Synthesis and characterization of ZnO nanocomposites / Mg

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The nanoparticles have attracted great interest due to their unique physical and chemical properties, and zinc oxide (ZnO) is one of metal oxide nanoparticles, which attracts considerable attention due to its unique characteristics and its wide range of important technological applications.
Nanocomposites are characterized by a combination of inorganic materials in the same particle. These assemblies have properties ranging from those of each of the constituents.
The properties of ZnO nanoparticles can be improved depending on the interest of doping research with different metal atoms to meet specific needs and applications. Therefore, doping in the host matrix of zinc oxide nanoparticles with appropriate elements can adjust different properties of ZnO and is an effective method for improving and controlling its properties, which is crucial for its practical applications. Mg-doped ZnO is of considerable interest because of its unique optical, electrical and piezoelectric characteristics.
Our work consists in the synthesis of a ZnO / Mg nanocomposite by a chemical coprecipitation method. The characterization of the synthesized nanocomposite was determined by X-ray diffraction (XRD) and UV-visible spectrophotometry.

The DRX, on the one hand, makes it possible to determine the crystalline structure of the nanocomposite which is of wurtzite type, and secondly to calculate the size of crystallites obtained by the application of the Scherrer equation in the diameter of 49.44 nm. The UV-visible spectrophotometry meanwhile revealed the existence of a maximum absorbance at 372 nm and allowed to assert that the synthesized powder corresponds to ZnO / Mg nanocomposites.

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Session name/ number: Synthesis of nanoparticles
Category: Poster presentation