Supporting information

Mixed-Dimensional Heterostructure Photodetector Based On Bi_2O_2Se Nanosheets and PbS Quantum Dots

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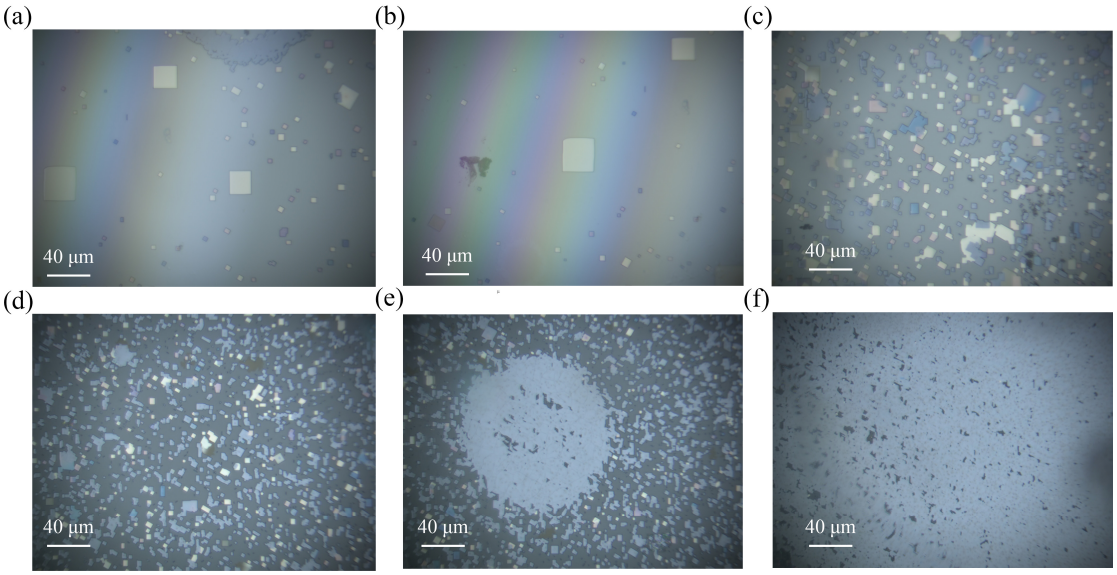


Figure S1 OM images of Bi_2O_2Se growth at different substrate temperatures. Growth of Bi_2O_2Se at substrate temperatures of (a) 680℃; (b) 690℃; (c) 700℃; (d) 710℃; (e) 720℃ and (f) 730℃.

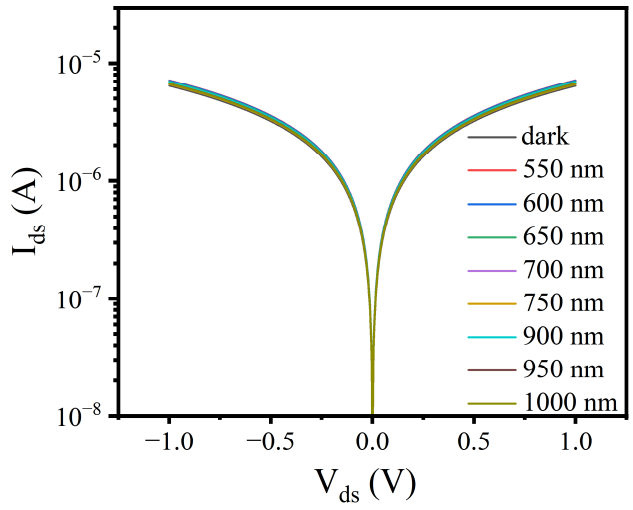


Figure S2 I-V curves of the bare Bi_2O_2Se under different wavelengths

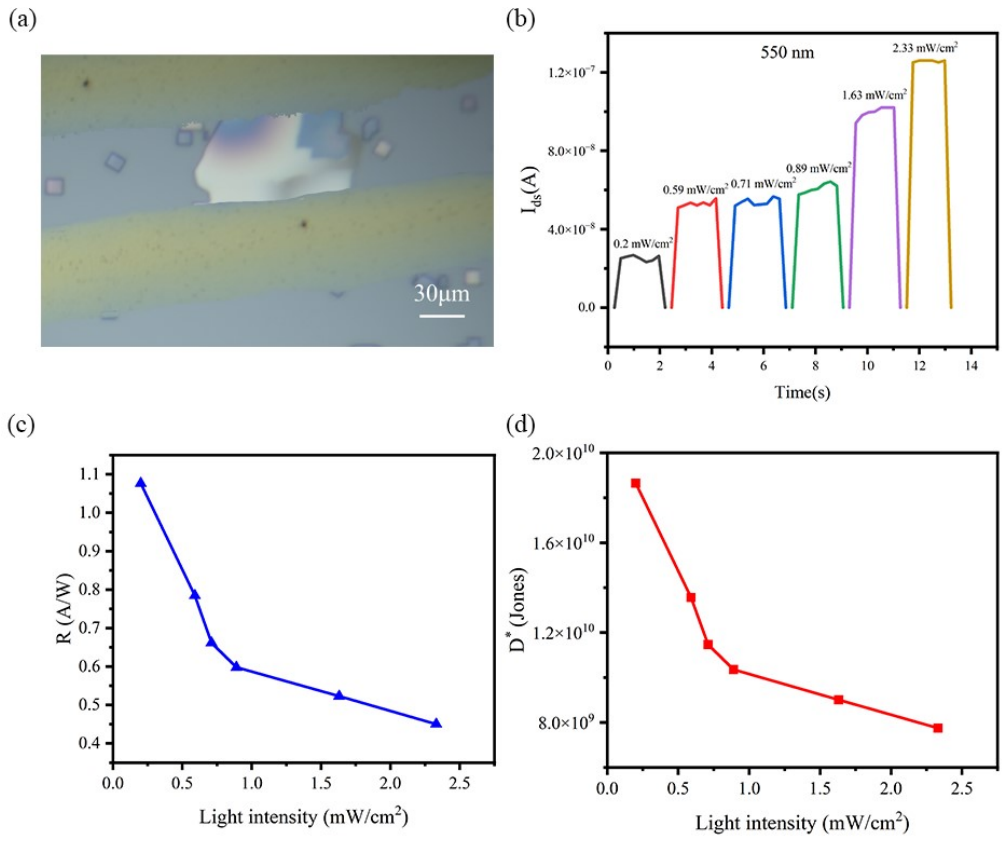


Figure S3 Bare Bi_2O_2Se device and its optoelectronic detection performance. (a) OM image of the bare Bi_2O_2Se device. (b) A typical device response at 550 nm under varied light intensities from 2.33 mW/cm^2 to 0.2 W/cm^2. (c) Responsivity and (d) detectivity of the bare Bi_2O_2Se under illumination by a 550 nm laser at various power levels with a bias of 1V.

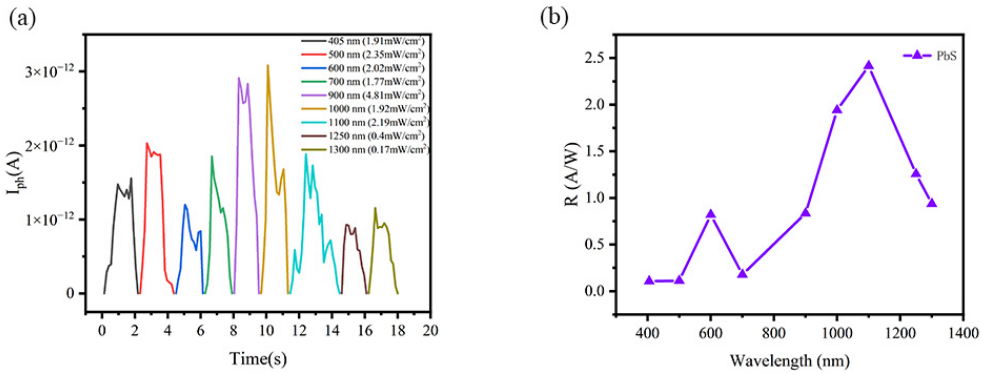


Figure S4 Optoelectronic performance of the bare PbS device (a) A typical device response at 405-1300 nm (b) Responsivity of the bare PbS detector at 405-1300 nm.pescan.