ARTICLE

A novel high efficiency polar photocatalyst, $Zn(IO_3)_2$: Synthesis, Crystal Structure and Photocatalytic Activity

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Polarized $Zn(IO_3)_2$ nanorods have been successfully prepared by a simple hydrothermal method. The crystal structure and morphology of $Zn(IO_3)_2$ were detected by XRD, TEM and SEM. $Zn(IO_3)_2$ nanorods have been fabricated and demonstrated excellent catalytic activity. The obtained photocatalytic efficiency is higher than that of a commercial TiO_2 P25 catalyst under UV (λ > 254 nm) light irradiation. By combining time-resolved photoluminescence (PL) and BET measurements, it can be revealed that the enhanced photocatalytic performance of $Zn(IO_3)_2$ nanorods can be properly attributed to the promoted separation and prolonged lifetime of the photogenerated carriers caused by the internal polarization field.

Supporting information

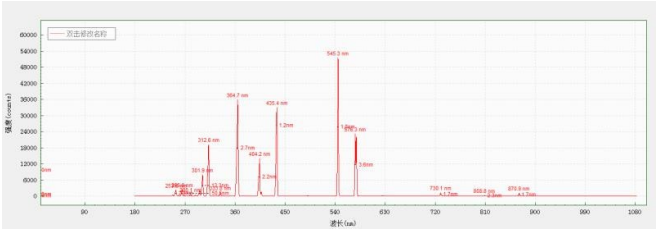

Fig. S1 The wavelength range of mercury lamp.

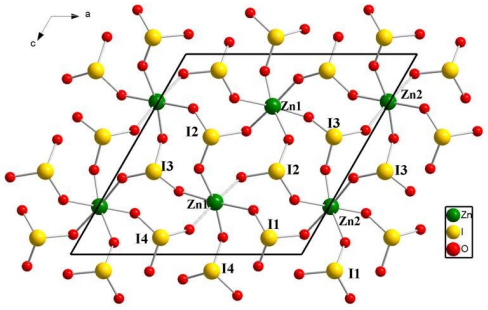

Fig. S2 Ball-and-stick model of $Zn(IO_3)_2$ viewed along the *b*-axis.

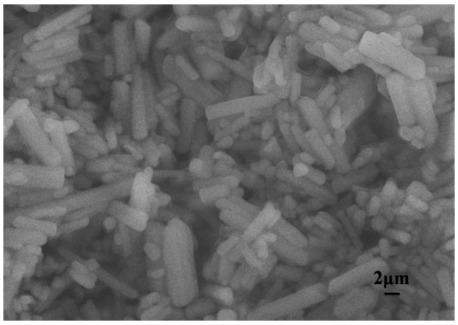

Fig.S3 SEM image of $Zn(IO_3)_2$.

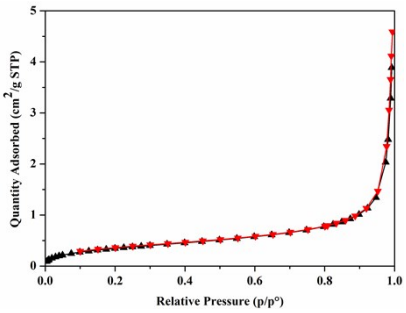

Fig. S4 Nitrogen adsorption and desorption isotherms of $Zn(IO_3)_2$.

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