عنوان مقاله:

Decoration of Bi4O5I2 Nanoparticles on Zinc Oxide: Novel Visible-Light-Driven Photocatalysts for Efficiently Degradation of Dye

محل انتشار:

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خلاصه مقاله:

Nowadays, removal of organic dyes from wastewaters is an importance issue [1]. Among various techniques, heterogeneous photocatalysis has been considered as a promising green technology to address different challenges facing human beings [2]. ZnO is a semiconductor photocatalyst that possesses favorable electrical, mechanical and optical properties [3]. Photocatalytic efficiency of this photocatalyst has some drawbacks such as high recombination rate of e-/h+ pairs and stimulate only with UV light. Developing the visible-light-induced photocatalysts has become an important research topic. Bismuth oxyiodides (Bi4O5I2) due to features such as suitable band gap, stability, and excellent photocatalytic activity under visible light has attracted much attention [4]. This research synthesizes ZnO/Bi4O5I2 nanocomposite and studies their photoactivity for eliminating RhB as a typical azo dye under visible-light irradiation. Morphology of nanocomposite was studied by SEM analysis. The ZnO/Bi4O5I2 (30%) sample displayed high ability for degradation of RhB, which was almost 19 times as high as the bare ZnO. The photocatalytic ability of the ZnO/Bi4O5I2 (30%) can be attributed to the rapid separation of photogenerated charges due to the construction of heterojunction between two semiconductors.

کلمات کلیدی: