

## View Abstract

**CURRENT SYMPOSIUM:** Virtual Graduate Students Symposium in Asia-Pacific Region on Industrial & Engineering Chemistry (Oral)

**CURRENT PROGRAM AREA:** I&EC

**CONTROL ID:** 4084776

**PRESENTATION TYPE:** Oral Only : Do not consider for Sci-Mix

**TITLE:** Engineering Ligand Effect and MSI in Electrocatalysis

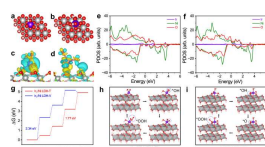
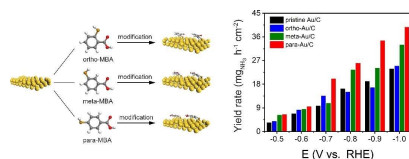
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**ABSTRACT BODY:**

**Abstract:** Surface engineering of electrocatalysts is a captivating area of study. Nevertheless, the intricate nature of a heterogeneous interface presents a formidable obstacle to exclusively manipulate a particular catalytic effect. Here, I report two simple strategies to separately examine ligand effect and metal-support interaction (MSI) in electrochemical systems.

First, we employed three mercaptobenzoic acid (MBA) isomers, ortho-MBA, meta-MBA, and para-MBA to modify Au/C catalyst. Out of all the modifiers tested, para-MBA showed the greatest increase in NO<sub>3</sub>RR activity, because it had the strongest ligand-Au interaction. The presence of para-MBA promoted the adsorption of nitrogen-containing intermediates, thus accelerating the reaction kinetics. Besides, we fabricated two Ir SACs with site-specific MSI using electrochemical deposition. The strong MSI between Ir and Ni in Ir<sub>1</sub>/Ni LDH-T optimized the adsorption strength of oxygen-containing intermediates and yielded higher OER activity. These results offer valuable knowledge for the effective engineering of electrocatalysts.



**Presentation Preference:** I will not travel to Denver and wish to participate virtually.

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