

Structural and optical characteristic of {3-(4-(dimethylamino) phenyl)-2-phenyl-(2E) propen-1-one} doped ZnO nanoparticles

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Abstract

The purpose of this paper is to investigate the structural and optical characteristics of a doped in ZnO nanoparticles. Part of the aim is to study the characterization of chalcone doped ZnO nanoparticles by several techniques such as X-ray diffraction, Scanning electron microscope, FTIR spectroscopy and diffuse reflection spectra. All doped samples showed hexagonal wurtzite structure. This study has shown that, the crystallite size of pure ZnO varied from 23.50 to 27.45 nm and when, increasing the chalcone percentage by 1 and 1.5% has increased the crystallite sizes in the range of 33.40–33.80 nm and 33.80–36.20 nm, respectively. The value of the energy gap (E_g) for ZnO nanoparticles was 3.14 eV. For 1 and 1.5% chalcone doped ZnO, the energy gap decreased by an order of magnitude 0.18 eV. The vibration band of ZnO at 435 cm^{-1} was shifted to the higher wave number of 442 and 447 cm^{-1} for the dopant 1 and 1.5%, respectively.

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Biography

Mohana F. Attia is a Sudanese academic researcher. Attia obtained a B.Sc. in applied physics and mathematics at Omdurman Ahlia University and a M.Sc. in applied physics at Dongola University. Now about to complete

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