Supporting Information for

Cross-linked bond accelerated interfacial charge transfer in monolayer zinc indium sulfide ($ZnIn_2S_4$) /reduced graphene oxide (RGO) heterostructure for photocatalytic hydrogen production with mechanism insight

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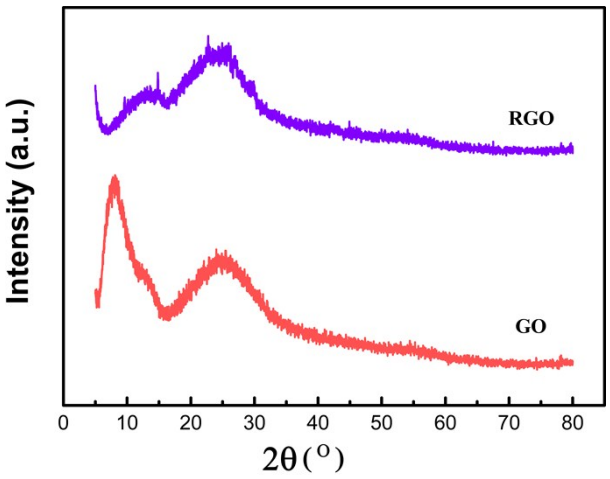

Figure 1. XRD patterns of GO and RGO.

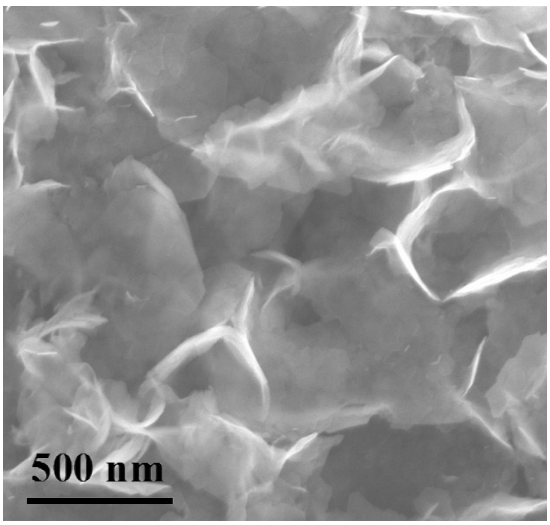

Figure 2. SEM image of ZIS.

Figure 3 Static water contact-angle measurement of ZIS.

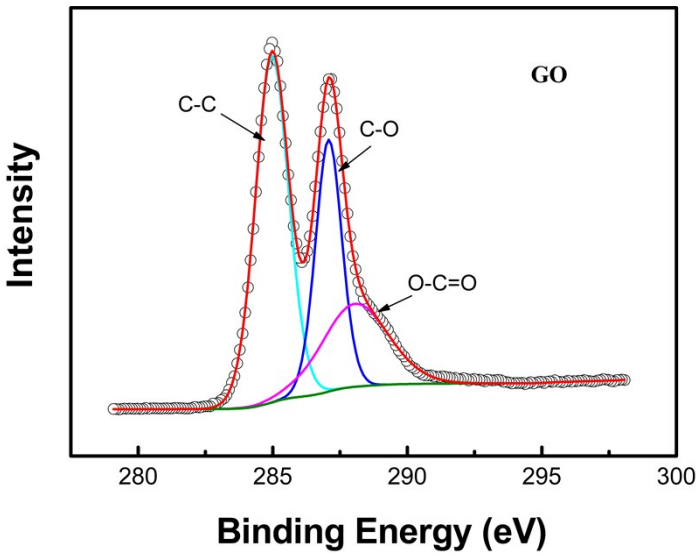

Figure 4. C 1s spectra of GO.

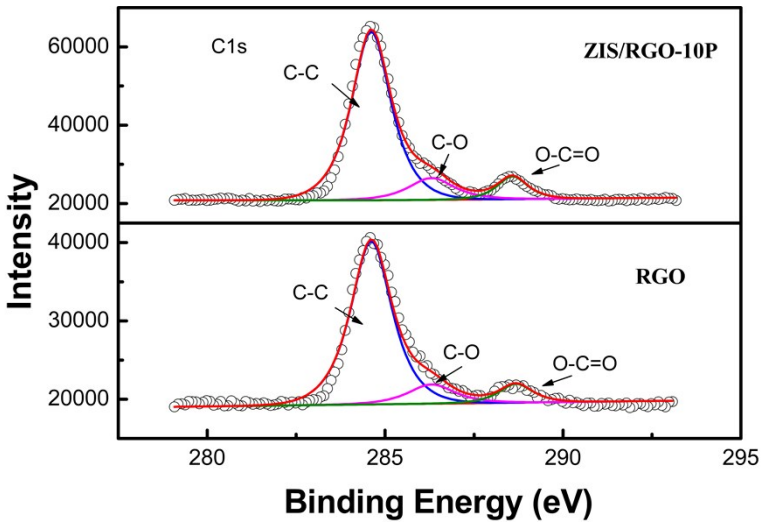

Figure 5. C 1s spectra of RGO and ZIS/RGO-10P.

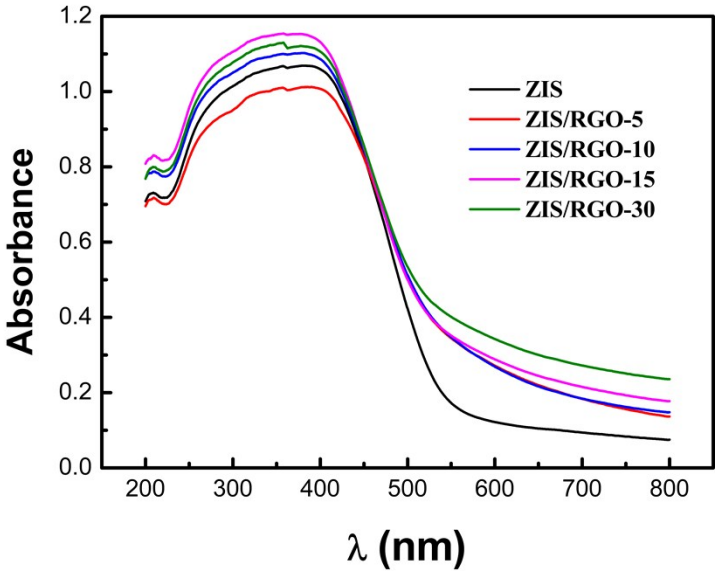

Figure 6. UV-vis DRS of the as-prepared samples

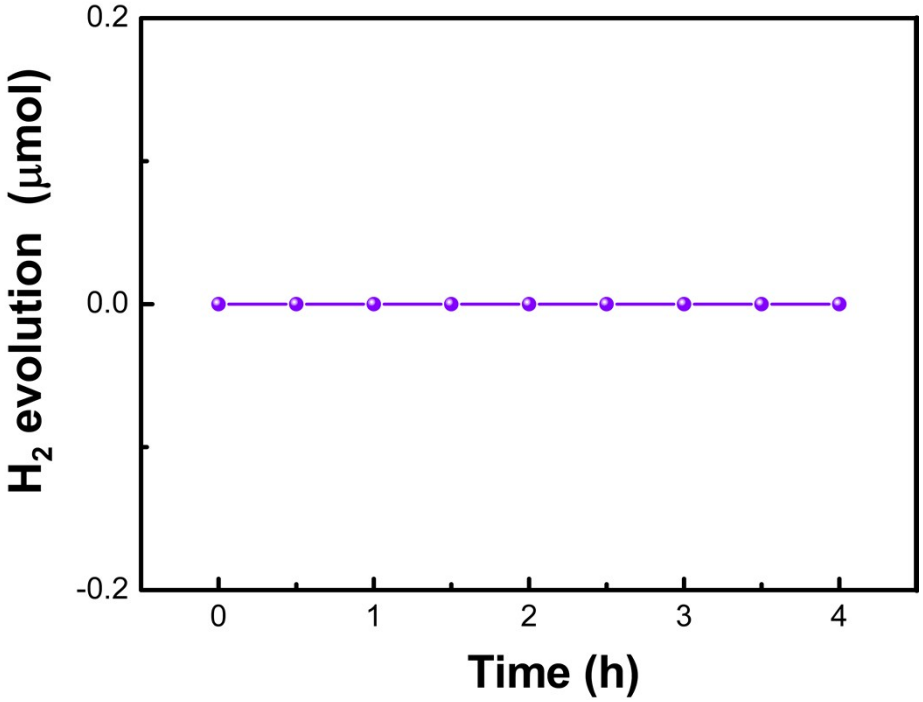

Figure 7. Photocatalytic H_2 evolution of RGO

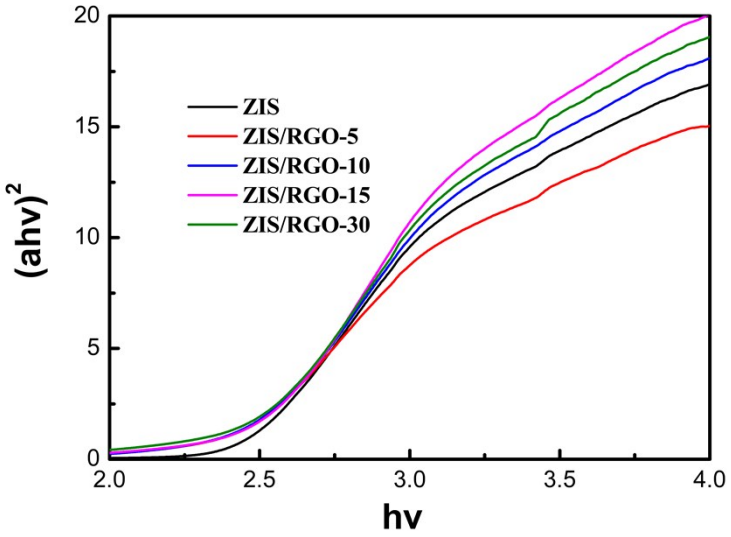

Figure 8. $(\alpha h\nu)^2$ versus $(h\nu)$ plots of the as-prepared samples.

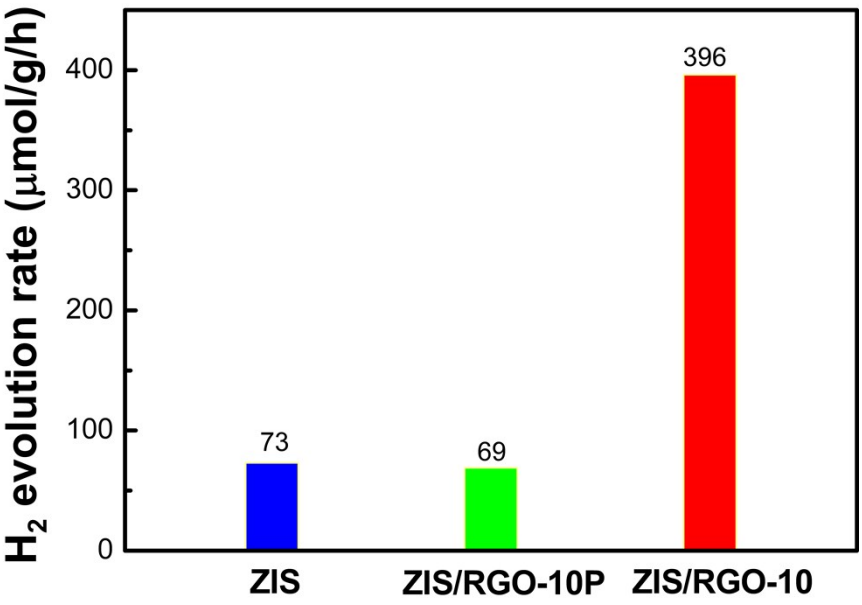

Figure 9. H_2 evolution rates of ZIS, ZIS/RGO-10P, and ZIS/RGO-10 under the irradiation of 670 nm

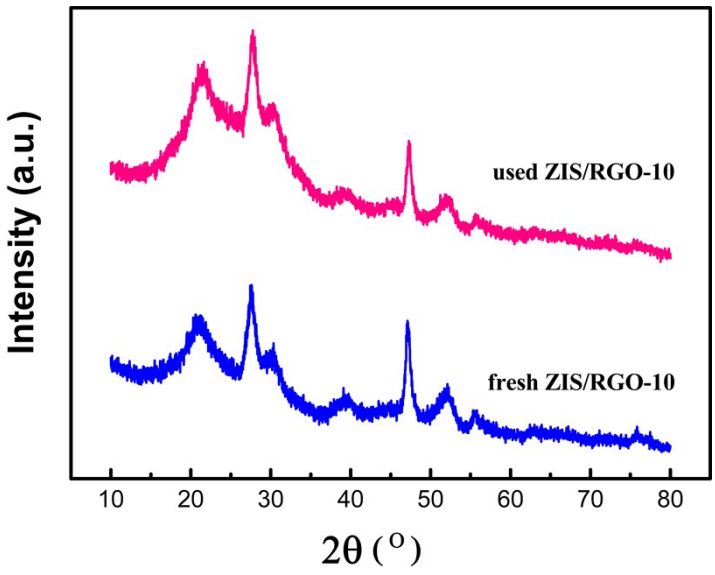

Figure 10. XRD pattern of ZIS/RGO-10 before test and after test.

Table 1. Comparison about H_2 evolution of the catalysts $ZnIn_2S_4$ or $ZnIn_2S_4$-based composites.

Photocatalysts	**Light source**	**Sacrificial agent**	**H_2 evolution rate (umol/h/g)**	**Ref.**
$ZnIn_2S_4$	300 W Xe lamp (λ >420nm)	Na_2S/Na_2SO_3	612	1
$ZnIn_2S_4$	300 W Xe lamp (λ >420nm)	Triethanolamine	658	2
$ZnIn_2S_4$	300 W Xe lamp (λ >400nm)	Triethanolamine	546	3
$MoS_2/ZnIn_2S_4$	300 W Xe lamp (λ >420nm)	Na_2S/Na_2SO_3	3891.6	4
$g\text{-}C_3N_4/ZnIn_2S_4$	300 W Xe lamp (λ >420nm)	Triethanolamine	2780	5
$RGO/ZnIn_2S_4$	300 W Xe lamp (λ >420nm)	Lactic acid	800	6
$RGO/ZnIn_2S_4$	300 W Xe lamp (λ >420nm)	Na_2S/Na_2SO_3	1632	7
$RGO/ZnIn_2S_4$	300 W Xe lamp (λ >420nm)	Na_2S/Na_2SO_3	556	8
$RGO/ZnIn_2S_4$	300 W Xe lamp (λ >420nm)	Lactic acid	2646	9
$RGO/ZnIn_2S_4$	300 W Xe lamp (λ >420nm)	Na_2S/Na_2SO_3	1210	10
$Graphene/ZnIn_2S_4$	300 W Xe lamp (λ >420nm)	Triethanolamine	2640.8	11
MoS_2-graphene/$ZnIn_2S_4$	300 W Xe lamp (λ >420nm)	Na_2S/Na_2SO_3	4169	12
$RGO/ZnIn_2S_4$	300 W Xe lamp (λ >400nm)	Triethanolamine	5064	This work

References

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