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BN 诱导 BiOI 富氧{110}面的暴露并增强其可见光催化氧化性能

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Selective Exposure of BiOI Oxygen-Rich {110} Facet Induced by BN Nanosheets for Enhanced Photocatalytic Oxidation Performance

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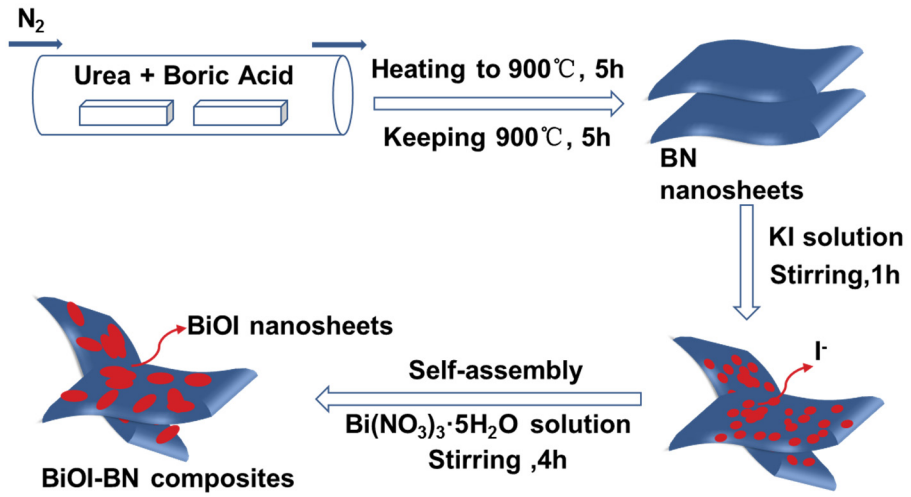

Fig. S1 Schematic illustration of the formation process of two-dimensional (2D) BiOI-BN composites.

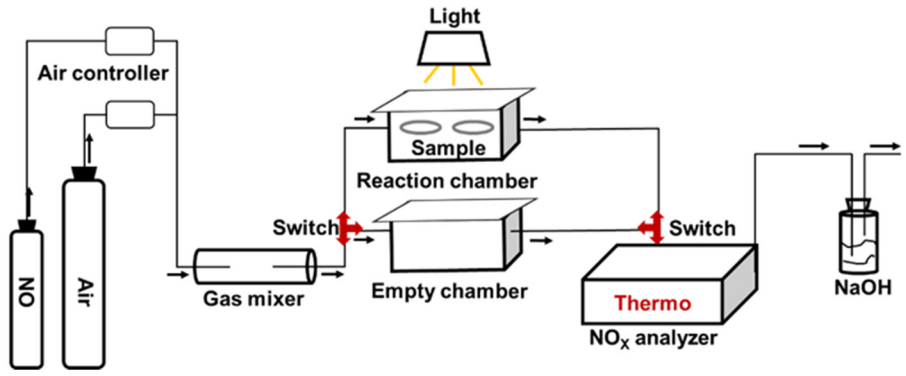

Fig. S2 Experimental setup for photocatalytic oxidation of NO.

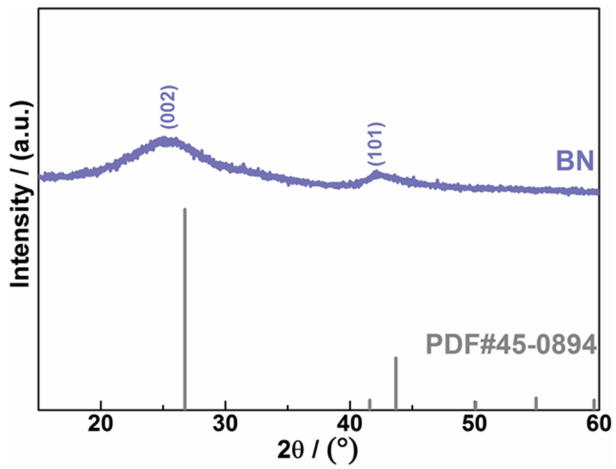

Fig. S3 XRD patterns of pure BN.

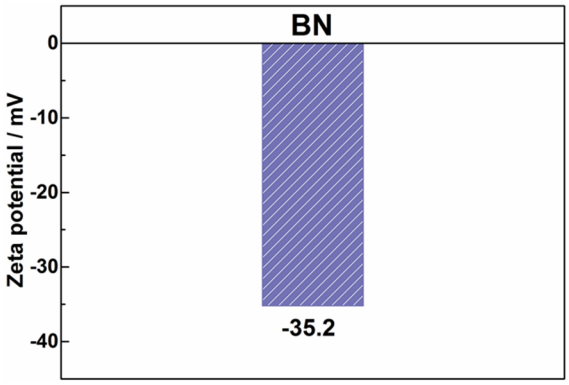

Fig. S4 Zeta potential of pure BN.

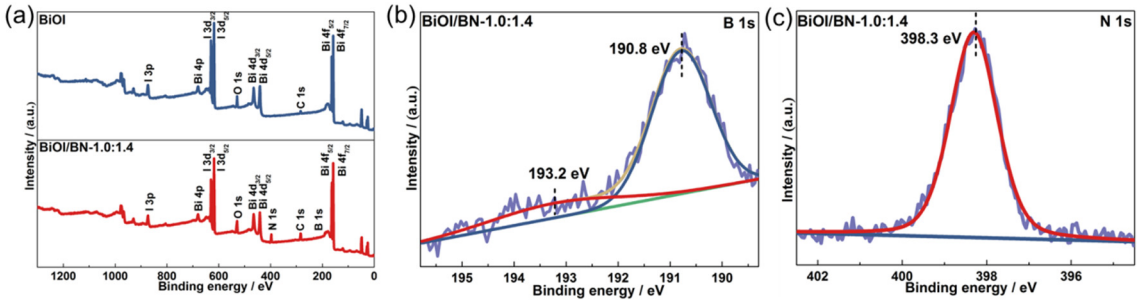

Fig. S5 XPS spectra of the BiOI/BN-1.0:1.4 composite.

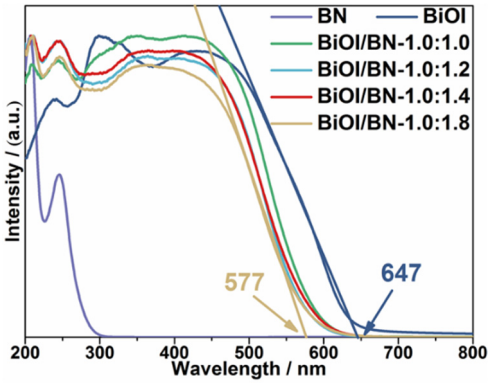

Fig. S6 The UV-Vis DRS spectra.

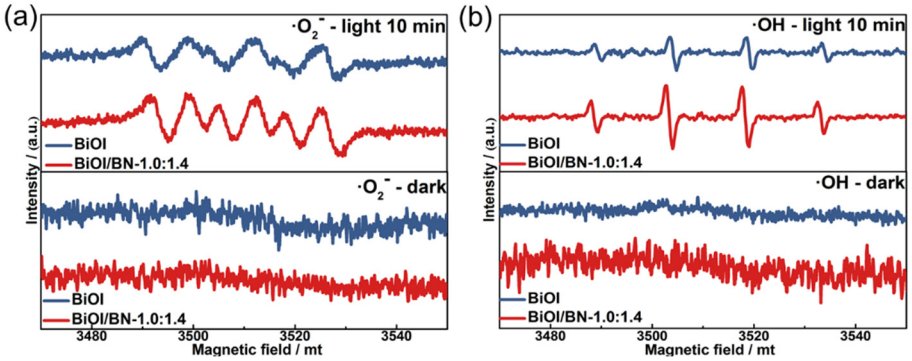

Fig. S7 DMPO spin-trapping ESR spectra of the BiOI and BiOI/BN-1.0:1.4 (a) in a methanol dispersion for DMPO-·O_2^-; (b) in an aqueous dispersion for DMPO-·OH.

Table S1 The contents of BiOI/BN composites.

Samples	BiOI molar weight (mass)	BN molar weight (mass)	The molar percentage of BiOI in BN	The mass percentage of BiOI in BN (mass ratio)
BiOI	0.001 mol (0.3519 g)	0		
BiOI/BN-1.0:1.8	0.001 mol (0.3519 g)	0.025 mol (0.6205 g)	4%	56.71% (1.0 : 1.8)
BiOI/BN-1.0:1.4	0.001 mol (0.3519 g)	0.02 mol (0.4964 g)	5%	70.89% (1.0 : 1.4)
BiOI/BN-1.0:1.2	0.001 mol (0.3519 g)	0.017 mol (0.4137 g)	6%	85.06% (1.0 : 1.2)
BiOI/BN-1.0:1.0	0.001 mol (0.3519 g)	0.014 mol (0.3546 g)	7%	99.24% (1.0 : 1.0)

Table S2 The surface chemical composition of BiOI and BiOI/BN-1.0:1.4 composite.

	Bi	O	I	B	N
BiOI	26.6%	38.3%	35.1%	–	–
BiOI/BN-1.0:1.4	13.2%	30.1%	15.4%	22.4%	18.9%

Table S3 The adsorption energies of O_2 and NO on the (110) and (001) surfaces of BiOI.

	The adsorption of O_2 (eV)	The adsorption of NO (eV)
BiOI (001)	−4.31	−2.73
BiOI (110)	−0.79	−2.75