

Characterizing interactions and catalysis at the liquid-solid interface

Johannes A. Lercher

*Institute for Integrated Catalysis, Pacific Northwest National Laboratory, Richland, WA
Department of Chemistry Technische Universität München, Garching, Germany*

Characterizing and interpreting the interactions and catalytic transformations at solid-liquid interfaces is complex and experimentally as well conceptually challenging. The lecture will describe potential approaches to characterize the impact of protic and non-protic solvents at that interface and in particular in presence of water. The impact of the solvent on properties of metal oxides, zeolites and supported metal particles as well as on the interacting molecule will be discussed and quantified in terms of the excess chemical induced by the environment and the interactions. Examples discussed will include adsorption and reactivity of organic molecules, H₂ and CO. Opportunities and challenges for acid-base and redox catalysis with oxides and metals with and without external electric potentials will be discussed.