Jiale Xu

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EDUCATION

Ph.D. in Civil Engineering, University at Buffalo, Buffalo, NY 6/2020
M.S. in Environmental Engineering, University of Illinois, Champaign, IL 12/2014
B.S. in Environmental Engineering, Beijing Normal University, Beijing, China 7/2013

PROFESSIONAL APPOINTMENTS

Assistant Professor, North Dakota State University, Fargo, ND 8/2022 – Present
Postdoctoral Fellow, Georgia Institute of Technology, Atlanta, GA 10/2021 – 7/2022
Postdoctoral Research Associate, The University of Arizona, Tucson, AZ 8/2020 – 9/2021
Graduate Research Assistant, University at Buffalo, Buffalo, NY 6/2016 – 6/2020
Graduate Teaching Assistant, University at Buffalo, Buffalo, NY 9/2015 – 5/2016
Internship, Kingboard Chemical Holdings Ltd., Hebei, China 2/2015 – 6/2015
Graduate Research Assistant, University of Illinois, Champaign, IL 2/2014 – 8/2014
Undergraduate Research Assistant, Beijing Normal University, Beijing, China 9/2011 – 5/2013

PUBLICATIONS

16. **Xu, J.**; Phakdon, T.; Achilli, A.; Hickenbottom, K.; Farrell, J*****. Pretreatment of reverse osmosis concentrate from reclaimed water for conventional and high efficiency reverse osmosis and evaluation of electrochemical production of reagents. ***ACS ES&T Water*** **2022**, *2* (6), 1022-1030.
15. Li, W.; Xiao, R.; **Xu, J.**; Lin, H.*****; Yang, K.; He, K.; Tang, L.; Chen, J.; Wu, Y.; Lv, S.***** Interface engineering strategy of a Ti_4O_7 ceramic membrane via graphene oxide nanoparticles toward efficient electrooxidation of 1, 4-dioxane. ***Water Res.*** **2022**, 118287.
14. Yang, K.; Feng, X.; Lin, H.*****; **Xu, J.**; Yang, C.; Du, J.; Cheng, D.; Lv, S.; Yang, Z. Insight into the rapid elimination of low-concentration antibiotics from natural waters using tandem multilevel reactive electrochemical membranes: Role of direct electron transfer and hydroxyl radical oxidation. ***J. Hazard. Mater.*** **2022**, 423B, 127239.
13. Khorasani, H.; **Xu, J.**; Nguyen, T.; Kralles, Z.; Westerhoff, P.; Dai, N.; Zhu, Z.***** Contribution of wastewater-versus non-wastewater-derived sources to haloacetonitriles formation potential in a wastewater-impacted river. ***Sci. Total Environ.*** **2021**, *792*, 148355.
12. Lin, H.*****; Peng, H.; Feng, X.; Li, X.; Zhao, J.; Yang, K.; Liao, J.; Cheng, D.; Liu, X.; Lv, S; **Xu, J.***; Huang, Q. Energy-efficient for advanced oxidation of bio-treated landfill leachate effluent by reactive electrochemical membranes (REMs): Laboratory and pilot scale studies. ***Water Res.*** **2021**, *190*, 116790.
11. **Xu, J.**; Tran, T. N.; Lin, H.; Dai, N.***** Modeling the transport of neutral disinfection byproducts in forward osmosis: Roles of reverse salt flux. ***Water Res.*** **2020**, *185*, 116255.
10. **Xu, J.**; Kralles, Z. T.; Hart, C. C.; Dai, N.***** Effects of sunlight on the formation potential of dichloroacetonitrile and bromochloroacetonitrile from wastewater effluents. ***Environ. Sci. Technol.*** **2020**, *54* (6), 3245-3255.
9. Yang, K.[§]; **Xu, J.**[§]; Lin, H.*****; Xie, R.; Wang, K.; Lv, S.; Liao, J.; Liu, X.; Chen, J.; Yang, Z.* Developing a low-pressure and super stable electrochemical tubular reactive filter: Outstanding efficiency for wastewater purification. ***Electrochim. Acta*** **2020**, *335*, 135634. [§] **Yang and Xu are co-first authors.**
8. **Xu, J.**; Kralles, Z. T.; Dai, N.***** Effects of sunlight on the trichloronitromethane formation potential of wastewater effluents: Dependence on nitrite concentration. ***Environ. Sci. Technol.*** **2019**, *53* (8), 4285-4294.
7. **Xu, J.**; Tran, T. N.; Lin, H.; Dai, N.***** Removal of disinfection byproducts in forward osmosis for wastewater recycling. ***J. Membrane Sci.*** **2018**, *564*, 352-360.

6. Moscatello, N.; Swayambhu, G.; Jones, C. H.; **Xu, J.**; Dai, N.; Pfeifer, B. A.***** Continuous removal of copper, magnesium, and nickel from industrial wastewater utilizing the natural product yersiniabactin immobilized within a packed-bed column. ***Chem. Eng. J.*** **2018**, *343*, 173-179.
5. Lin, H.; Niu, J.*****; **Xu, J.**; Huang, H.; Li, D.; Yue, Z.; Feng, C. Highly efficient and mild electrochemical mineralization of long-chain perfluorocarboxylic acids (C9-C10) by Ti/SnO_2-Sb-Ce, Ti/SnO_2-Sb/Ce-PbO_2, and Ti/BDD electrodes. ***Environ. Sci. Technol.*** **2013**, *47* (22), 13039-13046.
4. Niu, J.*****; Maharana, D.; **Xu, J.**; Chai, Z.; Bao, Y. A high activity of Ti/SnO_2-Sb electrode in the electrochemical degradation of 2, 4-dichlorophenol in aqueous solution. ***J. Environ. Sci.*** **2013**, *25* (7), 1424-1430.
3. Lin, H.; Niu, J.*****; **Xu, J.**; Li, Y; Pan, Y. Electrochemical mineralization of sulfamethoxazole by Ti/SnO_2-Sb/Ce-PbO_2 anode: kinetics, reaction pathways, and energy cost evolution. ***Electrochim. Acta*** **2013**, *97*, 167-174.
2. Niu, J.*****; Xu, J.; Dai, Y.; **Xu, J.**; Guo, H.; Sun, K.; Liu, R. Immobilization of horseradish peroxidase by electrospun fibrous membranes for adsorption and degradation of pentachlorophenol in water. ***J. Hazard. Mater.*** **2012**, *246-247C*, 119-125.
1. Niu, J.*****; Lin, H.; **Xu, J.**; Wu, H.; Li, Y. Electrochemical mineralization of perfluorocarboxylic acids (PFCAs) by Ce-doped modified porous nanocrystalline PbO_2 film electrode. ***Environ. Sci. Technol.*** **2012**, *46* (18), 10191-10198.

Notes: ***** indicates corresponding author.

RESEARCH EXPERIENCE

11. **Postdoctoral Project**: Recovery of Rare-Earth Elements from Coal Fly Ash by Ionic Liquid (12/2021 – 7/2022)
10. **Postdoctoral Project**: UV 222 nm Based Advanced Oxidation Processes for the Remove of Trace Organic Contaminants in Water/Wastewater Treatment (10/2021 – 7/2022)
9. **Postdoctoral Research Project**: Non-fouling, Low-Cost Electrolytic Coagulation & Disinfection for Treating Flowback and Produced Water for Reuse (9/2020 – 9/2021)
8. **Postdoctoral Research Project**: Electrochemically Enhanced High-Efficiency Reverse Osmosis (EE-HERO) for Brackish Water Treatment. (9/2020 – 9/2021)
7. **Ph.D. Research**: Pesticide Transformation by Nitrogen Oxides on Leaf Surfaces. (2/2020 – 7/2020)
6. **Ph.D. Independent Research Project**: Innovative Potable Wastewater Recycling System Coupling Peroxide Oxidation and Reactive Graphene Oxide Modified Membranes. *Funded by Mark Diamond Research Fund, University at Buffalo, NY*. (7/2018 – 7/2019)
5. **R&D Student Competition Project**: Sustainable Wastewater Recycling Systems with Integrated Constructed Wetland. *Funded by New York State Pollution Prevention Institute, NY*. (12/2016 – 4/2017)
4. **M.S. Research**: Reduction of Nitrate in Drinking Water by Hydrogen on Pd-In-Resin (2/2014 – 8/2014)
3. **M.S. Independent Study**: Designing Microbial Electrolysis Cell Reactor to CombineWastewater Treatment and Sustainable Chemical Production. (8/2014 – 12/2014)
2. **Undergraduate Research**: Adsorption and Degradation of Pentachlorophenol by Immobilized Horseradish Peroxidase. (8/2012 – 2/2013)
1. **Undergraduate Independent Study**: Electrochemical Degradation of Perfluorinated Carboxylic Acids (PFCAs) by Dimensionally Stable Anodes Based on Ti/SnO_2-Sb. *Funded by Undergraduate Innovation Projects, Ministry of Education, China*. (12/2011 – 7/2013)

HONORS AND AWARDS

10. **Dean's Graduate Achievement Award**, School of Engineering and Applied Sciences, University at Buffalo (2020)
9. **Environmental Chemistry Graduate Student Award**, ACS Division of Environmental Chemistry (2020)

8. **Second Place of Oral Presentation**, EWRE Graduate Symposium, Department of Civil, Structural and Environmental Engineering, University at Buffalo, Buffalo (2019)
7. **Graduate Research Award**, Department of Civil, Structural and Environmental Engineering, University at Buffalo, Buffalo (2019)
6. **Certificate of Merit Award**, ACS Division of Environmental Chemistry (2019)
5. **Mark Diamond Research Fund**, University at Buffalo, NY (2018)
4. **Second Place of Oral Presentation**, North East Graduate Students Water Symposium, South Hadley, MA (2018)
3. **Best Senior Thesis** (Top 1 in 40), Beijing Normal University, Beijing, China (2013)
2. **Undergraduate Merit Award**, Beijing Normal University, Beijing, China (2012)
1. **Undergraduate Innovation Project Award**, Ministry of Education, China (2011)

PROFESSIONAL PRESENTATIONS

11. Gordon Research Conference: Water Disinfection, Byproducts and Health, South Hadley, MA. Xu, J.; Kralles, Z. T.; Hart, C. C.; Dai, N. *Preferential Attenuation of Bromochloroacetonitrile Formation Potential (FP) over Dichloroacetonitrile FP from Wastewater Effluents by Sunlight (Poster)*. (08/2019)
10. Gordon Research Seminar: Water Disinfection, Byproducts and Health, South Hadley, MA. Xu, J.; Tran, T. N.; Lin, H.; Dai, N. *Effects of Reverse Salt Flux on the Transport of Disinfection Byproducts in Forward Osmosis*. (07/2019)
9. Association of Environmental Engineering & Science Professors Conference, Tempe, AZ. Xu, J.; Kralles, Z. T.; Dai, N. *Combination of Sunlight and Nitrite Increases Trichloronitromethane Formation from Wastewater Effluents*. (05/2019)
8. ACS National Meeting, Division of Environmental Chemistry, Orlando, FL. Xu, J.; Kralles, Z. T.; Dai, N. *Combination of Sunlight and Nitrite Increases Trichloronitromethane Formation from Wastewater Effluents*. (03/2019)
7. ACS National Meeting, Division of Environmental Chemistry, Orlando, FL. Xu, J.; Tran, T. N.; Lin, H.; Dai, N. *Rejection of Disinfection Byproducts by Commercial Forward Osmosis Membranes for Wastewater Recycling*. (03/2019)
6. American Water Works Association: Water Quality Technology Conference, Toronto, Canada. Xu, J.; Tran, T. N.; Lin, H.; Dai, N. *Rejection of Disinfection Byproducts by Forward Osmosis in Wastewater Reuse (Poster)*. (11/2018)
5. Northeast Graduate Student Water Symposium, Amherst, MA. Xu, J.; Kralles, Z. T.; Dai, N. *Sunlight Changes Trichloronitromethane Formation Potential of Wastewater Effluents*. (09/2018)
4. Northeast Graduate Student Water Symposium, Amherst, MA. Xu, J.; Dai, N. *Sunlight Photolysis of Disinfection Byproduct Precursors in Effluent Organic Matter (Poster)*. (09/2017)
3. Gordon Research Conference: Drinking Water Disinfection Byproducts, South Hadley, MA. Xu, J.; Dai, N. *Sunlight Photolysis of Disinfection Byproduct Precursors in Effluent Organic Matter (Poster)*. (08/2017)
2. Gordon Research Seminar: Drinking Water Disinfection Byproducts, South Hadley, MA. Xu, J.; Tran, T. N.; Lin, H.; Dai, N. *Removal of Disinfection Byproducts in Forward Osmosis for Wastewater Recycling (Poster)*. (07/2017)
1. Greater Buffalo Environmental Conference, Buffalo, NY. Xu, J.; Tran, T. N.; Lin, H.; Dai, N. *Rejection of Disinfection Byproducts by Forward Osmosis in Wastewater Recycling Processes*. (03/2017)

PROFESSIONAL CERTIFICATE

CIRTL Associate Level I Certification, CIRTL Program, The University of Arizona 05/2021

Postdoctoral Professional Development Certificate, The University of Arizona 10/2020

Nanodegree in Deep Learning, Udacity 05/2020

Nanodegree in Introduction to Machine Learning with TensorFlow, Udacity 04/2020

Certification of Engineer in Training, Environmental Engineering, Michigan 08/2017

Certificate in Participation of Conference for Graduate Teaching Assistants: Strategies for Effective Teaching, University at Buffalo 08/2015

PROFESSIONAL SERVICE

Secretary, Environmental & Water Resources Institute (EWRI) Graduate Student Chapter, University at Buffalo (07/2018 – 09/2019)

Super-user, Materials Characterization Laboratory, University at Buffalo (10/2015 – 06/2020)

Invited Reviewer for Journals

ACS ES&T Water; Scientific Reports; Separation and Purification Technology; Chemosphere; Chemical Engineering Research and Design; Process Safety and Environmental Protection; Environmental Technology; Journal of Environmental Chemical Engineering; Journal of Water Reuse and Desalination; Journal of Water Supply: Research and Technology - AQUA; Water Supply; Water Science and Technology; RSC Advances

Volunteer, 18th Biennial ISEM Conference on "Ecological Modeling for Global Change and Coupled Human and Natural Systems" (09/2011)

Chair, Department of General Affairs, Student Committee in School of Environment, Beijing Normal University (09/2010 – 07/2011)

TEACHING & MENTORING EXPERIENCE

Teaching Assistant:

CIE 340 Environmental Engineering, University at Buffalo (Fall 2015, ~150 students)

CIE 341 Environmental Engineering Science Lab, University at Buffalo (Spring 2016, ~40 students)

CIE 449 Environmental Engineering Design, University at Buffalo (Spring 2016, ~40 students)

Graduate Mentoring:

Tenzin Phakdon, Ph.D. student, The University of Arizona, (09/2020 – 09/2021), Project: Treatment of Reverse Osmosis Concentrate by High-Efficiency Reverse Osmosis (HERO)

Jeffrey Digati, master student, University at Buffalo, (09/2016 – 02/2017), Project: Removal of 1,4-Dioxane in Wastewater by Ultraviolet-based Advanced Oxidation Processes

Christine Hart, master student, University at Buffalo, (09/2017 – 05/2019), Thesis: Comparing Formation Potential (FP) and Uniform Formation Conditions (UFC) Tests for Assessing the Risks of Halogenated Disinfection Byproducts in De Facto Reuse

Zachary Kralles, master student, University at Buffalo, (09/2017 – 05/2019), Project: Disinfection Byproduct Formation from Algal Bloom Impacted Source Water for Drinking Water

Undergraduate Mentoring:

Peter Connolly, undergraduate research student, University at Buffalo, (09/2018 – 05/2019), Project: Quantifying and Modeling Chlorine Formation in the Presence of Peracetic Acid/Hydrogen Peroxide Disinfectant