

Light induced transformation of resistive switching polarity in Sb_2S_3 based organic-inorganic hybrid device

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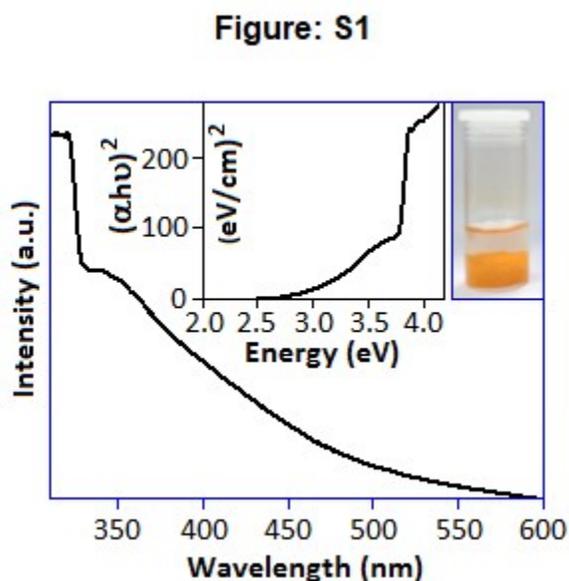
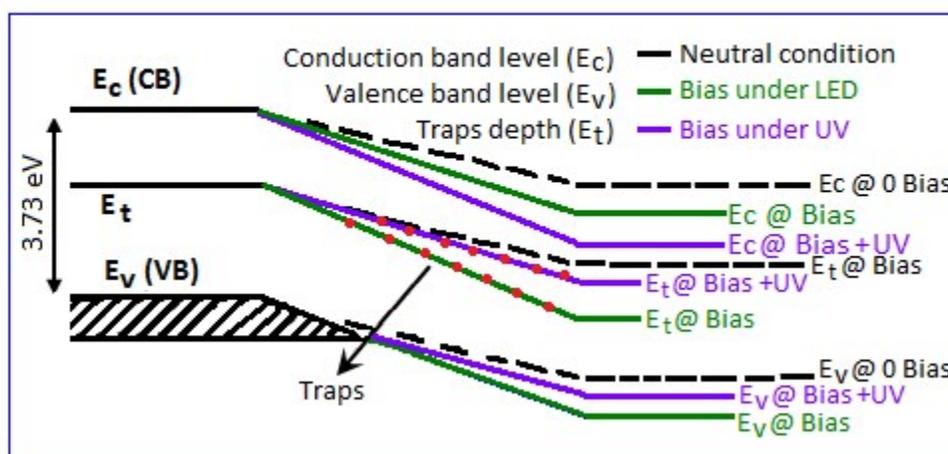


Figure S1: UV-vis spectra and the optical image (inset) of the aniline stabilized antimony sulfide nanoparticles. The Tauc plot of the AAS material showing the bandgap value of 3.73 eV (inset).

Scheme: S1



Scheme S1: Optical band gap based schematic diagram of the active material (aniline stabilized antimony sulfide, AAS) under LED and UV-irradiation in presence of bias and also under neutral conditions.

The schematic energy diagram based on optical band gap between VB and CB, of the AAS material is exhibited in scheme S1. The AAS material under neutral condition is represented by the dash line. In presence of bias and under LED illumination condition, the traps and the band bending process is represented by green line. In presence of bias and UV irradiation, the trap-depth are reduced, and the band bending become more prominent, represented by violet line.

Table T1: Fitting parameters for the equivalent circuit:

Table: T1

Entry	Parameter	Value in units
LED		
1.	R_1	$1.8 \times 10^3 \Omega$
2.	Q	$43.31 \times 10^{-12} F.s^{(a-1) *}$
3.	R_2	$67.14 \times 10^6 \Omega$
4.	W	$8.03 \times 10^9 \Omega.s^{-0.5}$
UV		
1.	R_1	338.1Ω
2.	Q_1	$92.22 \times 10^{-12} F.s^{(a-1) **}$
3.	R_2	$41.04 \times 10^6 \Omega$
4.	Q_2	$64.83 \times 10^{-12} F.s^{(a-1) ***}$
5.	W	$2.29 \times 10^6 \Omega.s^{-0.5}$
6.	R_3	$47.4 \times 10^6 \Omega$

$a^* = 0.93$ (LED), $a^{**} = 0.97$ (UV), $a^{***} = 0.94$ (UV)