

## Supporting Information

### Efficient Solar Light Driven Hydrogen generation using $\text{Sn}_3\text{O}_4$ nanoflakes/graphene nanoheterostructure

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Figure ESI -1

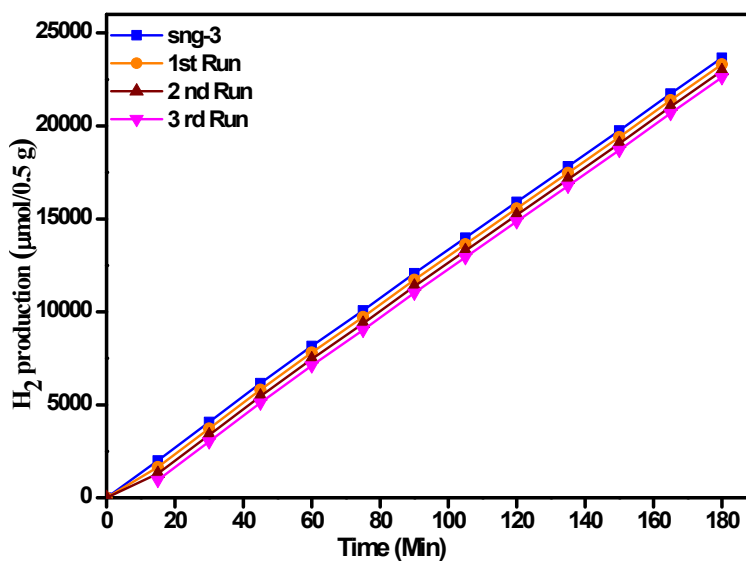


Figure ESI -1 Photocatalytic hydrogen production from  $\text{H}_2\text{S}$  splitting reaction using 3% graphene/ $\text{Sn}_3\text{O}_4$  (Sng-3) and reusability

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Figure ESI -2

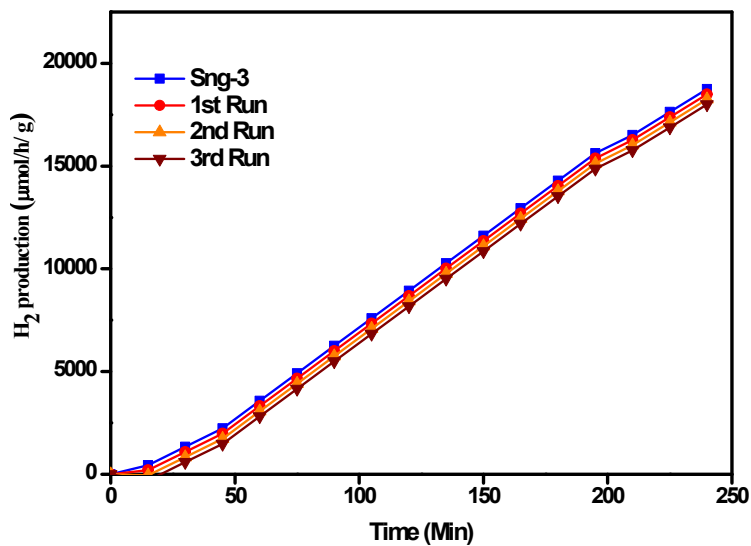


Figure ESI -2 Photocatalytic hydrogen production from water splitting reaction using 3% graphene/Sn<sub>3</sub>O<sub>4</sub> (Sng-3) and reusability

ESI Table 1 Reusability study of Photocatalytic hydrogen evolution *via* water and H<sub>2</sub>S splitting.

Sr. No.	Sample code	H <sub>2</sub> evolution rate from water (µmol h <sup>-1</sup> g <sup>-1</sup> )	H <sub>2</sub> evolution rate from H <sub>2</sub> S (µmol h <sup>-1</sup> g <sup>-1</sup> )
1	Sng-3	4687	7887
2	1 <sup>st</sup> Run	4300	7733
3	2 <sup>nd</sup> Run	4150	7571
4	3 <sup>rd</sup> Run	4050	7162

**ESI table 2 Comparison Data of H<sub>2</sub> generation:**

<b>Sr. No</b>	<b>Photocatalyst material</b>	<b>Light source used</b>	<b>Hydrogen evolution Via H<sub>2</sub>O (μmol/h)</b>	<b>Hydrogen evolution Via H<sub>2</sub>S (μmol/h)</b>	<b>References</b>
<b>01</b>	<b>Sn<sub>3</sub>O<sub>4</sub>@Graphene</b>	Natural sunlight	<b>4687 μmol h<sup>-1</sup>g<sup>-1</sup></b>	<b>7887 μmol h<sup>-1</sup>g<sup>-1</sup></b>	<b>Current Work</b>
02	N doped Sn <sub>3</sub> O <sub>4</sub>	Natural sunlight	654.33 μmol h <sup>-1</sup> 0.1g <sup>-1</sup>	Not done	<i>Kale et al.</i>
03	Sn <sub>3</sub> O <sub>4</sub> /N-TiO <sub>2</sub>	300 W Xe lamp	32 μmol h <sup>-1</sup> 0.1g <sup>-1</sup>	Not done	<i>Xin Yu et al [01]</i>
04	Sn <sub>3</sub> O <sub>4</sub> /TiO <sub>2</sub>	300 W Xe arc lamp	83.5 μmol h <sup>-1</sup> 0.2g <sup>-1</sup>	Not done	<i>Chen et al [02]</i>
05	Sn <sub>3</sub> O <sub>4</sub>	300 W Xe arc lamp	40 μmol h <sup>-1</sup> 0.3g <sup>-1</sup>	Not done	<i>Manikandan et al [03]</i>
06	Sn <sub>3</sub> O <sub>4</sub> /rGO	commercial solar simulator 300W	20 μmol h <sup>-1</sup> 0.1g <sup>-1</sup>	Not done	<i>Zhao et al [04]</i>