Supporting Information

High performance broadband photodetector based on $(Sn_xSb_{1-x})_2Se_3$ nanorods with enhanced electrical conductivity

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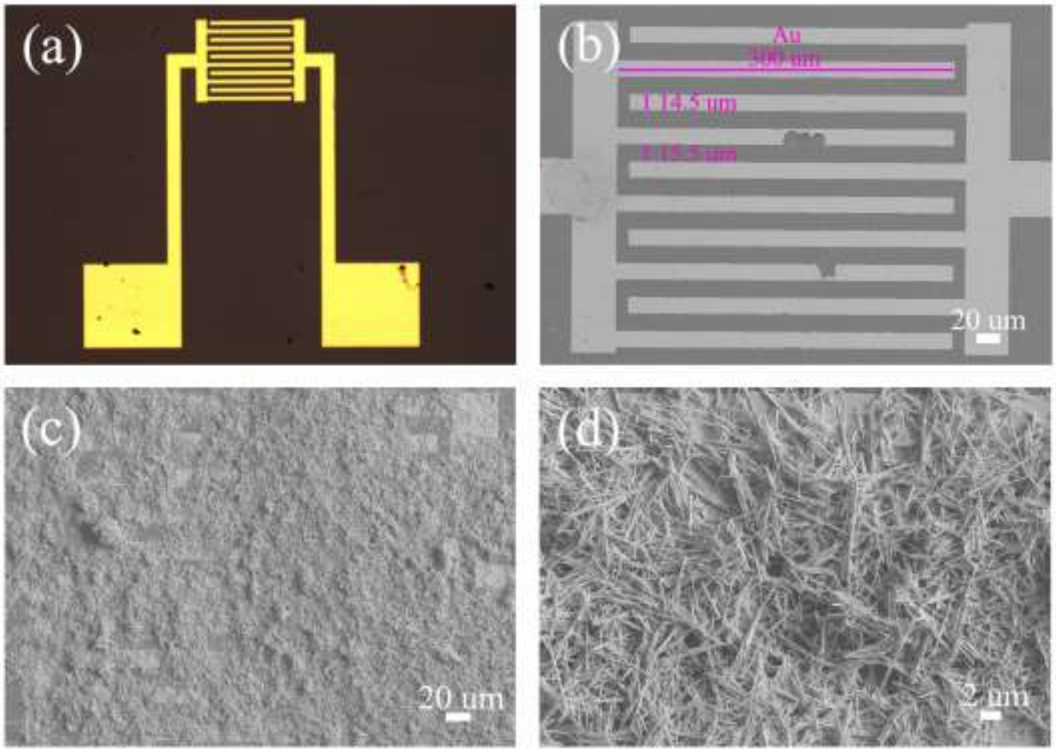

Fig. S1 (a) Optical image and (b) SEM image of the interdigital Au electrodes. (c,d) SEM images of the device based on $(Sn_xSb_{1-x})_2Se_3$ nanorod film.

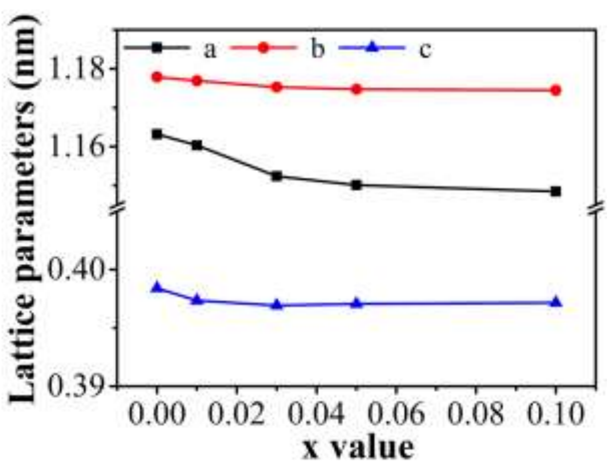

Fig. S2 Lattice constants a, b and c, derived from XRD diffraction peaks, plotted as a funtion of Sn doping concentration (x value) for $(Sn_xSb_{1-x})_2Se_3$ nanorods.

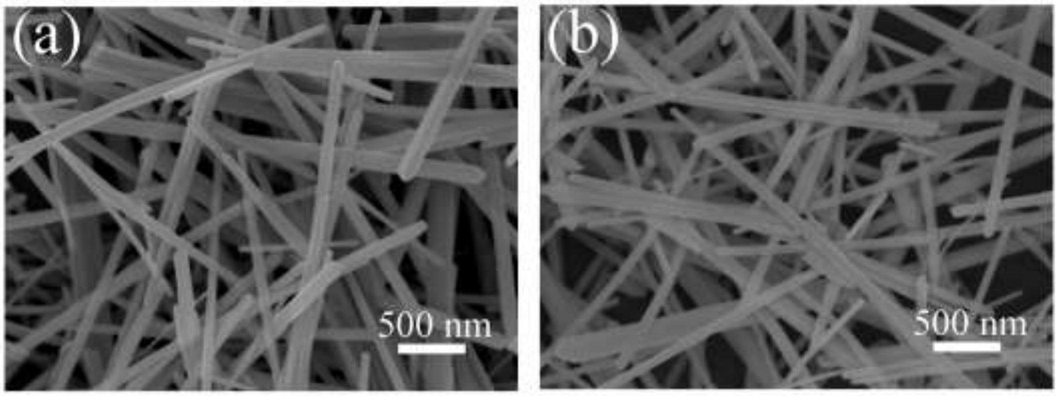

Fig. S3 SEM images of the $(Sn_xSb_{1-x})_2Se_3$ nanorods: (a) x=0.01 and (b) x=0.03.

Table S1. Elemental composition of the $(Sn_xSb_{1-x})_2Se_3$ nanorods obtained from EDS analysis with varied x

Elemental composition (at.%)	Se	Sb	Sn	Sn/(Sn+Sb) (actual)	Sn/(Sn+Sb) (nominal)
x=0.00	62.04	37.96	0.00	0.00	0.00
x=0.01	62.57	37.17	0.26	0.007	0.01
x=0.03	62.37	36.84	0.79	0.02	0.03
x=0.05	62.68	36.15	1.17	0.03	0.05
x=0.10	63.01	34.46	2.53	0.07	0.10

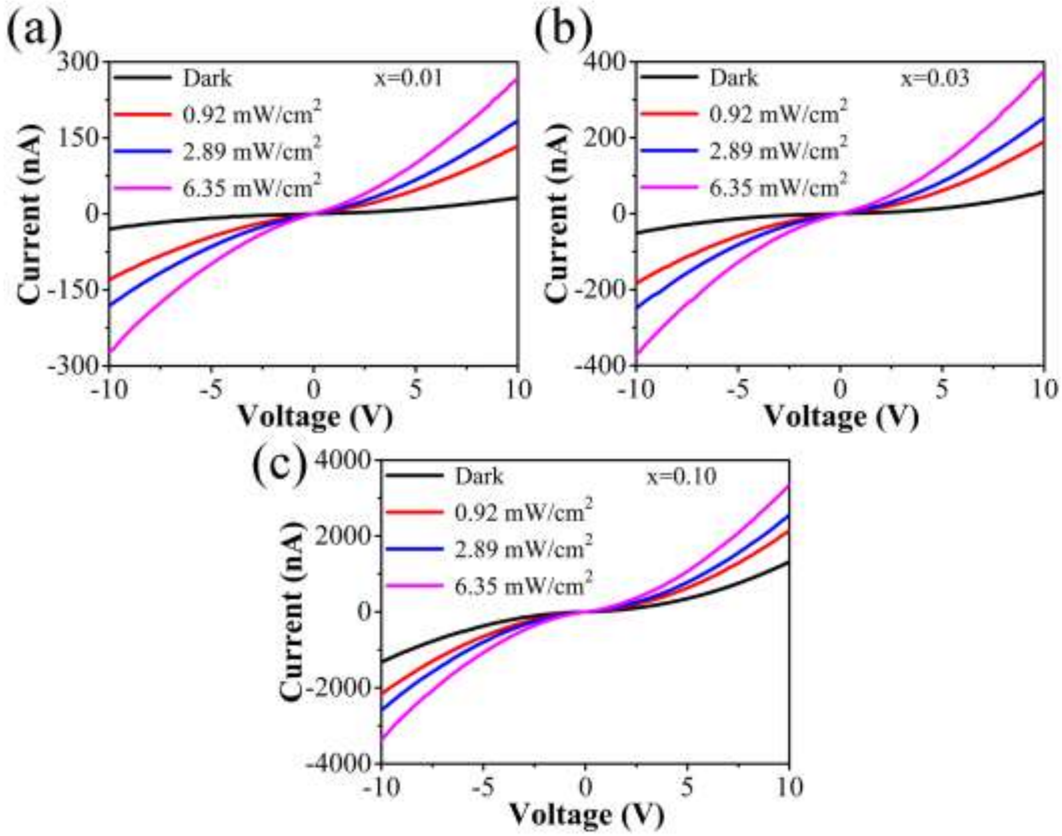

Fig. S4 I-V curves with different power densities of the $(Sn_xSb_{1-x})_2Se_3$ nanorod film photodetector at (a) x=0.01, (b) x=0.03 and (c) x=0.10.