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Interface Design for Electrocatalysis

The majority of today's research in electrocatalysis is focused on designing catalyst materials and processes that can surpass the current benchmarks of classical catalysis. However, the development of performance parameters for important electrochemical reactions, such as oxygen evolution reaction and CO₂ reduction reaction, has been slow due to intrinsic limitations such as adsorption energy scaling relation of the intermediate species. Recent theoretical and experimental studies have revealed that electrochemical reactions confined within a small space with wall spacing of less than 1 nm outperform unconfined reactions. Theoretical models suggested that the enhancement from nanoscopic confinement results from electronic interactions of the adsorbed species with multiple surfaces, which breaks the adsorption energy scaling relationship for important intermediate species.

In this seminar, I'll introduce a couple of applications of atomic scale designed catalysts in water splitting, CO₂ reduction, and C-N coupling reactions.

Date : 2023년 11월 9일 (목) 오후 5시

Location : 과학관 B131호

Host : 연세대학교 화학과

