THE UNIVERSITY OF HONG KONG

DEPARTMENT OF MECHANICAL ENGINEERING

SEMINAR

Online

Title: An Artificial Corrosion-Inhibitor-Inspired Interface for Highly Reversible Aqueous Zinc-Based Batteries

Speaker: Mr. Chunlin PANG (PhD candidate)
Department of Mechanical Engineering
The University of Hong Kong
Hong Kong

Date: 23 April, 2021 (Friday)

Time: 11:30 a.m.

Zoom Link: 1) Link to join the meeting:

https://hku.zoom.us/j/91915549410?pwd=K1N0L092bnRta3pJeFVueFhKd1lyZz09

2) Meeting ID: 919 1554 9410

3) Password: 257605

Abstract:
Zn-metal-based aqueous rechargeable batteries have been revisited as an attractive alternative energy storage system relative to Lithium-ion batteries owing to their intrinsic safety, low cost, and high volumetric capacity. However, their lifespan is limited by the water decomposition and Zn dendrite growth. Herein, many approaches to achieve safer metal anodes are discovered and a "corrosion-inhibitor-inspired" poly(benzotriazole) coating layer which elevates the nucleation barrier and restricts dendrite formation is constructed to effectively regulate the aqueous Zn deposition behavior. Besides, serving as the protective layer that isolates active Zn from bulk electrolytes, this interphase also suppresses free water induced corrosion and passivation. With this synergism, the polymer-modified Zn anode produces reversible, dendrite-free plating/stripping with a magnificent enhancement in running lifetime compared to the bare Zn. The strategy proposed here is straightforward and scalable, providing a general pathway to tackle the anode issues in advanced Zn batteries.

ALL INTERESTED ARE WELCOME
For further information, please contact Dr. S.P. Feng at 3917 2639.

Research area: Energy