

# Dimensional Heterostructure of 1D CdS/ 2D ZnIn<sub>2</sub>S<sub>4</sub> Composited with 2D Graphene: Designed Synthesis and Superior Photocatalytic Performance

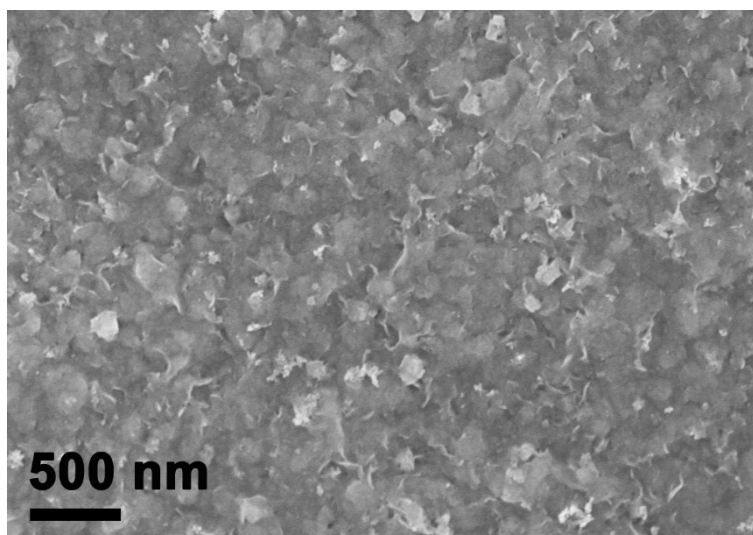
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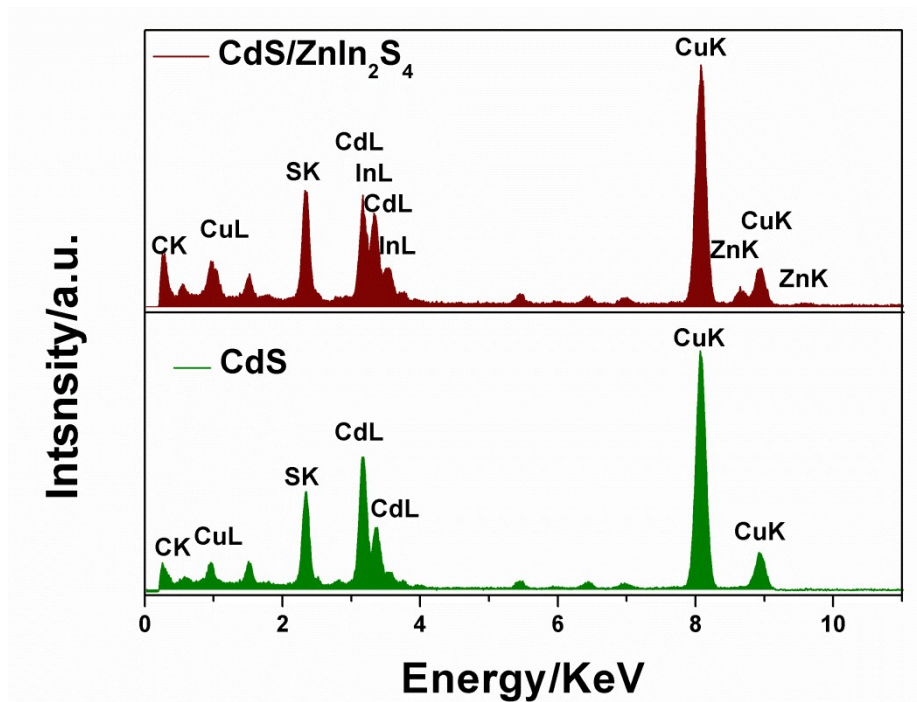
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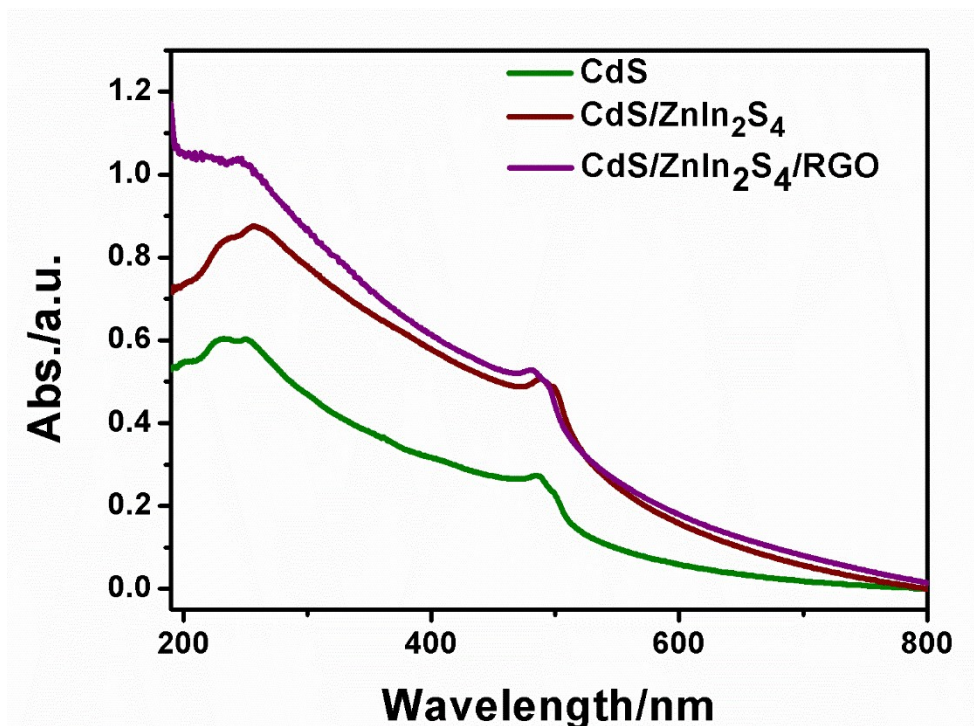
**Figure S1** The (a) SEM image of pure ZnIn<sub>2</sub>S<sub>4</sub> nanosheets.

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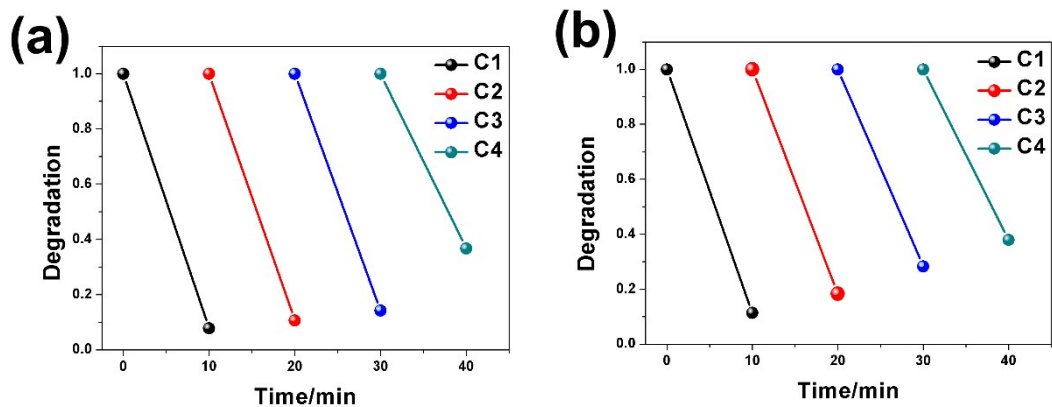
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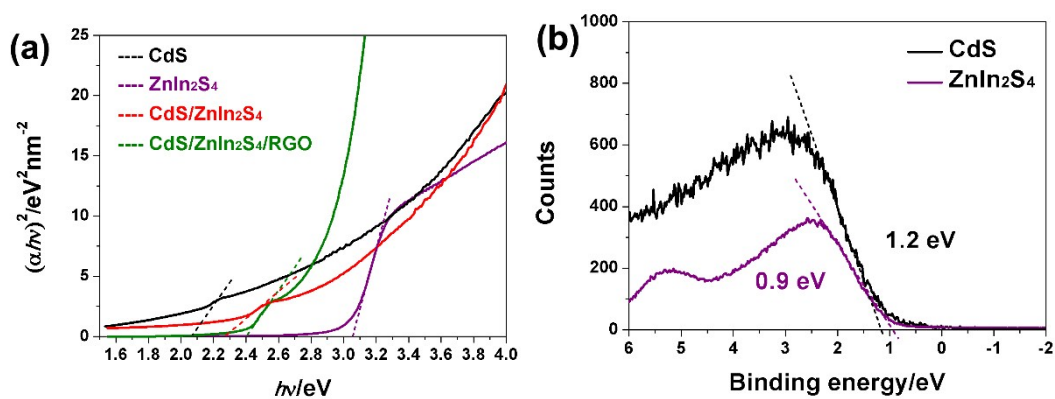
**Figure S2** EDX spectrum of CdS (green) nanowires and CdS/ZnIn<sub>2</sub>S<sub>4</sub> (red) helical DHS.



**Figure S3** UV-vis absorption spectra of CdS nanowires, CdS/ZnIn<sub>2</sub>S<sub>4</sub> helical DHS and CdS/ZnIn<sub>2</sub>S<sub>4</sub>/RGO composites



**Figure S4** Degradability of 4 cycling runs for photocatalytic degradation of MG in the presence of (a) CdS nanowires and (b) CdS/ZnIn<sub>2</sub>S<sub>4</sub> helical DHS photocatalysts.



**Figure S5** (a) Typical plot of  $(\alpha h\nu)^2$  versus photon energy ( $h\nu$ ) for the CdS nanowires, ZnIn<sub>2</sub>S<sub>4</sub> nanosheets, CdS/ZnIn<sub>2</sub>S<sub>4</sub> helical DHS and CdS/ZnIn<sub>2</sub>S<sub>4</sub>/RGO composites, (b) XPS valence band spectra for CdS nanowires and ZnIn<sub>2</sub>S<sub>4</sub> nanosheets.