



Department of Chemical
and Biological Engineering
UNIVERSITY OF WISCONSIN-MADISON

2020 Fall CBE Seminar Series

presents:



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Catalytic Reactions with Molecular Oxygen, from Chemical Synthesis to Fuel Cells

Molecular oxygen (O_2) is a remarkable molecule that is crucial to life on our planet and plays a central role in natural and artificial energy production. O_2 also represents the quintessential “green” chemical for industrial oxidation reactions. Controlling the reactivity of O_2 is among the most daunting challenges in chemistry, and it has broad implications for broader society. Prominent long-standing challenges include achieving selective oxidation of organic molecules without overoxidation to CO_2 or other undesirable by-products and maximizing the energy efficiency of O_2 reduction to water in fuel cells. Solutions to these challenges inevitably require catalysis. This talk will survey key principles of O_2 reactivity relevant to chemical synthesis and energy conversion as a foundation for the discussion of specific catalyst systems that overcome key problems in these areas. Specific attention will be given to the issue of “overpotential” and the relevance of this concept beyond electrocatalysis.

Tuesday, Dec. 15, 2020

Lecture at 4:00 p.m.

<https://uwmadison.zoom.us/j/91376473708>