

Effects of Uniaxial Stress on Dielectric Properties of Lead Zirconate Titanate Ceramics

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Abstract

In this study, effects of uniaxial stress on the dielectric properties of PZT ceramics are investigated. The ceramics with a formula $\text{Pb}(\text{Zr}_{0.52}\text{Ti}_{0.48})\text{O}_3$ are prepared by a conventional mixed-oxides method. Phase formation behavior and microstructural features of these ceramics are studied by an x-ray diffractometer (XRD) and a scanning electron microscope, respectively. The dielectric properties under the uniaxial stress of PZT ceramics are observed at low and high-stress levels using a compressometer. The results show that the dielectric constant and the dielectric loss tangent of the PZT ceramics increase non-linearly with increasing applied stress.