Supplementary Information (SI) for Journal of Materials Chemistry A.
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Supplementary information

C as a bridge and Bi as a photothermal converter to trigger visible-light catalytic CO_2 reduction over BiOBr by in situ solid-state reduction

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Supplementary Figures

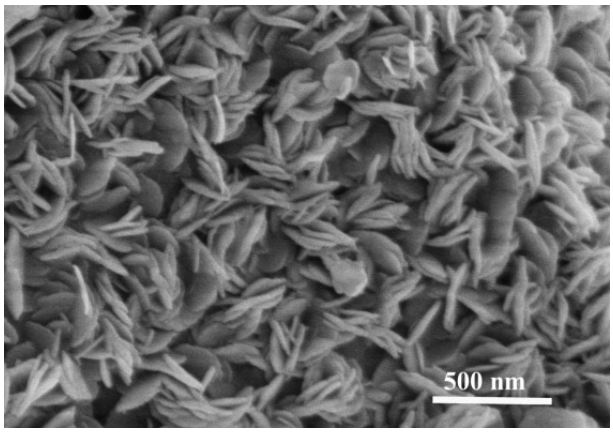

Fig. S1 SEM of the precursor of BOB-20.

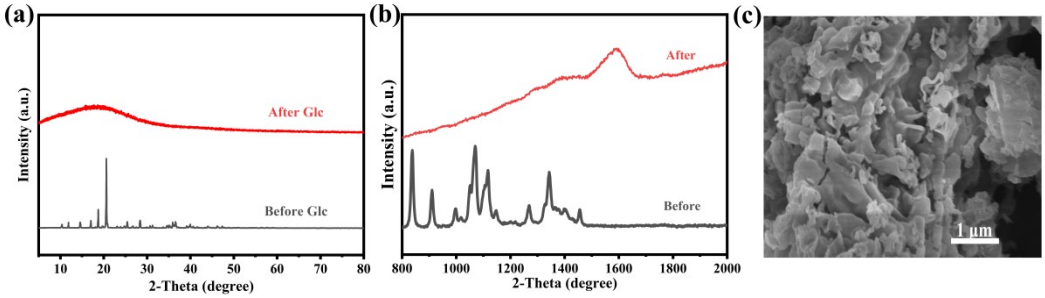

Fig. S2 (a) XRD, (b) Raman and (c) SEM of Glc after holding at 320 °C under argon atmosphere for 4 h.

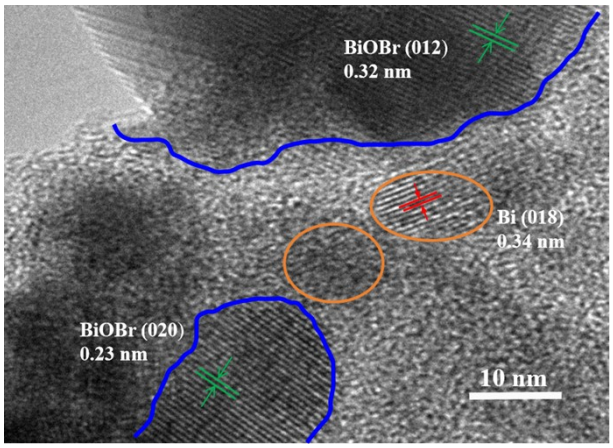

Fig. S3 HRTEM of BOB-20.

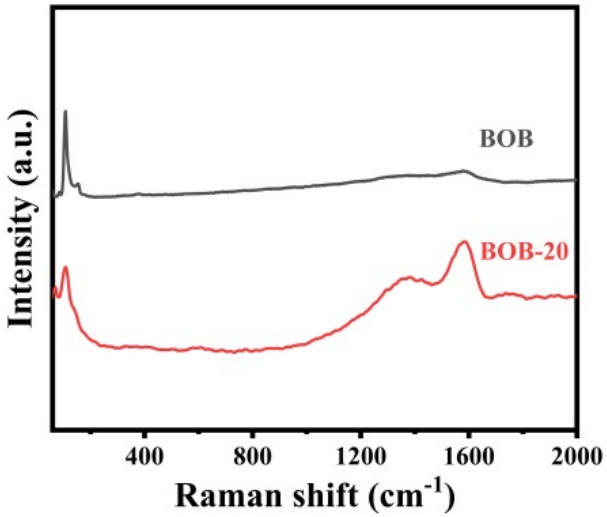

Fig. S4 Raman spectra of BOB and BOB-20.

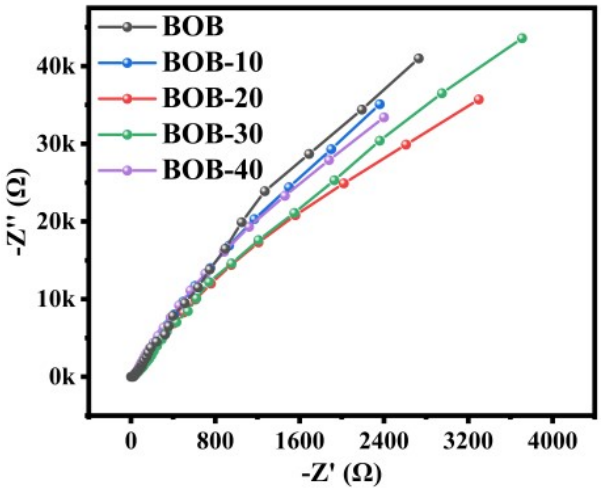

Fig. S5 EIS spectra of BOB and BOB-20.

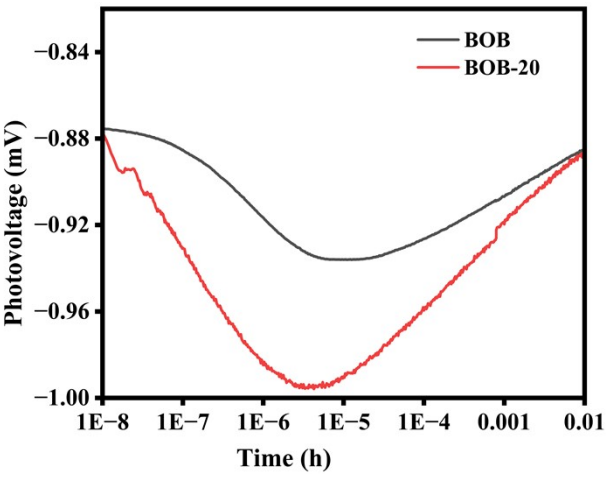

Fig. S6 TPV decay curves of BOB and BOB-20.

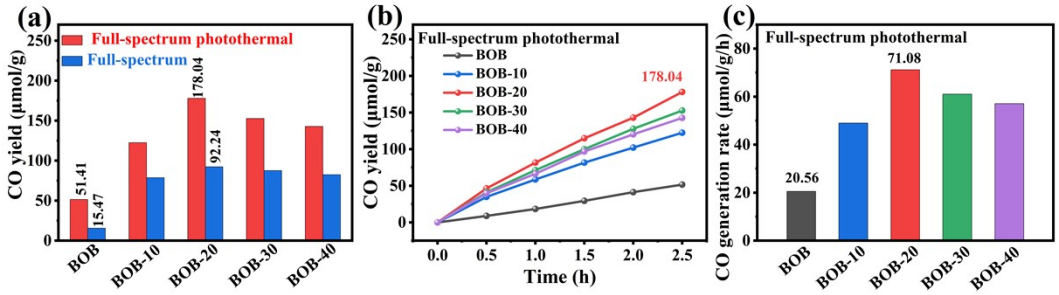

Fig. S7 (a) Production diagrams of CO by photothermal and photocatalytic reduction of CO_2 under full-spectrum illumination, (b-c) Line hart and bar chart of full-spectrum photothermal performance over BOB and BOB-x.

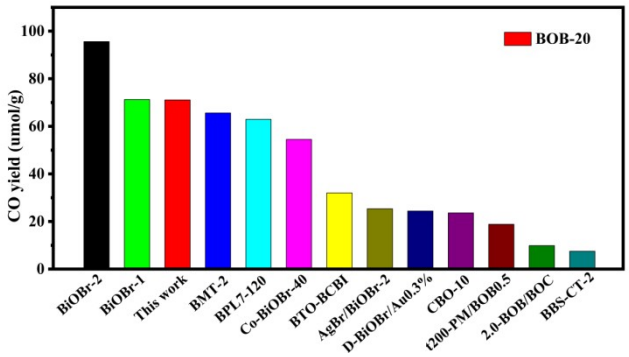

Fig. S8 Comparison of photocatalytic activity between BiOBr and recently reported catalysts for CO_2 reduction [1-12].

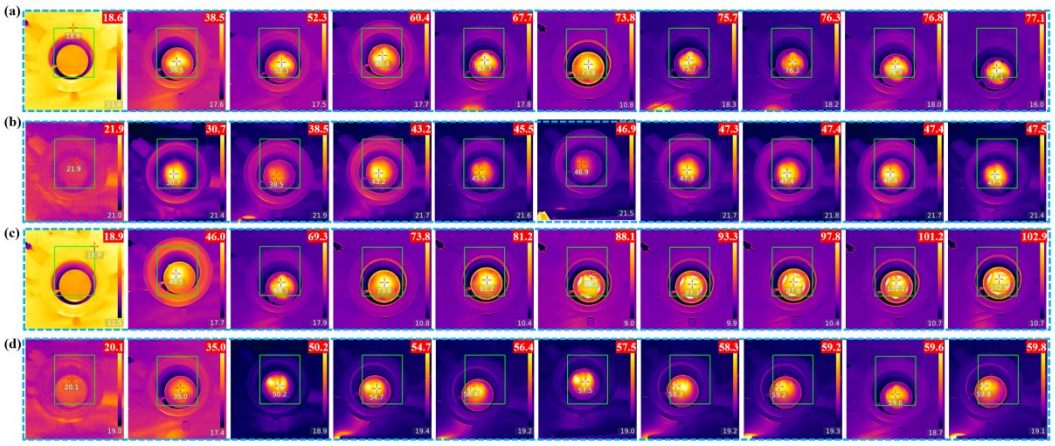

Fig. S9 Thermal images of (a, c) BOB-20 and (b, d) BOB after 3 min of visible-light and full-spectrum irradiation, respectively (image interval: 20 s).

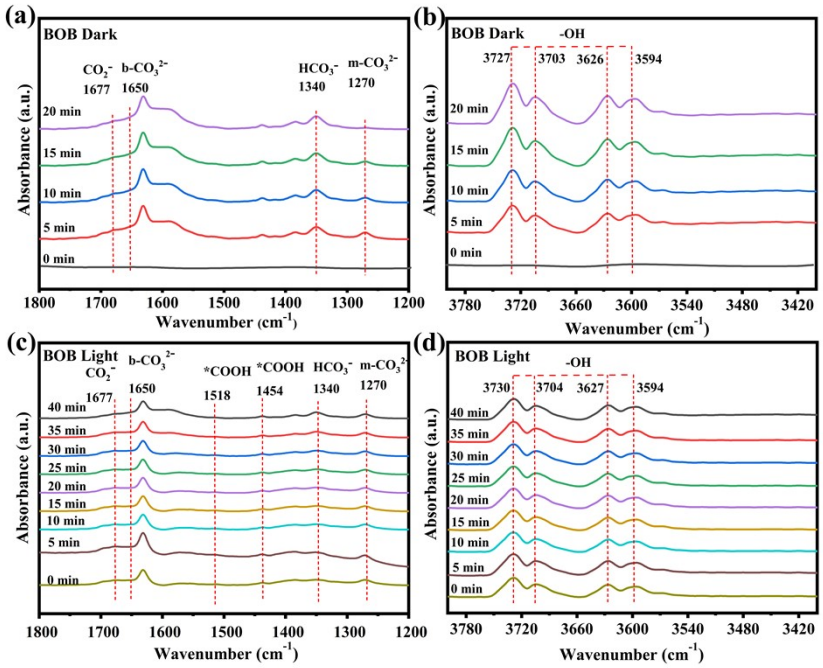

Fig. S10 In situ- FT-IR spectra of the reaction of CO_2 and H_2O from 1200 to 2000 cm^{-1} (a, c) and 3400 to 3800 cm^{-1} (b, d) on BOB.

Table S1 XPS peak areas and the corresponding ratios of O_v to O_L for BOB and BOB-20.

	O_v	O_L	O_v/O_L
BOB	50595.02	97155.53	0.52
BOB-20	20658.39	27122.94	0.76

Table S2 Fitting Parameters and Average Lifetimes of TRPL Spectra.

	τ_1 (ns)	B_1	τ_2 (ns)	B_2	τ_3 (ns)	B_3	τ_{avg} (ns)
BOB	0.74	416.90	4.56	40.03	40.00	5.55	13.93
BOB-20	0.81	58.94	3.44	23.19	31.01	2.98	14.46

References

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