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Structural and dielectrical properties of hard-soft ferrite composites

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Composites of Hard ($\text{Sr}_2\text{Co}_2\text{Fe}_{12}\text{O}_{22}$) and Soft (CoFe_2O_4) ferrite are prepared. First individual ferrite powder prepared using co-precipitation technique. The prepared precursors were pre-heated at 500°C followed by final sintering at 1000°C for 4 hrs. The prepared powder sub-sequent mixed in different mass ratio and final heated at 1150°C for 5 hrs in a muffle furnace in order to get composites of hard-soft ferrites. The prepared composite powders were characterized using different experimental techniques like XRD, FTIR, Dielectric measurements & Ac-Susceptibility measurements. FTIR spectra were recorded at room temperature to confirm the formation of ferrites and also to understand the nature of the residual carbon in the samples. Structural characterizations of prepared composites were analyzed by X-Ray diffraction. The dielectric measurement was carried out at room temperature in a frequency range of 20Hz to 2MHz using inductance capacitance resistance meter-bridge (Agilent E4980A precision LCR meter). AC-susceptibility measurement is carried out at constant magnetic field of 10 Oe with temperature variation from room temperature to 600°C .

Biography

Chirag Patel is a Research Fellow at the Department Of Physics in Gujarat University, India.

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