NMR Study of Cation Motions in Ferroic $[C(NH_2)_3]_3Bi_2Br_9$

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The proton NMR second moment and spin-lattice relaxation time of polycrystalline $[C(NH_2)_3]_3Bi_2Br_9$ were studied in a wide-temperature range. Dynamical inequivalence of two crystallographically different guanidinium cations has been revealed . The C_3 reorientation of the two types of cations was found to be hindered by different potential barriers (25.1 kJ/mol and 34.7 kJ/mol). At higher temperatures an overall reorientation of the cations was revealed. The existence and order-disorder character of the phase transitions at 333, 350, 415, and 425 K have been confirmed.

Key words: Phase Transitions; Nuclear Magnetic Resonance.