

Abstract Submitted
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Electric Field and Polarization Distributions in Relaxor Ferroelectrics¹ GIAN GUZMAN-VERRI, CHANDRA VARMA, Department of Physics and Astronomy, University of California at Riverside — Relaxor ferroelectric crystals (or simply relaxors) show high dielectric constants and low dielectric losses over a broad range of temperatures. There is consensus that the dielectric properties of the relaxors are due to the formation of polar nanoregions (PNR) below the Burns temperature. Each PNR possesses a net polarization that has many equivalent orientations. The gradient in the polarization leads to charge accumulation on the PNR surfaces. Such charge accumulation produces electric fields, which in turn affect the direction of the polarizations themselves. Knowledge of the electric field and of the polarization distributions is critical to understand the dielectric properties of these systems. Here, we present results on the calculated probability distribution of the electric fields and of the polarizations in the relaxors. Comparison to results obtained from neutron scattering experiments is provided.

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