Supporting Information

Self-supporting three-dimensional $ZnIn_2S_4$/PVDF–P(MMA-co-MAA) composite mats with hierarchical nanostructures for high photocatalytic activity

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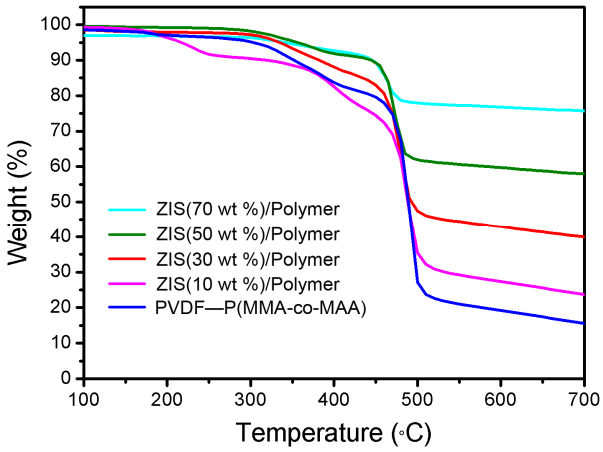

Figure S1. Thermal gravity analysis of PVDF–P(MMA-co-MAA) and ZIS/Polymer composite mats with different amounts of $ZnIn_2S_4$ loadings.

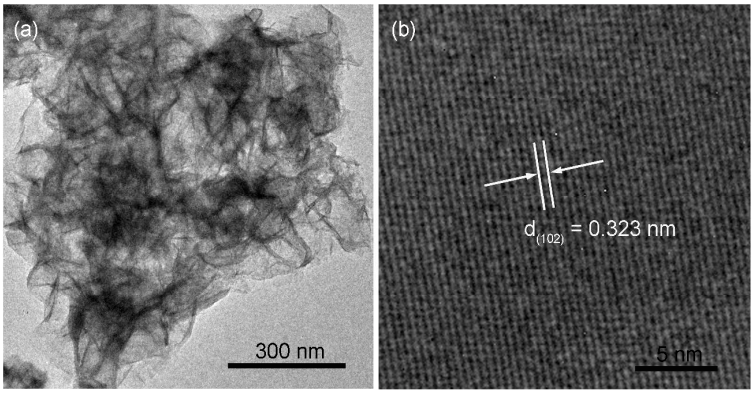

Figure S2. TEM (a) and HRTEM (b) of the ZIS nanosheets on the ZIS(50 wt %)/Polymer. The ZIS sheets were obtained by ultrasonic treating the ZIS(50 wt %)/Polymer for 24 h.

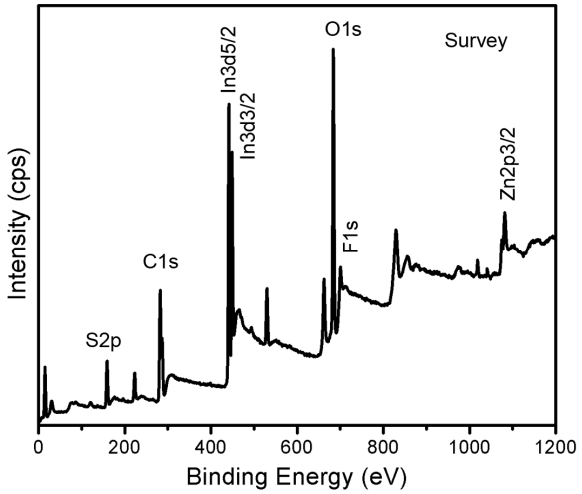

Figure S3. XPS survey spectrum of the ZIS (50 wt %)/Polymer composite.

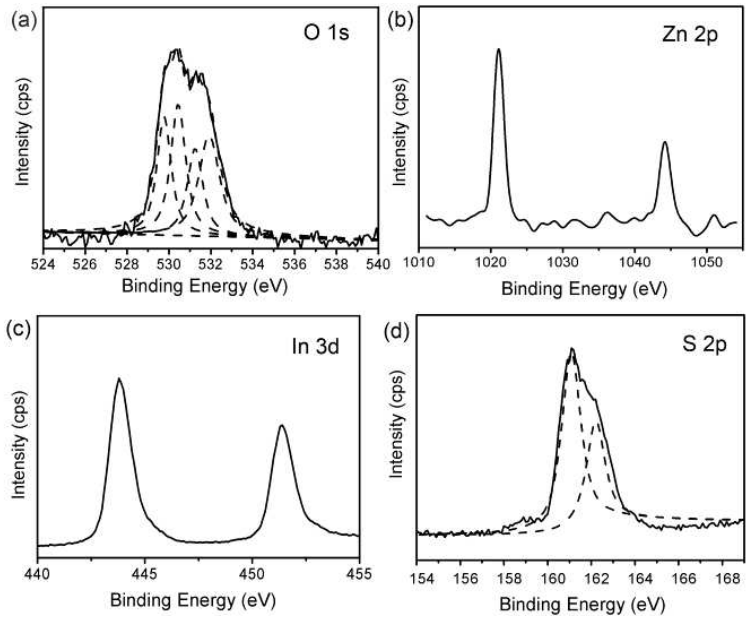

Figure S4. IR spectra of the PVDF/P(MMA-co-MAA) (a), ZnIn/Polymer (b), and ZIS(50 wt%)/Polymer samples.

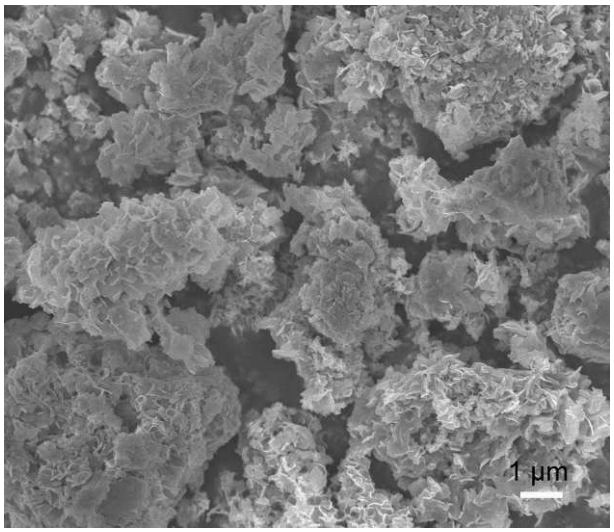

Figure S5. SEM image of the $ZnIn_2S_4$ powder obtained by reacting $Zn(CH_3COO)_2$, $InCl_3$ and TAA at 160 ºC for 12 h.

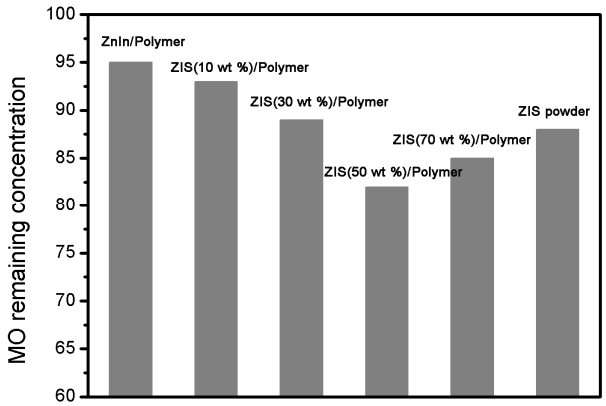

Figure S6. Bar plots showing the remaining MO dyes in solutions after reaching the adsorption–desorption equilibrium in the dark for 60 min with stirring.

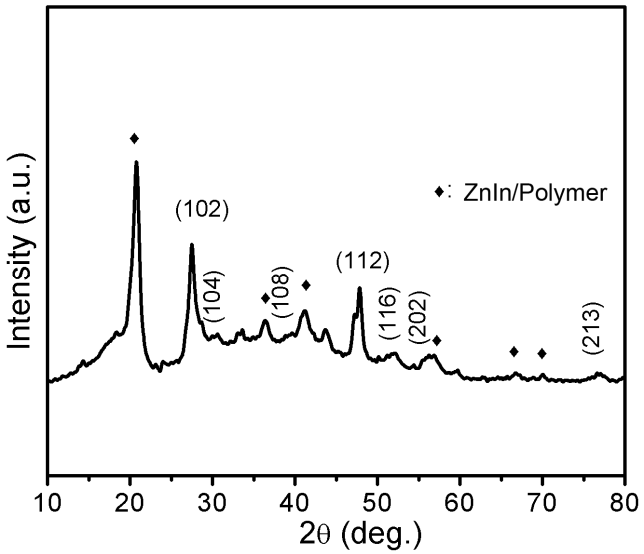

Figure S7. XRD of the ZIS(50 wt %)/Polymer after five cycles of photocatalytic degradation.

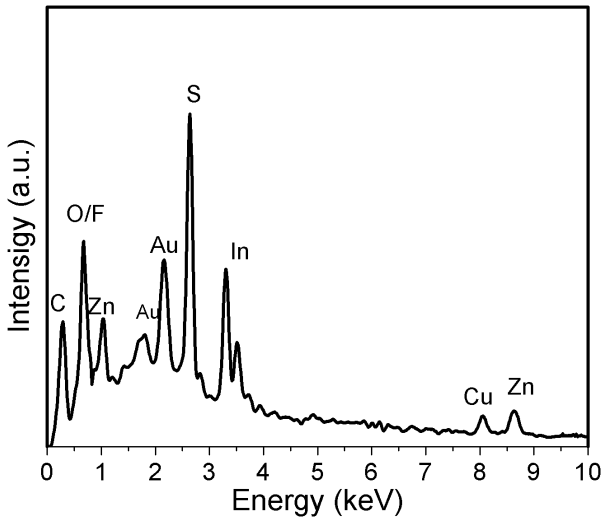

Figure S8. EDS of the ZIS(50 wt %)/Polymer after five cycles of photocatalytic degradation.

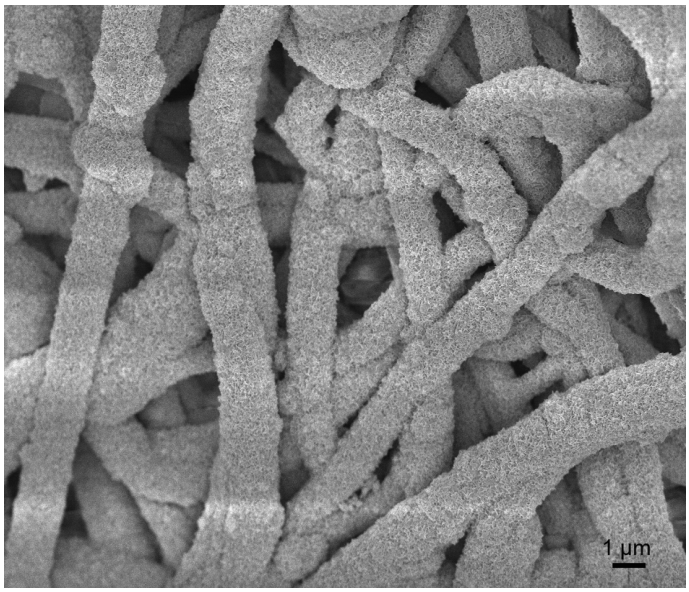

Figure S9. SEM image of the ZIS(50 wt %)/Polymer after five cycles of photocatalytic degradation.

Table 1 The $ZnIn_2S_4$ loadings of ZIS/Polymer composites.

Samples	Weight loss (wt %)	$ZnIn_2S_4$ loading (wt %)	Specific surface area ($m^2\ g^{-1}$)
PVDF–P(MMA-co-MAA)	76.8	0	35.2
10%	68.9	10.3	42.2
30%	53.1	30.9	48.3
50%	37.9	50.7	59.2
70%	21.5	72.0	53.2