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The William G. Lowrie Department of Chemical and Biomolecular Engineering

Cordially invites you to attend a seminar on

**From Trash to Treasure: Advancing the Heterogeneous Catalytic Deconstruction and Upcycling of Waste Polyolefins**

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**Abstract**

The rapid global consumption of single-use plastics has caused an unsustainable accumulation of plastic waste in landfills and the environment, adversely affecting the ecosystem and human health. Unfortunately, current mechanical recycling methods are expensive and produce lower-quality products. New strategies in targeted chemical upcycling of waste plastics offer unique opportunities for selective depolymerization of polyolefins to higher value chemicals under milder conditions than thermal deconstruction or pyrolysis. Inspired by recent developments in the depolymerization of lignin, a natural polymer found in biomass, we turned to the method of hydrogenolysis to break the strong C-C bonds in polyolefins. This talk will cover our efforts in identifying a class of ruthenium-based materials as active and selective heterogeneous catalysts for the depolymerization of polyolefin waste, catalyst support modification strategies to further improve selectivity towards processible liquid alkanes, and new frameworks for the chemical upcycling of waste plastics and complex mixed waste streams to enable a circular carbon economy.

Please click the link below to join the webinar:

<https://osu.zoom.us/j/98185125729?pwd=MEh6VHR3L0UvQ0t3Q1NoVkFmelB6Zz09>

Password: 982991

**Bio**

Dr. Julie Rorrer is an Arnold O. Beckman Postdoctoral Fellow at the Massachusetts Institute of Technology. She received her B.S. in Chemical Engineering from Arizona State University in 2014, and her Ph.D. in Chemical Engineering from the University of California, Berkeley in 2019. Her research interests are centered on enabling sustainable chemical transformations using heterogenous catalysis. She is also a fellow of the MIT Communication Lab and the founder of the ongoing outreach initiative ColorMePhD.

**Julie Rorrer**

*Postdoctoral Fellow*

*Chemical Engineering*

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**Tuesday, February 22, 11:30 AM**

**Virtual Webinar**