Sidan Lu

Curriculum Vitae

Yale School of Environment
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Yale University

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EDUCATION

Ph.D. Department of Civil & Environmental Engineering, Louisiana State University, Baton Rouge, 2021

M.A. College of Water Sciences, Beijing Normal University, Beijing, 2017

B.A. School of Environment, Harbin Institute of Technology, Harbin, 2014

PROFESSIONAL EXPERIENCE

2024-current Postdoctoral Research Associate, School of Environment, Yale University

2021-2024 Postdoctoral Research Associate, Andlinger Center for Energy and the Environment, Princeton University

PUBLICATIONS

Peer Reviewed Journal Articles

2024 Sidan Lu, Allyson McGaughey, Sungju Im, Yiming Liu, Xinyi Wang, Aaron Leininger, David Jassby, Eric Hoek, and Zhiyong Jason Ren*. Membrane electrolysis distillation for volatile fatty acids extraction from pH-neutral fermented wastewater. *Water Research* 265, 122306. DOI: 10.1016/j.watres.2024.122306

2024 Leininger, Aaron, Sidan Lu, Jinyue Jiang, Yanhong Bian, Harold D. May, and Zhiyong Jason Ren*. The convergence of lactic acid microbiomes and metabolites in long-term electrofermentation. *Environmental Science and Ecotechnology* 22, 100459. DOI: 10.1016/j.ese.2024.100459

2024 Sidan Lu, Aaron Leininger, David Jassby, Eric M. V. Hoek, Zhiyong Jason Ren*.

Temperature dependence of acids recovery from wastewater electro-fermentation. *Resources, Conservation and Recycling* 203, 147407. DOI: 10.1016/j.resconrec.2024.107407

2023 Sungju Im, Bongyeon Jung, Xinyi Wang, Jishan Wu, Minhao Xiao, Xin Chen, Javier A. Quezada-Renteria, Arpita Iddya, Derrick Dlamini, Sidan Lu, Christos T. Maravelias, Zhiyong Jason Ren, Eric M. V. Hoek*, David Jassby*. High-efficiency recovery of acetic acid from water using electroactive gas-stripping membranes. *Environmental Science & Technology* 57 (27), 10096–10106. DOI: 10.1021/acs.est.3c01357

2023 Wang, Xinyi, Sungju Im, Bongyeon Jung, Jishan Wu, Arpita Iddya, Quezada-Renteria A. Javier, Minhao Xiao, Sidan Lu, Byun Jaewon, Jeffrey Zhang, Zhiyong Jason Ren, Christos T. Maravelias, Eric M.V. Hoek*, David Jassby*. Simple and low-cost electroactive membranes for ammonia recovery. *Environmental Science & Technology* 57 (25), 9405–9415. DOI: 10.1021/acs.est.3c01470

2022 Sidan Lu, Weiliang Sun, Xiuping Zhu*. Synergistic effects between dual-photoelectrodes and bioanode enhance sustainable hydrogen and electricity production from wastewater. *Resources, Conservation and Recycling* (183), 106367. DOI: 10.1016/j.resconrec.2022.106367

2021 Sidan Lu, Jun Lan, Weiliang Sun, Xiaojia He, Xiuping Zhu*. High energy recovery from salinity gradients in a concentration flow cell enhanced by bioelectrochemical currents. *Chemical Engineering Journal* (426), 130826. DOI: 10.1016/j.cej.2021.130826

2020 Sidan Lu, Baiyun Lu, Guangcai Tan, William Moe, Wangwang Xu, Ying Wang, Defeng Xing, Xiuping Zhu*. Mo2N nanobelt cathodes for efficient hydrogen production in microbial electrolysis cells with shaped biofilm microbiome. *Biosensors and Bioelectronics* (167), 112491. DOI: 10.1016/j.bios.2020.112491

2020 Guangcai Tan, Sidan Lu, Nan Xu, Dingxue Gao, Xiuping Zhu*. Pseudocapacitive behaviors of polypyrene grafted activated carbon and MnO_2 electrodes to enable fast and efficient membrane-free capacitive deionization. *Environmental Science & Technology* (54), 9. DOI: 10.1021/acs.est.9b07182

2020 Sidan Lu, Yujiao Sun*, Baiyun Lu, Danyang Zheng, Shangwei Xu. Change of abundance and correlation of *Nitrospira inopinata*-like Comammox and populations in nitrogen cycle during different seasons. *Chemosphere* (241), 125098. DOI: 10.1016/j.chemosphere.2019.125098

2020 Sidan Lu, Binghan Xie, Bingfeng Liu, Baiyun Lu, Defeng Xing*. Neglected effects of inoculum preservation on the start-up of psychrophilic bioelectrochemical systems and shaping bacterial communities at low temperature. *Frontiers in Microbiology* (10), 935. DOI: 10.3389/fmicb.2019.00935

2019 Guangcai Tan, Sidan Lu, Jizhou Fan, Guoqiang Li, Xiuping Zhu*. Chloride-ion

concentration flow cells for efficient salinity gradient energy recovery with bismuth oxychloride electrodes. *Electrochimica Acta* (322), 134724. DOI: 10.1016/j.electacta.2019.134724

2019 Sidan Lu, Hongna Li, Guangcai Tan, Fang Wen, Michael T Flynn, Xiuping Zhu*.Resource recovery microbial fuel cells for urine-containing wastewater treatment without external energy consumption. *Chemical Engineering Journal* (373), 1072-1080. DOI: 10.1016/j.cej.2019.05.130

2018 Tan, Guangcai, Hongna Li, Haihui Zhu, Sidan Lu, Jizhou Fan, Guoqiang Li, and Xiuping Zhu*. Concentration flow cells based on chloride-ion extraction and insertion with metal chloride electrodes for efficient salinity gradient energy harvest. *ACS Sustainable Chemistry & Engineering* (11), 6, 15212-15218, 2018. DOI: 10.1021/acssuschemeng.8b03657

2016 Yujiao Sun*, Sidan Lu, Xuan Zhao, Aizhong Ding, Lei Wang. Long-term oil pollution and in situ microbial response of groundwater in northwest China. *Archives of Environmental Contamination and Toxicology* (72), 4. DOI: 10.1007/s00244-017-0405-x

2016 Sidan Lu, Yujiao Sun*, Xuan Zha, Lei Wang, Danyang Zheng. Impact of precipitation on Fenghe River water and aquatic microorganisms. *Environmental Science* 7-19. DOI: 10.13227/j.hjkx.2016.07.019

2016 Sidan Lu, Yujiao Sun*, Xuan Zhao, Lei Wang, Aizhong Ding, Xiaohui Zhao. Sequencing insights into microbial communities in the water and sediments of Fenghe River, China. *Archives of Environmental Contamination and Toxicology* (71), 122-132. DOI: 10.1007/s00244-016-0277-5

2016 Danyang Zheng, Yujiao Sun*, Huijuan Li, Sidan Lu, Mingjun Shan, Shangwei Xu. Multistage AO activated sludge process for paraformaldehyde wastewater treatment and microbial community structure analysis. *Journal of Chemistry* DOI: 10.1155/2016/2746715

Peer Reviewed Book Chapter

2021 Alessandro Galia, Guangcai Tan, Massimo Marino, Federica Proietto, Onofrio Scialdone, Sidan Lu, Xiuping Zhu*. *Special engines. Salinity Gradient Heat Engines* 302. DOI: 10.1016/B978-0-08-102847-6.00007-3

2020 Sidan Lu, Guangcai Tan, Xiuping Zhu*. *H_2 evolution catalysts for microbial electrolysis cells (Book chapter). Novel Catalyst Materials For Bioelectrochemical Systems: Fundamentals and Applications*, *American Chemical Society* 27-43. DOI: 10.1021/bk-2020-1342.ch002

In Preparation

Sidan Lu, Fang Lin, Mahlet Garedew, Ho Yin Tse, Andrew Champlinab, Hanno Erythropel, Julie Zimmerman, Paul Anastas* One-pot electrochemical synthesis of adipic acid from lignin-derived catechol.

Laurene Petitjean, Mahlet Garedew, Sidan Lu, Theodora Matringe, Hanno Erethropel, Chun-Ho Lam*, Paul T. Anastas* Renewable Catechols from Lignin: A versatile platform for chemical and material applications.

Sidan Lu, Meiqi Yang, Xinyi Wang, Aaron Leininger, David Jassby, Eric Hoek, Zhiyong Jason Ren*. Conductive fabric distillation for interfacial clean water production.

AWARDS AND HONORS

2025 Funded Project "Lignin to jet-range aromatic hydrocarbons by an advanced electrochemical approach" Founder: Southwest Airlines; Institutional location: Yale University

2021 Oral presentation award, LSU Graduate Student Research Conference

2019 Economic Development Award, LSU Graduate School

2018 Oral presentation award, The 4th IWA Conference of Science Summit on Urban Water

2016 National Graduate Student Scholarship (China)

2014 First-Class Scholarship, Beijing Normal University Graduate School

CONFERENCE ACTIVITY

Contributed Talks

2021 Solar-biased microbial electrolysis cells for hydrogen production under visible light irradiation. Graduate Student Research Conference, LSU

2019 Resources recovery from wastewater using advanced bioelectrochemical systems. The 4th International Young Scholars Shenzhou Forum, Harbin, China

2016 Long-term oil pollution and in situ microbial response of groundwater. IWA Congress and Exhibition. Brisbane, Australia

Posters

2025 One-pot electrochemical synthesis of nylon precursor from lignin-derived catechol. ACS GCI, Boston, U.S

2024 Membrane electrolysis distillation (MED) for volatile fatty acids separation from pH-neutral fermented wastewater. ISMET, Houston, U.S.

2023 Temperature dependence of acids recovery from wastewater electro-fermentation. AEESP, Boston, U.S

2019 Resource recovery microbial fuel cells for urine-containing wastewater treatment

without external energy consumption. ISMET7, Okinawa, Japan

2019 Sidan Lu Mo_2N nanobelt cathodes for efficient hydrogen production in microbial electrolysis cells. The 4th IWA Conference of Science Summit on Urban Water. Harbin, China

2017 Resource-recovery microbial fuel cells for space wastewater treatment. Louisiana Space Fall Council Meeting. Baton Rouge, U.S., 2017

TEACHING EXPERIENCE

Louisiana State University, Guest Lecturer

Renewable Energy and Power Generation (Spring 2019)
Advanced Topics in Water Quality and Treatment (Fall 2017)

RESEARCH EXPERIENCE

2024-2025 Postdoctoral Research Associate, School of Environment, Yale University
Green Chemistry and Green Engineering Program, addressing climate change through utilization of biomass, CO_2, and the other materials, Heintzelman Carbon Sequestration Fund

2021-2024 Postdoctoral Research Associate, Andlinger Center for Energy and the Environment, Princeton University
Targeted Extraction of Valuable Intermediate Products and Clean Water from Municipal Wastewater Using Electroactive Anaerobic Membrane Bioreactors (AnEMBR), Department of Energy (DOE)

2017-2019 Research Assistant, Department of Civil and Environmental Engineering, Louisiana State University
Space Wastewater Treatment Project, Louisiana NASA EPSCoR

2024-2017 Research Assistant, College of Water Sciences, Beijing Normal University
Ecological and Microbial Investigation of a Tributary of Yellow River to Wet and Dry Seasonal Changes.

PROFESSIONAL SERVICE

Peer Review

Proposal Review Panel, The 17th IWA World Congress on Anaerobic Digestion (IWA), 2022

To Profession & Community

Project Advisory Committee, The Water Research Foundation (WRF), 2025-current

Site Committee, Association of Environmental Engineering and Science Professors (AEESP), 2024-2025

Scientific Committee, National Science Foundation (NSF), 2024

PROFESSIONAL ASSOCIATIONS

American Chemical Society (ACS), 2024-current
Association of Environmental Engineering and Science Professors (AEESP), 2024-current

LANGUAGES

English – Second language, fluent in reading, speaking, and writing
Chinese – Native language, excellent in reading, speaking, and writing

REFERENCES

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