SUPPORTING INFORMATION

A High-performance Polarization-sensitive and Stable Self-powered UV Photodetector Based on Dendritic Crystal Lead-free Perovskites $CsCu_2I_3$ /GaN Heterostructure

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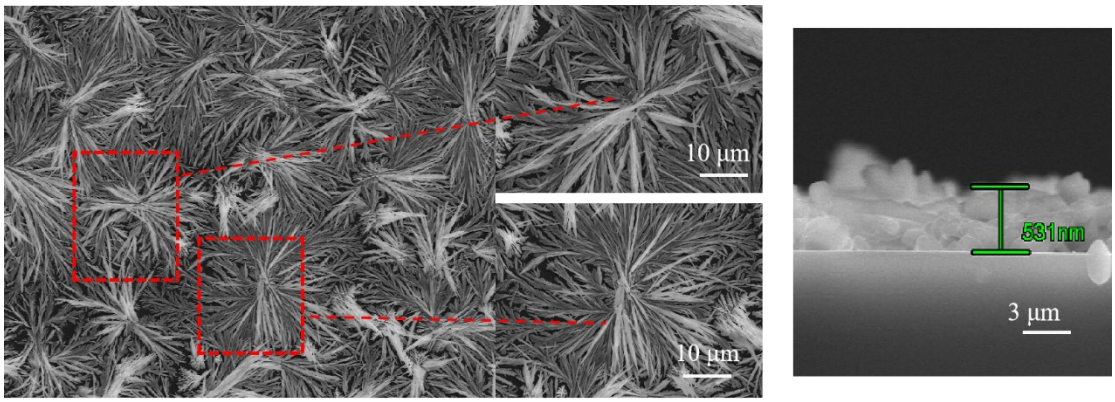

Fig. S1. The SEM images of pure $CsCu_2I_3$ dendrites viewed from the top and side.

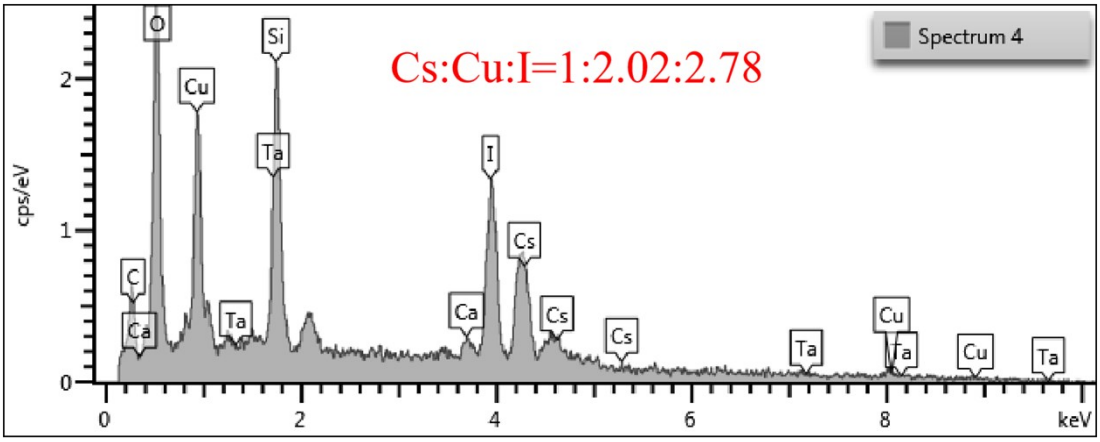

Fig. S2. EDS spectrum of the $CsCu_2I_3$ films annealed at 100 °C.

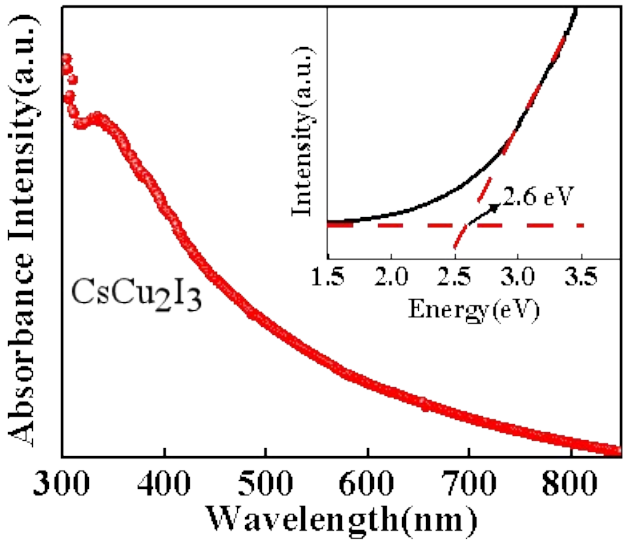

Fig. S3. Energy band alignment of the $CsCu_2I_3$/GaN heterojunction.

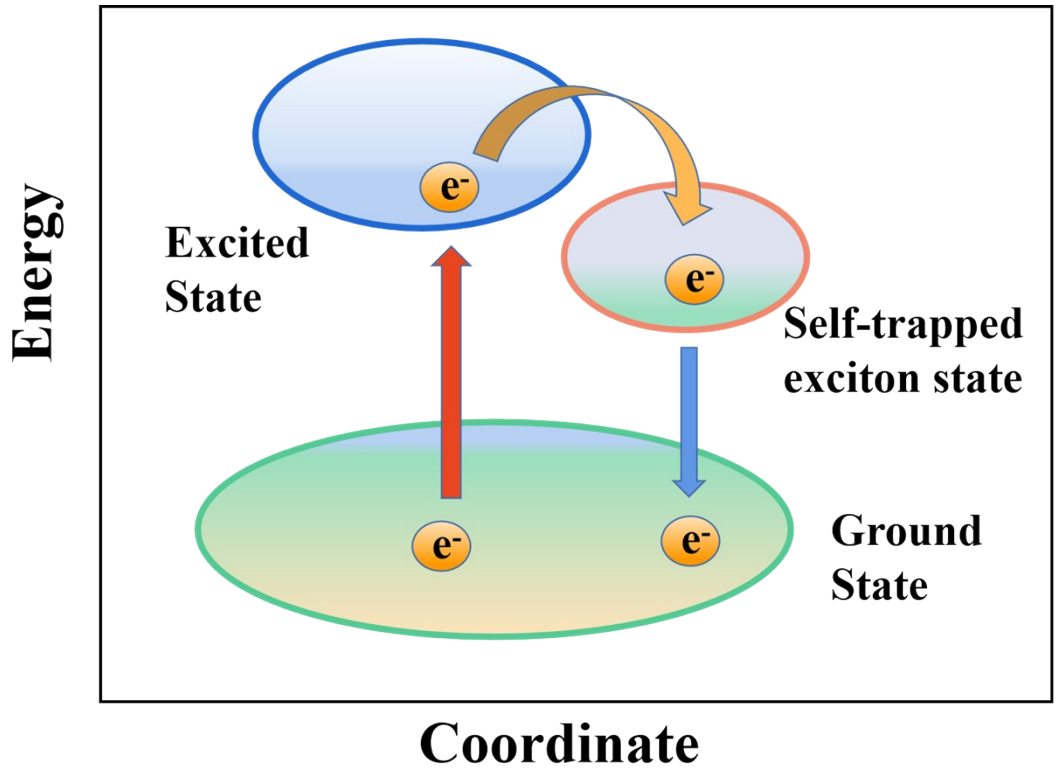

Fig. S4. Configuration coordinate diagram illustrating the STE transition process of $CsCu_2I_3$.

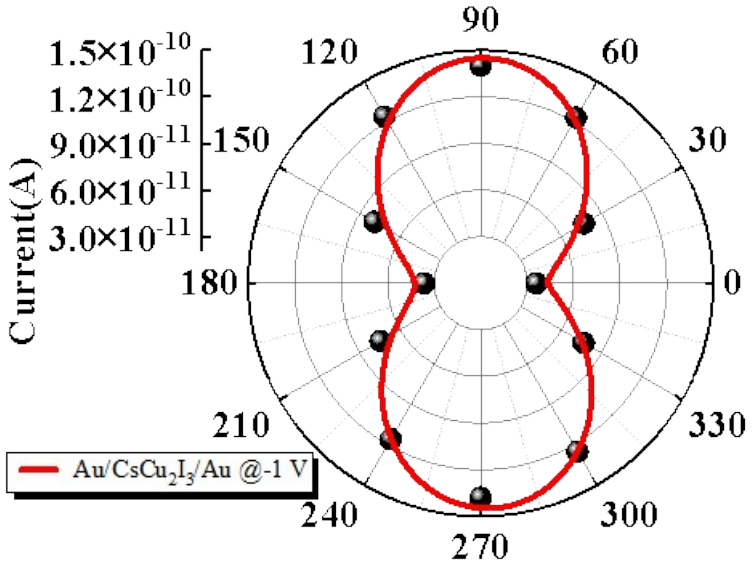

Fig. S5. The polarization anisotropy properties of pure $CsCu_2I_3$ dendrites.

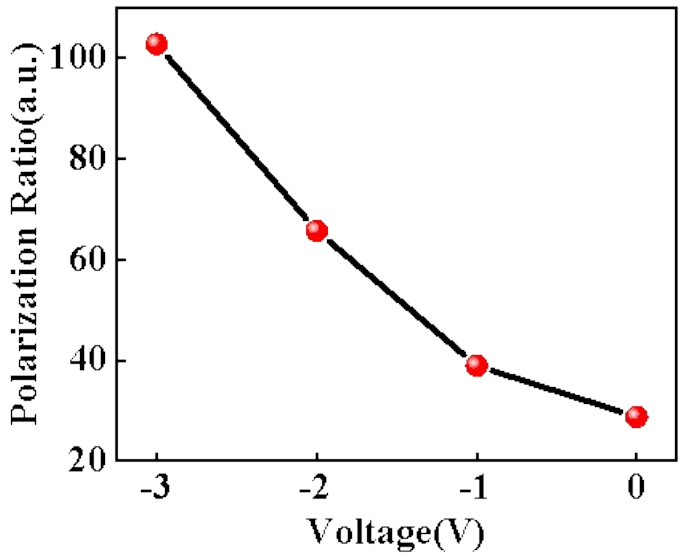

Fig. S6. The variation of anisotropy ratio with voltage.

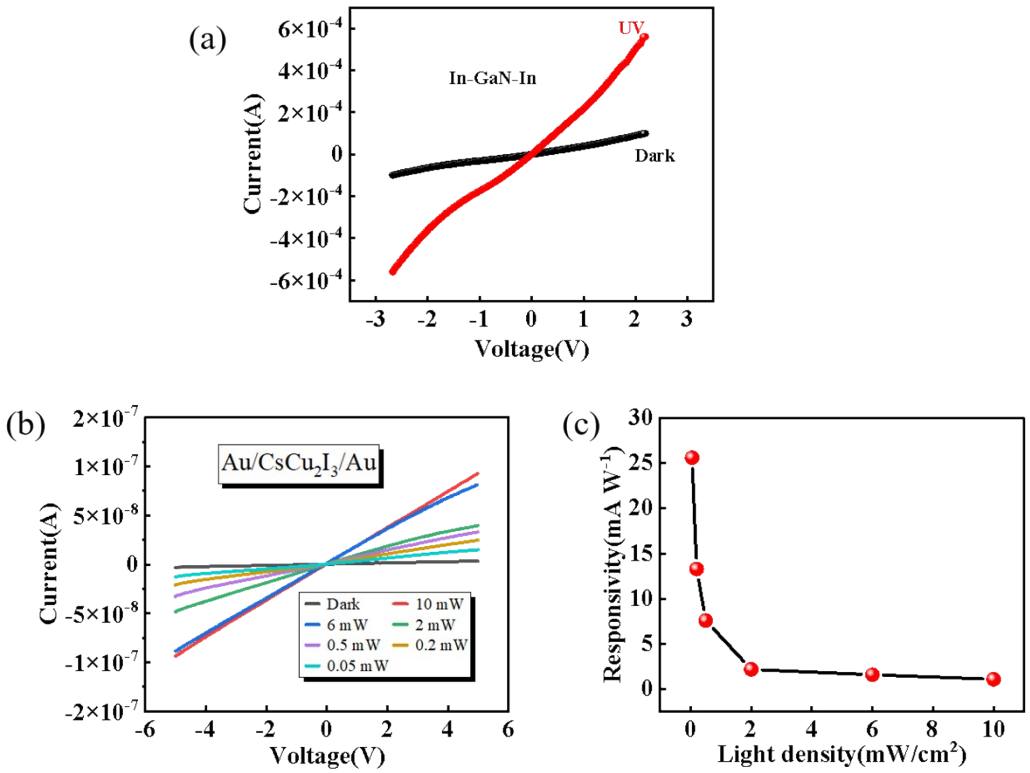

Fig. S7. The photoelectric properties of pure (a) GaN and (b) $CsCu_2I_3$. (c) Responsivity of the pure $CsCu_2I_3$ dendrites photodetector versus light irradiation power.

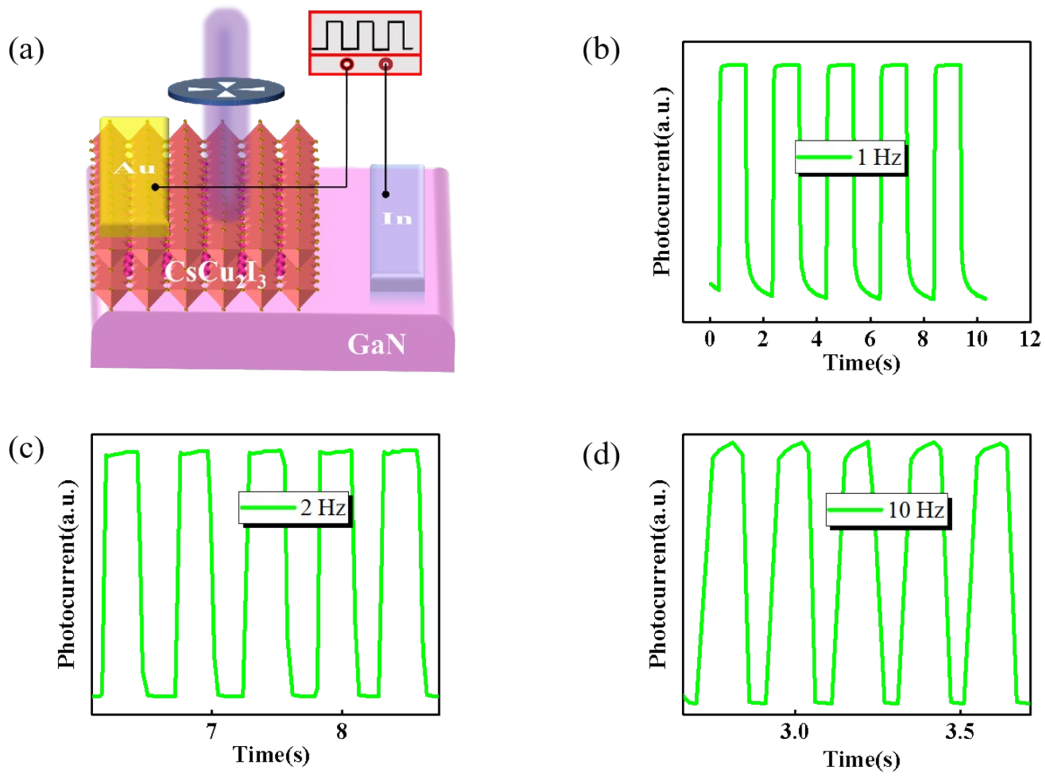

Fig. S8. (a) Schematic diagram of the device for measuring the response speed. Response of the photodetector irradiated by a 325 nm light with the modulation frequencies of (b) 1 Hz, (c) 2 Hz and (d) 10Hz at zero bias.