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Title: Effective orientation control of photogenerated carrier separation via rational design of a $\text{Ti}_3\text{C}_2(\text{TiO}_2)\text{@CdS/MoS}_2$ photocatalytic system

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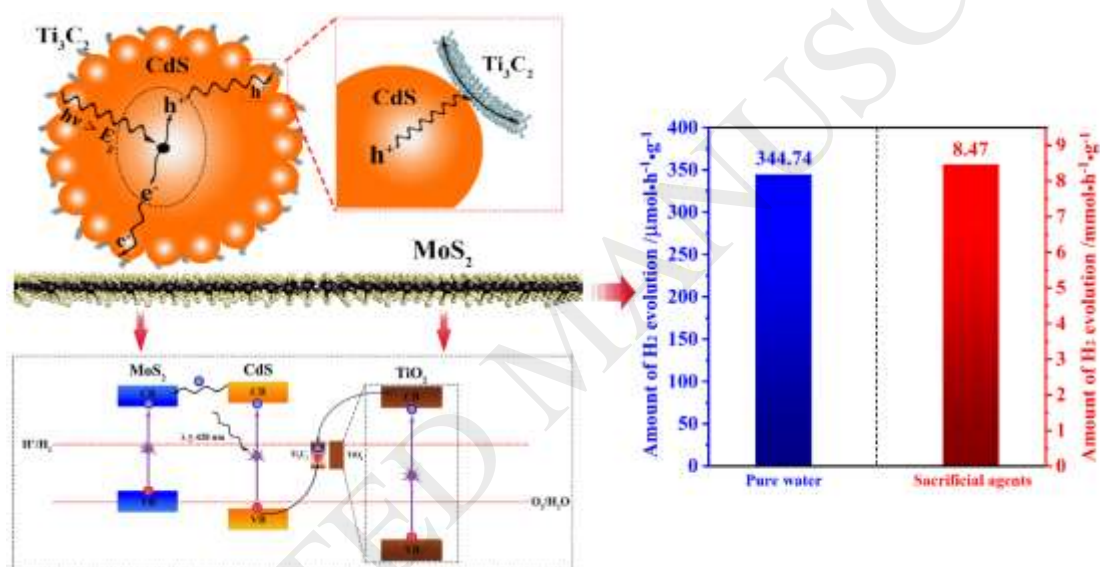
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Effective orientation control of photogenerated carrier separation via rational design of a $\text{Ti}_3\text{C}_2(\text{TiO}_2)@\text{CdS}/\text{MoS}_2$ photocatalytic system

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GRAPHICAL ABSTRACT



Highlights:

1. A novel $\text{Ti}_3\text{C}_2(\text{TiO}_2)@\text{CdS}/\text{MoS}_2$ composite photocatalyst system was fabricated.
2. The band type of II junction and Z-scheme are organically combined.
3. The regulation of charge separation and transfer direction is realized successfully.
4. A high H_2 yield rate of $344.74 \mu\text{mol}\cdot\text{h}^{-1}\cdot\text{g}^{-1}$ can be reached in pure water.

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