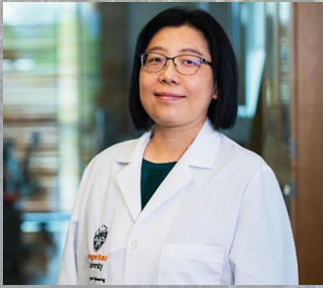


Graduate Seminar



Jin Xue, PhD

*Assistant Professor in the School of
Chemical, Biological and Environmental
Engineering at Oregon State University*

September 16, 2024, (4:00 pm - 5:30 pm), Kupfrian Hall - Room 205

[Zoom Link: Click Here](#) Meeting ID: 994 3917 6432 Passcode: 058807

Sustainable Nutrient Water Recovery by a Hybrid Electrodialysis - Forward Osmosis Process for Agricultural Application

Abstract

With increasing water shortages, many agricultural producers are looking to reclaimed water for irrigation. Jin will discuss a study that explores the feasibility of a new process called electrodialysis - forward osmosis. The goal of the research was to recover nutrients and clean water from anaerobic digester effluent and to safely use it to help grow food crops, specifically lettuce, kale, and blueberry. Impressively, the treatment achieved high nutrient recovery rates and reclaimed up to 85% of clean water. Additionally, the hybrid ED-FO process captured 76-98% of heavy metals and 96% of total organic carbon in the residual waste stream. The economic analysis indicated that the hybrid ED-FO process is promising for scalable implementation, making it highly attractive in terms of resource recovery, waste footprint reduction, and water quality enhancement.

About the Speaker

Dr. Xue Jin is an Assistant Professor in the School of Chemical, Biological, and Environmental Engineering at Oregon State University. She is a water engineer with expertise in membrane technology. In the last 16 years, Dr. Jin's research has focused on improving performance, reducing cost, elucidating membrane fouling mechanisms, and mitigating environmental impacts associated with membrane-based water treatment processes.



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