

Yuanzhe Liang

Assistant Professor, School of Chemical, Biological, and Environmental Engineering,

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PROFESSIONAL POSITIONS

Oregon State University	2023--present
Assistant Professor , School of Chemical, Biological, Environmental Engineering	
National Renewable Energy Laboratory	2023
Postdoctoral Research Associate , Renewable Resources and Enabling Sciences Center	
Stanford University	2022
Postdoctoral Research Associate , Department of Civil and Environmental Engineering	

EDUCATION

Ph.D. in Interdisciplinary Material Science and Environmental Engineering, Vanderbilt University	2020
M.Sc. in Macromolecular Science and Engineering, Case Western Reserve University	2016
B.S. in Polymer Science and Engineering, Beijing University of Chemical Technology	2015

PEER-REVIEWED PUBLICATIONS*H-index: 9 Total Citations: 638*

1. Knauer K, Higginson C, **Liang Y**, Lee M. Circular plastics technologies: depolymerization of polymers into parent monomers. *Physical Sciences Reviews*. 2023 Aug 24(0).
2. **Liang Y**, Dudchenko AV, Mauter MS. A data-driven design protocol for high-precision determination of transport properties of reverse osmosis membranes. *Journal of Membrane Science*. 2023 Aug 5;679:121686.
3. **Liang Y***, Knauer K. Trends and future outlooks in circularity of desalination membrane materials. *Frontiers in Membrane Science and Technology*. 2023 Apr 6;2:1169158.
4. Qin J, Ziemann E, Bar-Zeev B, Bone S, **Liang Y**, Mauter M, Herzberg M, Bernstein R. Zwitterionic Polymer Brush Pore-Filling Microfiltration Membrane for High Virus Removal. Accepted, *ACS Applied Materials & Interfaces*. 2023 Apr 3;15(14):18343-53.
5. **Liang Y**, Dudchenko AV, Mauter MS. Inadequacy of current approaches for characterizing membrane transport properties at high salinities. *Journal of Membrane Science*. 2022 Dec 2:121246.
6. **Liang Y**, Teng X, Zhu Y, Jin J, Lin S. Hydrophilic/lipophilic nonionic surfactant-mediated formation of polyamide nanofiltration membrane via interfacial polymerization. *Environmental Science & Technology Engineering*. 2021 Jan 8;1(3):533-42.
7. **Liang Y**, Lin S. Tailoring active layer structure of Layer-by-Layer polyelectrolyte multilayer with surfactant assemblies for fabricating high-performance nanofiltration membranes. *Environmental Science & Technology*, 2020 Dec 8.

8. **Liang Y**, Gao F, Wang L, Lin S. In-situ Monitoring of Polyelectrolytes Adsorption Kinetics by Electrochemical Impedance Spectroscopy: Application in Fabricating Nanofiltration Membranes via Layer-by-Layer Deposition. *Journal of Membrane Science*, 2020 Oct 2:118747.
9. Teng X, Fang W, **Liang Y**, Lin S, Lin H, Liu S, Kong J, Wang Z, Yuan S, Zhu Y, Jin J. Strong hydration layer guided polyamide nanofiltration membrane with arch-bridge structure for high efficiency desalination. *Science China Materials*.
10. **Liang Y**, Zhu Y, Liu C, Lee KR, Hung WS, Wang Z, Li Y, Elimelech M, Jin J, Lin S. Polyamide nanofiltration membrane with highly uniform sub-nanometre pores for sub-1 Å precision separation. *Nature Communications*. 2020 Apr 24;11(1):1-9.
11. **Liang Y**, Lin S. Intercalation of zwitterionic surfactants dramatically enhances the performance of low-pressure nanofiltration membrane. *Journal of Membrane Science*. 2020 Feb 15;596:117726.
12. Wang L, **Liang Y**, Zhang L. Enhancing Performance of Capacitive Deionization with Polyelectrolyte-Infiltrated Electrodes: Theory and Experimental Validation. *Environmental Science & Technology*. 2020 Mar 27.
13. Shan L, **Liang Y**, Prozorovska L, Jennings GK, Ji S, Lin S. Multifold enhancement of loose nanofiltration membrane performance by intercalation of surfactant assemblies. *Environmental Science & Technology Letters*. 2018 Sep 28;5(11):668-74.
14. Xue J, He M, **Liang Y**, Crawford A, Coates P, Chen D, Shi R, Zhang L. Fabrication and evaluation of electrospun PCL–gelatin micro-/nanofiber membranes for anti-infective GTR implants. *Journal of Materials Chemistry B*. 2014;2(39):6867-77.

PATENTS

1. **Liang Y**, DesVeaus J, Choi H, Knauer K, Beckham G. Downstream process for separating a mixture of depolymerized polyester products produced from methanolysis. Filed, National Renewable Energy Laboratory.
2. Beckham, G, Minjung L, Ciaran L, Cuthbertson A, Hoon C, **Liang Y**, Knauer K. Process for sequential acetolysis-oxidation of plastic streams. USPTO No: 63/383,293, National Renewable Energy Laboratory.
3. Beckham, G, Minjung L, Ciaran L, Cuthbertson A, Hoon C, **Liang Y**, Knauer K. Methods and systems for dye removal from polymer textiles. USPTO No: 63/384,137, National Renewable Energy Laboratory.

BOOK CHAPTER

1. Knauer K, Higginson C, Lee M, **Liang Y**. Depolymerization and Unzipping of Polymers into Parent Monomers. Circular Plastics Technologies: Chemical Recycling. In preparation.

SEMINARS AND CONFERENCE PRESENTATIONS

Liang Y, “Circularity of desalination membrane materials” *Invited presentation, AFS Filtcon 2023*, U.S., 2023.05

Liang Y, “Engineering next-generation membrane materials towards a circular economy of “NEW” resources” *Invited presentation, Oregon State University*, U.S., 2023.04

Liang Y, “Engineering next-generation membrane materials towards a circular economy of “NEW” resources” *Invited presentation, University of California Merced, U.S.*, 2023.04

Liang Y, “How can surfactant enhance the performance of nanofiltration membrane?” *Invited presentation, The University of Akron, U.S.*, 2023.02

Liang Y, “Polyamide nanofiltration membranes from emulsion-mediated interfacial polymerization.” *Invited presentation, 13th World Filtration Congress, U.S.*, 2022.10

Liang Y, et al., “Inadequacy of current approaches for characterizing membrane transport properties at high salinities.” *North American Membrane Society annual conference, U.S.*, 2022.05

Liang, Y., “How can surfactant enhance the performance of nanofiltration membrane?” *Invited presentation, Lawrence Berkeley National Laboratory, U.S.*, 2022.05

Liang, Y., “How can surfactant enhance the performance of nanofiltration membrane?” *Invited presentation, National Renewable Energy Laboratory, U.S.*, 2022.04

Liang, Y., “How can surfactant enhance the performance of nanofiltration membrane?” *Invited presentation, Argonne National Laboratory, U.S.*, 2022.03

Liang, Y., et al., “Mechanism of Perm-selectivity Enhancement in Polyelectrolyte Multilayer Nanofiltration Membranes via Surfactant-Assembly Intercalation.” *American Chemical Society Meeting, U.S.*, 2021.04

Liang, Y., et al., “Polyamide nanofiltration membrane with highly uniform sub-nanometre pores for sub-1 Å precision separation.” **Keynote presentation**, *12th International Congress on Membranes & Membrane Processes, U.K.*, 2020.12

Liang, Y., et al., “Polyamide nanofiltration membrane with highly uniform sub-nanometre pores for sub-1 Å precision separation.” *2020 NanoDay, Vanderbilt University*, 2020.10

Liang, Y., “How can surfactant enhance the performance of nanofiltration membrane?” *Invited presentation, Stanford University*, 2020.08

Liang Y., et al., “Polyamide nanofiltration membrane with highly uniform sub-nanometre pores for sub-1 Å precision separation.” *North American Membrane Society annual conference, U.S.*, 2020.05

HONORS AND AWARDS

Graduate Student Best Publication Award, Vanderbilt University	2021
Best Poster Award, NanoDay, Vanderbilt University	2020
PPG Scholarship, Beijing University of Chemical Technology	2015
China National Scholarship	2014
China National Scholarship	2013

PROFESSIONAL SERVICE

Professional Societies

Yuanzhe Liang
National Renewable Energy Laboratory

Association of Environmental Engineering & Science Professors (AEESP), North American Membrane Society (NAMS), American Chemical Society (ACS), American Filtration and Separations Society (AFS)

Reviewer for Academic Journals

Nature Nanotechnology, Nature Communications, Environmental Science & Technology, Journal of Membrane Science, Desalination, ACS Macro Letters, Journal of Water Process Engineering, Frontiers in Membrane Science and Technology, Chemical Engineering Journal Advances, Chemistry Select

Conference Committee

13th World Filtration Congress, San Diego, U.S., 2022.10