

A novel S-scheme heterojunction based on 0D/3D
CeO₂/Bi₂O₂CO₃ for photocatalytic degradation of organic
pollutants

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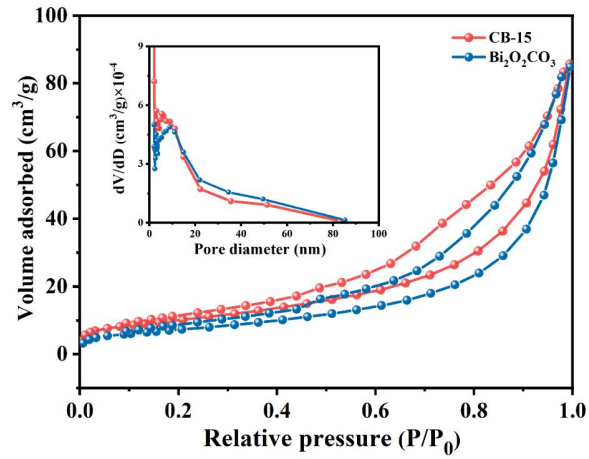


Fig. S1. N₂ adsorption/desorption isotherms and BJH pore diameter distribution of Bi₂O₂CO₃ and CB-15.

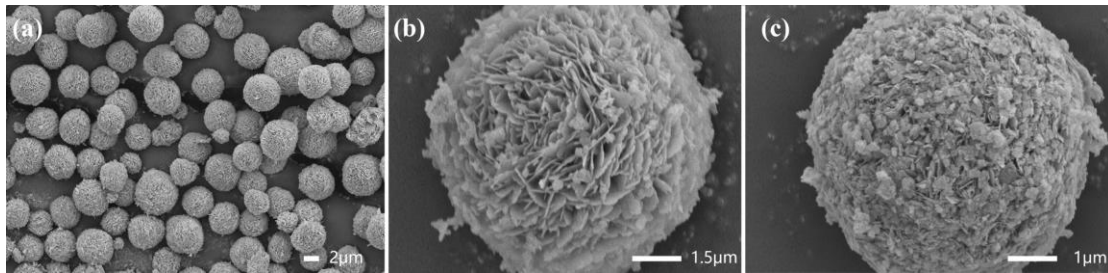


Fig. S2. SEM images of (a) Bi₂O₂CO₃, (b) CB-10, and (c) CB-20.

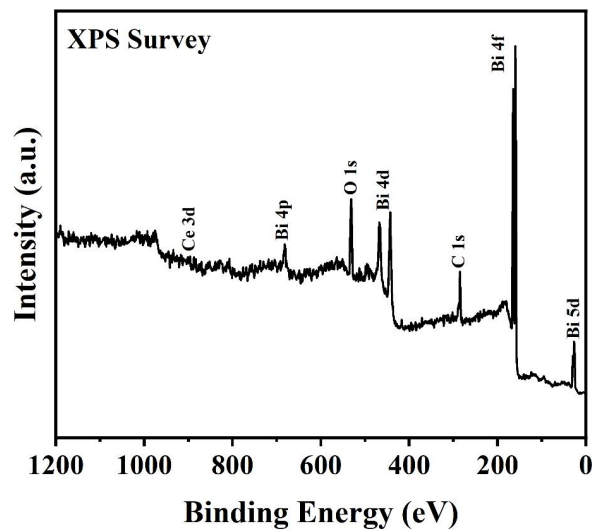


Fig. S3. XPS spectra of CB-15.

Table S1. E_{VB} , E_{CB} and E_g of $\text{Bi}_2\text{O}_2\text{CO}_3$ and CeO_2 .

Semiconductor	E_{VB} (eV)	E_{CB} (eV)	E_g (eV)
$\text{Bi}_2\text{O}_2\text{CO}_3$	-0.01	3.27	3.28
CeO_2	-0.69	1.72	2.41

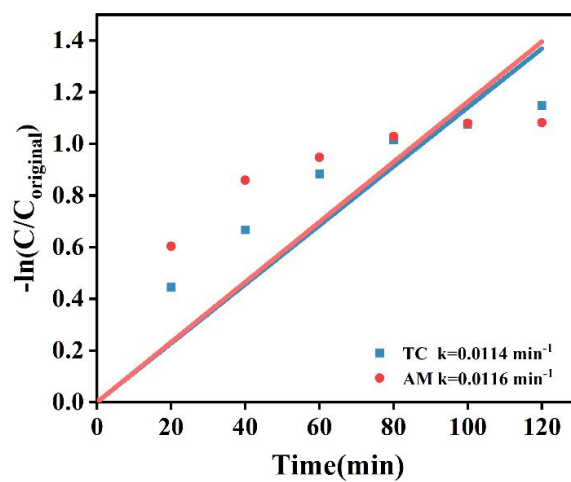


Fig. S4. Photodegradation kinetics curves of TC and AM.

Table S2. The comparison of photocatalytic performance of CB-15 and other photocatalysts for the degradation of MB and TC.

Photocatalyst	Dosage (mg)	Concentration of pollutant (mg L ⁻¹)		Light source	Volume (mL)	Removal efficiency (%)	Rate constant (min ⁻¹)	Time (min)	Ref.
		MB	TC						
Cu ₂ ONPs/Bi ₂ O ₂ CO ₃	500	10	/	250 W halide lamp	100	94	0.0132	20	1
MgAl ₂ O ₄ /CeO ₂ /Mn ₃ O ₄	100	5	/	150 W Xe lamp	100	94.6	0.0160	180	2
Ag ₂ CO ₃ /Bi ₂ O ₂ CO ₃	100	10	/	300 W Xe lamp	100	96	0.0233	120	3
CeO ₂ /g-C ₃ N ₄	50	10	/	36 W UV lamp	100	90.1	0.0300	180	4
g-C ₃ N ₄ /Bi ₂ O ₂ CO ₃	50	/	20	1000 W Xenon lamp	100	~94	0.00737	360	5
In ₂ S ₃ /Bi ₂ O ₂ CO ₃	30	/	10	400 W Xenon lamp	30	70	0.00537	180	6
β-Bi ₂ O ₃ @CeO ₂	50	/	10	500 W Xenon lamp	100	~92	0.0110	180	7
BiOI/g-C ₃ N ₄ /CeO ₂	50	/	20	300 W Xenon lamp	30	91.6	0.0205	120	8
CeO ₂ /Bi ₂ O ₂ CO ₃	200	/	20	500 W Xe lamp	100 (MB) 40 (TC)	98 (MB) 79 (TC)	0.0256 (MB) 0.0114 (TC)	120	This work

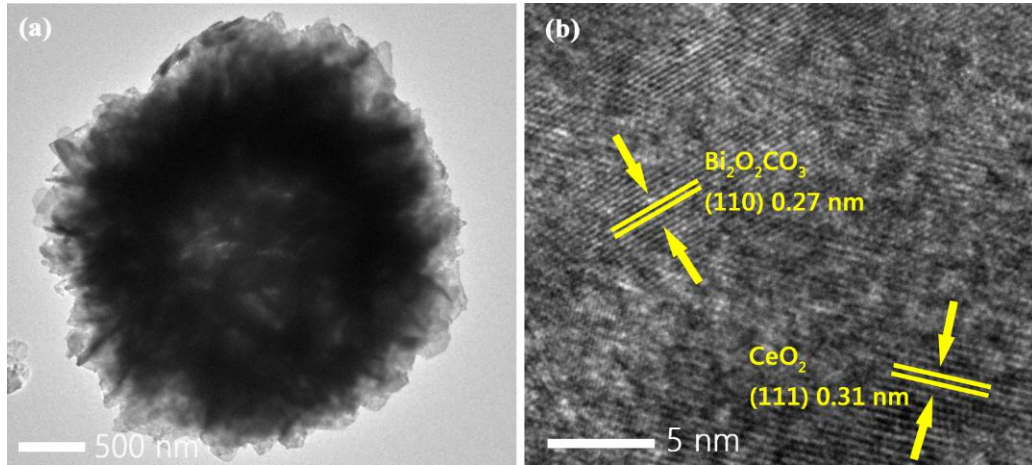


Fig. S5. (a) TEM and (b) HR-TEM images of CB-15 after photodegradation experiments.

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