Supporting information

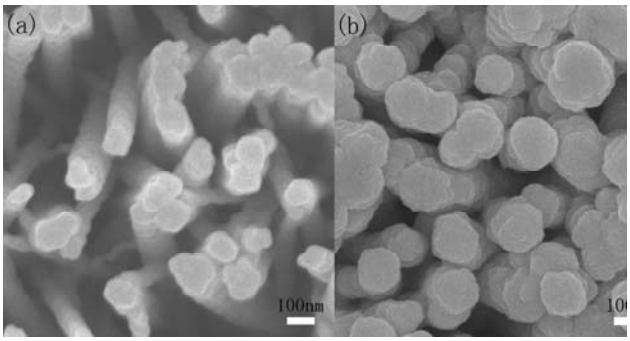

Figure 1S. The SEM image ZnO/CdTe/CdSe nanocable arrays on a ITO substrate.

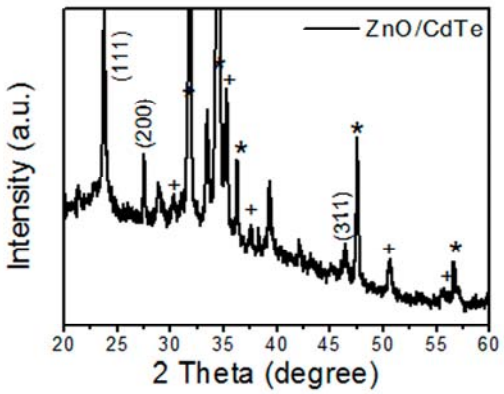

Figure 2S. The XRD pattern of ZnO/CdTe nanocable arrays-on-ITO.

Figure 1S a and 1S b shows the top-view SEM images of the ZnO/CdTe and ZnO/CdTe/CdSe nanocables on ITO. The SEM image evolution for ZnO nanorod arrays were revealed in the article, which an average diameter and length of ~65 nm and 2.5 μm (with a standard deviation of 10nm). After deposition of CdTe (Figure 1S a), the ZnO nanorods were covered by a CdTe nanocrystal layer forming a core-shell ZnO/CdTe nanocable structure. The diameter is estimated to ~95 nm with a standard deviation of 10 nm, indicating a thickness of CdSe layer of ~15nm. Further electrodeposition of CdSe (Figure 1S b) induces a condense layer on CdTe, thus formed double-sheath ZnO/CdTe/CdSe nanocable arrays on ITO. The average diameter of the double-shell nanocables is ~130 nm, suggest the CdSe shell has a thickness of ~20 nm. The thickness of CdTe and CdSe in the reverse structure, double-sheath ZnO/CdTe/CdSe nanocables,

were kept same as those of ZnO/CdSe/CdTe nanocables.

Figure 2S reveals the XRD spectra taken from ZnO/CdTe. For ZnO/CdTe nanocable arrays, three new peaks emerged at 24.4º, 28.2º, 47.7º, which well corresponds to the (111), (200), and (311) planes of the zinc-blende CdTe (JCPDS file No.89-3011), respectively.