SJSU | DEPARTMENT OF CHEMISTRY

CHEMISTRY Departmental Seminar

Spring 2022
CHEM 285/191 Schedule
Tuesday at 4:30-5:45PM
Online
April 19th, 2022

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Metal/Carbon Nanocomposite Catalysts for Electrochemical Energy Technologies

Electrochemical energy technologies have been hailed as viable alternatives to fossil fuel-based technologies in providing necessary energy for a wide range of practical applications. One major challenge is the development of effective catalysts to enhance the electron-transfer kinetics involved and hence the overall performance. There are several notable reactions, such as oxygen reduction reaction in fuel cells and metal-air batteries, hydrogen evolution reaction and oxygen evolution reaction in water splitting, etc., where the catalysts of choice are conventionally based on precious metals, such as Pt, Ir and Ru. It is therefore of both fundamental and technological significance to develop electrocatalysts based on low-cost, earth-abundant materials that can rival the traditional benchmarks. In this presentation, we will highlight results from several recent studies where we demonstrate that metal/carbon nanocomposites, in particular, carbon-supported single metal atom composites, can serve as effective electrocatalysts towards the various reactions, with a performance competitive or superior to those of the commercial benchmarks. The mechanistic origin is unraveled by a deliberate integration of theory and experiment.

Zoom link: https://sjsu.zoom.us/j/82166933391

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