



Inorganic Chemistry Seminar Series

Tuesday, March 27, 2018, 12:30 pm
Seaver Science Library, Room 150

SSC Auditorium next to the library

Dr. Susan Habas

National Bioenergy Center

National Renewable Energy Laboratory, Colorado

Advances in Nanoscale Metal Phosphide and Carbide Catalysts for Renewable Fuels and Chemicals

Producing fuels and chemicals from renewable feedstocks such as biomass requires transforming highly functionalized compounds into targeted precursors and products, using low-cost, earth-abundant catalysts that maintain performance under severe conditions. One approach uses cost-effective advanced catalysts with controlled active sites that promote desired transformations while resisting deactivation. Two classes of materials could help meet these goals--transition metal phosphides and carbides, especially in light of advances that help drive development of next-generation catalysts. Our research group aims to develop synthetic methodologies that enable precise control of catalyst composition, phase, and morphology to provide tailored active sites with targeted catalytic reactivity. This presentation will focus on our recent developments in versatile molecular precursor routes to metal and mixed-metal phosphide and carbide nanoparticles. I will discuss the path to better control of the active sites in catalytic materials, and how modifications might impact key transformations of model biomass compounds. Other topics will include catalytic potential of nanostructured metal phosphides and carbides for emerging biomass conversion processes and scale requirements needed to produce novel catalysts at scale.

Hosted by Professor Richard Brutchey

The scientific community is invited

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