^{209}Bi NQR and Magnetic Properties of Bismuth Oxide-Based Compounds

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The NQR line shapes of ^{209}Bi in the α-Bi_2O_3-based mixed oxides $Bi_2O_3 \cdot 2M_2O_3$ (M = Al, Ga). $Bi_2O_3 \cdot 3GeO_2$, and $2Bi_2O_3 \cdot 3GeO_2$ are recorded in zero and weak magnetic fields ($H_{ext} < 500$ Oe) and compared with the results of computer simulation. Splittings and line shape asymmetry, exhibited by the resonances, suggest that internal magnetic fields, similar to those earlier reported for α-Bi_2O_3 and Bi_3O_4Br, may exist in these compounds.

In the spectra of single crystal $Bi_4Ge_3O_{12}$, the line multiplicity in external magnetic fields is higher than simulated, which might results from domains in the crystal.

In external magnetic fields a notable increase in the line intensity was observed, the effect depending on the mutual orientation of the EFG axes and the fields perturbing the nuclear spin system.

Key words: ^{209}Bi NQR; Internal Magnetic Field; Line Shape; Applied Magnetic Field; Computer Simulation.

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