



NMR and dilatometric studies of the structural phase transitions of $(\text{CH}_3\text{NH}_3)_3\text{Sb}_2\text{I}_9$ and $(\text{CH}_3\text{NH}_3)_3\text{Bi}_2\text{I}_9$ crystal.

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Linear thermal expansions of single crystals of $(\text{CH}_3\text{NH}_3)_3\text{Sb}_2\text{I}_9$ (MAIA) and $(\text{CH}_3\text{NH}_3)_3\text{Bi}_2\text{I}_9$ (MAIB) were measured in the 100–295 K temperature range. Both crystals display a large anisotropy in the dilatation measured along the *a*- and *c*-axes in the vicinity of all phase transitions (PT). The pressure coefficients at the first-order phase transitions for MAIA (149 K) and MAIB (145 K) were $+6.0$ and $+5.7 \times 10^{-2} \text{ K MPa}^{-1}$, respectively. The temperature dependence of the ^1H spin-lattice relaxation time T_{12} was measured for solid MAIB. Discontinuities in the spin-lattice relaxation plot corroborate the first-order PT at 145 K and the second-order one at 218 K. Molecular motions occurring in the respective phases are identified and their activation energies evaluated.

Adres publiczny

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