

A ^{35}Cl NQR Study on Exchange Interactions between Paramagnetic $[\text{IrCl}_6]^{2-}$ Ions

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The ^{35}Cl and ^{37}Cl NQR frequencies and spin-lattice relaxation times T_{1Q} in paramagnetic M_2IrCl_6 ($\text{M} = \text{NH}_4, \text{Cs}$) were measured at 4 - 350 K. The observed temperature dependences were attributed to EFG fluctuations caused by lattice vibrations and magnetic field fluctuations caused by paramagnetic ions. The exchange parameters J in the NH_4 and Cs salts were calculated from ^{35}Cl NQR T_{1Q} to be 8.6 K and 1.8 K respectively. ^{37}Cl data yielded 9.1 K and 2.1 K respectively. The obtained lattice constant dependence of J values was explained by considering Ir-Cl . . . Cl-Ir superexchange interaction.

Key words: Cl NQR; Superexchange Interaction; Paramagnetic Salt; Spin-lattice Relaxation.