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Sonochemical preparation and photocatalytic properties of CdS QDs /Bi₂WO₆ 3D heterojunction

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Abstract: Hierarchical CdS quantum dots (QDs)/ Bi₂WO₆ three-dimensional (3D) heterojunction photocatalyst was successfully synthesized by a facile green ultrasonic method for the first time. Photocatalytic activities under visible light irradiation were tested by the degradation of Rhodamine B (RhB) and tetracycline hydrochloride (TC), and the reduction of Cr(VI) in aqueous solution. As compared to pure CdS and Bi₂WO₆, CdS QDs/ Bi₂WO₆ heterojunctions manifested a significantly enhanced photocatalytic activity for these treatments. When the effect of the mass ratio of CdS QDs to Bi₂WO₆ was investigated, 3% CdS QDs/ Bi₂WO₆ heterojunction showed the highest photocatalytic efficiency: the efficiency for RhB degradation was 94.5% for

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