

DIELECTRIC STUDY OF $\text{BAZr}_{0.5}\text{Ti}_{0.5}\text{O}_3$ FERROELECTRIC RELAXOR CERAMIC

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ABSTRACT

The nanoparticle of barium zirconate titanate (BZT) ceramic was synthesized by solid state reaction method at 1200°C. Single perovskite phase having cubic symmetry is confirmed by X-Ray Diffraction. There are two transition temperatures present around 200K and 330K. The dielectric properties reveal that BZT is a relaxor ferroelectric confirmed by diffusion of two phases (tetragonal and cubic phase). The dielectric constant of BZT ceramics exhibited broad peaks curve near the T_m . This behavior may be caused by the inhomogeneous distribution of Zr^{4+} ions into the Ti sites and/or by the mechanical stresses on the grains. The broadness indicates the diffuse phase transition from ferroelectric to paraelectric phase. That is to say, there is diffuse transition behavior in $\text{BaZr}_{0.5}\text{Ti}_{0.5}\text{O}_3$ ceramics.

KEYWORDS: XRD, Dielectric Constant, Ferroelectric, Relaxor