

Growth and characterization of vertically aligned bundled CdSe and Zn doped CdSe Nanotubular films on conductive substrate

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We have prepared vertically aligned nanotubular bundles of CdSe and Zn doped CdSe films on FTO coated glass substrate by using cathodic electro deposition method. The Composition, crystal structure, surface morphology and optical properties of the as-grown pure and Zn doped CdSe nanotubular films were examined by using EDX, X-ray diffraction, Scanning electron microscopy and UV-Vis-IR spectrophotometer techniques, respectively. XRD study showed the hexagonal phase without any amorphous background. SEM images clearly showed end capped vertically aligned nanotubes arranged closely. The optical transmittance spectra were recorded within the range of 300-1000 nm. The band gap energy was found to vary between 1.92 and 1.97 eV due to the incorporation of Zn. It was believed that the increment in band gap value from the bulk band gap (1.7 eV) of CdSe shall be due to size confinement in nanotubular morphology of the prepared films.