

MIT Chemical Engineering Department

Spring 2018 Seminar Series

<http://cheme.mit.edu/seminar-series/>

Hybrid biological and catalytic processes to manufacture and recycle plastics



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Friday, April 27, 2018

3:00pm (reception at 2:45pm)

66-110

Abstract:

Biomass conversion to chemicals and materials has the potential to offset significant petroleum usage and represent a more sustainable approach to manufacture everyday products. To that end, our group focuses on developing integrated processes from biomass to polymer precursors by combining biological and catalytic processes. The first part of this talk will focus on the production of PAN-based carbon fibers from sugars through new catalytic transformations to acrylonitrile that exhibit significant green chemistry advantages over standard propylene ammoxidation.

Our group also focuses on the development of new chemical processes to recycle man-made plastics. The second part of the talk will focus on the enzymatic and microbial conversion of synthetic plastics, which represent a growing environmental crisis for the planet, especially in marine environments. Recent discoveries of bacterial systems able to grow on man-made plastics offer a foothold for synthetic biology to offer solutions for efficient biological upcycling of waste plastic.