Electronic Supplementary Information:

Facile Thermal Exfoliation of Cu Sheets towards CuO/Cu_2O Heterojunction: A Cost-effective Photocatalyst with Visible-light Response for Promising Sustainable Applications

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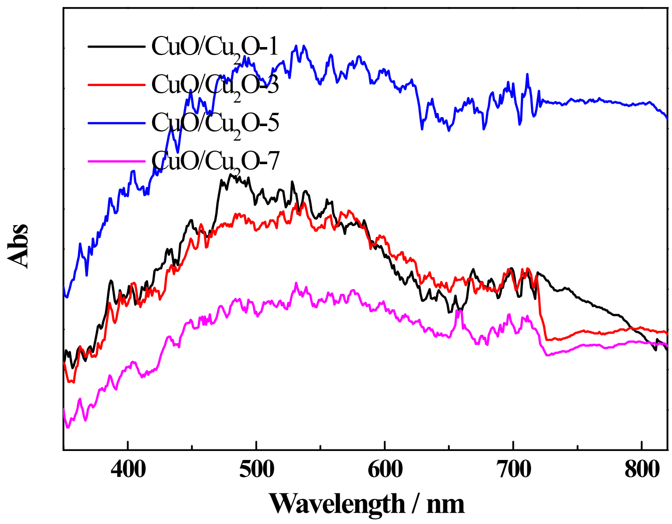

Fig. S1 UV−Vis DRS spectrum of different CuO/Cu_2O composites.

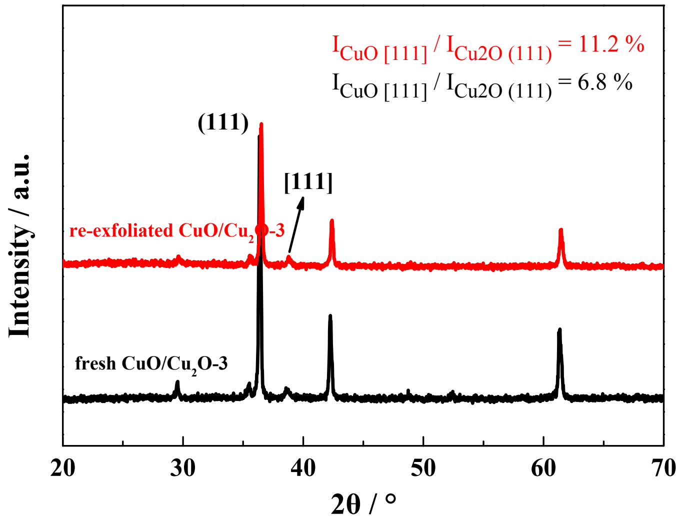

Fig. S2 XRD patterns of CuO/Cu_2O-3 before and after photocatalytic removal for cycled thermal exfoliation.

Tab. S1 Element content analysis of CuO/Cu_2O-3 composite from XPS spectra (Atomic %)

Sample	C/%	O/%	Cu^{+}/%	Cu^{2+}/%
CuO/Cu_2O-3	61.99	28.77	8.28	0.96

Tab. S2 Comparison of different performances of Cu-based photocatalysts for dye degradation

Catalyst	synthetic method	Light source	Catalyst loading (g)	Dye	Concentration (mg/L)	Time (min)	Efficiency
CuO	Solid phase[1]	UV lamp	0.5	MB	10	210	33%
Cu/CuO	Liquid phase[2]	UV lamp	0.02	MB	10	50	15%
Cu/Cu_2O	Solid phase[3]	Xe lamp (420 nm cut-off)	0.28	MB	20	120	67%
$Cu@Cu_2O$	Liquid phase[4]	UV lamp	0.01	MB	10	50	4.7%
CuO/Cu_2O	Gas phase[5]	Xe lamp (420 nm cut-off)	Not detectable	MB	10	240	90%
CuO/Cu_2O	Liquid phase[6]	Xe lamp (420 nm cut-off)	0.015	MO	6.5	120	95%
$CuO/Cu_2O/Cu$	Liquid phase[7]	Blue LED	0.015	MB	10	90	92%
CuO/Cu_2O (This work)	**Solid phase**	**Xe lamp (420 nm cut-off)**	**0.05**	**RhB**	**20**	**120**	**73%**

Tab. S3 The energy band gaps (Eg), conduction band (E_{CB}) and valence band potentials (E_{VB}) of CuO and Cu_2O

Sample	Eg/eV	E_{CB}/eV	E_{VB}/eV
CuO	1.7	0.46	2.16
Cu_2O	2.2	-0.28	1.92

*These values were obtained from the previous representative reports.[8,9]

References

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