n-ZnO/p-Cu₂O Heterojunction Electrode: Characterization and Evaluation of Their Photoelectrochemical Properties

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doi: 10.20964/2019.04.04

Received: 18 July 2018 / Accepted: 10 January 2019 / Published: 10 March 2019

In this work an easy way to prepared heterojunction electrodes based on ZnO and Cu₂O were developed. The electrodes were synthesized by a simple electrodeposition method. The photoelectrodes obtained were not submitted to a high temperature treatment. The electrodeposited films prevent the recombination of photogenerated charge carriers and thus allow the continuous formation of electrons and holes on photoelectrocatalytic reactions. Moreover, the films electrodeposited were characterized by X-ray diffraction, Raman spectroscopy, scanning electronic microscopy and UV-Vis. The photoelectrochemical activity was evaluated under visible light irradiation. The Cu₂O addition at the photoelectrodes were efficient to improve the properties of pure ZnO and also promote superior photoelectrochemical and photoelectrocatalytic responses for methylene blue discoloration.

Keywords: Thin film, photoelectrodes, hexagonal phase, methylene blue.

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