Supporting Information

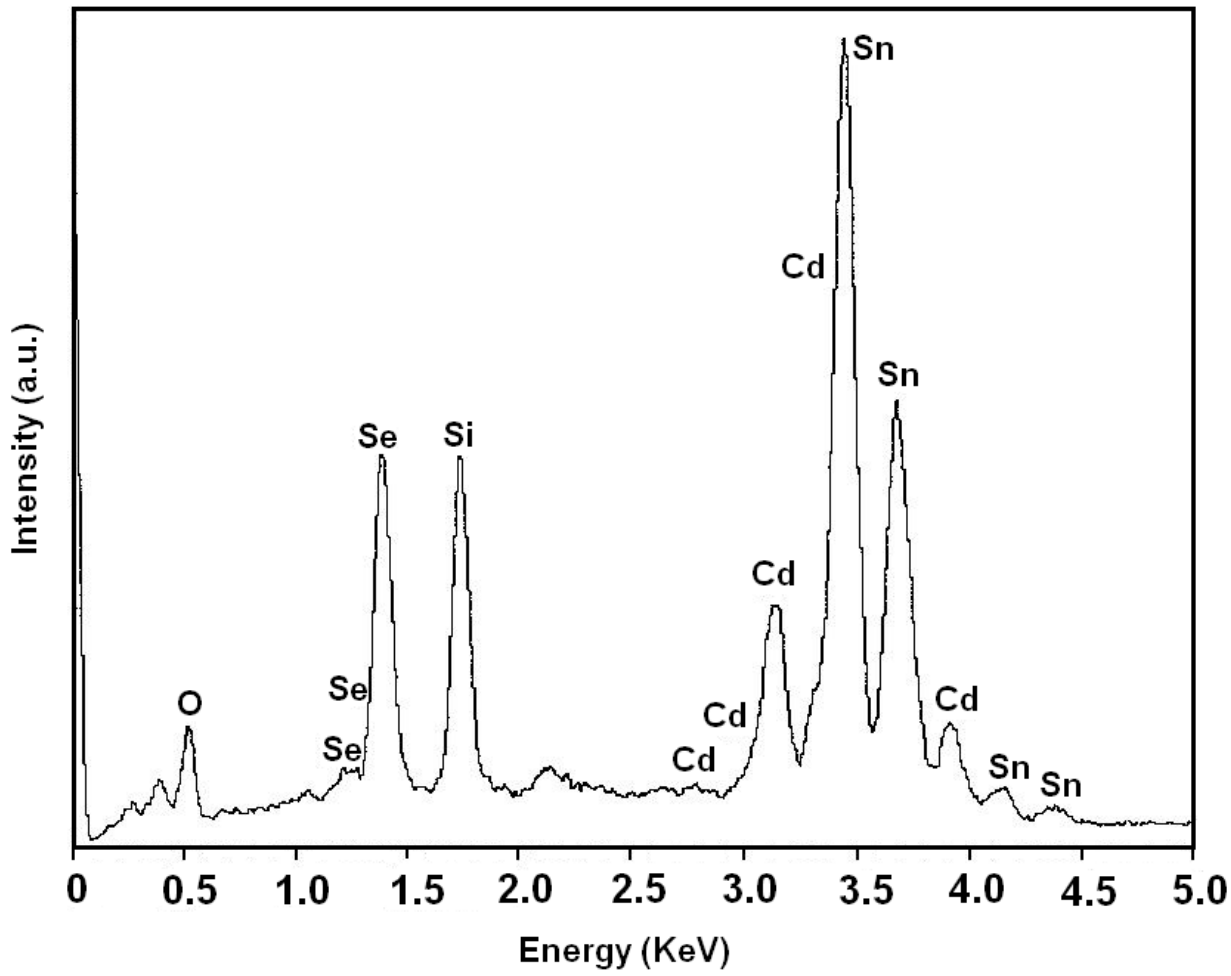

Fig. S1 EDX plot of the composite CdSe-f-MWCNT (10 s) film; Si and Sn signals arise from the underlying substrate.

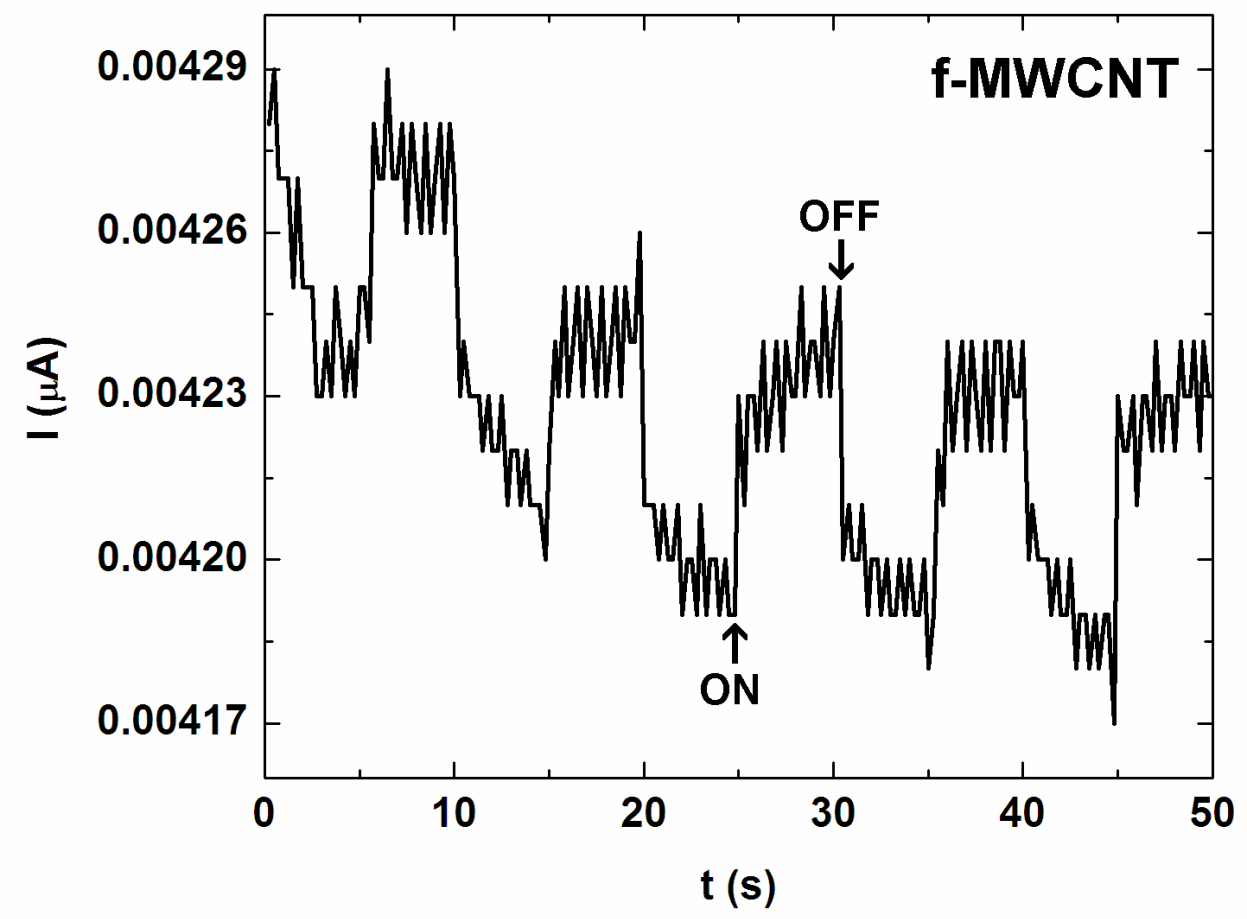

Fig. S2 Effect of exposure (illumination at λ > 300 nm and input power = 100 mW cm^{-2}) on photocurrent on-off cycles for a neat f-MWCNT cell.

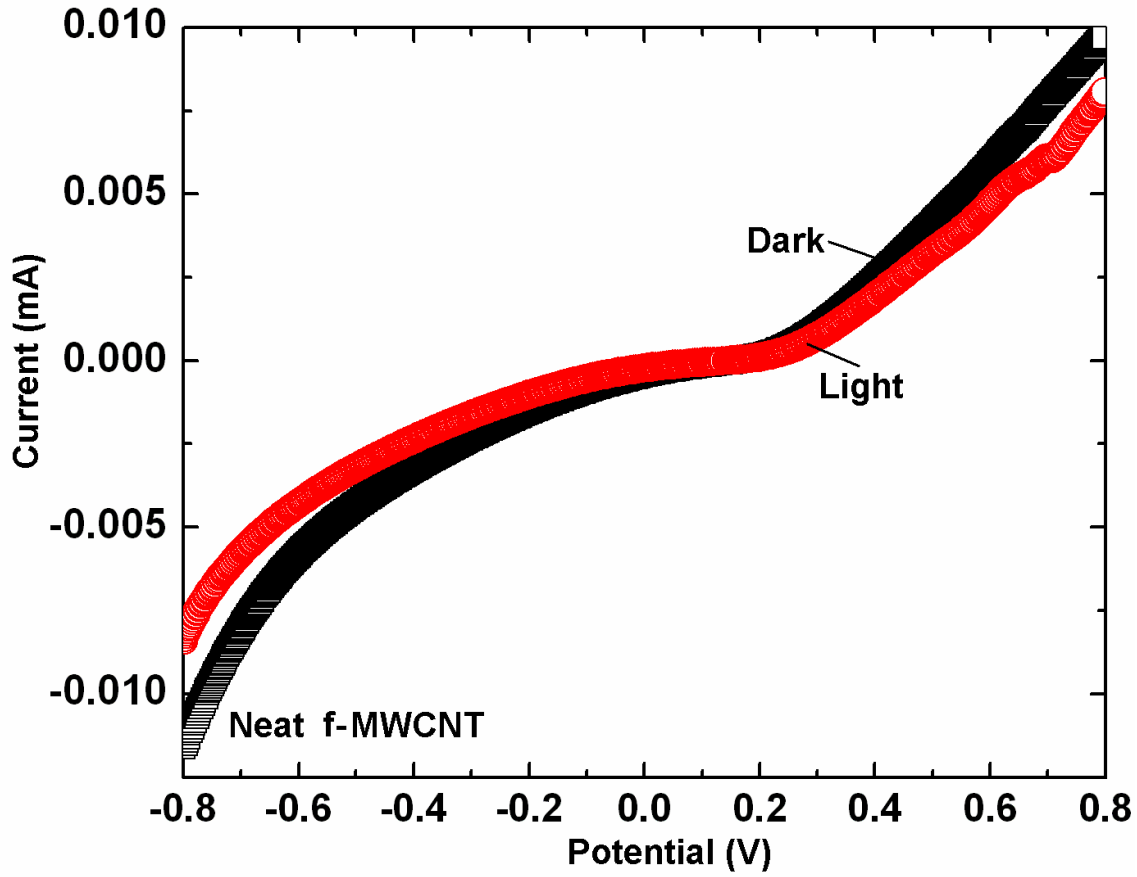

Fig. S3 I-V characteristics of neat f-MWCNT based photoelectrochemical cell.

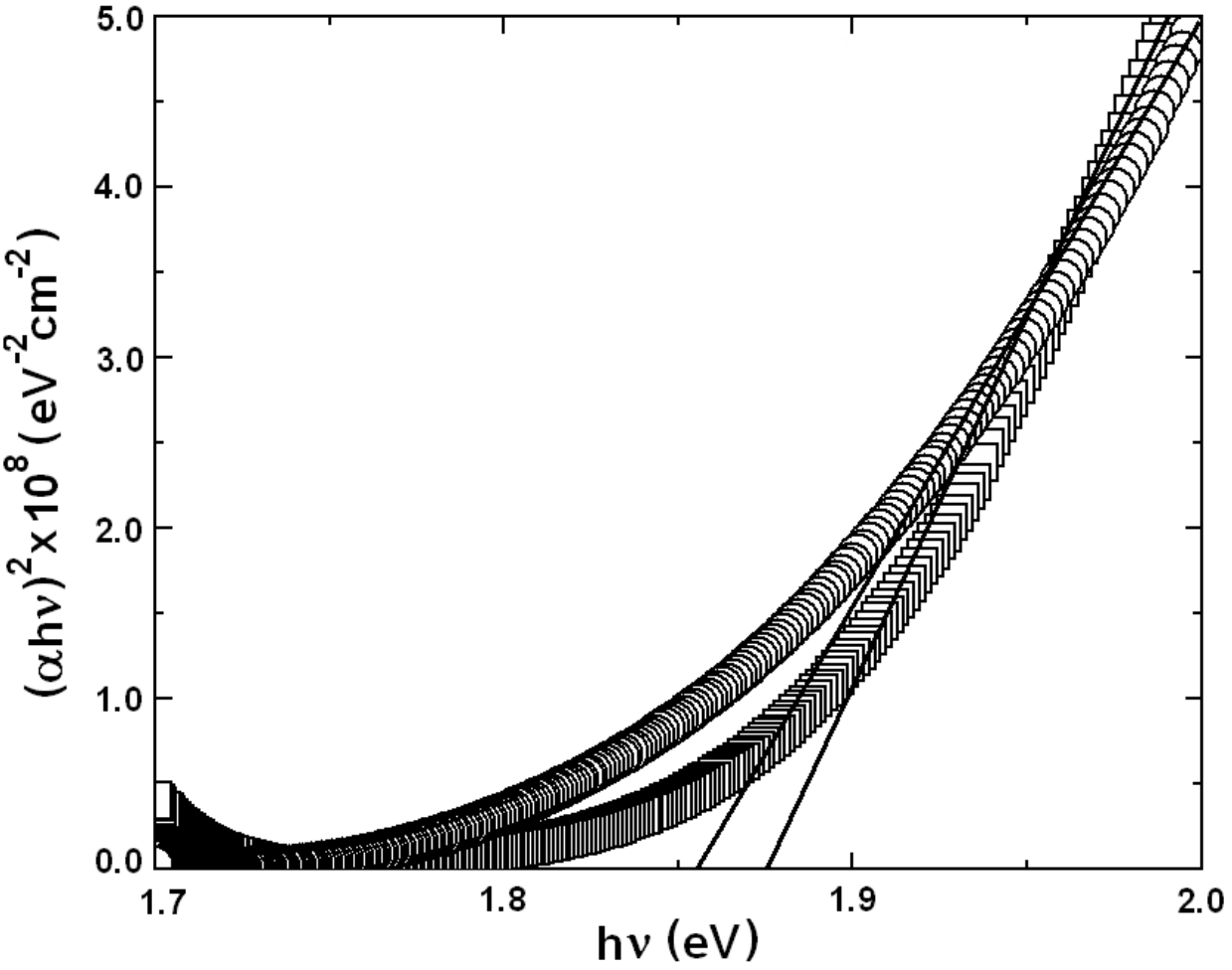

Fig. S4 Main edge absorption spectra plotted as $(\alpha h\nu)^2$ vs. photon energy ($h\nu$) for neat CdSe film (□)and for the composite CdSe-f-MWCNT film (○).

The band gap of the two films was determined from Tauc plots, wherein, absorption coefficient varies as a function of frequency, according to

$$\alpha h\nu \; \alpha \; (h\nu - E_g)^{1/2}$$

where '$h\nu$' is the photon energy and 'E_g' is the direct band gap. The absorption coefficient was determined from the absorption plots using the relation:

$$\alpha = 1/d \log \{1/A (\lambda)\}$$

where ‘d’ is the thickness of the film and ‘A’ is the absorbance. Band gaps of the neat film and composite were 1.85 and 1.87 eV respectively, obtained from the intercepts of Tauc plots.