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Structural and Magnetic Properties of Cr Doped Ni-Zn Nanoferrites Prepared by Co-Precipitation Method

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Abstract : Physical properties of nanocrystalline Ni1-xZnxCryFe2-yO4, (x=0.3, 0.5 and y=0.0, 0.1) with estimated crystallite size of 16.4 nm have been studied. XRD pattern of all prepared systems shows that, the nanosamples without Cr3+ have a cubic spinel structure with the appearance of small peaks designated as a secondary phase. Magnetic constants such as saturation magnetization, (MS) remanent magnetization (Mr) and coercive field (Hc) were obtained and reported. The obtained data shows that, the addition of Cr3+ (0.1mol) decreases the saturation magnetization. This is due to the decrease of magnetic moment of Cr3+ ion (3.0 μB) with respect to Fe3+ ion (5.85 μB). The electrical properties of the investigated samples were also investigated.

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