

Dielectric Study of the Ferroelectric Phase Transition in DMAGaS Crystal

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Electric permittivity measurements as functions of temperature at constant dc electric field and as functions of the dc electric field at constant temperatures in the paraelectric phase have been performed for DMAGaS crystal. The changes of the permittivity maximum with the electric field intensity evidence the first-order character of the ferroelectric phase transition at T_{c1} . The field dependence of the permittivity $\epsilon(E)$ in the paraelectric phase is discussed, using the classical electric equation of state. A method for the determination of the corresponding coefficients is proposed. The obtained B and C coefficients, together with double hysteresis loop observed above T_{c1} prove the first-order character of the ferroelectric phase transition in DMAGaS crystal.

Key words: Ferroelectricity, Phase Transition, Dielectric Properties.

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