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# Synthesis and characterization of structural, morphological and photosensor properties of $\text{Cu}_{0.1}\text{Zn}_{0.9}\text{S}$ thin film prepared by a facile chemical method

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The  $\text{Cu}_{0.1}\text{Zn}_{0.9}\text{S}$  thin film was grown by facile chemical bath deposition (CBD) method on glass substrates at  $60^\circ\text{C}$ . The structural, morphological, photosensor properties of the as-grown thin film has been investigated. The structural and phase confirmation of the as-grown thin film was carried out by X-ray diffraction (XRD) technique and Raman spectroscopy. The FE-SEM images showed that the thin films are well covered with material on an entire glass substrate. From the optical absorption spectrum, the direct band gap energy for the  $\text{Cu}_{0.1}\text{Zn}_{0.9}\text{S}$  thin film was found to be  $\sim 3.16$  eV at room temperature. The electrical properties were measured at room temperature in the voltage range  $\pm 2.5$  V, showed a drastic enhancement in current under light illumination with the highest photosensitivity of  $\sim 72\%$  for 260 W.

Topics

[Electrical properties and parameters](#), [Photodetectors](#), [Glass](#), [Absorption spectroscopy](#), [Raman spectroscopy](#), [Thin films](#), [X-ray diffraction](#)

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