Synthesis of undoped and M-doped ZnO (M Co, Mn) nanopowder in water using microwave irradiation

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Abstract: Undoped and M-doped ZnO (M Co, Mn) nanopowders have been successfully synthesized by microwave-assisted approach using $Zn(NO_3)_2.2H_2O$ and NaOH. The results obtained from X-ray diffraction (XRD) analysis and the transmission electron microscopy (TEM) showed that the mean particle size was about 10-15 nm. The XRD analysis of the synthesized samples also showed a single phase ZnO structure without any additional phase. Magnetic property studies of the as-prepared M-doped ZnO (M Co, Mn) samples showed them to be paramagnetic material. However, thermal annealing in air of particular samples at 800?C for 3 h resulted in transforming the samples into a room temperature ferromagnetic material. ?? 2009 IOP Publishing Ltd.

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