Mössbauer Study of Relaxation Phenomena in (NH4)3FeF6

The shape of a relaxation-broadened Mössbauer absorption line for a paramagnetic ferric compound is influenced by various terms of the ionic Hamiltonian. Here we discuss especially how the application of an external magnetic field may influence the line shape and may give information about the magnitudes of other terms of the ionic Hamiltonian. Measurements on the two phases of (NH4)3FeF6 demonstrate differences between cubic and noncubic surroundings of the ferric ion. In the cubic phase we have found a temperature-independent spin-correlation time $\tau = 1.19 \times 10^{-10}$ sec.

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