ACS Local Section
Indiana-Kentucky Border

Modulating Electrode Selectivity for Small Molecule Conversion via Substrate Availability

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Thursday, January 29, 2026 at 7:00 PM

University of Evansville
Koch Center for Engineering and Science, Room 101

5:00 PM, Dinner at Turoni's Forget-Me-Not

4 North Weinbach Ave., Evansville

RSVP for dinner by Tuesday, January 27 to:

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The search for active, stable, and durable materials for electrochemical energy technologies requires increasing levels of precision to establish true structure-function relationships and guide materials design from atomic and molecular scale. This increases the level of control required over the experimental system for proper materials evaluation. When working at high voltages required by processes such as the oxygen reduction reaction (ORR) and H_2 evolution reaction (HER), contamination from the counter electrode can lead to misleading results. Here we will discuss an “old school” technique, utilizing a Pt counter electrode that uses the hydrogen reduction reaction to maintain a controlled potential environment. We have designed and constructed a counter electrode that capitalizes on this reaction. This work provides a guide to the implementation of $Pt|H_2$ counter electrodes to improve the precision of electrochemical experiments in search of highly active, selective, and durable materials for energy technologies.