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High-performance $BiVO_4$ photoanodes cocatalyzed with an ultrathin α-Fe_2O_3 layer for photoelectrochemical application

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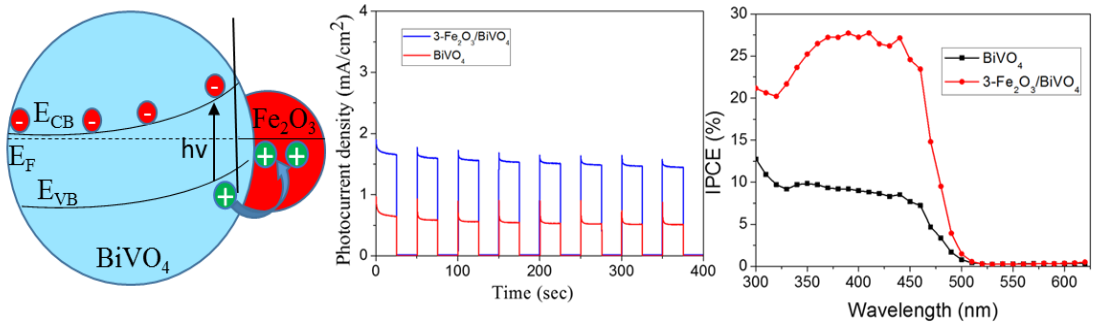
Graphic Abstract



The combination of $BiVO_4$ photoanode and an ultrathin Fe_2O_3 film as cocatalyst, which will cause upward-bent band in $BiVO_4$ faciliating the holes transfer, can greatly improve the photocurrent density and IPCE of $BiVO_4$ photoanode.

Highlights

●A $BiVO_4$ photoanode cocatalyzed with an ultrathin α-Fe_2O_3 layer is fabricated.

●The ultrathin α-Fe_2O_3 layer is deposited using a SILAR method.

●The ultrathin α-Fe_2O_3 layer can faciliate holes transfer to the surface efficiently.