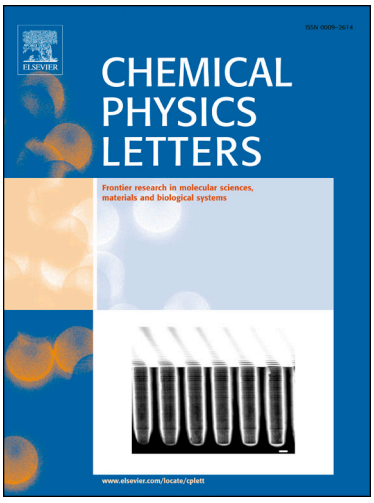

Frontiers article

One-step fabrication of carbon decorated $Co_3O_4/BiVO_4$ p-n heterostructure for enhanced visible-light photocatalytic properties

Xiaoxu Zhao, Ziyang Lu, Wei Ma, Menghan Zhang, Rong Ji, Chengwu Yi, Yongsheng Yan

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One-step fabrication of carbon decorated $Co_3O_4/BiVO_4$ p-n heterostructure for enhanced visible-light photocatalytic properties

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Abstract

A novel carbon modified $Co_3O_4/BiVO_4$ p-n heterojunction photocatalyst ($Co_3O_4/BiVO_4/C$) is prepared via one-step method. The $Co_3O_4/BiVO_4/C$ photocatalyst is characterized by SEM, Raman, UV-vis DRS, electrochemical performance analysis and so forth. In addition, the optimum activity of the $Co_3O_4/BiVO_4/C$ p-n heterojunction is higher than that of pure Co_3O_4 and $BiVO_4$ for the degradation of tetracycline under visible light. The improved photocatalytic property could be ascribed to the enhanced light absorption and the facilitated separation of photogenerated charge carriers through forming a p-n heterojunction. Furthermore, the $Co_3O_4/BiVO_4/C$ has superior magnetic properties, recyclability and stability, which is conducive to practical application.

Keywords: Yeast; Co_3O_4; $BiVO_4$; Antibiotics; Visible light.

1. Introduction

Environment pollution is one of the most urgent issues facing modern society due to the accelerated development of industrialization. As a result, photocatalysis has received extensive attention for water treatment, pollutant removal and so on [1-4].

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