Some reflections on interfacial heterogeneity.

Abstract

Understanding of electrochemical interfaces is crucial to rationalize reactivity. Wide changes in composition are observed when the electrode potential changes associated to adsorption states of different surface site symmetry. Disentangle the different contributions is a key step to further develop solid reactivity models. Interfacial charge density is likely the most important parameter in electrochemistry and the determination of the potentials of zero charge of different metal/electrolyte interfaces is important to define the interfacial partners. This can be made on mercury and coinage metals by using Gouy-Chapman model but other strategies should be used with more electrocatalytic metals as platinum. At positive potentials, anions are dominant at the interface whereas cations should be the mean interfacial species at negative potentials. Neutral pH conditions should be defined from interfacial parameters. In fact, the value of neutral pH at the interfaces should be evaluated to rationalize the role of the surface charge density in acid-base equilibria.