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Band gap engineering of BiOI via Oxygen Vacancy induced by graphene for improved photocatalysis

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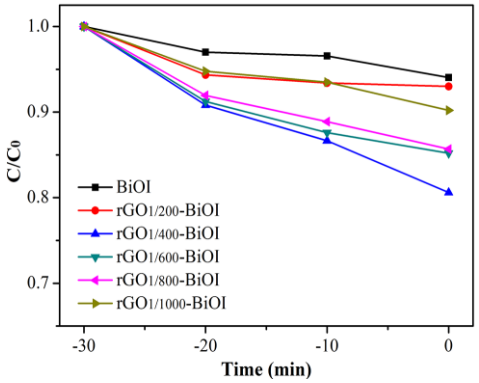

Figure S1: Adsorption curves of MO by BiOI and rGO-BiOI nanocomposites samples.

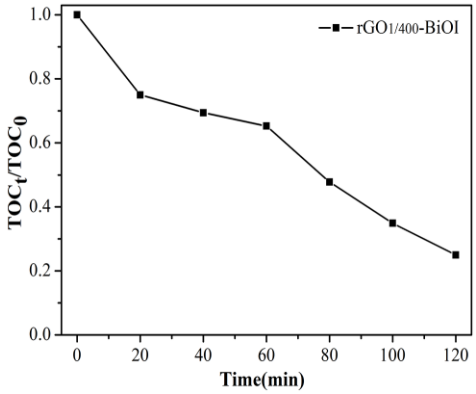

Figure S2: The mineralization rate of $rGO_{1/400}$-BiOI for MO

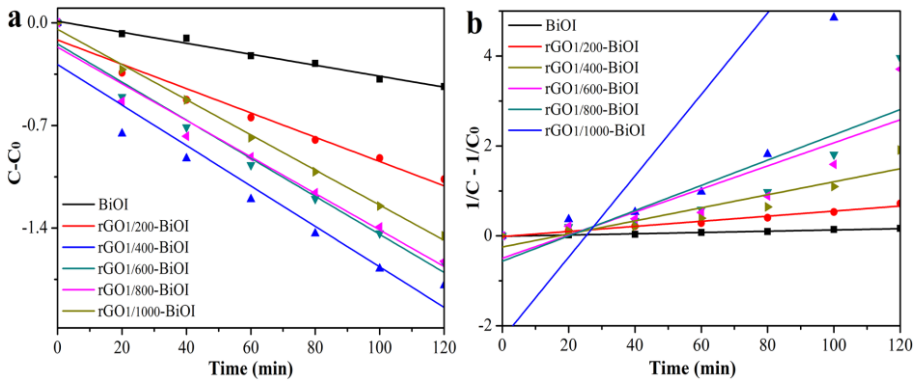

Figure S3: (a) Zero-order kinetics (b) second-order kinetics of degradation for MO over BiOI and rGO-BiOI.

Table S1. Fitted results of MO degradation over BiOI an rGO-BiOI

catalysts	BiOI	$rGO_{1/200}$-BiOI	$rGO_{1/400}$-BiOI	$rGO_{1/600}$-BiOI	$rGO_{1/800}$-BiOI	$rGO_{1/1000}$-BiOI
zero order R^2	0.984	0.959	0.916	0.975	0.963	0.997
slope (k_0)	0.003	0.008	0.013	0.013	0.012	0.012
standard error	0.0001	0.0006	0.0017	0.0008	0.0010	0.0003
first order R^2	0.981	0.991	0.974	0.992	0.927	0.963
slope (k_1)	0.002	0.007	0.026	0.015	0.016	0.012
standard error	0.0001	0.0003	0.0017	0.0006	0.0018	0.0010
second order R^2	0.974	0.976	0.583	0.718	0.694	0.829
slope (k_2)	0.001	0.006	0.090	0.028	0.026	0.015
standard error	0.00009	0.0003	0.0295	0.0070	0.0067	0.0027

(K_0=mg/L min, K_1=min^{-1}, K_2= L/mg min)

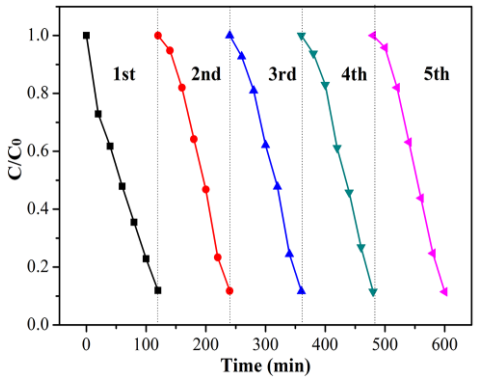

Figure S4: Cycling experiment for degrading MO over $rGO_{1/400}$-BiOI

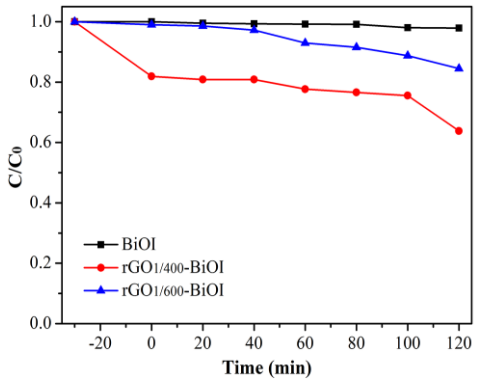

Figure S5: Photocatalytic activities of phenol over BiOI, $rGO_{1/400}$-BiOI and $rGO_{1/600}$-BiOI under visible light irradiation.

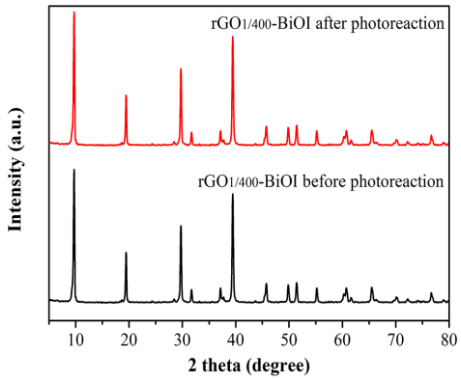

Figure S6: XRD patterns of $rGO_{1/400}$-BiOI before and after photoreaction.

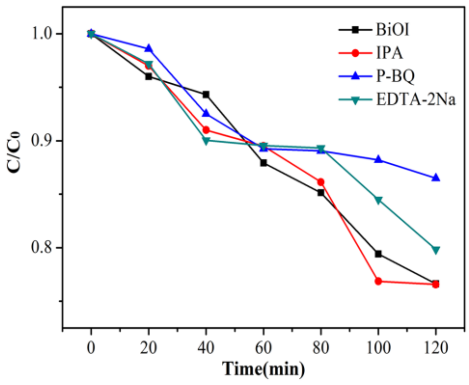

Figure S7: Reactive species trapping experiments on the photocatalytic degradation of MO over pure BiOI.