

Weilan Zhang, Ph.D., P.E.

Department of Environmental & Sustainable Engineering
University at Albany, SUNY, 1400 Washington Ave., Albany, NY 12222
Phone: +1 (518) 313-2491
Email: wzhang4@albany.edu
Website: <http://zhangweilan88.wix.com/home>

EDUCATION

- Aug. 2017 **Ph.D.**, Civil Engineering, Texas A&M University
Dissertation: The uptake and accumulation of cerium oxide nanoparticles by *Raphanus sativus* L. (radish) in hydroponic and soil systems
- May. 2012 **M.S.**, Civil Engineering, Southern Illinois University Carbondale
Thesis: Modeling total suspended solids in combined sewer systems
- Jun. 2010 **B.E.**, Water Supply and Drainage Engineering, Chongqing University
Thesis: Solidification technology of sludge from small-town wastewater treatment plants

PROFESSIONAL EXPERIENCE

- 2023 – Present **Assistant Professor**, Department of Environmental & Sustainable Engineering, University at Albany, State University of New York
- 2021 – 2023 **Visiting Assistant Professor**, Department of Environmental & Sustainable Engineering, University at Albany, State University of New York
- 2018 – 2021 **Postdoctoral Associate**, Department of Environmental & Sustainable Engineering, University at Albany, State University of New York
- 2017 – 2018 **Postdoctoral Fellow**, Department of Civil & Environmental Engineering, The Hong Kong University of Science and Technology

LICENSURE AND CERTIFICATES

- 2020 – Present Professional Engineer (P.E.)

RESEARCH INTERESTS

Remediation of soil and water contaminated by PFAS
Environmental health and safety of engineered nanomaterials
Transport and fate of emerging contaminants in the environment

PARTICIPATION IN RESEARCH PROJECTS

1. PFAS Assessment. USDA Economic and Policy Analysis Division. Award Number: FBC22CPT0012594. \$499,998.00. 9/2022 – 9/2027. Co-PI.
2. Collaborative Research: ERASE-PFAS: Stabilization of Per- and Polyfluorinated Substances in Sewage Sludge Intended for Land-application. National Science Foundation. Award Number: 2225596. \$299,987. 10/2022 – 09/2025. Co-PI.

PEER-REVIEWED ARTICLES

1. Wang X., Zhang W., Ma X.*. Effects of physicochemical properties and co-existing zinc agrochemicals on the uptake and phytotoxicity of PFOA and GenX in lettuce. *Environmental Science and Pollution Research*. 2023. DOI: 10.1007/s11356-023-25435-5.
2. **Zhang W.***, Wellington T., Liang Y. Effect of two sorbents on the uptake and transformation of N-ethyl perfluorooctane sulfonamido acetic acid (N-EtFOSAA) in soybean. *Environmental Pollution*. 2022. DOI: 10.1016/j.envpol.2022.120941.
3. Ravi Y.*, Weilan Zhang W., Yanna Liang Y. Effect of surfactant assisted ultrasonic pretreatment on production of volatile fatty acids from mixed food waste. *Bioresource Technology*. 2022. DOI: 10.1016/j.biortech.2022.128340.
4. Jiang T.*, Zhang W., Ilango, A., Feldblyum J. Wei Z., Efstathiadis H., Yigit M., Liang Y. Surfactant-modified clay for adsorption of mixtures of per- and polyfluoroalkyl substances (PFAS) in aqueous solutions. *ACS Applied Engineering Materials*. 2022. DOI: 10.1021/acsaenm.2c00096.
5. **Zhang W.***, Tran N., Liang Y. Uptake of per- and polyfluoroalkyl substances (PFAS) by soybean across two generations. *Journal of Hazardous Materials Advances*. 2022. DOI: 10.1016/j.hazadv.2022.100170.
6. **Zhang W.***, Liang Y. Changing bioavailability of per- and polyfluoroalkyl substances (PFAS) to plant in biosolids amended soil through stabilization or mobilization. *Environmental Pollution*. 2022. 308: 119724. DOI: 10.1016/j.envpol.2022.119724.
7. Jiang T., **Zhang W.***, Liang Y. Uptake of individual and mixed per- and polyfluoroalkyl substances (PFAS) by soybean and their effects on functional genes related to nitrification, denitrification, and nitrogen fixation. *Science of the Total Environment*. 2022. 838: 156640. DOI: 10.1016/j.scitotenv.2022.156640.
8. **Zhang W.***, Jiang T., Liang Y. Stabilization of per- and polyfluoroalkyl substances (PFAS) in sewage sludge using different sorbents. *Journal of Hazardous Materials Advances*. 2022. 6: 100089. DOI: 10.1016/j.hazadv.2022.100089.

9. **Zhang W.***, Liang Y. Performance of different sorbents toward stabilizing per- and polyfluoroalkyl substances (PFAS) in soil. *Environmental Advances*. 2022. 8: 100217. DOI: 10.1016/j.envadv.2022.100217.
10. **Zhang W.***, Sharifan H., Ma, X. Editorial: Occurrence, Fate, and Treatment of Perfluoroalkyl and Polyfluoroalkyl Substances in the Environment and Engineered Systems. *Frontiers in Environmental Science*. 2022. 10: 880059. DOI: 10.3389/fenvs.2022.880059.
11. Cao H., Zhang W., Wang C.*, Liang Y*, Sun H. Photodegradation of F-53B in aqueous solutions through an UV/Iodide system. *Chemosphere*. 2021. 292: 133436. DOI: 10.1016/j.chemosphere.2021.133436.
12. **Zhang W.***, Liang Y. Hydrothermal liquefaction of sewage sludge – effect of four reagents on relevant parameters related to biocrude and PFAS. *Journal of Environmental Chemical Engineering*. 2021. 10: 107092. DOI: 10.1016/j.jece.2021.107092.
13. Jiang T.*, Geisler, M., Zhang W., Liang Y. Fluoroalkylether Compounds Affect Microbial Community Structures and Abundance of Nitrogen Cycle-Related Genes in Soil-Microbe-Plant Systems. *Ecotoxicology and Environmental Safety*, 2021. 228: 113033. DOI: 10.1016/j.ecoenv.2021.113033.
14. Xiao Y., Zan F., Zhang W., Hao T*. Alleviating nutrient imbalance of low carbon-to-nitrogen ratio food waste in anaerobic digestion by controlling the inoculum-to-substrate ratio. *Bioresource Technology*, 2021. 346: 126342. DOI: 10.1016/j.biortech.2021.126342.
15. **Zhang W.***, Zhang Q., Liang Y. Ineffectiveness of ultrasound at low frequency for treating per- and polyfluoroalkyl substances in sewage sludge. *Chemosphere*. 2021. 286: 131748. DOI: 10.1016/j.chemosphere.2021.131748.
16. Wang X., Liu L., Zhang W., Ma X.* Prediction of plant uptake and translocation of engineered metallic nanoparticles by machine learning. *Environmental Science & Technology*. 2021. 55(11): 7491–7500. DOI: 10.1021/acs.est.1c01603.
17. **Zhang W.***, Liang Y. Effects of hydrothermal treatments on destruction of per- and polyfluoroalkyl substances in sewage sludge. *Environmental Pollution*. 2021. 285: 117276. DOI: 10.1016/j.envpol.2021.117276.
18. **Zhang W.***, Cao H., Liang Y*. Degradation by hydrothermal liquefaction of fluoroalkylether compounds accumulated in cattails (*Typha latifolia*). *Journal of Environmental Chemical Engineering*. 2021. 9(4): 105363. DOI: 10.1016/j.jece.2021.105363.
19. **Zhang W.***, Liang Y. Interactions between *Lemna minor* and perfluorooctanesulfonamide (PFOSA) and 6:2 fluorotelomer sulfonate (6:2 FTSA). *Chemosphere*. 2021. 276: 130165. DOI: 10.1016/j.chemosphere.2021.130165.

20. **Zhang W.***, Cao H., Liang Y. Plant uptake and soil fractionation of five ether-PFAS in plant-soil systems. *Science of the Total Environment*. 2021. 771: 144805. DOI: 10.1016/j.scitotenv.2020.144805.
21. **Zhang W.**, Cao H., Liang Y.* Optimization of thermal pretreatment of food waste for maximal solubilization. *Journal of Environmental Engineering*. 2020. 147(4): 04021010. DOI: 10.1061/(ASCE)EE.1943-7870.0001869.
22. **Zhang W.**, Cao H., Subramanya S.M., Savage P., Liang Y.* Destruction of perfluoroalkyl acids accumulated in *Typha latifolia* through hydrothermal liquefaction. *ACS Sustainable Chemistry & Engineering*. 2020. 8(25): 9257–9262. DOI: 10.1021/acssuschemeng.0c03249.
23. **Zhang W.**, Efstathiadis H., Li L., Liang Y.* Environmental factors affecting degradation of perfluorooctanoic acid (PFOA) by In₂O₃ nanoparticles. *Journal of Environmental Sciences*. 2020. 93: 48-56. DOI: 10.1016/j.jes.2020.02.028.
24. **Zhang W.**, Liang Y.* Removal of eight perfluoroalkyl acids from aqueous solutions by aeration and duckweed. *Science of the Total Environment*. 2020. 724: 138357. DOI: 10.1016/j.scitotenv.2020.138357.
25. Fox J., Capen J., Zhang W., Ma X., Rossi L.* Effects of cerium oxide nanoparticles and cadmium on corn (*Zea mays* L.) seedlings physiology and root anatomy. *NanoImpact*. 2020. 20: 100264. DOI: 10.1016/j.impact.2020.100264.
26. Cao H., Zhang W., Wang C.* Liang Y.* Sonochemical degradation of poly- and perfluoroalkyl substances - a review. *Ultrasonics Sonochemistry*. 2020, 69: 105245. DOI: 10.1016/j.ultsonch.2020.105245.
27. **Zhang W.**, Zhang D., Zagorevski D., Liang Y.* Exposure of *Juncus effusus* to seven perfluoroalkyl acids: uptake, accumulation and phytotoxicity. *Chemosphere*. 2019. 233: 300-308. DOI: 10.1016/j.chemosphere.2019.05.258.
28. **Zhang W.**, Yu Z., Rao P., Lo I.M.C.* Uptake and toxicity studies of magnetic TiO₂-based nanophotocatalyst in *Arabidopsis thaliana*. *Chemosphere*. 2019. 224: 658-667. DOI: 10.1016/j.chemosphere.2019.02.161.
29. **Zhang W.**, Zhang D., Liang Y.* Nanotechnology in remediation of poly- and perfluoroalkyl substances: a review. *Environmental Pollution*. 2019, 247: 266-276. DOI: 10.1016/j.envpol.2019.01.045.
30. Yu Z., Huang J., Hu L., **Zhang W.***, Lo I.M.C.* Effects of geochemical conditions, surface modification, and arsenic (As) loadings on As release from As-loaded nano zero-valent iron in simulated groundwater. *Environmental Science: Water Research & Technology*. 2019. 5: 28-38. DOI: 10.1039/C8EW00757H.

31. Zhang D., Zhang W., Liang Y.* Sorption of perfluoroalkylated substances (PFASs) onto granular activated carbon and biochar. *Environmental Technology*. 2019. 43(5): 2193-2202. DOI: 10.1080/09593330.2019.1680744.
32. Zhang D., Zhang W., Liang Y.* Distribution of eight perfluoroalkyl acids in plant-soil-water systems and their effect on the soil microbial community. *Science of the Total Environment*. 2019. 697: 134146. DOI: 10.1016/j.scitotenv.2019.134146.
33. Zhang D., Zhang W., Liang Y.* Adsorption of perfluoroalkyl and polyfluoroalkyl substances (PFASs) from aqueous solution - A review. *Science of the Total Environment*. 2019. 694: 133606. DOI: 10.1016/j.scitotenv.2019.133606.
34. Zhang D., Zhang W., Liang Y.* Bacterial community in a freshwater pond responding to the presence of perfluorooctanoic acid (PFOA). *Environmental Technology*. 2019. 41(27), 3646-3656. DOI: 10.1080/09593330.2019.1616828.
35. Rossi L., Bagheri M., Zhang W., Chen Z., Burken J., Ma X.* Using artificial neural network to investigate physiological changes and cerium oxide nanoparticles and cadmium uptake by *Brassica napus* plants. *Environmental Pollution*. 2019, 246: 381-389. DOI: 10.1016/j.envpol.2018.12.029.
36. **Zhang W.**, Lo I.M.C.* , Hu L., Voon C., Lim B., Versaw W. Environmental risks of nano zerovalent iron for arsenate remediation: impacts on cytosolic levels of inorganic phosphate and MgATP²⁻ in *Arabidopsis thaliana*. *Environmental Science & Technology*. 2018, 52: 4385-4392. DOI: 10.1021/acs.est.7b06697.
37. **Zhang W.**, Schwab P., White J., Ma X.* Impact of nanoparticles surface properties on the attachment of cerium oxide nanoparticles to sand and kaolin. *Journal of Environmental Quality*. 2018, 47: 129-138. DOI: 10.2134/jeq2017.07.0284.
38. Stowers C., King M., Rossi L., Zhang W., Arya A., Ma X.* Initial sterilization of soil affected interactions of cerium oxide nanoparticles and soybean seedlings (*Glycine max* (L.) Merr.) in a greenhouse study. *ACS Sustainable Chemistry & Engineering*. 2018, 6(8): 10307–10314. DOI: 10.1021/acssuschemeng.8b01654.
39. Rossi L., Sharifan H., Zhang W., Schwab P., Ma X.* Mutual effects and *in-planta* speciation of cerium oxide nanoparticles and cadmium in hydroponically grown soybean (*Glycine max* (L.) Merr.). *Environmental Science: Nano*. 2018, 5: 150-157. DOI: 10.1039/C7EN00931C.
40. Cao Z., Rossi L., Stowers C., Zhang W., Lombardini L., Ma X.* The impact of cerium oxide nanoparticles on the physiology of soybean (*Glycine max* (L.) Merr.) under different soil moisture conditions. *Environmental Science and Pollution Research*. 2018, 25(1): 930-939. DOI: 10.1007/s11356-017-0501-5.
41. **Zhang W.**, Dan Y., Shi H., Ma X.* Elucidating the mechanisms for plant uptake and *in-planta* speciation of cerium in radish (*Raphanus sativus* L.) treated with cerium oxide nanoparticles.

2017, 5(1): 572-577. *Journal of Environmental Chemical Engineering*. DOI: 10.1016/j.jece.2016.12.036.

42. **Zhang W.**, Musante C., White J. C., Schwab P., Wang Q., Ebbs S. D., Ma X.* Bioavailability of cerium oxide nanoparticles to *Raphanus sativus* L. in two soils. *Plant Physiology and Biochemistry*. 2017, 110: 185-193. DOI: 10.1016/j.plaphy.2015.12.013.
43. Rossi L., Zhang W., Schwab P., Ma X.* Uptake, accumulation and *in-planta* distribution of co-existing cadmium and cerium oxide nanoparticles in *Glycine max* (L.) Merr.. *Environmental Science & Technology*. 2017, 51(21): 12815-12824. DOI: 10.1021/acs.est.7b03363.
44. Rossi L., Zhang W., Ma X.* Cerium oxide nanoparticles alter the salt stress tolerance of *Brassica napus* L. by modifying of the formation of root apoplastic barriers. *Environmental Pollution*. 2017, 229: 132-138. DOI: 10.1016/j.envpol.2017.05.083.
45. Cao Z., Stowers C., Rossi L., Zhang W., Lombardini L., Ma X.* Physiological effects of cerium oxide nanoparticles on the photosynthesis and water use efficiency of Soybean (*Glycine max* L.). *Environmental Science Nano*. 2017, 4: 1086-1094. DOI: 10.1039/C7EN00015D.
46. **Zhang W.**, Dan Y., Shi H., Ma X.* Effects of aging on the fate and bioavailability of cerium oxide nanoparticles to radish (*Raphanus sativus* L.) in soil. *ACS Sustainable Chemistry & Engineering*. 2016, 4(10): 5424-5431. DOI: 10.1021/acssuschemeng.6b00724.
47. Rossi L., Zhang W., Lombardini L., Ma X.* The impact of cerium oxide nanoparticles on the salt stress responses of *Brassica napus* L. *Environmental Pollution*. 2016, 219: 28-36. DOI: 10.1016/j.envpol.2016.09.060.
48. Dan Y., Ma X., Zhang W., Liu K., Stephan C., Shi H.* Single particle ICP-MS method development for the determination of plant uptake and accumulation of CeO₂ nanoparticles. *Analytical and Bioanalytical Chemistry*. 2016, 408: 5157-5167. DOI: 10.1007/s00216-016-9565-1.
49. **Zhang W.**, Ebbs S. D., Musante C., White J. C., Gao C., Ma X.* Uptake and accumulation of bulk and nanosized cerium oxide particles and ionic cerium by radish (*Raphanus sativus* L.). *Journal of Agricultural and Food Chemistry*, 2015, 63(2): 382-390. DOI: 10.1021/jf5052442.
50. Ma X.*, Wang Q., Rossi L., Zhang W. Cerium oxide nanoparticles and bulk cerium oxide lead to different physiological and biochemical adjustments in *Brassica rapa*. *Environmental Science & Technology*. 2015, 50(13): 6793-6802. DOI: 10.1021/acs.est.5b04111.
51. Dan Y., Zhang W., Xue R., Ma X., Stephan C., & Shi H*. Characterization of gold nanoparticle uptake by tomato plants using enzymatic extraction followed by single-particle inductively coupled plasma–mass spectrometry. *Environmental Science & Technology*. 2015, 49(5): 3007-3014. DOI: 10.1021/es506179e.

INVITED TALK

1. **Zhang, W.** Stabilization of per-and polyfluoroalkyl substances (PFAS) in sewage sludge and biosolids. Eastern New York Chapter, Air & Waste Management Association. September 14, 2022.
2. **Zhang, W.** Occurrence and Treatment of PFAS in the Environment and Engineered Systems. Eastern New York Chapter, Air & Waste Management Association. January 19, 2022.
3. **Zhang, W.** Occurrence, Fate, and Treatment of PFAS in the Environment and Engineered Systems. Center for Research in Energy and Environment, Missouri University of Science and Technology. April 20, 2021. Rolla, MO.

CONFERENCE PRESENTATIONS

1. **Zhang, W.**, Liang Y. Performance of different sorbents toward stabilizing PFAS in sewage sludge/biosolids. ACS Fall 2022. August 21 – 25, 2022, Chicago, IL.
2. **Zhang, W.**, Liang Y. Phytoremediation of per- and polyfluoroalkyl substances (PFAS) followed by hydrothermal liquefaction. The Institute of Biological Engineering Annual Conference, April 7-9, 2022, Athens, GA.
3. **Zhang, W.**, Liang Y. Distribution of per- and polyfluoroalkyl substances (PFAS) in a soil-microbe-soybean system and their effects on functional genes involved in nitrogen fixation, nitrification and denitrification. The Institute of Biological Engineering Annual Conference, April 7-9, 2022, Athens, GA.
4. **Zhang, W.**, Ma, X. Characterizing the physicochemical properties of bulk cerium oxide, cerium oxide nanoparticles and ionic cerium following their uptake by radish (*Raphanus sativus* L.). 5th Sustainable Nanotechnology Organization Conference, Nov 10-12, 2016, Orlando, FL.
5. **Zhang, W.**, Ma, X. The effect of aging on the bioavailability of cerium oxide nanoparticles to *Raphanus sativus* L. 12th International Phytotechnologies Conference, Sept. 27-30, 2015, Manhattan, KS.
6. **Zhang, W.**, Ebbs, S., Ma, X. Uptake and Accumulation of Bulk and Nanosized Cerium Oxide Particles and Ionic Cerium by Radish (*Raphanus sativus* L.). 10th International Phytotechnologies Conference, Oct. 1-4, 2013, Syracuse, NY.
7. **Zhang, W.**, Ma, X. Uptake and accumulation of cerium oxide nanoparticles by radish in hydroponic systems. 18th Mid-American Environmental Engineering Conference, Sept. 21, 2013, St. Louis, MO.
8. **Zhang, W.**, Chevalier, L. R., DeVantier, B. A. Modeling total suspended solids in combined sewer systems. 17th Mid-American Environmental Engineering Conference. Oct. 20, 2012, Edwardsville, IL.

TEACHING EXPERIENCE

- 2021 – 2022 **Instructor**, Department of Environmental & Sustainable Engineering, University at Albany, SUNY
Course: ESE411/511 Water and wastewater treatment
- Spring 2020 **Guest Lecturer**, Department of Environmental & Sustainable Engineering, University at Albany, SUNY
Course: Introduction to colloidal surface chemistry
Duties: Gave two lectures on surface chemistry and adsorption process.
- Spring 2017 **Graduate Teaching Assistant**, Zachry Department of Civil Engineering, Texas A&M University
Course: Introduction to Environmental Engineering
Duties: Graded homework and exams, provided office hours, mentored students.
- Fall 2010 –
Spring 2012 **Graduate Teaching Assistant**, Department of Civil & Environmental Engineering, Southern Illinois University Carbondale
Courses: Environmental Biology; Numerical Methods; Environmental Engineering Chemistry
Duties: Graded homework and exams, provided office hours, mentored students.

MENTORING EXPERIENCE

- 2022 – 2023 Tamia Wellington, Jordan Teo, Undergraduate student, University at Albany, SUNY
- 2020 – 2022 Nina Tran, Undergraduate student, University at Albany, SUNY
- 2019 – 2020 Huimin Cao, Visiting Ph.D. student, University at Albany, SUNY
Kyle Lininger, Jiaolingzi Kong, Undergraduate student, University at Albany, SUNY
Duties: Students were mentored in lab skills, conducting actual research, and writing research reports.
- 2017 – 2018 Zhigang Yu, Junyi Huang, Ph.D. student, The Hong Kong University of Science and Technology
Duties: Students were mentored in lab skills, conducting research projects, and writing research manuscripts.
- 2016 – 2017 Cheyenne Stowers, Master's student, Texas A&M University, 2016-2017

Duties: Students were mentored in lab skills, conducting research projects, and writing master's thesis.

HONORS AND AWARDS

- Nov. 2016 2016-2017 Graduate Student Travel Grant Award, Zachry Department of Civil Engineering, Texas A&M University.
- Oct. 2016 2016 Sustainable Nanotechnology Organization Conference Student Award, Sustainable Nanotechnology Organization.
- Sept. 2015 2015 National Institute of Environmental Health Sciences PhytoScholars Awardee, International Phytotechnology Society.
- Oct. 2013 2013 National Institute of Environmental Health Sciences PhytoScholars Awardee, International Phytotechnology Society.

PROFESSIONAL SERVICE

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Frontiers in Environmental Science

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Sustainability

Handling Editor:

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Peer review of Manuscripts:

Trends in Plant Science

Water Research

Environment International

Environmental Science: Nano

Science of Total Environment

Separation and Purification Technology

Chemosphere

Environmental Chemistry Letters

Environmental Toxicology and Chemistry

Environmental Engineering Science

Environmental Science and Pollution Research

Journal of Cleaner Production

Journal of Nanomaterials

Journal of Environmental Chemical Engineering

International Journal of Environmental Research and Public Health
Materials
Plant Physiology and Biochemistry