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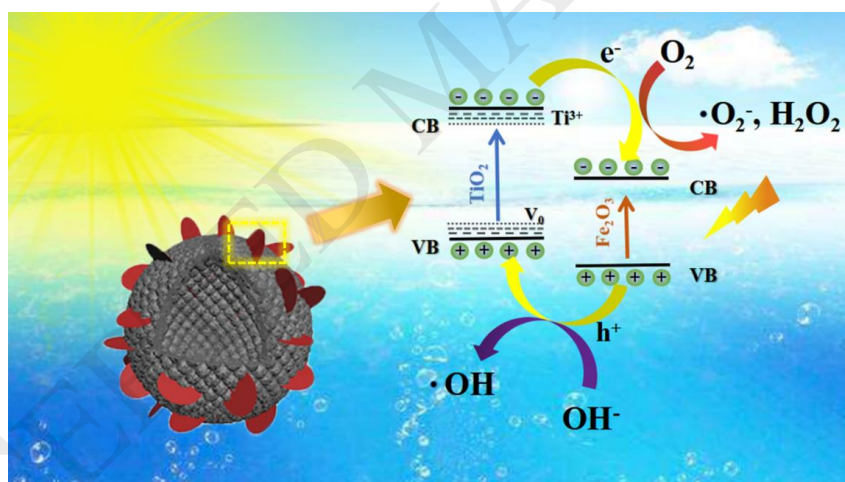
# Defects-Engineering of Magnetic $\gamma$ -Fe<sub>2</sub>O<sub>3</sub> Ultrathin Nanosheets/Mesoporous Black TiO<sub>2</sub> Hollow Sphere Heterojunctions for Efficient Charge Separation and the Solar-Driven Photocatalytic Mechanism of Tetracycline Degradation

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## Graphic abstract



### Defect-engineered $\gamma$ -Fe<sub>2</sub>O<sub>3</sub>/mesoporous black TiO<sub>2</sub> hollow sphere

**heterojunctions** are fabricated by metal-ion intervened hydrothermal technology and high-temperature hydrogenation reduction, which exhibit efficient charge separation and boosting solar-driven photocatalytic degradation performance of biotoxic tetracycline due to ultrathin  $\gamma$ -Fe<sub>2</sub>O<sub>3</sub> nanosheets with narrow bandgap offering more surface active sites, the hollow structure and the defect engineering enhancing solar-light-harvesting and spatial separation of photogenerated charge carriers.

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