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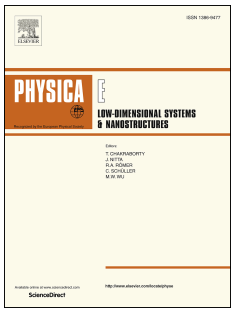

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Hydrothermal synthesis of rose-like $AgVO_3/Bi_2WO_6$ heterojunctions with enhanced visible-light-driven photocatalytic activity

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Abstract

A novel rose-like $AgVO_3/Bi_2WO_6$ (Ag-BW) heterojunctions composite is successfully synthesized by introducing in-situ anchoring $AgVO_3$ NPs on the interface of pure Bi_2WO_6. The $AgVO_3/Bi_2WO_6$ heterojunction composite was doped with different contents of AgVO3 during preparation, the photocatalytic activity of Ag-BW was evaluated by photodegradation of Methyl orange (MO) under simulated visible light. The results showed that the photocatalytic activity of 0.2Ag-BW under visible light for degradation of MO was up to 90.35% within 120 min , which was much higher than that of other doping and pure compound. It was significantly found that the introduction of $AgVO_3$, which suppressed the recombination of photogenerated electron-hole pairs on the interface of Bi_2WO_6, leading to enhanced photocatalytic activity.

Keywords: $AgVO_3/Bi_2WO_6$; Heterojunctions; Nanocomposites; Photocatalysis

1. Introduction

Over the past decades, efficient VLD (visible-light-driven) photocatalysts have been actively developing due to the threat to the environment and human health posed by the heavy discharge of wastewater and organic dyes in industry. Currently, VLD photocatalysts are