

Enhanced Flexoelectricity through Residual Ferroelectricity in Barium Strontium Titanate

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Residual ferroelectricity is observed in barium strontium titanate ceramics over 30 °C above the global phase transition temperature, in the same temperature range in which anomalously large flexoelectric coefficients are reported. The application of a strain gradient leads to strain gradient-induced poling or flexoelectric poling. This was observed by the development of a remanent polarization in flexoelectric measurements, an induced d_{33} piezoelectric response even after the strain gradient was removed, and the production of an internal bias of 9 kV m⁻¹. It is concluded that residual ferroelectric response considerably enhances the observed flexoelectric response.