
- Vice-chair, Gordon Research Conference, Membranes-Materials and Processes, 2016
- Board Member, The Spout Institute – A non profit focused on water quality education and for development of sustainable water treatment technologies for developing countries, 2009 – present
- Member, Global Engineering Education Committee, College of Engineering, Penn State
- Member, Dow sponsored Curriculum Redesign for Sustainable Chemical Engineering
- Departmental Representative, Engineering Energy & Environmental Institute Steering Committee, College of Engineering, Penn State
- Co-Chair, Gordon Research Conference, Graduate Research Symposium, Membranes-Materials and Processes, 2010
- Member, Association of Environmental Engineering and Science Professors, since 2008
- Member, American Society for Microbiology, 2008 – present
- Member, American Water Works Association, 1998 – present

- Reviewer: Langmuir, Journal of Membrane Science, Environmental Science and Technology, Water Research, Journal AWWA, Desalination, ASCE - Journal of Environmental Engineering, AQUA, Water Science and Technology
- Member, Young Professionals Group, MWH, Pasadena, CA 2005 – 2006
- Vice Chair, Chemical Engineering Association, Trichy, India 1997 – 1998

CURRENT FEDERAL AND INDUSTRIAL FUNDING

REU Site: Integration of Biology and Materials in Chemical Engineering, National Science Foundation, 05/01/14-04/30/17 (P.I.)

Collaborative development of membrane protein based water treatment membranes using PDMS-PMOXA block copolymer vesicles and crystals, Applied Biomimetic, A/S., 12/15/13-05/31/15 (P.I.)

Living Reverse Osmosis Membranes, National Science Foundation, 08/01/2014 - 07/31/2017 (P.I.)

Collaborative Research: A Multi-Tiered Approach to Generating Increased Carbon Dioxide for Photosynthesis, National Science Foundation, 03/01/14-02/28/17 (P.I.)

Center for Lignocellulose Structure and Function (EFRC), Department of Energy, 08/01/2014 - 07/31/2019 (Co-P.I.)

INVITED PRESENTATIONS

1. Kumar, M, Shen, Y.,* Saboe, P.* Biomimetic membranes: current challenges and opportunities for innovation. Workshop of Biomimetics and Bioinspiration: Applications for Desalination, Environment and Water Industry Programme Office (EWI) and Public Utilities Board, Singapore, May 31st, 2014 (scheduled).
2. Kumar, M, Shen, Y.,* Saboe, P.*, Feroz, H.* Membrane protein structure and function in lipids and block copolymers, Biomedical Engineering Seminar Series, Penn State University, January 22nd, 2014
3. Kumar, M, Saboe, P., Shen, Y. Biomimetic Membranes for Energy and the Environment, Center for Sustainable Energy at Notre Dame (cSEND), University of Notre Dame, October 2013
4. Kumar, M. Can Cellular Plumbing Solve the World's Water Crisis? Discovery U Seminar Series (a student-organized public outreach event that supports both the academic mission of Penn State students as well as the research mission of Penn State faculty in the exciting fields of STEM), Friday, November 8th, Penn State University
5. Kumar, M, Saboe, P., Shen, Y. Mimicking Biomembranes for Applications, Millennium Café Seminar Series, Penn State University, 26th February, 2013
6. Kumar, M., Habel, J., Shen, Y.,* Saboe, P.* Packing active membrane proteins in block copolymers, Advanced Membrane Technology V, Engineering Conferences International, Singapore, Oct 12-19th, 2012
7. Kumar, M, Shen, Y.,* Saboe, P.* Membrane proteins in lipid and polymer bilayers as biomimetic membranes. Gordon Research Conference, Membranes: Materials and Processes. New London, NH, USA, July 29th-Aug 3rd, 2012
8. Kumar, M., Shen, Y.,* Saboe, P.* Biomimetic Membranes for Water Purification, Materials for Water Sustainiability. ACS Fall Conference, Philadelphia, USA, Aug 19-23rd, 2012

9. Kumar, M. Biomimetic Membranes for Desalination, Villanova Center for the Advancement of Sustainability in Engineering Seminar Series, Villanova University, Oct 2012, Villanova, PA
10. Kumar, M.; Grzelakowski, G.; Meier, W. Biomimetic Membranes for Desalination Water Treatment", invited presentation at the Swisstech Conference, Nov 2008, Basel, Switzerland
11. Kumar, M. Testing of RO Concentrate Minimization and Beneficial Reuse Alternatives, Southern California Salinity Coalition Symposium organized by the US Bureau of Reclamation, May 2, 2006, Metropolitan Water District of Southern California, Los Angeles, CA
12. Kumar, M. Current Status of Worldwide MF/UF Full-scale Plants, MF IV symposium, National Water Research Institute, Mar 23, 2006, Orange, CA
13. Kumar, M. Current State of Desalination in California, Feb 7, 2006, Southern Water, Brighton, UK
14. Kumar, M. Pretreatment Strategies for Seawater Desalination, Orange County Water District, Sep 2005, Fountain Valley, CA
15. Kumar, M. Pretreatment Strategies for Seawater Reverse Osmosis, Metropolitan Water District of Southern California, Sep 2005 Los Angeles, CA

CONFERENCE PRESENTATIONS

1. Saboe, P.,* Lubner, C., McCool, N., Vargas-Barbosa N., Yan, H., Chan, C.,* Ferlez, B., Bazan, G., Golbeck, J., Kumar, M., Two-dimensional Protein Crystals for Solar Energy Conversion, Presented at the Gordon Research Seminar, Photosynthesis, West Dover, VT, August 2014.
2. Saboe, P.,* Lubner, C., McCool, N., Vargas-Barbosa N., Yan, H., Chan, C.,* Ferlez, B., Bazan, G., Golbeck, J., Kumar, M., Two-dimensional Protein Crystals for Solar Energy Conversion, Presented at the Gordon Research Conference, Photosynthesis, West Dover, VT, August 2014. (Poster Presentation)
3. Shen, Y.,* Erbakan, M., Decker, K., Aksimentiev, O., Hou, J. & Kumar, M. Artificial Water Channels—Can they reach the performance of biological channels? Membranes: Materials & Processes, Gordon Research Seminar, New London, NH, July 2014.
4. Feroz, Hasin M.*, Ferlez, Bryan, Shen, Yuexiao*, Golbeck, John H. and Kumar, Manish, Light Driven Ion Pumps for Desalination, Gordon Research Conference (GRC), New London, New Hampshire, July 2014 (Poster Presentation)
5. Guha R,* Shang X, Tevin M., Guerra J., Kar A, Velegol D, Kumar M. Is Diffusiophoresis the Missing Link Between Concentration Polarization and Particle Deposition in Reverse Osmosis ?, Gordon Research Conference on Membranes: Materials and Processes, Colby-Sawyer College, NH, July 2014. (Poster Presentation)
6. Saboe, P.,* Lubner, C., McCool, N., Vargas-Barbosa N., Yan, H., Chan, C.,* Ferlez, B., Bazan, G., Golbeck, J., Kumar, M., Photosynthetic membrane protein crystals for hydrogen production, Presented at the Gordon Research Conference, Membranes: Materials and Processes, New London, NH, July 2014. (Poster Presentation)
7. Schantz AB,* Saboe P,* Kumar M, Maranas JK. The influence of temperature and detergent on polymer exchange rate in PEE-PEO vesicles used for protein incorporation, Polymer Physics Gordon Research Conference, Mount Holyoke, MA, July 2014. (Poster Presentation)
8. Saboe, P.,* Lubner, C., McCool, N., Vargas-Barbosa N., Yan, H., Chan, C.,* Ferlez, B., Bazan, G., Golbeck, J., Kumar, M., Photosynthetic membrane protein crystals for hydrogen production, Presented at the North American Membrane Society 24rd Annual Meeting, Houston, TX, June 2014.
9. Saboe, P.,* Lubner, C., McCool, N., Vargas-Barbosa N., Yan, H., Chan, C.,* Ferlez, B., Bazan, G., Golbeck, J., Kumar, M., Photosynthetic membrane protein crystals for hydrogen production, Presented at the North American Membrane Society 24rd Annual Meeting, Houston, TX, June 2014. (Poster Presentation)

10. Xiong B., Kumar M., Richard, T.L. Integrating Nanofiltration Membrane Separation with Acidogenic Digestion of Lignocellulosic Biomass for Enhanced Yield, 17th Annual Environmental Chemistry and Microbiology Student Symposium, Pennsylvania State University, March 2014.
11. Shen, Y.,* Erbakan, M., Decker, K., Aksimentiev, O., Hou, J. & Kumar, M. Artificial Water Channels—Can they reach the performance of biological channels? 24th North American Membrane Society Meeting, Houston, TX, June 2014.
12. Feroz, H.,* Shen, Y.,* Ferlez, B., Golbeck, J. & Kumar, M. Light driven ion pumps for desalination. 24th Annual North American Membrane Society Meeting, Houston, TX, June 2014. (Poster Presentation)
13. Guha R.,* Kar A., Shang X., Velegol D., Kumar M. Diffusiophoretic Transport Alters Colloidal Fouling of Membranes Presented at the 88th Colloids & Surface Science Symposium, University of Pennsylvania, PA, June 2014
14. Shen, Y.,* Erbakan, M., Meminger, C., Hou, J. & Kumar, M. Single Molecule Transport Characterization of a High Permeable Artificial Water Channel. Council for Chemical Research Annual Meeting, Alexandria, VA, May 2014.
15. Guha R,* Kar A, Kumar M, Velegol D. Particle Deposition On and Removal from Hollow Fiber and Reverse Osmosis Membranes, Gordon Research Conference on Macromolecular & Polyelectrolyte Solutions, Ventura, CA, February 2014. (Poster Presentation)
16. Saboe P.,* Lubner C., McCool N., Vargas-Barbosa N., Golbeck J., Kumar M. Biomimetic two-dimensional crystals of photosynthetic proteins for membrane based energy production Presented at the American Institute of Chemical Engineers Annual Meeting, San Francisco, CA, November 2013.
17. Erbakan M,* Shen Y,* Kumar M, Curtis WR. Evaluating a Novel Aquaporin From R. sphaeroides for Biomimetic Membrane Applications, AICHE conference, 2013, San Francisco, CA (Poster)
18. Escotet M,* Erbakan M,* Kumar M, Curtis WR. Use of Fluorescent Protein Fusions to Optimize Membrane Protein Expression in Anaerobic Photoheterotrophic Rhodobacter, AICHE conference, 2013, San Francisco, CA
19. Saboe P.,* Lubner C., McCool N., Vargas-Barbosa N., Golbeck J., Kumar M.. Solar hydrogen production using biomimetic two-dimensional crystals of photosynthetic proteins. Presented at the 246th American Chemical Society National Meeting and Exposition, Indianapolis, IN, September 2013
20. Shen Y,* Licsandru E, Barbiou M, and Kumar M. Functional Reconstitution And Characterization Artificial Water Channels For Desalination, American Association of Environmental Engineering Science and Professors Meeting, July 2013, Golden, CO.
21. Shen Y,* Licsandru E, Barbiou M, and Kumar M. Functional Reconstitution And Characterization Artificial Water Channels For Desalination, North American Membrane Society (NAMS) conference, June 2013, Boise, ID.
22. Feroz H,* Shen Y,* Ferlez B,* Golbeck JH and Kumar M. Light Driven Desalination Membranes, North American Membrane Society (NAMS) conference, June 2013, Boise, ID. (Poster)
23. Saboe P.,* Lubner C., McCool N., Vargas-Barbosa N., Golbeck J., Kumar M. Biomimetic two-dimensional crystals of photosynthetic proteins for membrane based energy production. North American Membrane Society 23rd Annual Meeting, Boise, ID, June 2013. (Poster)
24. Kumar, M., Zilles, J., Meier, W. Aquaporin based triblock copolymer membranes for water purification, Polymers in Water Purification, ACS Fall Conference, Denver, CO, August 2011
25. Kumar, M., Itel, F., Meier, W., Zilles, J. Investigating gas transport in membrane proteins using block co-polymer membrane vesicles, ACS Spring Conference, San Francisco, CA, March 2010
26. Kumar, M., Grzelakowski, M., Meier, W., Clark ,M., and Zilles, J. Bioinspired Membranes for Environmental Applications, poster presented at Association for Environmental Engineering and Science Professors meeting, Iowa City, July 2009
27. Kumar, M., Grzelakowski, M., Clark ,M., Meier, W. and Zilles, J. pH Gating of the Escherichia coli Water Channel Protein, Aquaporin Z, poster presented at the American Society for Microbiology meeting, Philadephia, May 2009

28. Kumar, M., Clark M and Zilles, J., Biomimetic desalination membranes, poster presented at the Gordon Research Conference (Graduate Research Symposium) – Membranes and Materials, New London, New Hampshire, August 2008
29. Kumar, M., Grzelakowski, M., Meier, W. Hochselektive Wasserfilter auf der Basis von Blockcopolymer Membranen, Macromolecular Colloquium, University of Freiburg, Institute for Macromolecular Chemistry, Freiburg, Germany, 2008 (presented by Dr. Meier)
30. Adham, S. , Oppenheimer, J., Kumar, M., Badruzzaman, M., Liu, L. 2007. Innovative Approaches to RO Concentrate Management : Beneficial Reuse and Concentrate Minimization, Proceedings of the International Desalting Association Conference, Gran Canaria, 2007
31. Kumar, M., Oppenheimer, J., Adham, S., and Kottenstette, R. Innovative Technologies for Beneficial Reuse of RO Concentrate, presented at the AWWA Annual Conference and Exhibition, 2006, San Antonio, Texas, 2006
32. Kumar, M.; Adham, S., Decarolis, J., Burbano, A. and Pearce, W. Pretreatment Evaluation For Seawater Reverse Osmosis Using Bench And Pilot Scale Testing, Presented at the AWWA Annual Conference, San Francisco, CA, 2005
33. Oppenheimer, J.; Chiu, K; DeCarolis, J.; Kumar, M.; Adham, S.; Snyder, S.; and Pearce, W.; Evaluating the Effect of UV Peroxide for Control of NDMA on Endocrine Disrupters, Pharmaceuticals, and Personal Care Products, presented at the AWWA Annual Conference 2006, San Antonio, Texas, 2006
34. Oppenheimer, J.; Kumar, M.; Badruzzaman, M.; Webb, L.; Kottenstette, R.; Adham, S. Using RO Concentrate as a Resource by Application of Innovative Technologies, presented at the AWWA Water Quality Technology Conference November, Denver, Colorado 2006
35. Adham, S.; Oppenheimer, J.; Kumar, M.; Webb, L.; Kottenstette, R. Innovative Approaches to RO Concentrate Management: Beneficial Reuse and Concentrate Minimization, presented at WEFTEC, Dallas, Texas, 2006
36. Kumar, M., Oppenheimer, J., Adham, S., and Kottenstette, R. Innovative Technologies for Beneficial Reuse of RO Concentrate, presented at the AWWA Annual Conference and Exhibition, 2006, San Antonio, Texas, 2006
37. Ladner, D.; Clark, M., M; Kumar, M.; and Adham, S. Bench-Scale Studies to Characterize Organic Foulants in Seawater Reverse Osmosis Desalination, presented at the North American Membrane Society meeting, Chicago, Illinois May 12 – 17, 2006
38. Kumar, M.; Adham, S.; & Pearce, W. An Integrated Approach to Pretreatment Evaluation for Seawater Reverse Osmosis using Bench and Pilot Scale Testing, Presented at the AWWA Membrane Technology Conference, Phoenix, AZ, 2005
39. Kumar, M.; Adham, S., Decarolis, J., Burbano, A. and Pearce, W. Pretreatment Evaluation For Seawater Reverse Osmosis Using Bench And Pilot Scale Testing, Presented at the AWWA Annual Conference, San Francisco, CA, 2005
40. Kumar, M.; Decarolis, J.; Adham, S.; Wasserman, L. Desalting of MBR treated wastewater: Integrated Membrane Systems for wastewater Reclamation, Proceedings of the California Nevada Section of AWWA, Sacramento, CA, October 2004
41. Kumar, M.; Adham, S.; & Pearce, W. Development of a Cost Model for Brackish and Reclaimed Water Desalination, Paper presented at the AWWA Annual Conference, Orlando, FL, 2004
42. Kumar, M.; DeCarolis, J.; Adham, S.; Pearce, W; Wasserman, L. Integrated Membrane Systems for Wastewater Reuse, Paper presented at the Water Environment Federation Technology (WEFTEC) conference, New Orleans, LA, 2004
43. Pearce, W.; Kumar, M. Evaluation of New Generation Low Pressure Brackish Water Reverse Osmosis Membranes, Proceedings of the California Nevada AWWA 2004 Spring Conference, April 13, 2004, Las Vegas, NV, 2004

44. Kumar, M.; Adham, S.; & Pearce, W., Development of a Spreadsheet Tool for Brackish and Reclaimed Water Membrane Desalination Costs, Paper presented at the AWWA Annual Conference, Anaheim, CA, June 2003
45. Pearce, W.; Kumar, M.; & Adham, S., Evaluation of New Generation Low Pressure Brackish Water Reverse Osmosis Membranes, Paper presented at the AWWA Annual Conference, Anaheim, CA, June 2003
46. Kumar, M.; Adham, S.; & Pearce, W., Spreadsheet Tool for Brackish and Reclaimed Water Membrane Desalination Costs, Paper presented at the AWWA Membrane Conference, Atlanta, GA, March 2003
47. Oppenheimer, J., DeCarolis, J., Kumar, M., and Gagliardo, P., Adham, S., Environmental Technology Verification of Low- and Medium Pressure Ultraviolet Systems, Presented at the American Water Works Association Water Quality Technology Conference. Seattle, WA, November 2002
48. Kumar, M.; Hsu, Y.; Devkota, L.; Welch, M.; and Smith, B. , Optimizing Arsenic Removal in Phoenix Area Water Treatment Plants, Paper presented at the Arizona Water Pollution Control Association (AWPCA) Annual Conference, Chandler, AZ, May 2001
49. Wang, Y.; Clark, M.M.; & Kumar, M., Characterization and fouling of Sulfonated Polyether Sulfone/Polyethersulfone – Polysulfone (SPEES/PES-PS) UF membranes, Paper presented at the North American Membrane Society (NAMS) Conference, Denver, CO, May 2000