



Influence of Copper doping on Structural, Morphological and Optical Properties of ZnO Nanoparticles

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Abstract: In this work pure and Copper doped ZnO (CZO) Nanoparticles were synthesized by sol-gel process. The influence of Cu doping on Structural, Morphological, Compositional and optical properties of ZnO Nanoparticles were analyzed by performing various studies using X Ray diffraction (XRD), Scanning Electron Microscopy (SEM), Fourier Transform Infrared Spectroscopy (FTIR), UV-Visible Optical absorption and Photoluminescence (PL) Spectroscopic Characterizations. XRD is used to determine structural properties of Nanopowders. SEM images show morphology of Nanopowders. An FTIR spectrum is used to specify functional groups. Optical properties were analyzed from UV-Visible optical absorption and PL characterizations. The results proved Cu incorporation into ZnO lattice modified properties of pure ZnO. Sol-gel method utilized for fabrication is simple, low cost, environmental friendly. As synthesized nanoparticles can further utilized for fabrication of Sensors, Solar Cells, LED etc.

Keywords: Nanoparticles, Optical Absorption, Scanning Electron Microscopy, X Ray Diffraction, Zinc oxide.

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