Electronic Supplementary Material (ESI) for Photochemical & Photobiological Sciences.

Supplementary Information

Environmentally benign synthesis of $CuInS_2$/ZnO heteronanorods: visible light activated photocatalysis of organic pollutant/bacteria and its mechanism study

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Supplementary Information I: Analysis of TRPL decay results

Table S1. Fitted amplitude and fluorescence lifetime values of TRPL decay curves.

Sample	A_1 (%)	τ_1 (ns)	A_2 (%)	τ_2 (ns)	A_3 (%)	τ_3 (ns)	$<\tau>$ (ns)
CIS	20.8	1.29	75.8	0.398	3.4	3.412	0.69
CIS/ZnO	100	0.215	-	-	-	-	0.22

To determine fluorescence lifetimes, TRPL decay curves were fitted by summation of three exponential terms.

$$I(t) = \sum_i A_i exp(-t/\tau_i)$$

Where *I(t)* is the intensity of TRPL with respect to time (*t*), A_i is normalized amplitude and τ is the lifetime. Then, average lifetime ($<\tau_{int}>$) can be calculated by the following equation.

$$<\tau_{int}> = \frac{\sum_i A_i \tau_i^2}{\sum_i A_i \tau_i}$$

Supplementary Information II: Photostability of CIS/ZnO NRAs under visible light illumination

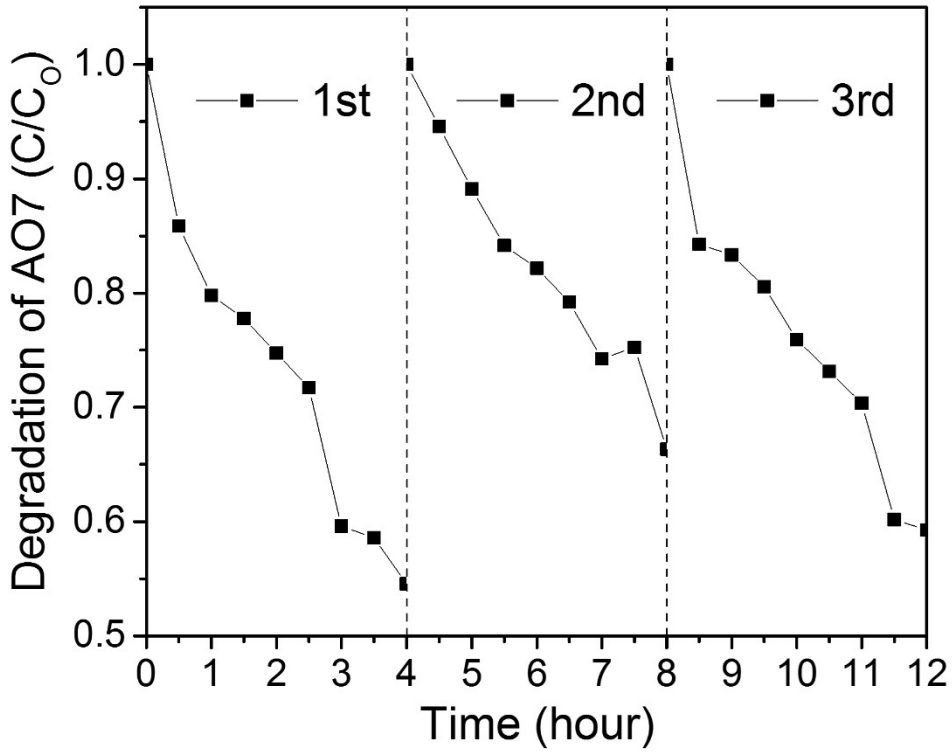

Figure S1. Photostability of the CIS/ZnO NRAs heterostructure under visible light.

Supplementary Information III: Photodecomposition of AO7 under various bias applied conditions for CIS/ZnO NRAs

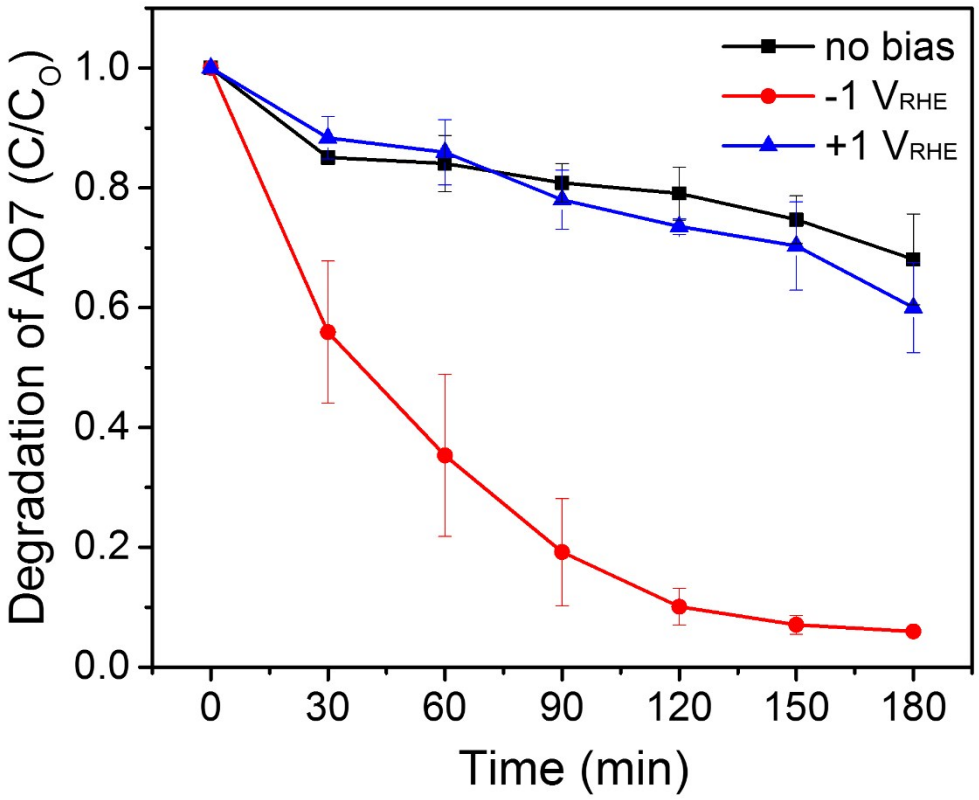

Figure S2. AO7 photodegradation performance of the CIS/ZnO NRAs under various bias conditions in visible light irradiation.