



NMR study of phase transition in new ferroelectric crystal— $(C_5H_5NH)_5Bi_2Br_{11}$.

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Streszczenie

A T_1 minimum at 216 K for Larmor frequency 90 MHz has been detected and for this minimum no analogous T_1 minimum according to the known quadratic dependence of the Larmor frequency 25 MHz is found. The analysis leads to the conclusion that this T_1 minimum is a result of the relaxation of protons via quadrupole nuclei. The Kimmich theoretical treatment of 1H NMR experiments exhibiting the existence of this phenomenon in the case of relaxation of protons of pyridinium cations in $(C_5H_5NH)_5Bi_2Br_{11}$ and the estimated averaged quadrupole frequency of interacting quadrupole nuclei has been estimated to be around 71 MHz. Below the phase transition at 118 K a wide symmetric spin-lattice relaxation minimum at 25 MHz is detected and a model of small angle libration of the pyridinium cation has been applied to explain the observed T_1 relaxation time minimum.

Słowa kluczowe

pyridinium cation, relaxation time, second moment of NMR line

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