Electronic Supplementary Material (ESI) for Nanoscale.

Heterostructured ZnS/InP nanowires for rigid/flexible ultraviolet photodetectors with enhanced performance

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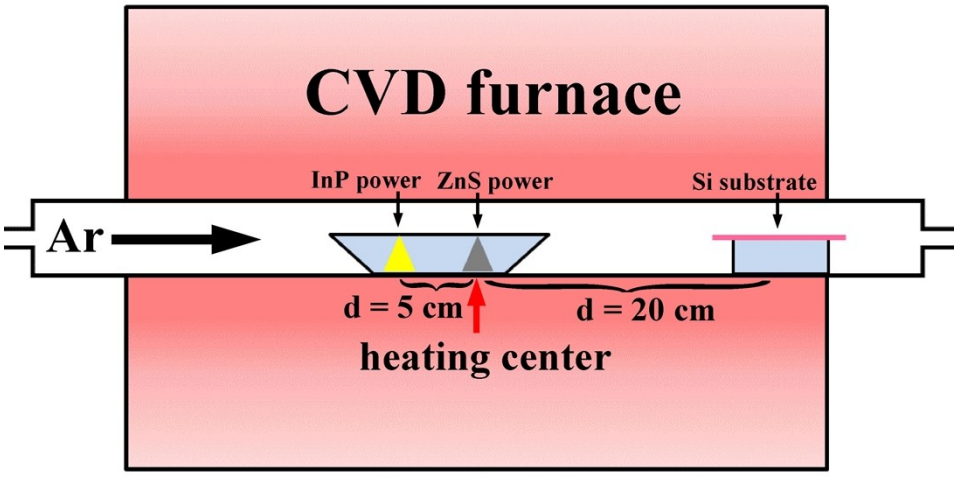


Fig. S1 Schematic diagram of the CVD system used to grow heterostructured ZnS/InP nanowies.

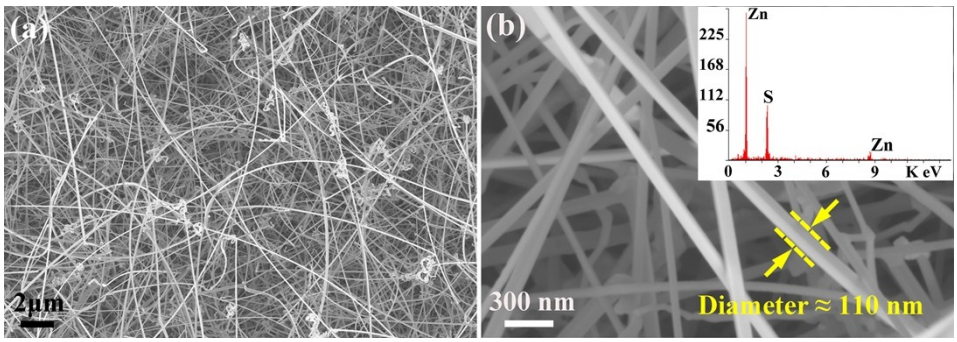
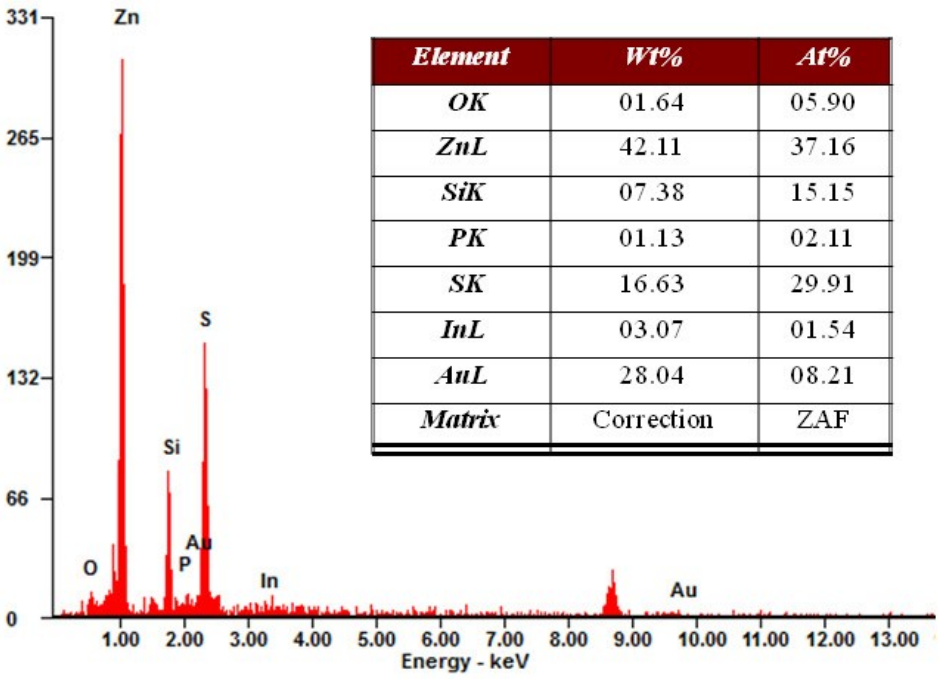


Fig. S2 (a) SEM image of pure ZnS NWs; (b) Diameter of the ZnS NW and the corresponding EDS pattern indexed to Zn and S obviously.



Element	Wt%	At%
OK	01.64	05.90
ZnL	42.11	37.16
SiK	07.38	15.15
PK	01.13	02.11
SK	16.63	29.91
InL	03.07	01.54
AuL	28.04	08.21
Matrix	Correction	ZAF

Fig. S3 EDS pattern of the as-synthesized heterostructured ZnS/InP nanowies

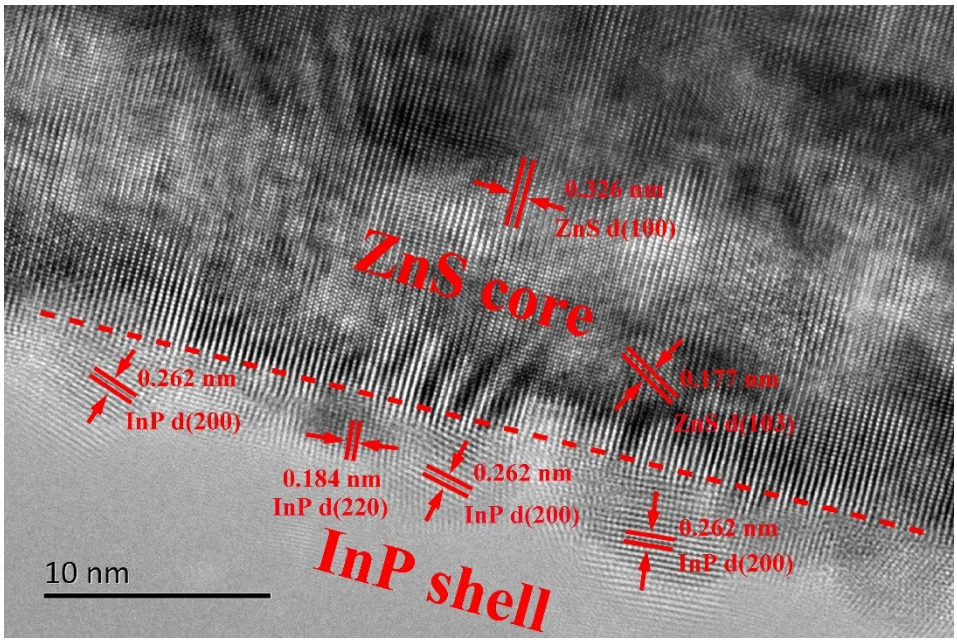


Fig. S4 HRTEM image of the heterostructured ZnS/InP NW, forming a clear core/shell structure with a clear boundary between ZnS core and thin InP shells.

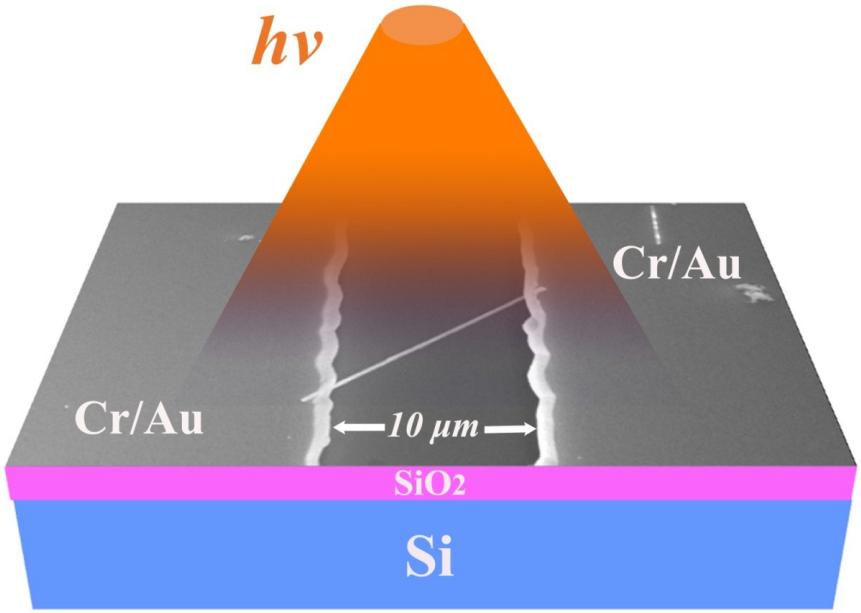


Fig. S5. SEM of the as-fabricated heterostructured ZnS/InP NW-based photodetector on a Si/SiO_2 substrate

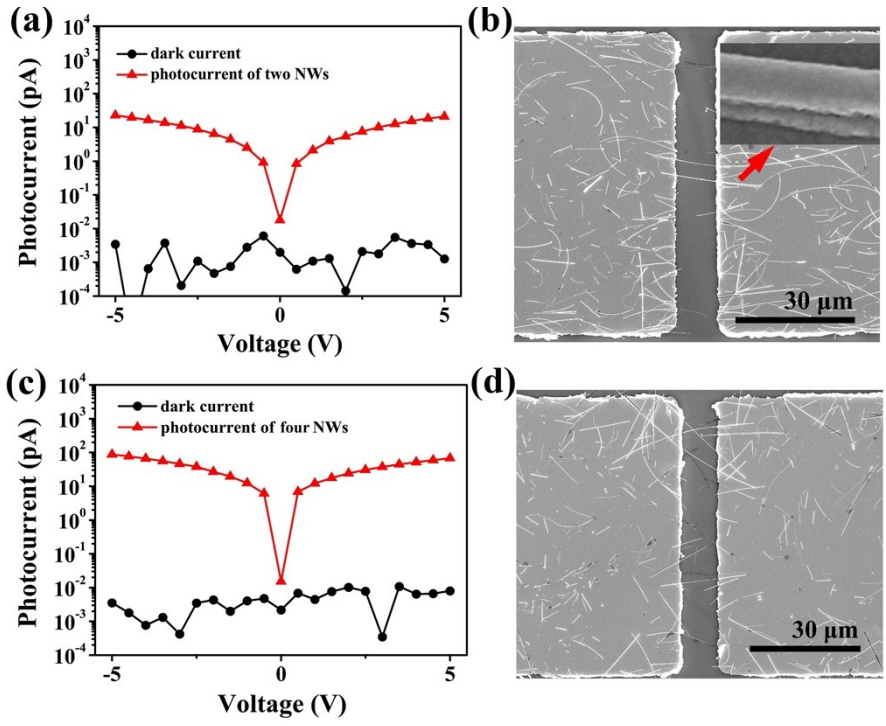


Fig. S6. (a) I-V curves and (b) SEM image of the photodetectors based on two NWs. Inset: the roughness surface of the NW. (c) I-V curves and (d) SEM image of the photodetectors based on four NWs.

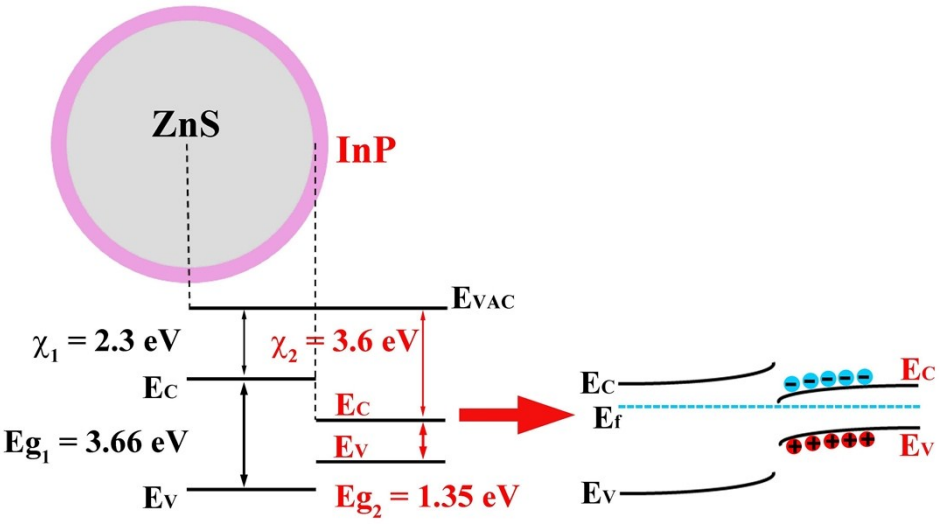


Fig. S7. Band alignment of ZnS/InP core/shell nanowires, which is reported as a reverse type-I heterojunction.

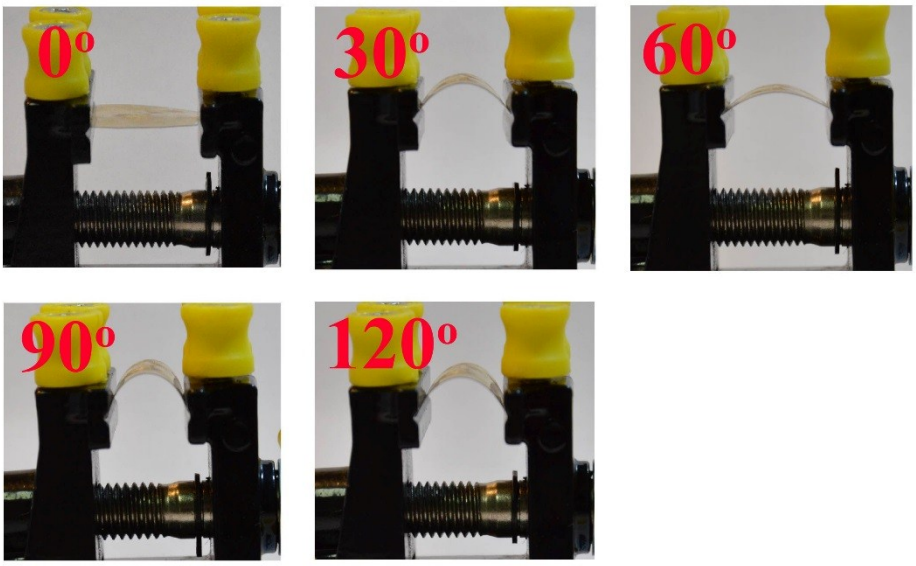


Fig. S8. Optical images of the flexible photodetector under different bent curves.

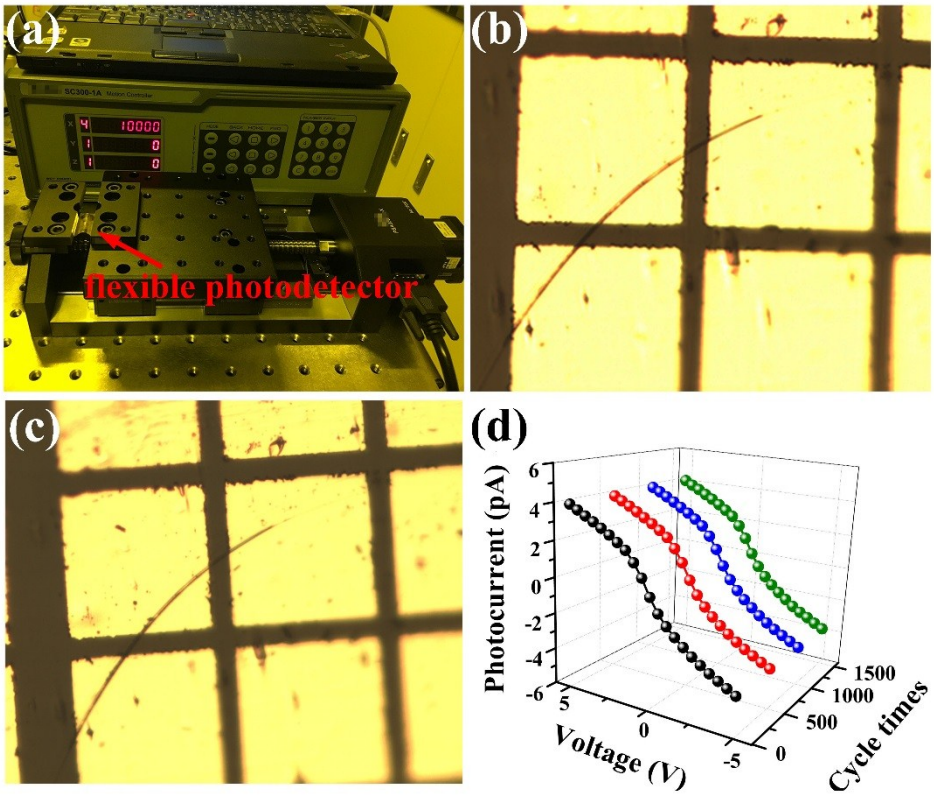


Fig. S9. (a) Optical image of the bending test system. (b,c) Optical images of the device before and after bending for 1500 cycles. (d) I-V curves of the flexible photodetector before and after bent for 500, 1000 and 1500 cycles.