

Investigation of electric and dielectric properties of La^{3+} doped and structurally engineered Ni-Co nanoferrites

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Herein, we have studied the impact of La^{3+} doping on the electric and dielectric properties of the nickel-cobalt ferrite. To do this, $\text{Ni}_{0.5}\text{Co}_{0.5}\text{La}_x\text{Fe}_{2-x}\text{O}_4$ composites with various La^{3+} mass loading is synthesized by a sol-gel auto combustion method. The resultant composites were characterized by several analytical techniques to study their physical and chemical properties. Our results show that with increase in the La^{3+} doping, the particle size of the nanoferrite decreases and its electronic conductivity increases. While the dielectric constant and dielectric loss decreases with the increase in frequency.