

A study on computer modeling of cyclic voltammetry for self-assembled monolayers on electrodes

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Chemical-modified electrodes by self-assembled monolayers (SAMs) of organic thiols on gold surfaces have been studied extensively, because of their potential applications such as wetting, corrosion inhibition, molecular devices, optics, electrochemical and biochemical sensor. Particularly, the development of an electrochemical sensor is one of the fields of great and faster growth in analytical electrochemistry. SAMs provide an excellent platform to study electron transfer process because each variable can be controlled experimentally. In this study, the ionic transport phenomena near the chemical-modified electrode by SAMs have been analyzed and the computational program to simulate the electrical signal of cyclic voltammetry has been written by using MATLAB. Experimental results from the cyclic voltammetry of SAMs upon the gold electrode were compared with the numerical simulated ones.