

عنوان مقاله:

Changes of NiZn Ferrite Properties by Substitution of Co Ions

محل انتشار:

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خلاصه مقاله:

Nanocrystalline Nickel–Zinc–Cobalt ferrites with compositional formula $\text{Ni}_{0.7-x}\text{Zn}_{0.3}\text{Co}_x\text{Fe}_2\text{O}_4$ ($0 \leq x \leq 0.4$), have been successfully synthesized by sol–gel autocombination method using metal nitrates in citric acid. The structural and magnetic properties of these ferrites have been characterized at room temperature. The X-Ray diffraction (XRD) patterns of the particles confirmed the formation of single-phase cubic spinel structure. The average crystallite size lie in the range of 34–39 nm. Infrared absorption spectra show one significant absorption band around 580 K_1 , and the wavelength decreases gradually with increasing Co content. Magnetization measurements of ferrite spinels were carried out at room temperature by a vibrating sample magnetometer (VSM) and hysteresis patterns demonstrated increase in saturation magnetization and coercive force with increasing Co concentration.

کلمات کلیدی:

Ferrites; Sol–gel auto combination method; X-ray diffraction; Infrared spectroscopy; Magnetic properties

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