XUE JIN, PHD

216J Johnson Hall, 105 SW 26th St., School of Chemical, Biological and Environmental Engineering, Oregon State University, Corvallis, OR 97331
Tel: 541- 737-7968, Email: xue.jin@oregonstate.edu

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 and member of the graduate faculty of the Water Resources Graduate Program
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: “Cation-Exchange Membrane Surface Modification for Selective Recovery of Nutrient Ions from Waste”. $ 15,000 Funded by Agricultural Research Foundation Competitive Grant, 2023-2025
* Principal investigator: “Nutrients and Clean Water Recovery from Waste for Sustainable Food Production”. $ 749,977 Funded by USDA-AFRI, 2023-2027
* Principal investigator: “In-situ Formation of Struvite (A Slow-Release Fertilizer) from Dairy Wastewater”. $ 26,000 Funded by Oregon Dairy Farmers Association, 2023-2024
* Principal investigator: “Nutrients and Clean Water Recovery from Agriculture Waste for Sustainable Food Production”. $ 15,000 Funded by Agricultural Research Foundation Competitive Grant, 2020-2022
* 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 ACTIVITES

* Research Proposal Review: USEPA, NSF, USDA, IC-IMPACTS (the India-Canada Centre for Innovative Multidisciplinary Partnerships to Accelerate Community Transformation and Sustainability), Engineering and Physical Sciences Research Council (UK), The Natural Environment Research Council (UK), Carbon Trust (UK), National Research Foundation (Singapore), Sandooq AlWatan (UAE)
* 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)
* Guest Editor, *Membranes*, 2020 – 2021
* 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

Oregon State University

***** Zhengjian Yang, M.S., “Development of Aerobic Granular Membrane Bioreactor”, 2019-2022
***** Quang Tran, Ph.D., “Optimization of Membrane-based Drinking Water Treatment Processes during Cyanobacterial Blooms”, 2019-2024
* Matt Burgi, M.S., “In-situ Formation of Struvite (A Slow-Release Fertilizer) from Dairy Wastewater”, 2022-2024

University of Glasgow

***** 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 322 – Principles of Environmental Engineering
***** ENVE 421/521 – Drinking Water Treatment Processes
***** ENVE 535 – Physical & Chemical Processes
* ENVE 599 – Membrane Science & Technology

University of Glasgow

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

PEER REVIEWED JOURNAL PUBLICATIONS

1. Larronde-Larretche, M. and **Jin, X**.*, *The Influence of Forward Osmosis Module Configuration on Nutrients Removal and Microalgae Harvesting in Osmotic Photobioreactor*. Membranes, 2022. 12: p. 892.
2. Yang, Z., Tran, N.Q., and **Jin, X***., *Ultrafiltration of aerobic granular sludge bioreactor effluent: Fouling potentials and properties*. Journal of Water Process Engineering, 2022. 47: p. 102805
3. Tran, N.Q., **Jin, X***., and Doan, Q.H.N., *Enhanced removal of extracellular microcystin-LR using chitosan coagulation-ultrafiltration: Performance and mechanisms*. Journal of Environmental Chemical Engineering, 2022. 10: p. 107902
4. **Jin, X***. and Liu, X., *Membrane-Based Technologies for Water and Energy Sustainability*. Membranes, 2021. 11: p. 807.
5. Tanuwidjajaa, D., **Jin, X**., Huang, X., Marambio-Jones, C., Jawor, A., Zhang, M., Jiang, S., Cheng, R. and Hoek, E, *Comparison of membrane fouling and cleaning in one-pass reverse osmosis and two-pass nanofiltration approaches to seawater desalination* Desalination and Water Treatment, 2020. 193: p. 235-250.
6. Meng, M., Zhang, M., Yao, M., Qiu, Z., Hong, Y., Lan, W., Xia, H. and **Jin, X**., *Membrane fouling and performance of flat ceramic membranes in the application of drinking water purification*. Water, 2019. 11: p. 2606.
7. 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.
8. 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.
9. **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.
10. 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.
11. 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.
12. **Jin, X**., et al., *Rejection of pharmaceuticals by forward osmosis membranes.* Journal of Hazardous Materials, 2012. 227: p. 55-61.

13. **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.
14. 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.
15. 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.
16. **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.
17. 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.
18. **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.
19. **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.
20. 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.
21. **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.
22. **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.
23. **Jin, X**., et al., *Estrogenic compounds removal by fullerene-containing membranes.* Desalination, 2007. 214(1-3): p. 83-90.
24. **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.
25. 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.
26. 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 PRESENTATION

1. Tran, N.Q., **Jin, X**. and Doan, N., 'Enhanced Removal of Extracellular Microcystin-LR using Chitosan Coagulation-Ultrafiltration. *The 10th International Water Association Membrane Technology Conference & Exhibition for Water and Wastewater Treatment and Reuse*, St. Louis, USA, 23-26 July 2023
2. Tran, N.Q. and **Jin, X**., Algae-laden Drinking Water Treatment using Organic Cationic Polymer and Ultrafiltration: Toxin Removal and Fouling Behaviors. *The AEESP Research and Education Conference*, St. Louis, USA, 28-30 June 2022

3. Yang, Z. and **Jin, X.**, Membrane Fouling in Aerobic Granular Sludge Membrane Bioreactor. *IWA Biofilms 2020 Virtual Conference*, 7-10 December 2020
4. **Jin, X.** and Larronde-Larretche, M., Integration of Forward Osmosis in the Treatment of Sewage by Chlorella vulgaris: Comparison between External and Immersed Systems. *North American Membrane Society 28th Annual Meeting*, Pittsburgh, PA, 11-15 May 2019
5. 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
6. 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
7. Cappelluti, M.D., Gregory, D.H. and **Jin, X.**, Microwave-assisted synthesis of nanostructured TiO_2 for photocatalytic water treatment. *6th EuCheMS Chemistry Congress*, Seville, Spain, 11-15 September 2016
8. **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
9. Larronde-Larretche, M. and **Jin, X.**, Concentration of microalgal biomass by forward osmosis. *The 5th UK Algae Conference*, Glasgow, UK, 15 July 2015
10. 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
11. 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
12. **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
13. **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
14. **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
15. 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
16. **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
17. **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
18. **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
19. **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
20. **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

21. **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
22. **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
23. 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
24. **Jin, X**., et al., Estrogenic Compounds Removal by Fullerene Containing Membranes. *14th KKNN Symposium on Environmental Engineering*, Jeju, Korea, 15-17 June 2005
25. 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
26. **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