Supporting information

Morphology-tunable In_2Se_3 nanostructures with enhanced electrical and photoelectrical performances via sulfur doping

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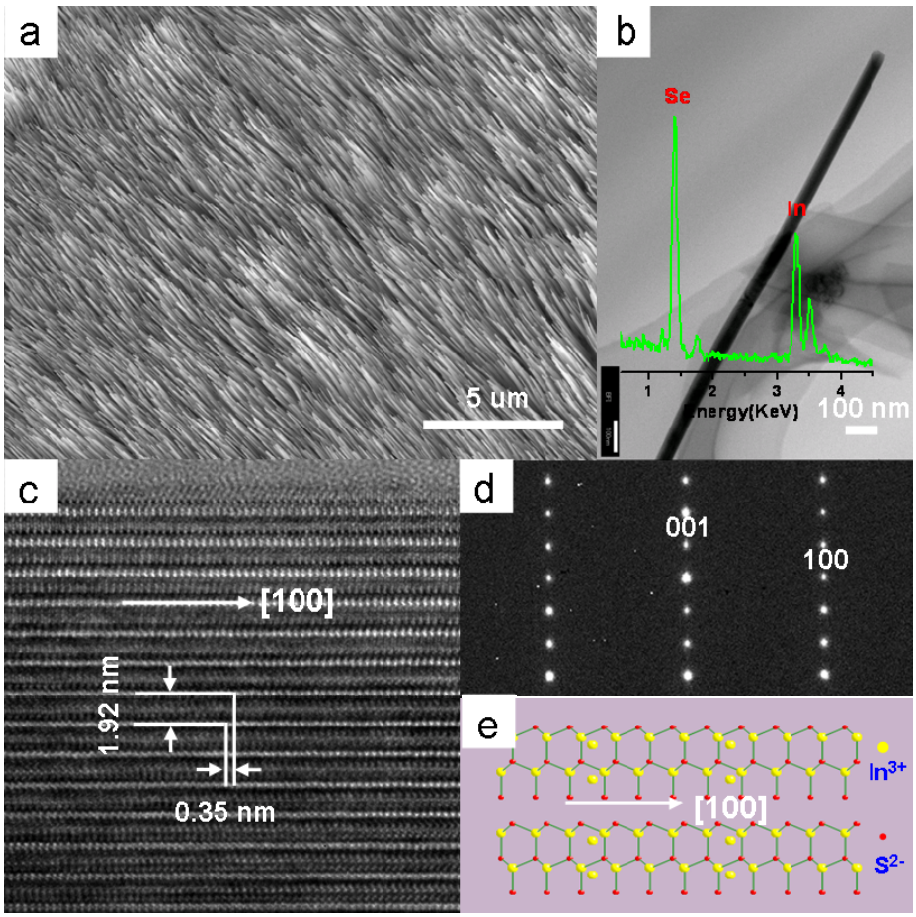

Fig. S1 In_2Se_3 ordered nanowire arrays formed in zone I. (a) SEM image of In_2Se_3 nanowire arrays; (b) TEM image and the corresponding EDS spectrum (inset) of an individual In_2Se_3 nanowire; (c, d) HRTEM image and the corresponding SAED pattern of the nanowire verifying that it grew along [100] direction; (e) Atomic model of a WZ-type In_2Se_3 nanowire. (ref. 24)

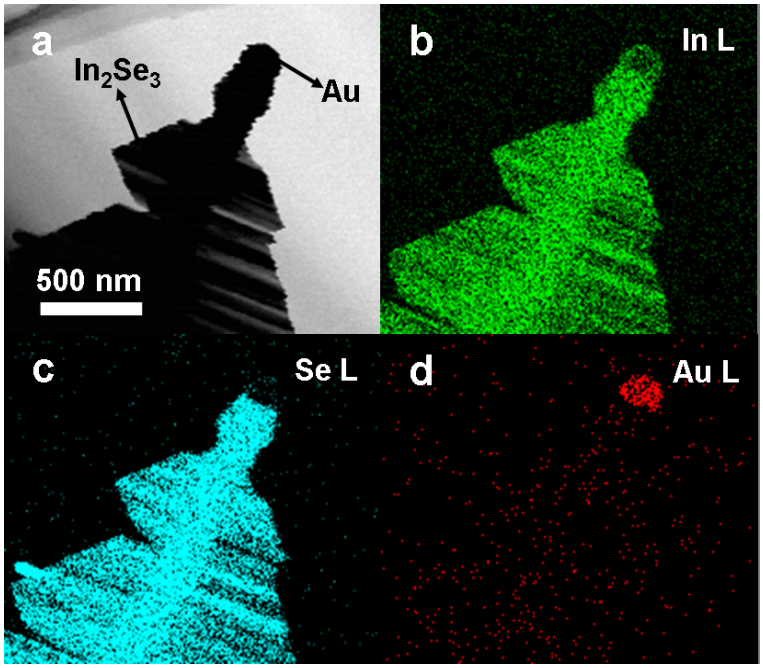

Fig. S2 (a) STEM image of an individual In_2Se_3 nanotree; (b, c, d) Spatially resolved EDS elemental maps depicting the distribution of the constituting elements within the nanotree: the images correspond to the In L-edge, Se L-edge and Au L-edge signals, respectively.

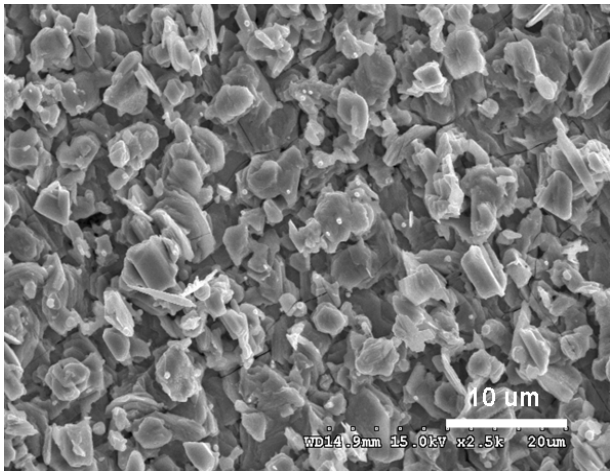

Fig. S3 SEM image of the synthesized In_2Se_3 products without using Au catalysts.

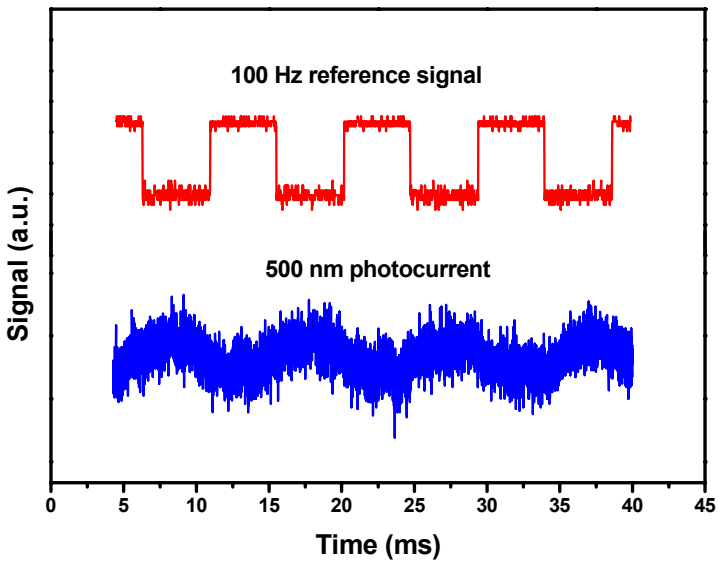

Fig. S4 A transient response by illuminating an undoped In_2Se_3 nanowire photodetector with a 500 nm light pulse chopped at a frequency of 100 Hz at a bias of 10V along with the reference signal of the chopped light at 100 Hz. The rise and fall times were measured to be ~2.3 us and ~1.6 us, respectively.