

عنوان مقاله:

Study on structural, luminescence properties and Hall Effect of SnO₂ nanoparticles obtained by a Co-precipitation technique

محل انتشار:

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خلاصه مقاله:

In this paper, we report the synthesis of tin oxide (SnO₂) nanoparticles by co-precipitation technique. The structural, surface morphology, thermal and optical properties of the SnO₂ samples were analysed using X-ray diffraction (XRD), High-resolution transmission electron microscopy (HRTEM), Fourier transformed infrared (FTIR) spectrum, thermo gravimetric analysis (TGA/DTA), photoluminescence spectrum (PL) and UV-Vis spectroscopy techniques. X-ray diffraction patterns showed the SnO₂ crystallites with the tetragonal rutile structure and UV-Vis analysis showed the characteristic absorbance peak at 345 nm. In the PL emission spectrum, three peaks were found at 500, 605 and 651nm, due to the oxygen vacancy defect. Finally, Hall coefficient was also estimated for various values of an applied magnetic field and bias current applied to the SnO₂ sample. From the detailed study, it has been found that the prepared sample is an n-type semiconductor

کلمات کلیدی:

Hall Effect, Luminescence, nanoparticles, Semiconducting materials, Tin Oxide

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