

Supporting Information

Growth of Bulk BiOBr Single Crystals for Characterization of Intrinsic Semi-Conductive Properties and Application of Ultraviolet Photodetector

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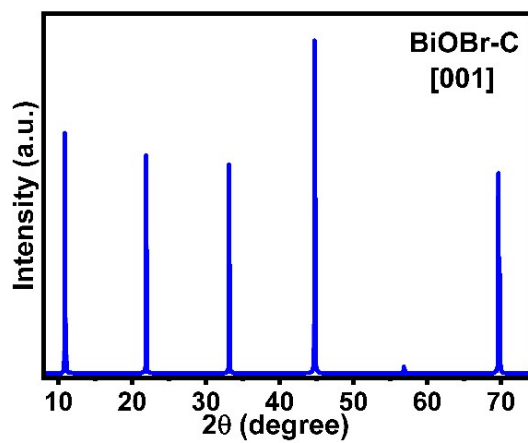


Fig. S1. XRD pattern of BiOBr-C showing [001] reflection direction.

Element	BiOBr-C		BiOBr-P	
	Weight %	Atomic %	Weight %	Atomic %
Bi	6.15	37.33	6.02	36.86
O	25.37	30.84	25.22	30.91
Br	68.48	31.83	68.76	32.23
Total	100		100	

Table S1. EDS for BiOBr-C and BiOBr-P.

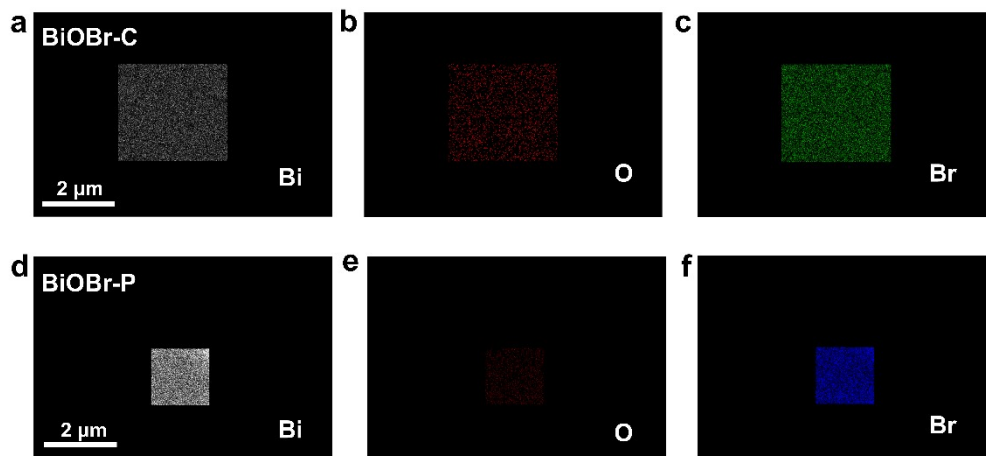


Fig. S2. The mapping images of Bi, O and Br elemental of BiOBr-C (a-c) and BiOBr-P (d-f) for the surface.

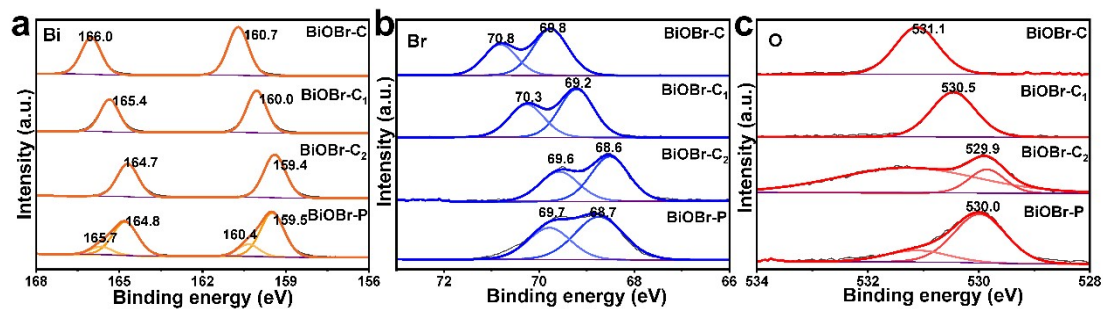


Fig. S3. XPS of (a) Bi 4f, (b) Br 3d and (c) O 1s of freshly exfoliated BiOBr-C (BiOBr-C), BiOBr-C exposed to air for one day after exfoliation (BiOBr-C₁), the as-obtained BiOBr-C (BiOBr-C₂), and BiOBr-P.

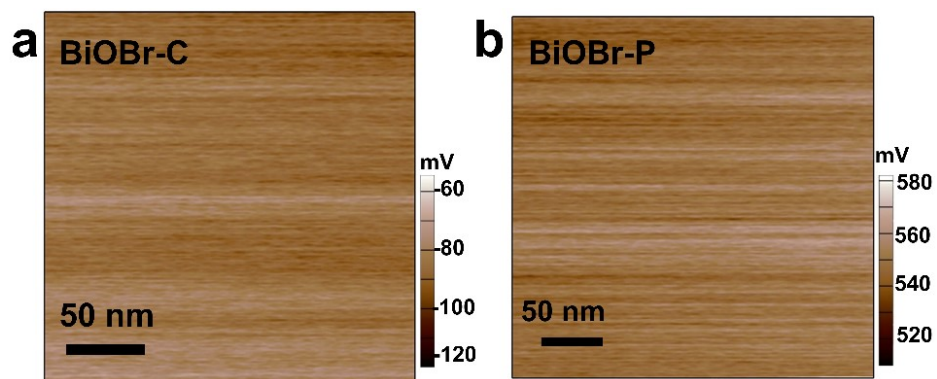


Fig. S4. The surface potential scan images of (a) BiOBr-C and (b) BiOBr-P.

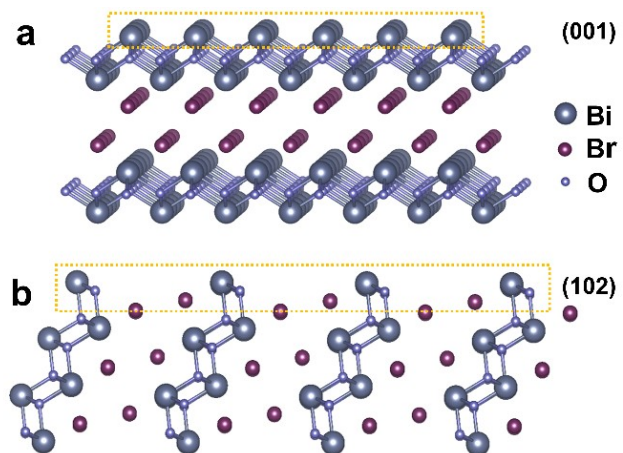


Fig. S5. The atomic structure models of (001) and (102) facets corresponding to (a) and (b) figures, respectively.

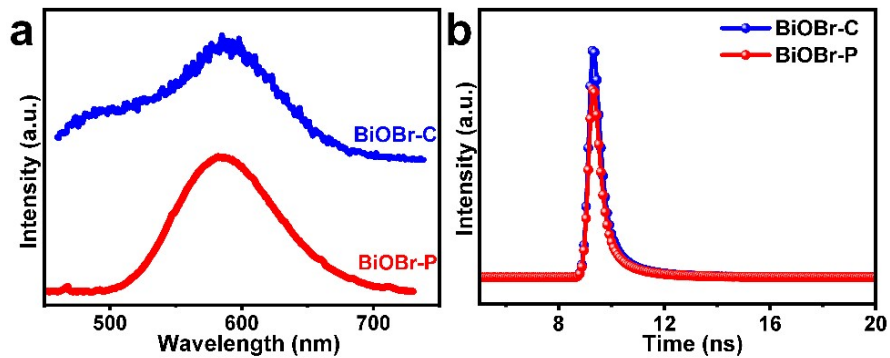


Fig. S6. (a) Low-temperature steady-state PL spectra under 8 K monitored at the emission peak of BiOBr-C and BiOBr-P; (b) room temperature time-resolved PL spectra of BiOBr-C and BiOBr-P, the excitation wavelength of 375 nm.

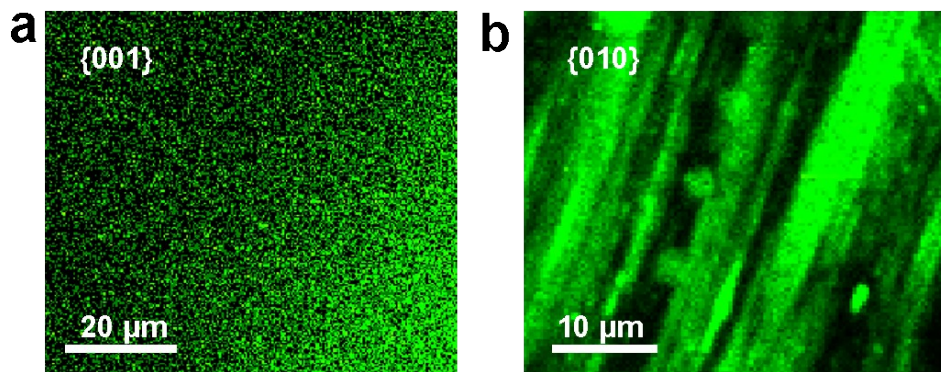


Fig. S7. Single-particle PL images for (a) the {001} and (b) {010} facets of BiOBr-C with 375 nm excitation wavelength.

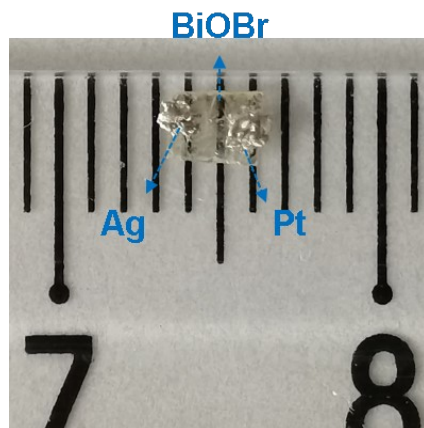


Fig. S8. The photograph of the real device.

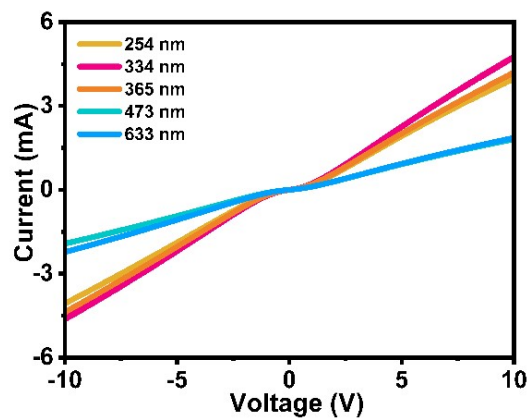


Fig. S9. $I-V$ curves of the prepared BiOBr photodetector illuminated by light with different wavelength.

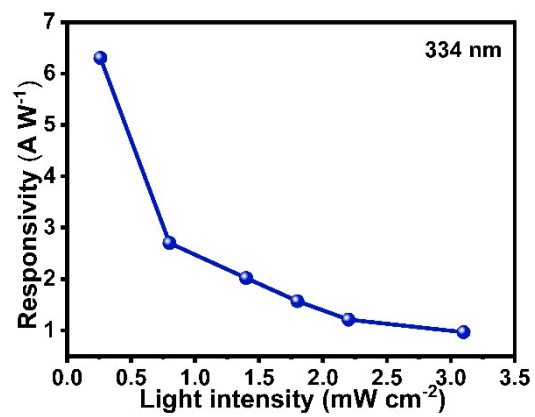


Fig. S10. Light intensity-dependent responsivity measured at wavelength of 334 nm.