Electronic Supplementary Material

Crystal design of bismuth oxyiodide with highly exposed (110) facets on curved carbon nitride for the photocatalytic degradation of pollutants in wastewater

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S 2.4 Photoelectrochemical measurements

The photochemical experiments were carried out using a conventional three-electrode system on the electrochemical workstation CHI 660B (Shanghai, China). The specific method was shown in the Supporting Information. Respectively, the saturated calomel electrode, platinum wire electrode and sample electrode were used in 0.2 mol/L Na_2SO_4 electrolyte for standard three-electrode battery. The sample electrode was prepared by dispersing 10 mg of catalyst and 4 mg of tetrafluoroethylene in 2 mL of a mixture of deionized water and ethanol, and ultrasonically treating it for 30 min to form a uniform slurry, which was coated on the ITO glass (effective area: 1 cm^2) and dried at 80 °C for 6 h. In the test, the electrode was immersed in an electrolyte solution. With a 150 W xenon lamp (> 420 nm, Osram, Germany) was used as the light source to measure the transient photocurrent with the simulated sunlight. And EIS and Mott-Schottky spectra were measured to study the type and valence band energy of the composites.

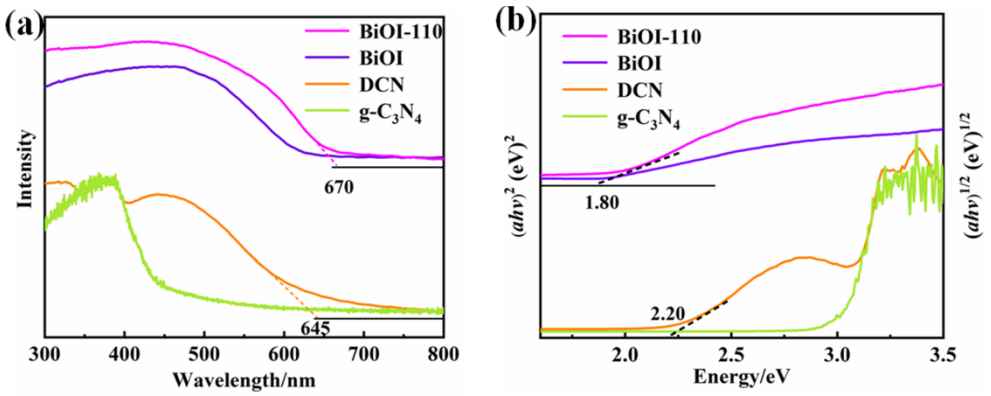


Fig. S1 (a) UV–vis diffuse reflectance spectra and (b) the band gap energies of BiOI-110, BiOI, DCN, g-C_3N_4

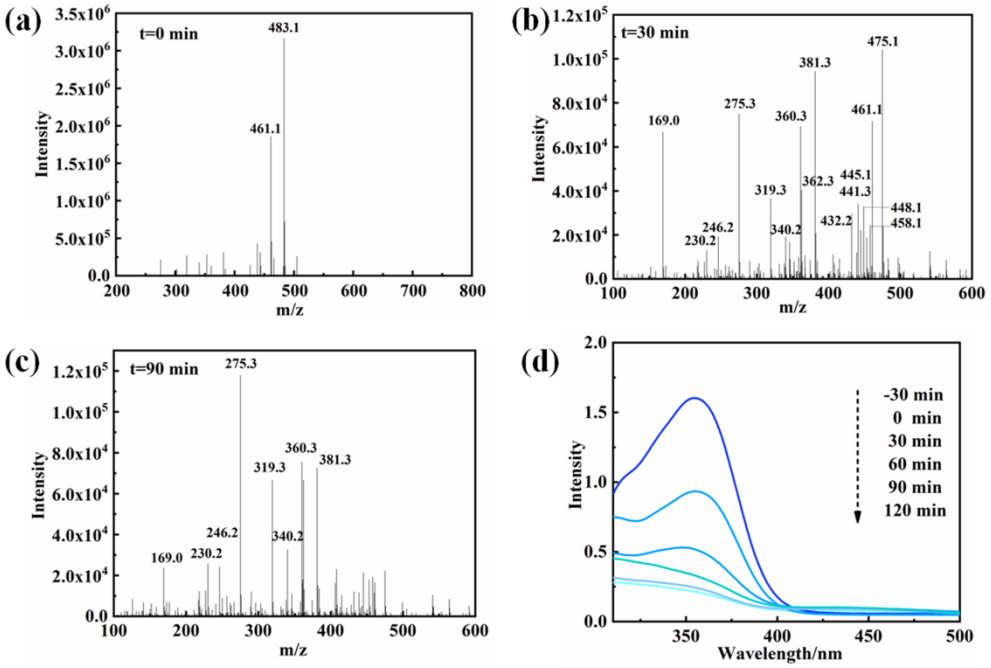
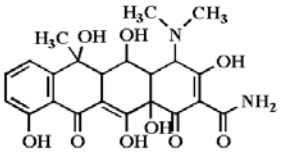
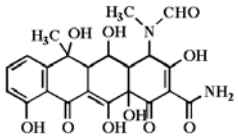
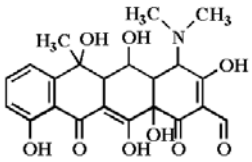
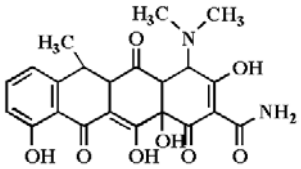
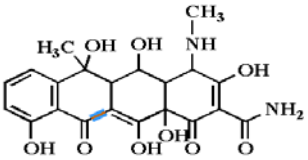
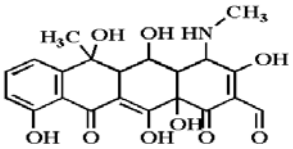
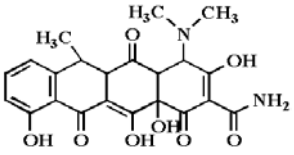
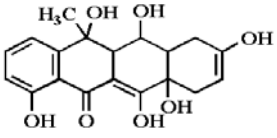
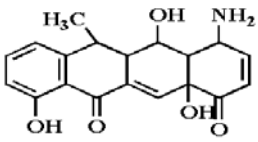


Fig. S2 MS spectra of the OTC solution eluted at different reaction time of (a) 0 min, (b) 30 min, (c) 90 min over the 7% BiOI-110/DCN, and (d) UV–vis spectra for degradation of OTC

Table. S1 Comparison of OTC photodegradation efficiency of 7% BiOI-110/DCN with other reported catalysts.

Material	Initial (mg/L)	Volume (mL)	Catalyst (mg)	time (h)	η (%)	Ref
Ag/g-C_3N_4	20	100	100	2	81.0	[1]
g-C_3N_4/Bi_4NbO_8Cl	20	20	20	1	87.0	[2]
Dots-$BiVO_4$/ g-C_3N_4	10	100	50	2	66.7	[3]
β-Bi_2O_3@CoO	10	50	20	2	86.0	[4]
$ZnIn_2S_4$/BiOCl	10	100	50	2	83.7	[5]
BiOI-110/DCN	20	100	20	2	85.6	This work

Table. S2 Proposed degradation products of OTC by the 7% BiOI-110/DCN.

Compounds	m/z	Formula	Molecular weight	Proposed structure
OTC P0	461.1	$C_{22}H_{24}N_2O_9$	460	
OTC P1	475.1	$C_{22}H_{23}N_2O_{10}$	475	
OTC P2	445.1	$C_{22}H_{23}NO_9$	445	
OTC P3	441.3	$C_{22}H_{20}N_2O_8$	440	
OTC P4	448.1	$C_{21}H_{23}N_2O_9$	447	
OTC P5	432.2	$C_{21}H_{21}NO_9$	431	
OTC P6	458.1	$C_{22}H_{19}NO_{10}$	457	
OTC P7	362.3	$C_{19}H_{22}O7$	362	
OTC P8	340.2	$C_{19}H_{17}NO_5$	339	

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