Electronic Supplementary Material (ESI) for RSC Advances.

Supporting Information

Ultrahigh Sensitivity in Amorphous ZnSnO UV Photodetector

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Output characteristics

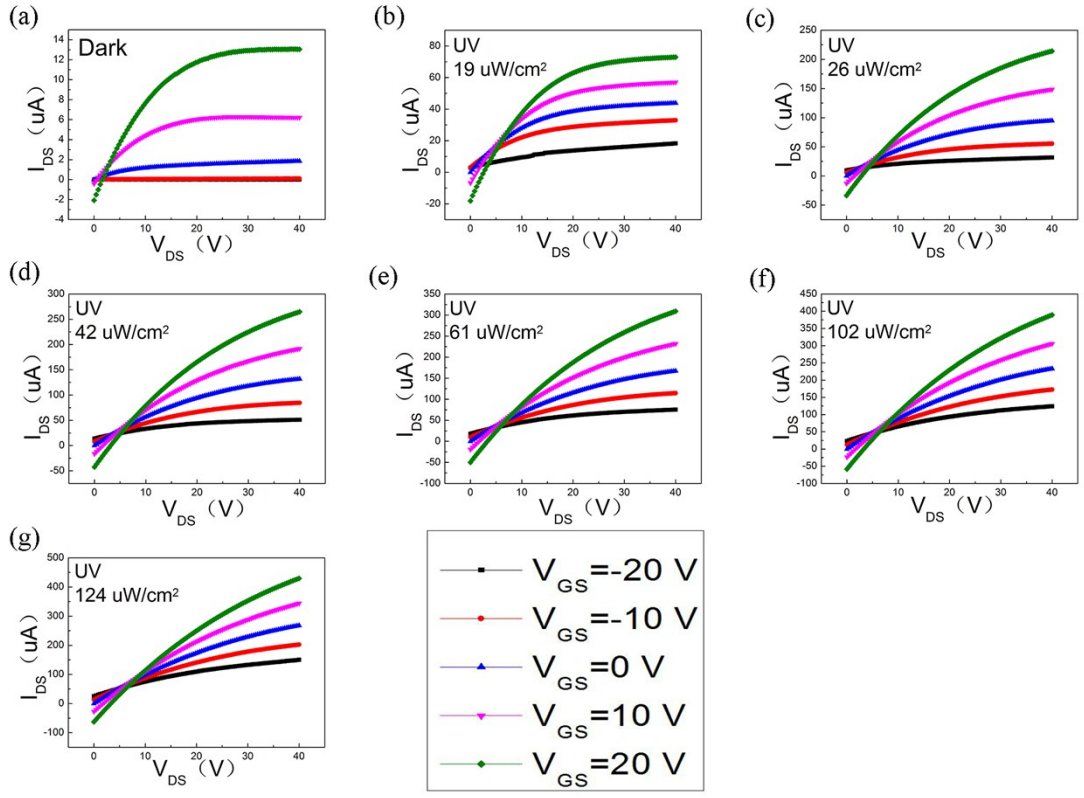

Fig. S1 Output characteristics curves of ZTO photodetector under dark and different UV intensities

Absorption spectrum

From Fig. S2, there is nearly no absorption during the visible light. The increase of absorbance starts from 375 nm. Nevertheless, the figure has proved that the device is visible blind and wavelength sensitive.

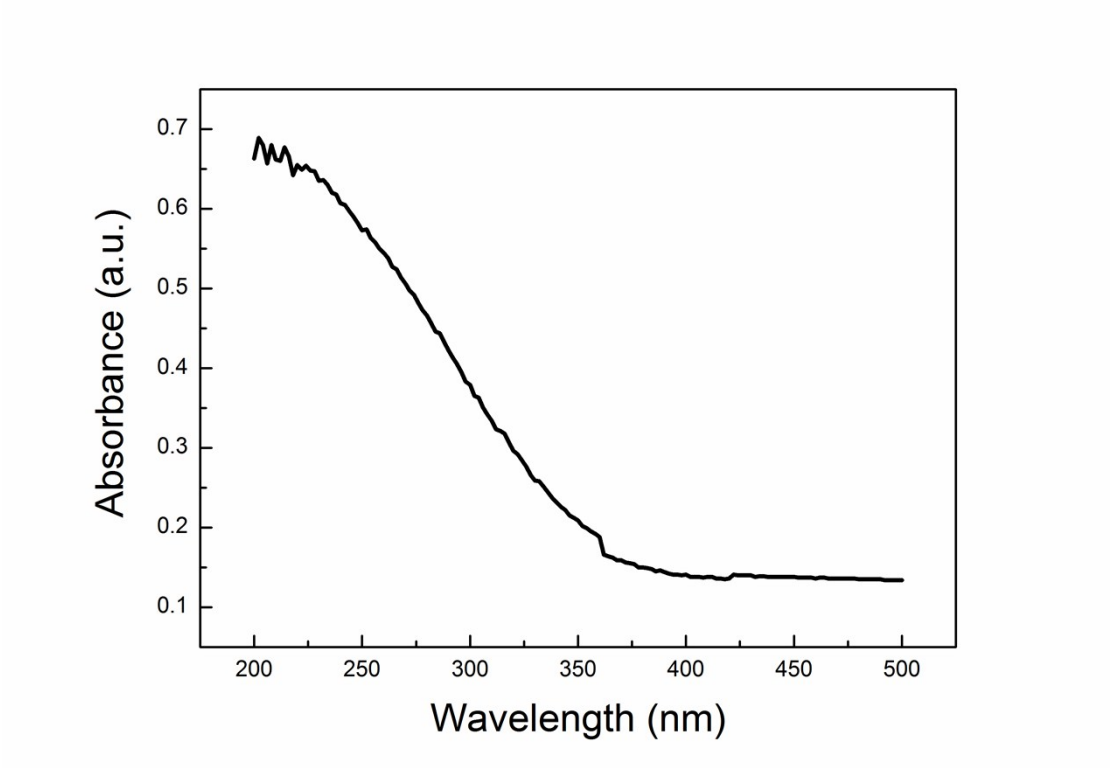

Fig. S2 The absorption spectrum of ZTO

Stability/ageing data

The device was exposed in the ambient environment for 8 months and retested. The basic TFTs performance nearly has no change. From Fig. S3a, I_{dark} keeps the 10^{-9} A order. After illuminated by the UV (P = 26 μW/cm^2), I_{photo} increases to 10^{-5} A. The sensitivity is calculated to be 10^4, which confirms that our device has good stability. From Fig. S3b, the response becomes a bit slower in an acceptable range. Note that τ_g and τ_d are 5.90 s and 5.78 s, respectively.

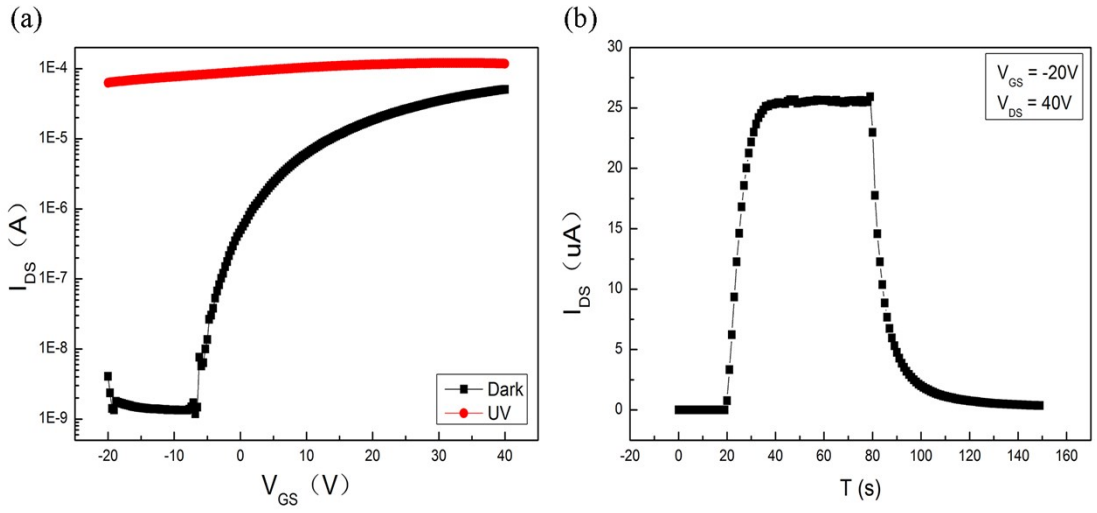

Fig. S3 The performance of ZTO photodetector exposed in ambient environment for 8 months