

(10-055) - Influence of cobalt doping on the luminescence and magnetic properties of ZnO nanoparticles prepared by co-precipitation

Henrique Jun Sugahara - Mestre

Henrique J. Sugahara, Celso P de Melo, Kleber G. B. Alves

UFPE

We have investigated the influence of cobalt doping on the luminescence and magnetic properties of ZnO nanoparticles prepared by the co-precipitation. The products were characterized by x-ray diffraction (XRD), photoluminescence (PL), and UV-vis spectroscopies, and by use of a vibrating sample magnetometer (VSM). XRD analyses shows that the cobalt doped ZnO nanoparticles were synthesized without impurities, and the calculation based on the XRD shows the average crystallite sizes of ZnO to be ~ 10 nm. PL spectra showed high intensity in the UV and low intensity in the visible region. While the PL shows decreasing intensity, an effect proportional to the doping percentage, the peak at 544nm was not found in the cobalt-doped zinc oxide, and a shift from 380 nm to 390nm was observed. The VSM measurement confirmed the presence of ferromagnetism and it was observed the increase in the values of the saturation magnetization with increasing Co concentration.
