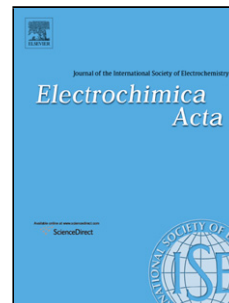


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Introducing Schottky barrier into electrochemical response: A novel adjusting strategy for designing electrochemical sensors

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Abstract

A novel strategy of using Schottky barrier as a controllable tuning factor for electrochemical detection was proposed. Our results showed that the Schottky barrier height could be tuned purposely by the charged characteristics of adsorbed molecules so that the electrochemical response could be controllably enhanced or weakened. The fabricated 3D Ni/ZnO/CQDs (carbon quantum dots) foam with Schottky interfaces was successfully employed for selective electrochemical detection of dopamine. It is an effective approach to overcome the limit of selective detection of targets with similar redox properties by using electrochemical method. Rational design of Schottky barrier is promising to develop new-type and more effective electrochemical sensors.

Keywords: heterstructure, schottky barrier, tuning factor, electrochemical detection

1. Introduction

Electrochemical detection has attracted significant interest because of its fast response, high sensitivity and low cost [1-3]. However, eliminating the interfering signal of

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