

*Supporting information for*

## Unique Hierarchical SiO<sub>2</sub>@ZnIn<sub>2</sub>S<sub>4</sub> Marigold Flower like nanoheterostructure for solar hydrogen production

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**ESI Table1 : Comparison of rate of Photocatalytic H<sub>2</sub> Production of similar heterostructure system reported previously.**

Photocatalyst	Sacrificial reagent system	Source	H <sub>2</sub> Production rate From H <sub>2</sub> O	H <sub>2</sub> Production rate From H <sub>2</sub> S	Reference
ZnFe <sub>2</sub> O <sub>4</sub> /ZnIn <sub>2</sub> S <sub>4</sub>	0.35 M Na <sub>2</sub> S + 0.25 M Na <sub>2</sub> SO <sub>3</sub>	300 W Xe-lamp	79.0 μmol h <sup>-1</sup>	-	<b>a</b>
CdS QDs/graphene/ZnIn <sub>2</sub> S <sub>4</sub>	Na <sub>2</sub> S (5 mL, 0.1 mol L <sup>-1</sup> ) + Na <sub>2</sub> SO <sub>3</sub> (5 mL, 0.04 mol L <sup>-1</sup> )	300 W Xe-lamp	2.7 mmol h <sup>-1</sup>	-	<b>b</b>
Cu-Doped ZnIn <sub>2</sub> S <sub>4</sub>	0.25 M Na <sub>2</sub> S + 0.35 M Na <sub>2</sub> SO <sub>3</sub>	300 W Xe-lamp	151.5 μmol/h	-	<b>c</b>
AgIn <sub>5</sub> S <sub>8</sub> nanoparticles anchored on 2D layered ZnIn <sub>2</sub> S <sub>4</sub>	0.25 M Na <sub>2</sub> S + 0.25 M Na <sub>2</sub> SO <sub>3</sub>	300 W Xe-lamp	265.9 μmol g <sup>-1</sup> h <sup>-1</sup>	-	<b>d</b>
NiS/ZnIn <sub>2</sub> S <sub>4</sub>	0.5 M Na <sub>2</sub> SO <sub>3</sub> + 0.43 M Na <sub>2</sub> S	300 W Xe-lamp	104.7 μmol/h	-	<b>e</b>
SnS@ZnIn <sub>2</sub> S <sub>4</sub>	Na <sub>2</sub> S/Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub>	Sunlight	650 μmol h <sup>-1</sup> g <sup>-1</sup>	6429 μmol h <sup>-1</sup> g <sup>-1</sup>	<b>f</b>
TiO <sub>2</sub> @ZnIn <sub>2</sub> S <sub>4</sub>	0.25 M Na <sub>2</sub> S + 0.35 M Na <sub>2</sub> SO <sub>3</sub>	300 W Xe-lamp	348.21 μmol g <sup>-1</sup> h <sup>-1</sup>	-	<b>g</b>

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