

Comparison studies of the influence of an electric field on permittivity close to ferroelectric-paraelectric phase transition in TGS, DMACA and DMABA crystals.

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In previous paper we presented studies of the ferroelectric-paraelectric phase transition in $(\text{CH}_3\text{NH}_3)\text{Bi}_2\text{Br}_4$ crystal using the non-linear dielectric effect (NDE) technique. We found that the adopted method gives unique description of polarisation reversal process in the vicinity of phase transition. The NDE technique was originally developed for investigations of liquids in strong electric field, and the measurements consist in comparison of the electric permittivity measured at low and high intensity electric field. In $(\text{CH}_3\text{NH}_3)\text{Bi}_2\text{Br}_4$ crystal the NDE increment (defined as $\Delta\epsilon = \epsilon(E) - \epsilon(E=0)$) is a temperature dependent quantity in the vicinity of phase transition temperature. When the temperature is approaching the critical one, the absolute value of $\Delta\epsilon$ increases rapidly. In paraelectric phase the $\Delta\epsilon$ increment is found to be negative, and in ferroelectric phase could be both positive and negative depending on the DC bias polarization, duration time of DC impulses and...

Słowa kluczowe

ferroelectric, phase transition, Nonlinear dielectric effect

Adres publiczny

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