

## Supporting Information

### Construction of CsPbBr<sub>3</sub> modified porous g-C<sub>3</sub>N<sub>4</sub> photocatalyst for effective reduction of CO<sub>2</sub> and mechanism exploration

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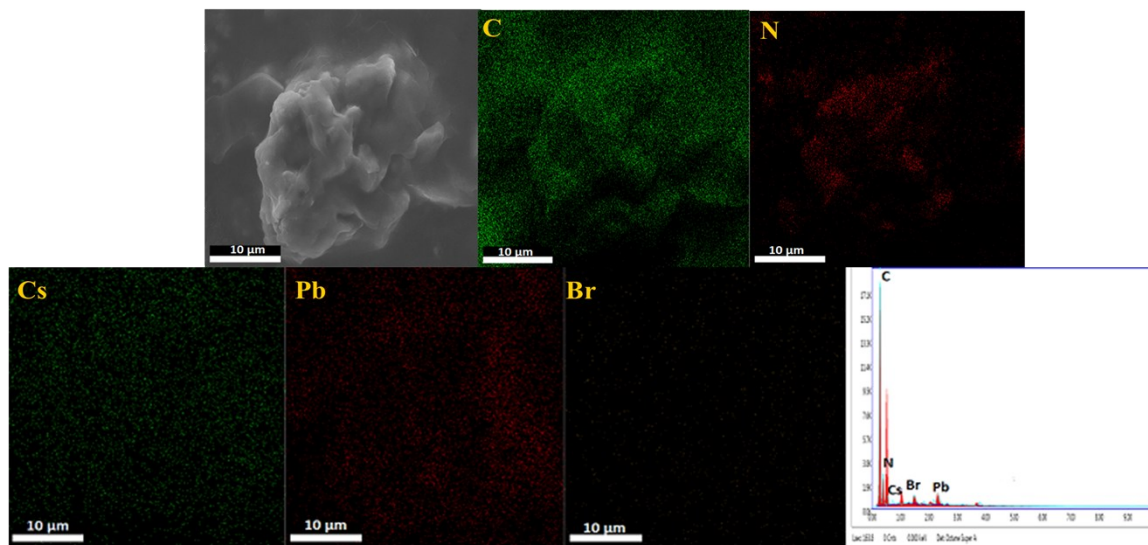
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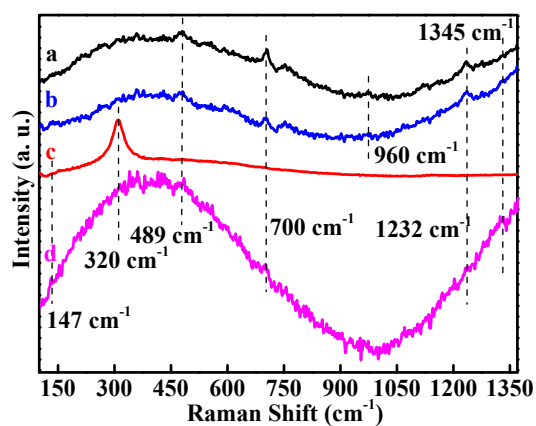
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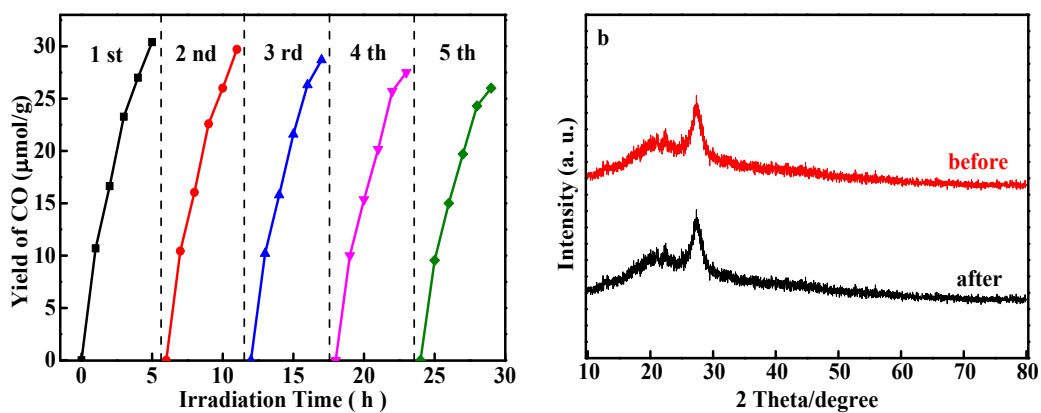
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**Fig. S1.** SEM images, the elemental mapping and energy-dispersive X-ray (EDX) spectrum of P-CN/CsPbBr<sub>3</sub>.



**Fig. S2.** Raman spectra of (a) B-CN, (b) P-CN, (c) CsPbBr<sub>3</sub> and (d) P-CN/CsPbBr<sub>3</sub>.



**Fig. S3.** (a) CO<sub>2</sub> reduction cycle diagram, (b) XRD patterns of P-CN/CsPbBr<sub>3-2</sub> before and after five reaction cycles.

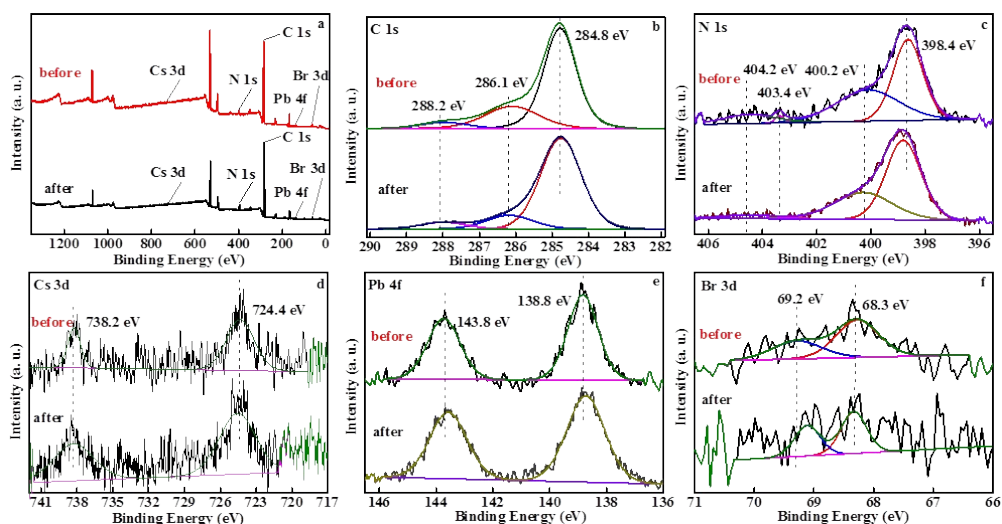


Fig. S4. X-ray photoelectron spectroscopy (XPS) analysis of P-CN/CsPbBr<sub>3</sub>-2 before and after photocatalytic CO<sub>2</sub> reduction.

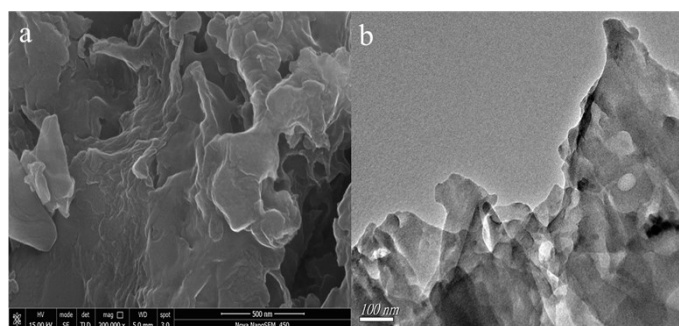


Fig. S5. (a) TEM and (b) FESEM of P-CN/CsPbBr<sub>3</sub>-2 after photocatalytic CO<sub>2</sub> reduction.

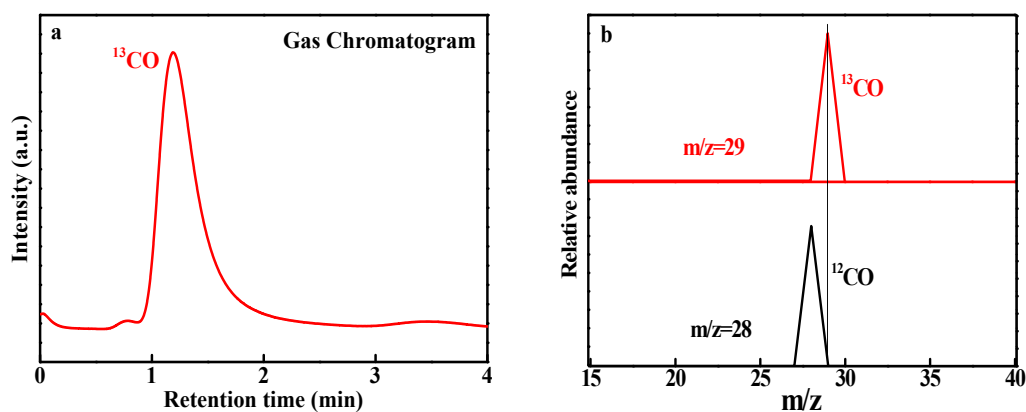


Fig. S6. Gas chromatography-mass spectrometry (GC-MS) analysis of CO generated by P-CN/CsPbBr<sub>3</sub>.

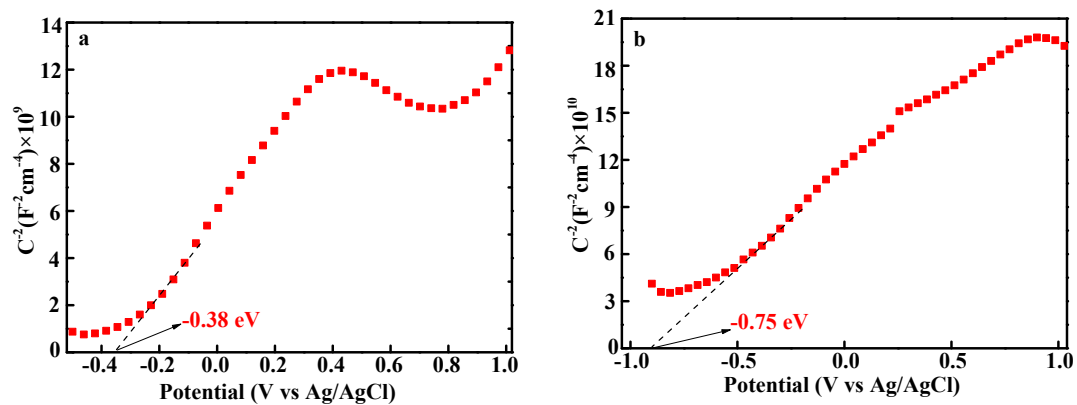


Fig. S7. Mott-Schottky plots of (a) P-CN and (b) CsPbBr<sub>3</sub>.

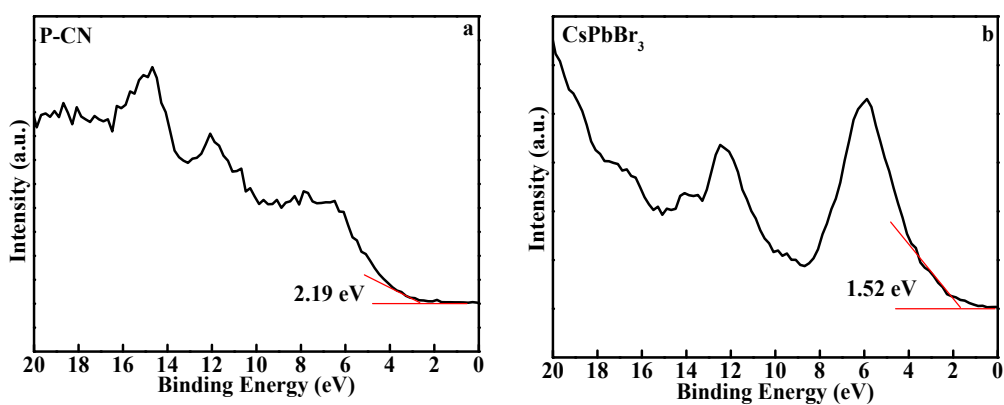


Fig. S8. XPS valence band spectra of (a) P-CN and (b) CsPbBr<sub>3</sub>.