JEFFREY I. ZINK INORGANIC CHEMISTRY SEMINAR SERIES

Prof. Anthony Shoji Hall

Department of Materials Science and Engineering, University of Pennsylvania

"Promoting C–C Coupling in CO2/CO Electroreduction by Tuning the Properties of Interfacial Water"

Abstract: Electrochemical reduction of CO_2 and CO can generate multicarbon products such as ethylene and ethanol, which are attractive as fuels and as synthetic precursors, but the carbon–carbon bond-forming step that produces them competes with pathways that terminate at single-carbon products. Water governs much of this competition through roles that extend beyond that of an inert solvent, since it solvates ions and thereby influences their adsorption at the electrode, hydrogen bonds to reaction intermediates, modulates access to active sites, and supplies protons or oxygen through its own dissociation. Despite considerable progress in electrolyte design, the relationship between the structure and properties of interfacial water and electrocatalytic reactivity remains largely empirical. This seminar will explore how deliberate manipulation of interfacial water, achieved by varying water activity and by using supporting ions to reorganize the interfacial hydrogen-bond network, controls carbon–carbon coupling during CO2 and CO electroreduction.

Meet the Speaker
11:45 a.m. | YH 3096

Wednesday, October 14th, 2026
4:00 p.m. | YH4222 - Collaboratory
Dongwon Yoo Seminar & Conference Hall

UCLA College | Physical Sciences
Chemistry & Biochemistry

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