



Graduate Seminar

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Civil & Environmental Engineering
New Jersey Institute of Technology

October 28, 2024 (4:00 pm - 5:30 pm), Kupfrian Hall - Room 205

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

Innovative Advanced Oxidation Processes for Clean Water: Single-Atom Catalysts to Remove Organic Micropollutants

Abstract

One out of four people in the world lacks clean and safe drinking water according to the United Nations, posing a pivotal global challenge within the realm of sustainable development. Organic micropollutants in the water environment pose a serious threat to ecological balance and human health. Complex water quality and trace concentration are a challenge to the accurate and efficient removal of organic micropollutants from water. Traditional water treatment processes are inefficient in removing these emerging pollutants, and advanced oxidation processes (AOPs) with activated peroxymonosulfate (PMS) have shown promising results. Single-atom catalysts have emerged as highly active PMS-AOPs catalysts, but their catalytic oxidation mechanism needs further clarification to improve micropollutant removal efficiency. This talk will highlight the knowledge gap between scientific advancements in single-atom catalysts and their practical applications in water treatment for sustainable human water security, especially the advancements in regulating electronic microenvironments to enhance catalytic performance.

About the Speaker

Jiahui Hu is a postdoctoral research associate in the Department of Civil & Environmental Engineering at NJIT. She earned her Bachelor' degree in marine science from Xiamen University and her Ph.D. in Environmental Science and Engineering from Tsinghua University. Her research focuses on the development of advanced environmental functional nanomaterials for the sustainable water treatment. Specifically, she developed single-atom catalyst in advanced oxidation process to selectively remove emerging pollutants from water and wastewater. Currently, her work is centered on integrating nanomaterials into membranes to enhance interfacial heating and mitigate fouling in membrane distillation processes for desalination.



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