

Electronic band gap states in electrodeposited cuprous oxide semiconductors

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Using the electrodeposition technique Cu₂O thin films of n-type conductivity was deposited on ITO substrates. It was observed that the doping density of the films were very sensitive to the deposition potential. The photoluminescence study revealed that the electronic gap states present in the band gap are only the states originated due to the oxygen vacancies. These vacancies resulted doner levels producing the n-type conductivity in the electrodeposited cuprous oxide thin films. Scanning Electron Micrographs and Absorption Spectrums are similar to reported p-type films. Photoresponse of the films clearly indicated the n-type behavior of electrodeposited cuprous oxide thin film in a photoelectrochemical cell.