

# Curriculum Vitae

## BAOXIA MI

Environmental Engineering, Yale University  
PO Box 208286  
New Haven, CT 06520-8286

Email: [baoxia.mi@yale.edu](mailto:baoxia.mi@yale.edu)  
Tel.: 1 (203) 432-4333  
Office: Mason Laboratory 101

## EDUCATION

### **Post-Doctoral Research Associate in Environmental Engineering**, Sep 2006 to present

Dept. of Chemical Engineering, Yale University  
Research Topic: "Fouling of Forward Osmosis Membranes."  
Advisor: Professor Menachem Elimelech.

### **Ph.D. in Environmental Engineering**, October 2006 GPA: 3.8/4.0

Dept. of Civil and Environmental Engineering, Univ. of Illinois at Urbana-Champaign (UIUC)  
Thesis Title: "Partitioning and Diffusivity of Arsenic (III) in the Active Layer of Thin-film Composite Reverse Osmosis and Nanofiltration Membranes."  
Academic Advisor: Professor Benito J. Mariñas.

### **M.S. in Environmental Engineering**, March 2001 GPA: 87/100

Department of Civil Engineering, Tianjin University, China  
Thesis Title: "Water Reuse and Polluted Surface Water Treatment by Hybrid Membrane Processes."  
Academic Advisor: Professor Ping Gu.

### **B.S. in Environmental Engineering**, with highest honor, July 1998 GPA: 90/100

Department of Civil Engineering, Tianjin University, China  
Thesis Title: "Study of Biological Activity in Hollow-fiber Membrane Bio-reactor."  
Project Advisor: Professor Ping Gu.

## RESEARCH EXPERIENCE

### **Post-doctoral Research Associate** (September 2006 to Present)

Department of Chemical Engineering, Yale University  
2006 – pres. Fouling of Forward Osmosis Membranes  
P.I.: Professor Menachem Elimelech

### **Graduate Research Assistant** (January 2001 to August 2006)

Department of Civil and Environmental Engineering, UIUC  
2003 – 2006 Transport of Solutes and Macromolecules through Reverse Osmosis (RO) and Nanofiltration (NF) Membranes  
Funding Agency: National Science Foundation  
P.I.: Professor Benito J. Mariñas

- 2004 –2006 Development of New RO/NF Membrane Systems with Enhanced Water Permeability and Contaminant Rejection Capability  
Funding Agency: National Science Foundation (through WaterCAMPWS)  
P.I.: Professor Benito J. Mariñas
- 2001 – 2004 Assessment and Development of Low-pressure Membrane Integrity Monitoring Tools  
Funding Agency: American Water Works Association Research Foundation  
P.I.: Professor Benito J. Mariñas
- 2001 – 2003 Microbial Removal and Integrity Monitoring of High-pressure Membranes  
Funding Agency: American Water Works Association Research Foundation  
P.I.: Professor Benito J. Mariñas

**Graduate Research Assistant** (September 1998 to January 2001)

Department of Civil Engineering, Tianjin University, China

2000 – 2001 Water Reuse and Polluted Surface Water Treatment with Hybrid Membrane Processes

Funding Agency: Tianjin University, China

P.I.: Professor Ping Gu

**Undergraduate Research Assistant** (February 1998 to July 1998)

Department of Civil Engineering, Tianjin University, China

1997 –1998 Microbiological Activity and Membrane Resistance Characterization in Hollow-Fiber Membrane Bioreactor

Funding Agency: National Natural Science Foundation of China

P.I.: Professor Zaoyan Yang; Co-P.I.: Professor Ping Gu

## TEACHING EXPERIENCE

**Invited Lecturer on Specific Topics**

April 2002

Department of Civil and Environmental Engineering, UIUC

CEE 335: Environmental Engineering Laboratory

**Undergraduate Mentor**

May 2002 – October 2002, January 2004 – December 2004

Department of Civil and Environmental Engineering, UIUC

**Undergraduate Graduation Thesis Mentor**

January 2000 – July 2000

Department of Civil Engineering, Tianjin University, China

## TECHNICAL REPORTS

1. Sethi, S., Crozes, G.F., Hugaboom, D., **Mi, B.**, Curl, J., Mariñas, B.J. (2004). *Assessment and Development of Low-pressure Membrane Integrity Monitoring Tools*, American Water Works Association Research Foundation and American Water Works Association, Denver, CO.
2. Lozier, J.C., Kitis, M., Kim, J.-H., **Mi, B.**, Mariñas, B.J. (2003). *Microbial Removal and Integrity Monitoring of High-pressure Membranes*, American Water Works Association Research Foundation and American Water Works Association, Denver, CO.

## FUNDED RESEARCH PROPOSALS

*The following proposals were based on my research.*

Title      Transport of Solutes and Micromolecules through Reverse Osmosis and Nanofiltration Membranes  
Agency    National Science Foundation under Award BES 0332217  
P.I.        Professor Benito J. Mariñas

Title      Application of Novel Membrane Bioreactor in Micro-polluted Water Treatment  
Agency    China National 863 Hi-Tech Projects  
P.I.        Professor Ping Gu

## JOURNAL PUBLICATIONS

1. **Mi, B.**, Coronell O., Mariñas, B.J., Watanabe, F., Cahill, D., Petrov I. (2006). "Physico-chemical characterization of NF/RO membrane active layers by Rutherford backscattering spectrometry." *Journal of Membrane Science*, **282**: 71-81.
2. **Mi, B.**, Mariñas, B.J., Cahill, D. (2006). " Physico-chemical integrity of nanofiltration/reverse osmosis membranes during characterization by Rutherford backscattering spectrometry." submitted to *Journal of Membrane Science*.
3. **Mi, B.**, Mariñas, B.J., Cahill, D. (2006). "RBS characterization of arsenic (III) partitioning from aqueous phase into the active layers of thin-film composite NF/RO membranes." submitted to *Environmental Science and Technology*.
4. **Mi, B.**, Mariñas, B.J. (2006). "Role of partition coefficient in the transport of arsenic through reverse osmosis and nanofiltration membranes." in preparation for submission to *Environmental Science and Technology*.

5. **Mi, B.**, Mariñas, B.J., Cahill, D. (2006). "Characterization and model analysis of electrolyte partitioning from aqueous phase to NF/RO membranes." in preparation for submission to *Environmental Science and Technology*.
6. **Mi, B.**, Mariñas, B.J., Curl, J., Sethi, S., Crozes, G.F., Hugaboom, D. (2005). "Microbial passage through low pressure membrane elements with various levels of compromised integrity." *Environmental Science and Technology*, **39**(11): 4270-4279.
7. **Mi, B.**, Eaton, C.L., Kim, J.-H., Colvin, C.K., Lozier, J.C., Mariñas, B.J. (2004). "Removal of biological and non-biological viral surrogates by spiral-wound reverse osmosis membrane elements with intact and compromised integrity." *Water Research*, **38**(18): 3821-3832.
8. Kitis, M., Lozier, J.C., Kim, J.-H., **Mi, B.**, Mariñas, B.J. (2003). "Microbial removal and integrity monitoring of RO and NF membranes." *Journal of American Water Works Association*, **95**(12): 105-119.
9. Crozes, G.F., Sethi, S., **Mi, B.**, Curl, J., Mariñas, B.J. (2002). "Improving membrane integrity monitoring indirect methods to reduce plant downtime and increase microbial removal credit." *Desalination*, **149**: 493-498.

## CONFERENCE PROCEEDINGS

10. **Mi, B.**, Coronell, O., Mariñas, B.J., Watanabe, F., Cahill, D. (2006). " Characterization of Arsenic (III) Partitioning at the NF/RO Membrane Active Layer-Aqueous Interface by Rutherford Backscattering Spectrometry." 2006 MRS Spring Meeting, San Francisco, California, April 17-21.
11. Suzuki, T., **Mi, B.**, Mariñas, B.J. (2005). " Role of concentration polarization in the rejection of chemical contaminants and fouling of RO/NF membranes." *American Water Works Association Water Quality Technology Conference*, Quebec City, Canada, November 6-10.
12. Coronell, O., **Mi, B.**, Mariñas, B.J. (2005). " The role of concentration polarization in the rejection of viruses by nanofiltration membranes." *American Water Works Association Water Quality Technology Conference*, Quebec City, Canada, November 6-10.
13. \* **Mi, B.**, Griffin, D.R., Somers, M.L., Mariñas, B.J., Watanabe, F., Cahill, D. (2005). "Mechanism elucidation and modeling of solute passage through nanofiltration and reverse osmosis membranes." *American Water Works Association Membrane Technology Conference*, Phoenix, Arizona, March 6-9.
14. \* **Mi, B.**, Mariñas, B.J. (2004). "Role of pore size distribution in the transport of water contaminants through nanofiltration membranes." *American Water Works Association Water Quality Technology Conference*, San Antonio, Texas, November 14-18.

15. \* **Mi, B.**, Mariñas, B.J. (2003). "Role of membrane pore size distribution in the transport of solutes through nanofiltration membranes." *American Water Works Association Annual Conference*, Anaheim, California, June 15-19.
16. Sethi, S., Crozes, G.F., Hugaboom, D., **Mi, B.**, Curl, J., Mariñas, B.J. (2003). "Evaluation of MF/UF integrity monitoring methods from full-scale and microbial challenge testing." *American Water Works Association Annual Conference*, Anaheim, California, June 15-19.
17. Kitis, M., Lozier, J.C., Kim, J.-H., **Mi, B.**, Mariñas, B.J. (2003). "Microbial removal and integrity monitoring of high-pressure membranes." *3<sup>rd</sup> Chemical Engineering Conference for Collaborative Research in Eastern Mediterranean (EMCC-3)*, Chalkidiki, Greece, May 14-16.
18. \* **Mi, B.**, Rose, J., Mariñas, B.J. (2003). "Investigating the role of membrane pore size distribution in the passage of microorganisms and solutes through nanofiltration membranes." *American Water Works Association Membrane Technology Conference*, Atlanta, Georgia, March 2-5.
19. Lozier, J.C., Kitis, M., Kim, J.-H., **Mi, B.**, Mariñas, B.J. (2003). "Evaluation of biological and non-biological methods for assessing virus removal by and integrity of high pressure membrane systems." *American Water Works Association Membrane Technology Conference*, Atlanta, Georgia, March 2-5.
20. Sethi, S., Crozes, G.F., Hugaboom, D., **Mi, B.**, Curl, J., Mariñas, B.J. (2003). "Results and assessment from full-scale testing of integrity monitoring methods for MF and UF processes." *American Water Works Association Membrane Technology Conference*, Atlanta, Georgia, March 2-5.
21. \* **Mi, B.**, Mariñas, B.J. (2002). "Minimizing microbial contaminant passage through microfiltration and ultrafiltration membranes." *American Water Works Association Water Quality Technology Conference*, Seattle, Washington, November 10-14.
22. Sethi, S., Crozes, G.F., Hugaboom, D., **Mi, B.**, Curl, J., Mariñas, B.J. (2002). "Results from survey and initial full-scale testing of membrane integrity monitoring methods for microfiltration and ultrafiltration Processes." *American Water Works Association Water Quality Technology Conference*, Seattle, Washington, November 10-14.
23. Sethi, S., Crozes, G.F., Hugaboom, D., **Mi, B.**, Curl, J., Mariñas, B.J. (2002). "MF/UF membrane integrity monitoring methods." *American Membrane Technology Association Biennial Conference*, Tampa, Florida, August 6-9.
24. \* **Mi, B.**, Gu, P., Yang, Z.Y. (2000). "Application of hollow-fiber MF membrane reactors to micro-polluted water treatment." *21<sup>st</sup> Century International Symposium on Membrane Technology and Environmental Protection*, Beijing, China, September 18-21.

25. **Mi, B.**, Gu, P., (1999). "Membrane technology." *5<sup>th</sup> Academic Annual Conference of Tianjin University*, Tianjin, China, November 20.

26. Li, L., Gu, P., Yang, Z.Y., **Mi, B.** (1999). "Research on dosing powdered activated carbon into membrane bioreactor treating domestic wastewater." *China-Japan International Symposium on Membrane Hybrid System Applied to Water Treatment*, Tianjin, China, October 25-27.

\* Presentation delivered by Baoxia Mi.

## INDUSTRIAL EXPERIENCE

- 2001-2002 CH2M HILL, Englewood, CO  
Collaborated with CH2M HILL plant operators from Chesapeake, VA, to run pilot-scale RO/NF membrane integrity testing.
- May 2002 CAROLLO ENGINEERS, Fountain Valley, California  
Worked with CAROLLO engineers to plan full-scale testing of membrane integrity monitoring methods and to participate in on-site testing of UF membrane systems at the Appleton Water Treatment Plant in Wisconsin.
- July 2002 CAROLLO ENGINEERS, Fountain Valley, California  
Worked with CAROLLO engineers on testing of integrity monitoring methods using full-scale MF membrane systems at the San Patricio Water Treatment Plant in Texas.

## HONORS AND AWARDS

- Racheff Graduate Student Travel Fund Awards, 2002, 2003, 2004  
University of Illinois at Urbana-Champaign
- University Best M.S. Degree Thesis, 2001, Tianjin University, China
- Wu Xinjiu Scholarship, 2000, Wu Xinjiu Environmental Protection Foundation, China  
(A national academic excellence award to environmental engineering students in China)
- Excellent Graduate Fellowship, 1999, Tianjin University, China
- University Best B.S. Degree Thesis, 1998, Tianjin University, China
- Excellent Student Fellowship, 1995, 1997, Tianjin University, China
- Wang Kechang Scholarship, 1996, Wang Kechang Foundation, Tianjin, China  
(A Tianjin Municipality award to college students for academic excellence)
- University Distinguished Undergraduate Student, 1995, Tianjin University, China  
(University award for 30 out of 3,000 undergraduate students in class of 1998)