

## Supporting Information

### Diameter Dependent Transparency Changes of Nanorod-based Large-area Flexible Smart Window Devices

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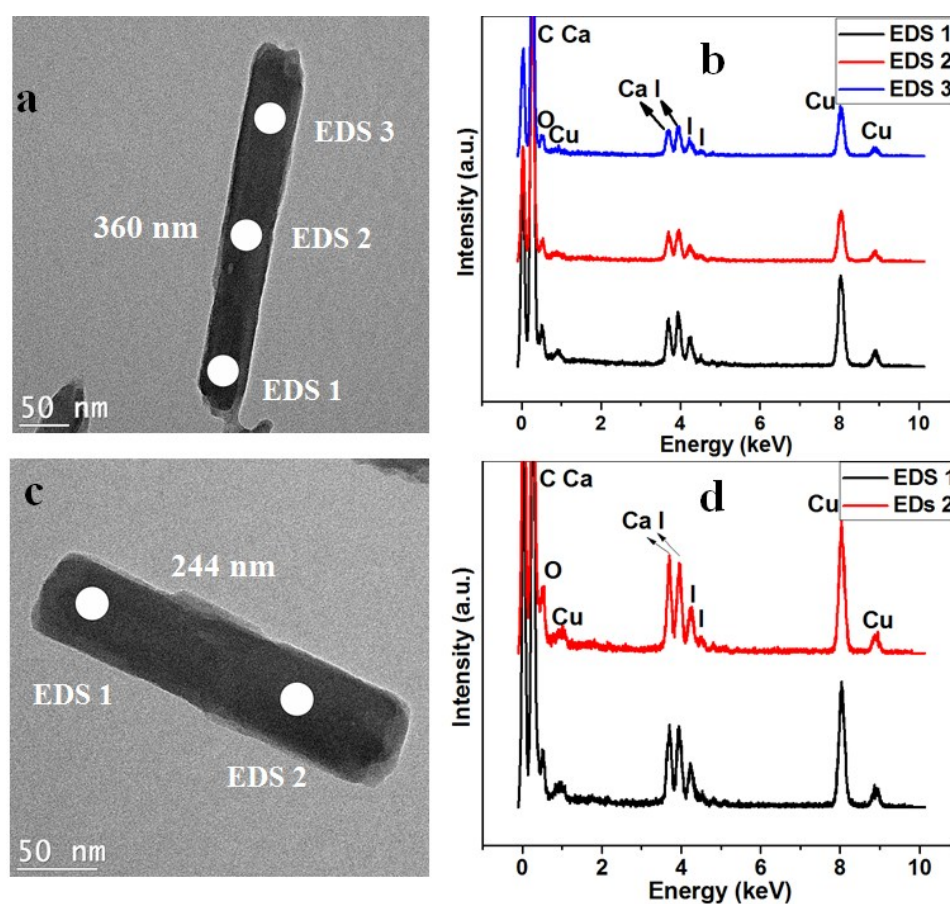


Figure S1. (a) TEM image of a 360 nm long nanorod, (b) EDS spectra from three different regions of the 360 nm long nanorod, (c) TEM image of a 244 nm long nanorod, and (d) EDS spectra from two different regions of the 244 nm long nanorod.

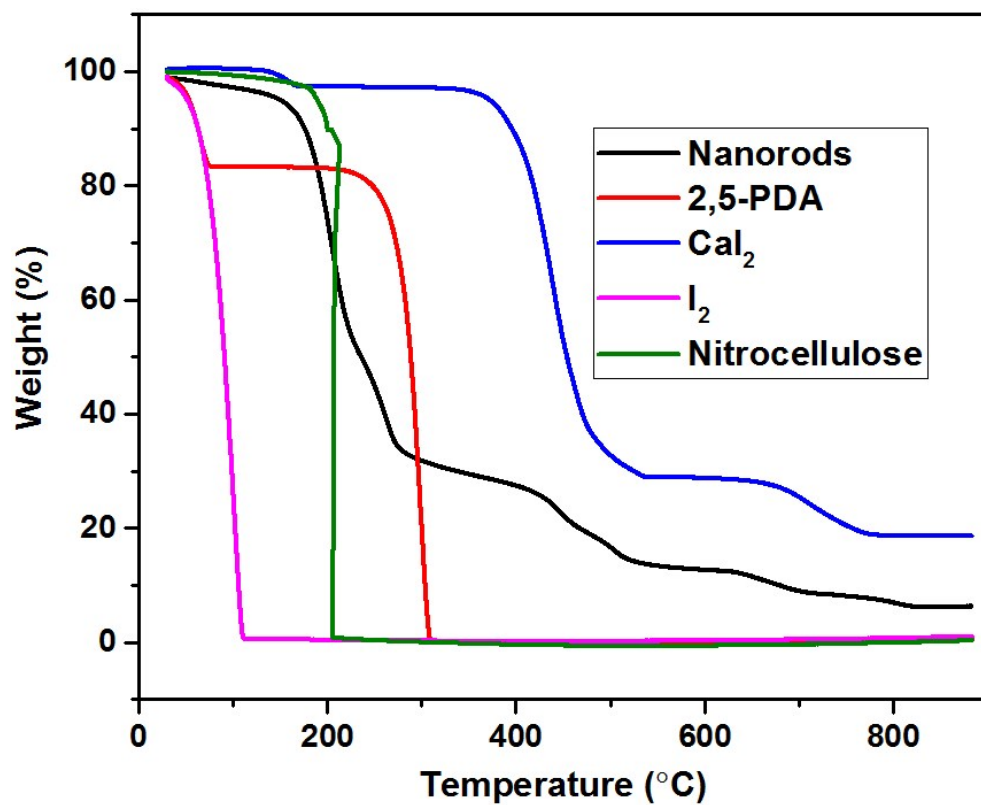


Figure S2. TGA curves of the organometallic nanorods, 2,5-PDA, CaI<sub>2</sub>, I<sub>2</sub> and nitrocellulose under an air flow.

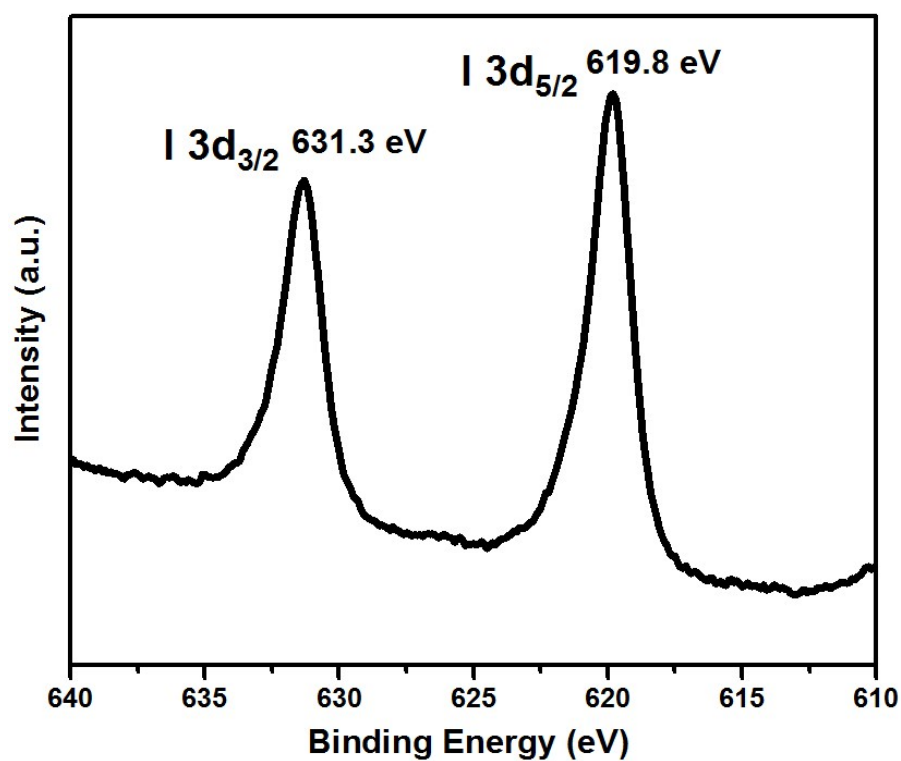


Figure S3. XPS spectrum of I 3d of the precursor I<sub>2</sub>.

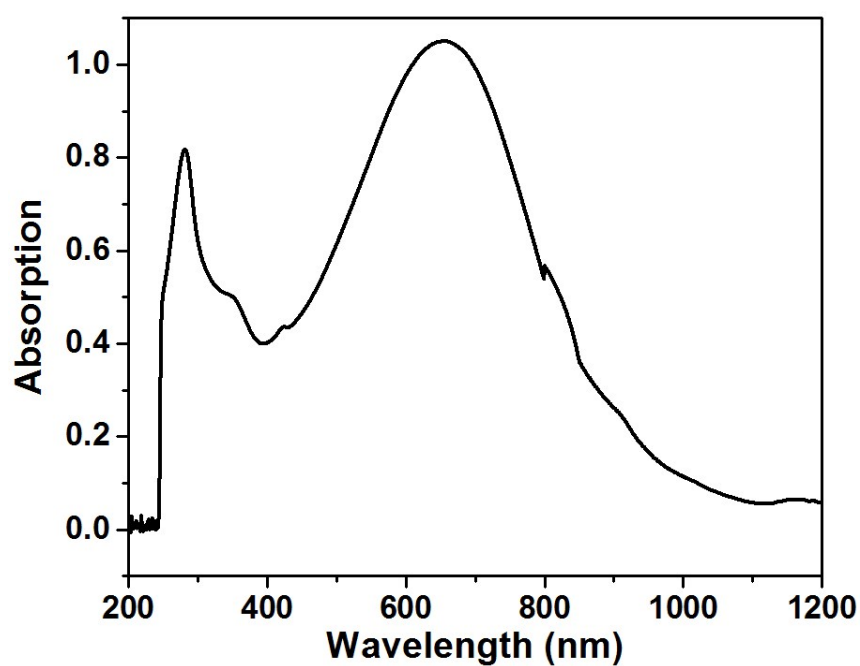


Figure S4. Absorption spectrum of the nanorods dispersed in isoamyl acetate.

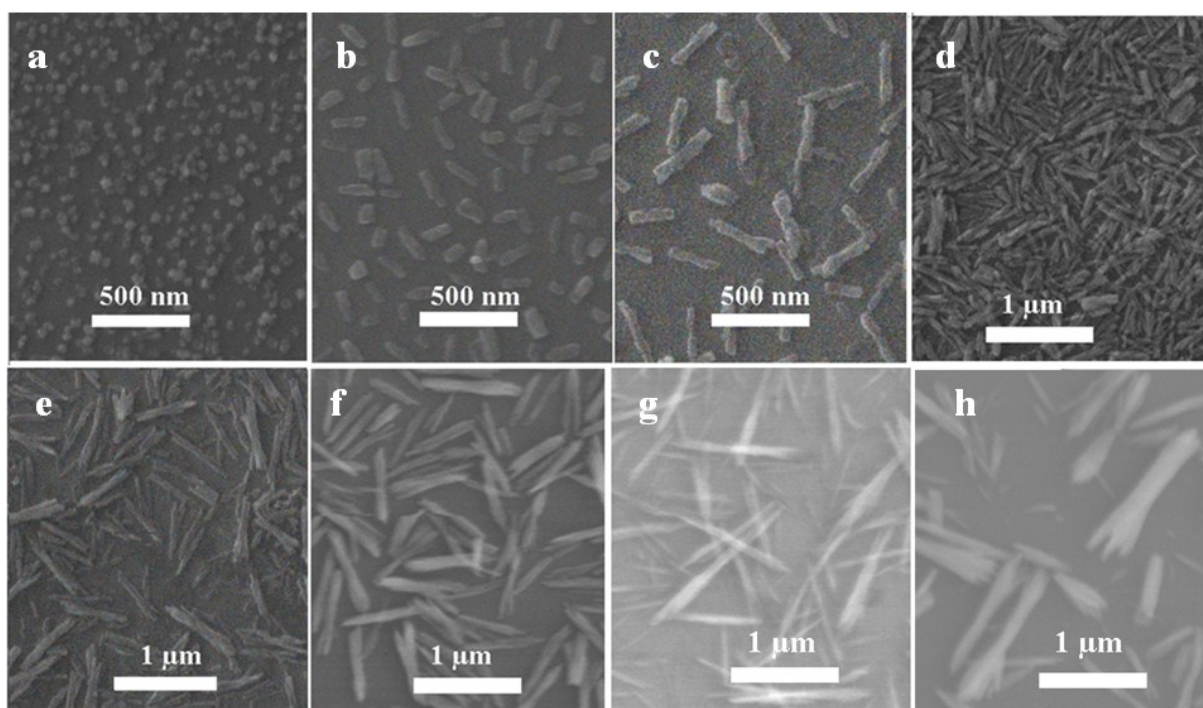


Figure S5. SEM images of differently sized nanorods.

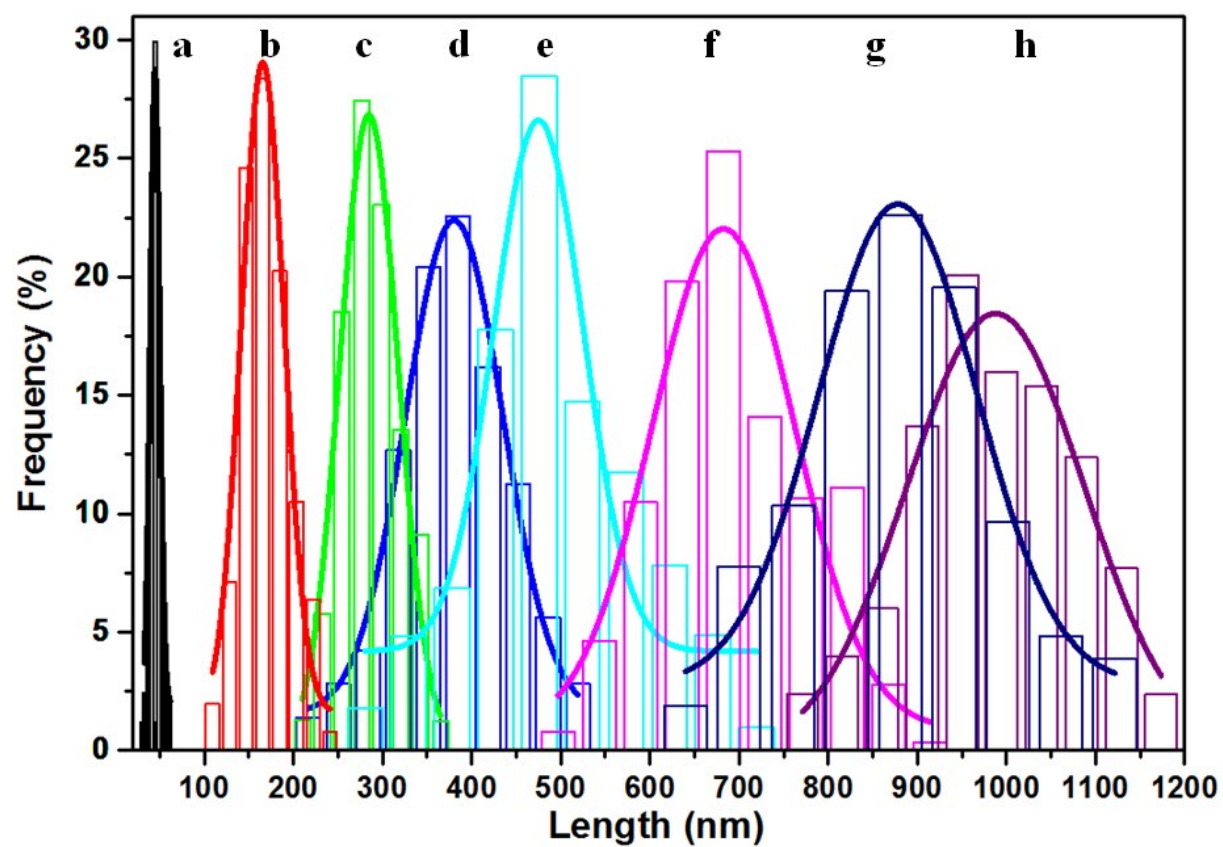


Figure S6. Size-distribution histograms for length of the differently sized nanorods.

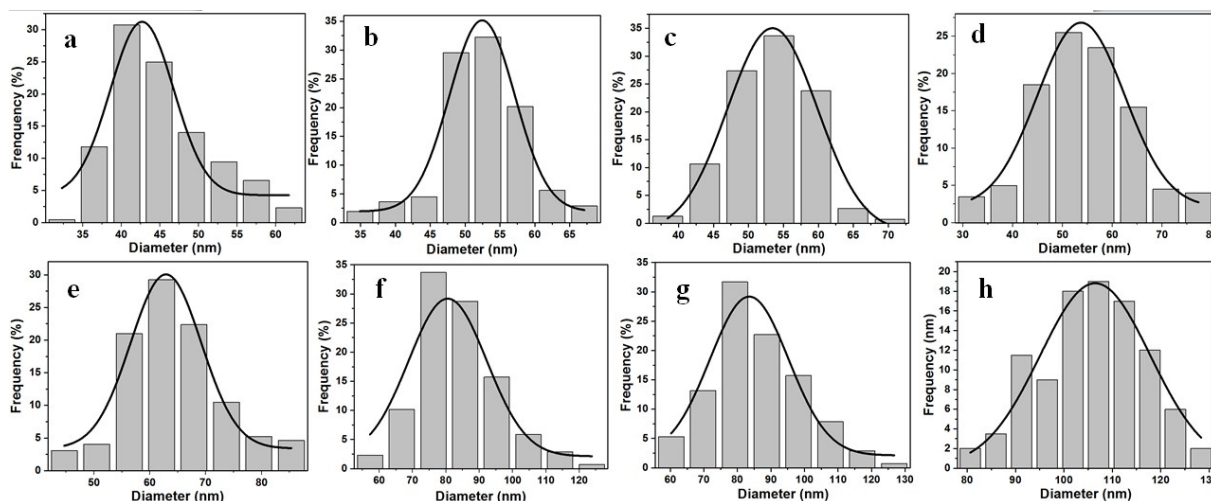


Figure S7. Size-distribution histograms for diameters of the differently sized nanorods.

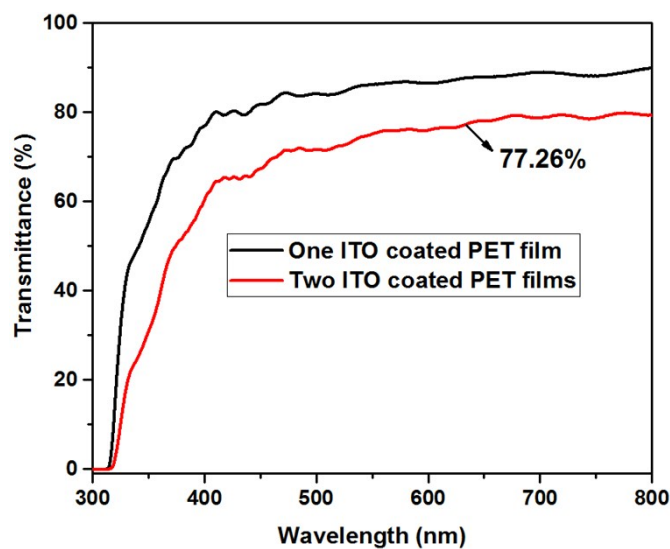


Figure S8. Transmission spectra of the ITO coated PET films.



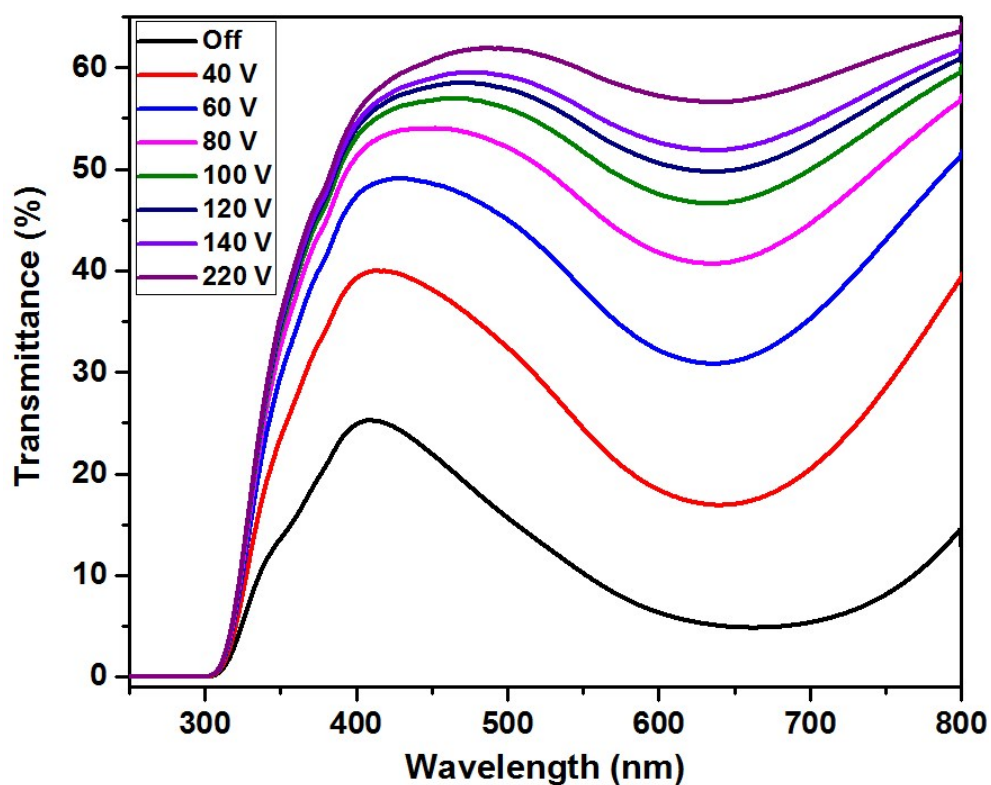


Figure S9. Transmission spectra of the SPD under different voltages.

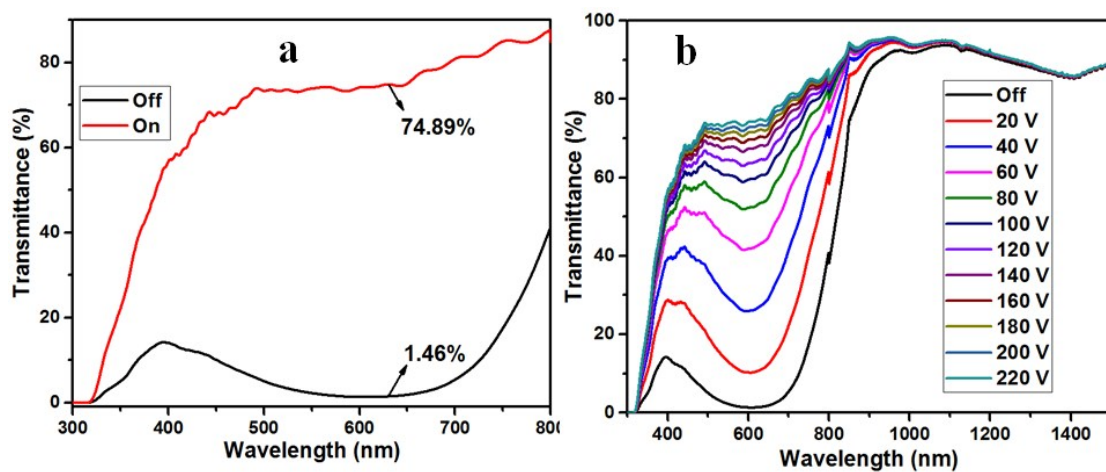


Figure S10. Transmission spectra of the flexible SPD fabricated on the PET substrate (a) under an applied voltage of 220 V and when the voltage is switched off and (b) under different voltages.

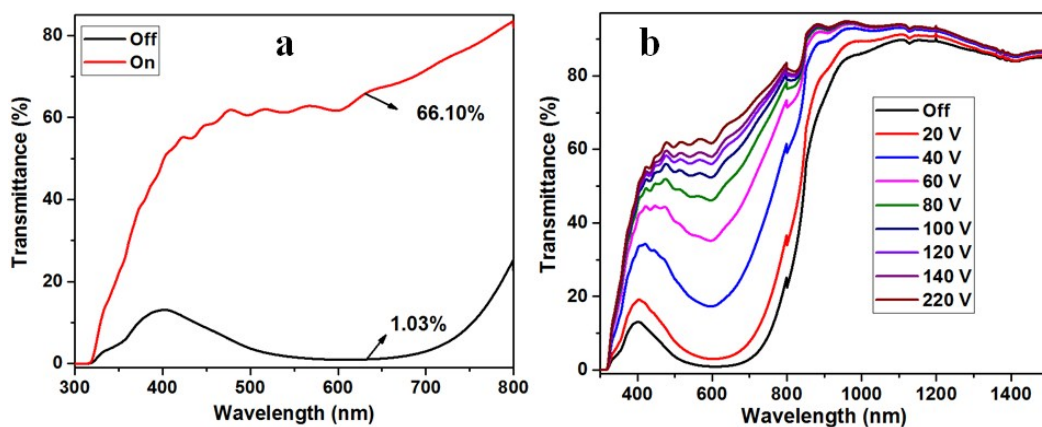


Figure S11. Transmission spectra of the flexible SPD fabricated on the PET substrate (a) under an applied voltage of 220 V and when the voltage is switched off and (b) under different voltages.

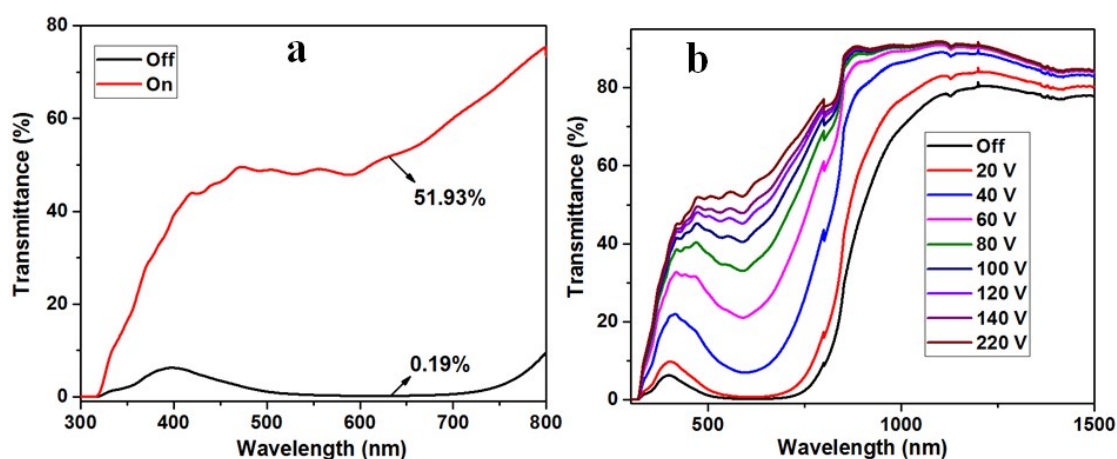


Figure S12. (a) Transmission spectra of the SPD under an applied voltage of 220 V and when the voltage is switched off (operated on the PET substrate). (b) Transmission spectra of the SPD under different voltages.

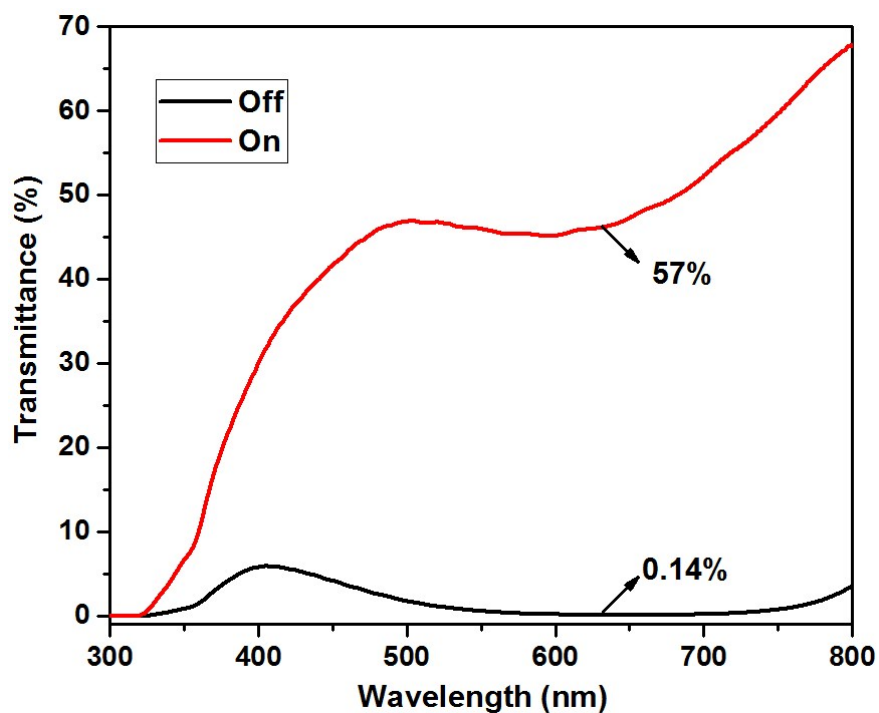


Figure S13. Transmission spectra of the SPD under an applied voltage of 220 V and when the voltage is switched off (operated on the PET substrate). The size of this device is 24 x 9 cm<sup>2</sup>.

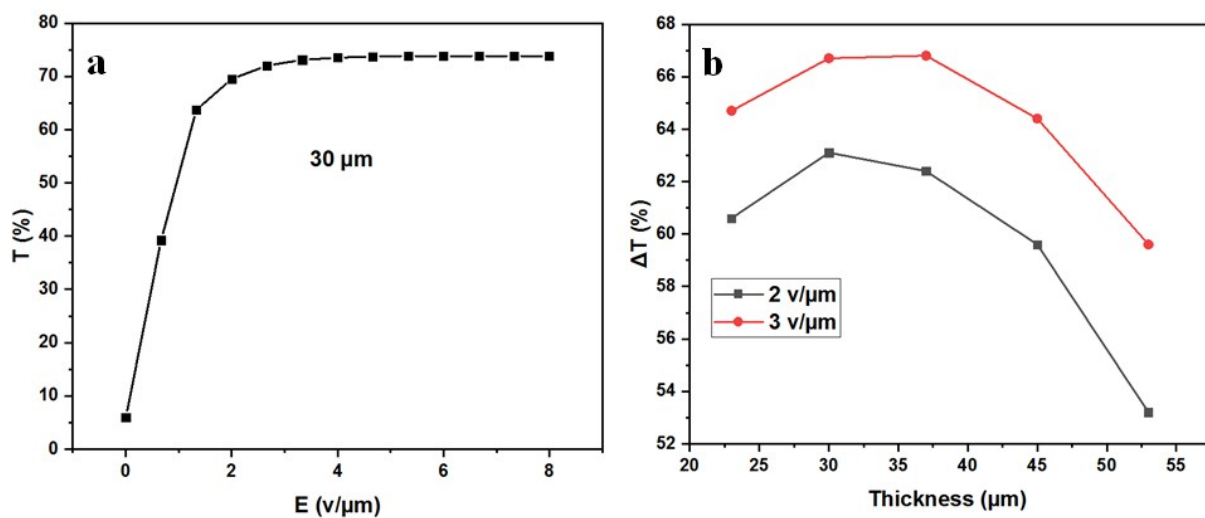


Figure S14. (a) Transmittance of a SPD (film thickness: ~30 μm) under different electric fields. (b) The relationship between the  $\Delta T$  and the thickness of the film (23, 30, 37, 45, 53 μm) under different electric fields.



Table 1. Light-control layer with different thickness and the transmittance of corresponding SPDs.

Samples	Thickness ( $\mu\text{m}$ )	T <sub>off</sub> (%)	T <sub>on</sub> (%)
1	23	7.4	74.4
2	30	5.9	73.8
3	37	2.6	71.6
4	45	1.4	67.4
5	53	0.8	62.0
6	167	0.1	57.2