

XUE JIN, PHD

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EDUCATION

Ph.D., Environmental Engineering, National University of Singapore (2007)
B.S., Environmental Science & Engineering, Tsinghua University (2002)

RESEARCH INTERESTS

Membrane Technology; Water Treatment and Reclamation; Water-Energy Nexus; Seawater Desalination; Renewable Energy Production; Environmental Nanoscience and Nanotechnology; Colloidal and Interfacial Phenomena; Advanced Materials

ACADEMIC EMPLOYMENT

2018 – pres. Assistant Professor, School of Chemical, Biological and Environmental Engineering, Oregon State University
2018 – 2018 Manager, Department of Water Innovation, Sembcorp Industries Ltd
2017 – 2018 Honorary Research Associate, School of Engineering, University of Glasgow
2012 – 2017 Lecturer (US equivalent: Assistant Professor), School of Engineering, University of Glasgow
2010 – 2012 Research Fellow, School of Civil and Environmental Engineering and Singapore Membrane Technology Center, Nanyang Technological University
2006 – 2009 Post-doctoral Research Associate, Department of Civil and Environmental Engineering, University of California at Los Angeles (UCLA)

GRANTS AND FELLOWSHIP

* Principal investigator: “Novel osmotic membrane photobioreactor for sustainable wastewater treatment and biofuel production”. £ 6,200 Funded by Carnegie Trust Research Incentive Grants, 2016-2017
* Principal investigator: “Osmotic Membrane Technologies for Energy Neutral Wastewater Treatment: Process Performance and Optimization”. £ 134,582 Funded by Engineering and Physical Sciences Research Council (EPSRC), 2016-2018
* Principal investigator: “Innovative energy neutral membrane system for metallurgy wastewater treatment and heavy metal recovery”. £ 17,850 Funded by Royal Academy of Engineering via Newton Research Collaboration Programme, 2015-2015
* Principal investigator: “A novel osmotic membrane bioreactor for energy-neutral anaerobic wastewater treatment”. £ 15,000 Funded by Royal Society Research Grant, 2014-2015
* Principal investigator: “Nanocomposites for water purification: synthesis, insights and performance evaluation”. £ 78,000 Funded by University of Glasgow Lord Kelvin/Adam Smith PhD Fellowship. 2013-2017
* Principal investigator: “Development of a novel membrane bioreactor for cost-effective wastewater treatment and microalgae harvesting”. £ 69,565 Funded by EPSRC through the University of Glasgow DTA PhD Scholarship. 2013-2016

PROFESSIONAL SERVICE ACTIVITIES

- * Research Proposal Review: Engineering and Physical Sciences Research Council (UK), The Natural Environment Research Council (UK), Carbon Trust (UK), National Research Foundation (Singapore)
- * Book/Journal Manuscript Review: IWA Publishing, CRC Press, Environmental Science & Technology, Langmuir, Water Research, Journal of Membrane Science, Desalination, Journal of Hazardous Materials, International Biodeterioration & Biodegradation
- * Doctoral Theses External Review: Heriot Watt University (UK), Nanyang Technological University (Singapore)
- * Conference Session Chair: "Coagulation-Flocculation," 3rd Asia Pacific Young Water Professionals Conference, Singapore, 21-24 November 2010
- * Membership: American Chemical Society (ACS), Association of Environmental Engineering and Science Professors (AEESP), American Water Works Association (AWWA), International Water Association (IWA), North American Membrane Society (NAMS)

GRADUATE STUDENT SUPERVISION

- * Mathieu Larronde-Larretche, Ph.D., "Development of a Novel Membrane Bioreactor for Cost-effective Wastewater Treatment and Microalgae Harvesting", 2013 - 2018
- * Mauro Davide Cappelluti, Ph.D., "Nanocomposites for water purification: synthesis, insights and performance evaluation", 2013 - 2018
- * Wei Liu, MSc Civil Engineering, 2016
- * An Wang, MSc Civil Engineering, 2016
- * Jiadong Li, MSc Mechanical Engineering, 2016
- * Muxin Hou, MSc Mechanical Engineering, 2015
- * Gigin Oommen, MSc Mechanical Engineering, 2015
- * Karim-zada Turkan, MSc Biotechnology, 2013

TEACHING

Oregon State University

- * ENVE 535 – Physical & Chemical Processes

University of Glasgow

- * ENG 3080 – Environmental Process Engineering
- * ENG 5293 – Water & Environment Design

PEER REVIEWED JOURNAL PUBLICATIONS

1. Larronde-Larretche, M. and **Jin, X.***, *Microalgal Biomass Dewatering using Forward Osmosis Membrane: Influence of Microalgae Species and Carbohydrates Composition*. Algal Research, 2017. 23: p. 12-19.
2. Larronde-Larretche, M. and **Jin, X.***, *Microalgae (Scenedesmus obliquus) Dewatering using Forward Osmosis Membrane: Influence of Draw Solution Chemistry*. Algal Research, 2016. 15: p. 1-8.

3. **Jin, X.*** and Hu, J.Y., *Role of water chemistry on estrone removal by nanofiltration with the presence of hydrophobic acids*. *Frontiers of Environmental Science and Engineering*, 2015. 9(1): p. 164-170.
4. Liu, X., **Jin, X.**, et al., *Bactericidal activity of silver nanoparticles in environmentally relevant freshwater matrices: influences of organic matter and chelating agent*. *Journal of Environmental Chemical Engineering*, 2014. 2(1): p. 525–531.
5. Nguyen, T.V., Pendergastb, M.M., Phongc, M.T., **Jin, X.**, et al., *Relating fouling behavior and cake layer formation of alginic acid to the physiochemical properties of thin film composite and nanocomposite seawater RO membranes*. *Desalination*, 2014. 338: p. 1-9.
6. **Jin, X.**, et al., *Rejection of pharmaceuticals by forward osmosis membranes*. *Journal of Hazardous Materials*, 2012. 227: p. 55-61.
7. **Jin, X.**, et al., *Removal of boron and arsenic by forward osmosis membrane: Influence of membrane orientation and organic fouling*. *Journal of Membrane Science*, 2012. 389: p. 182-187.
8. She, Q.H., **Jin, X.**, et al., *Relating reverse and forward solute diffusion to membrane fouling in osmotically driven membrane processes*. *Water Research*, 2012. 46(7): p. 2478-2486.
9. She, Q.H., **Jin, X.** and Tang, C.Y.Y., *Osmotic power production from salinity gradient resource by pressure retarded osmosis: Effects of operating conditions and reverse solute diffusion*. *Journal of Membrane Science*, 2012. 401: p. 262-273.
10. **Jin, X.**, et al., *Boric Acid Permeation in Forward Osmosis Membrane Processes: Modeling, Experiments, and Implications*. *Environmental Science & Technology*, 2011. 45(6): p. 2323-2330.
11. Li, M.H., Pokhrel, S., **Jin, X.**, et al., *Stability, Bioavailability, and Bacterial Toxicity of ZnO and Iron-Doped ZnO Nanoparticles in Aquatic Media*. *Environmental Science & Technology*, 2011. 45(2): p. 755-761.
12. **Jin, X.**, Hu, J.Y. and Ong, S.L., *Removal of natural hormone estrone from secondary effluents using nanofiltration and reverse osmosis*. *Water Research*, 2010. 44(2): p. 638-648.
13. **Jin, X.**, et al., *High-Throughput Screening of Silver Nanoparticle Stability and Bacterial Inactivation in Aquatic Media: Influence of Specific Ions*. *Environmental Science & Technology*, 2010. 44(19): p. 7321-7328.
14. Ji, Z.X., **Jin, X.**, et al., *Dispersion and Stability Optimization of TiO₂ Nanoparticles in Cell Culture Media*. *Environmental Science & Technology*, 2010. 44(19): p. 7309-7314.
15. **Jin, X.**, Huang, X.F. and Hoek, E.M.V., *Role of Specific Ion Interactions in Seawater RO Membrane Fouling by Alginic Acid*. *Environmental Science & Technology*, 2009. 43(10): p. 3580-3587.
16. **Jin, X.**, et al., *Effects of feed water temperature on separation performance and organic fouling of brackish water RO membranes*. *Desalination*, 2009. 239(1-3): p. 346-359.
17. **Jin, X.**, et al., *Estrogenic compounds removal by fullerene-containing membranes*. *Desalination*, 2007. 214(1-3): p. 83-90.
18. **Jin, X.**, Hu, J.Y. and Ong, S.L., *Influence of dissolved organic matter on estrone removal by NF membranes and the role of their structures*. *Water Research*, 2007. 41(14): p. 3077-3088.
19. Hu, J.Y., Jin, X. and Ong, S.L., *Rejection of estrone by nanofiltration: Influence of solution chemistry*. *Journal of Membrane Science*, 2007. 302(1-2): p. 188-196.

20. Hu, J.Y., Chen, X., **Jin, X.**, et al., *Effect of chlorination on estrogenicity in chlorinated treated effluent*. Drinking Water Treatment, Supply and Management in Asia (IWA-ASPIRE 2005), 2006. 6(2): p. 185-191.

CONFERENCE PROCEEDINGS AND ABSTRACTS

1. Larronde-Larretche, M. and **Jin, X.**, Integration of Forward Osmosis in the Treatment of Sewage by *Chlorella vulgaris*. *8th IWA Membrane Technology Conference & Exhibition for Water and Wastewater Treatment and Reuse*, Singapore, 5-9 September 2017
2. Larronde-Larretche, M. and **Jin, X.**, Toward a Better Understanding of the Fouling Mechanisms during Microalgae Dewatering by Forward Osmosis. *9th IMSTEC (International Membrane Science and Technology Conference)*, Adelaide, Australia, 5-8 December 2016
3. Cappelluti, M.D., Gregory, D.H. and **Jin, X.**, Microwave-assisted synthesis of nanostructured TiO₂ for photocatalytic water treatment. *6th EuCheMS Chemistry Congress*, Seville, Spain, 11-15 September 2016
4. **Jin, X.**, Removal of organic and inorganic micropollutants by forward osmosis membrane. *9th IWA Specialist Conference on Assessment and Control of Micropollutants and Hazardous Substances in Water*, Singapore, 22-25 November 2015
5. Larronde-Larretche, M. and **Jin, X.**, Concentration of microalgal biomass by forward osmosis. *The 5th UK Algae Conference*, Glasgow, UK, 15 July 2015
6. She, Q., **Jin, X.** and Tang, C.Y., Influence of reverse solute diffusion on the performance of pressure retarded osmosis. *23rd NAMS Annual Meeting*, Boise, Idaho, USA, 8-12 June 2013
7. She, Q., **Jin, X.**, et al., Relating reverse and forward solute diffusion to membrane fouling in forward osmosis and pressure retarded osmosis. *Euromembrane*, London, UK, 23-27 September 2012
8. **Jin, X.** and Tang, C.Y. Rejection of pharmaceuticals by forward osmosis membranes. *Desalination for the Environment: Clean Water and Energy*, Barcelona, Spain, 22-26 April 2012
9. **Jin, X.**, She, Q., Ang, X.L. and Tang, C.Y., Removal of boron and arsenic by forward osmosis membrane: influence of membrane orientation and organic fouling. *Membranes Science and Technology*, Singapore, 24-26 August 2011
10. **Jin, X.** and Tang, C.Y., Boric acid permeation in forward osmosis membrane processes: modeling, experiments and implications. *International Congress on Membranes and Membrane Processes*, Amsterdam, Netherlands, 23-29 July 2011
11. She, Q., **Jin, X.** and Tang, C.Y., Critical flux in algal biopolymer fouling of forward osmosis membranes – role of feed solution chemistry and draw solution type. *International Congress on Membranes and Membrane Processes*, Amsterdam, Netherlands, 23-29 July 2011
12. **Jin, X.**, Gu, Y. and Tang, C.Y., Removal of boron from aqueous solutions using forward osmosis. *3rd IWA Asia Pacific Young Water Professionals Conference*, Singapore, 21– 24 November 2010
13. **Jin, X.**, et al., Influence of water chemistry on the stability and toxicity of metal and metal oxide nanoparticles. *International Conference on the Environmental Implications of Nanotechnology*, Washington, D.C., USA, 9-10 September 2009
14. **Jin, X.**, et al., Use of high throughput screening to antibacterial behavior of metal and metal oxide nanoparticles. *The AEESP Conference on Grand Challenge in Environmental Engineering and Science*, Iowa, USA, 26-29 July 2009
15. **Jin, X.** and Hoek, M.V.E., Bacterial toxicity of silver nanoparticles in simulated water chemistries. *ACS Colloid & Surface Science Symposium*, New York, USA, 14-19 June 2009
16. **Jin, X.** and Hoek, M.V.E., Impacts of seawater chemistry on fouling and cleaning. *Materials Research Society Spring Conference*, San Francisco, CA, USA, 13-17 April 2009

17. **Jin, X.** and Hoek, M.V.E., Mechanisms of seawater RO membrane fouling by a model algal biopolymer. *Gordon Research Conferences – Membranes: Materials & Processes*, New London, New Hampshire, USA, 10-15 July 2008
18. **Jin, X.** and Hoek, M.V.E., Bench Scale Studies of Seawater RO Membrane Fouling during Simulated Algal Blooms. *CA NV AWWA Spring Conference*, Hollywood, CA, USA, 21-24 April 2008
19. Hu, J.Y., Chen, X., **Jin, X.** and Tan, X.L., Effects of Chlorination on Estrogenicity in Chlorinated Treated Effluent. *1st IWA-ASPIRE Conference & Exhibition*, Singapore, 10-15 July 2005
20. **Jin, X.**, et al., Estrogenic Compounds Removal by Fullerene Containing Membranes. *14th KKNN Symposium on Environmental Engineering*, Jeju, Korea, 15-17 June 2005
21. Hu, J.Y., Ng, W.J., **Jin, X.** and Tan, X., Reverse Osmosis and Nanofiltration Membrane Rejection of Endocrine Disrupting Chemicals. *14th KKNN Symposium on Environmental Engineering*, Jeju, Korea, 15-17 June 2005
22. **Jin, X.**, et al., Rejection of estrogenic compounds from water by new polymer membranes with immobilized fullerene. *15th NAMS Annual Meeting*, Honolulu, Hawaii, USA, 26-30 June 2004