

Effect on structural, optical and dielectric properties of Co Doped ($\text{Bi}_{0.9}\text{Co}_{0.1}$) FeO_3

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Nanoparticles of pure and Co doped BiFeO_3 of the composition ($\text{Bi}_{0.9}\text{Co}_{0.1}$) FeO_3 have been successfully synthesized by auto combustion method using sucrose as a chelating agent and it has calcinated at 500°C . Microstructural analysis have been investigated by X-ray Diffraction (XRD), Scanning Electron Microscope (SEM) and Energy Dispersive X-ray (EDX) techniques. The crystallite size has resolute by powder X-ray diffraction technique whereas, UV-VIS technique is used to study the optical properties and band gap (E_g) of all samples. It is observed that doping causes increase in the dielectric constant of the nanoparticles as compared with the pure nanoparticles. It has also found that doping of Co affects the optical properties effectively and band gap is also decreased.