Values of the deformation parameters for 11 even-even nuclei were also cited in the paper by Gol'din and Ter-Martirosyan[5] (Table IX) where they were obtained as a result of the numerical solution of an initial exact equation describing α decay. A comparison of our results with the values of α obtained by these authors[5] shows that they practically coincide with each other — the deviation does not exceed 10%.

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RESONANCE TRANSITIONS IN PARALLEL FIELDS IN CERTAIN Mn^{++} AND Fe^{+++} SALTS

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KURUSHIN[1] and Kutuzov[2] have communicated that at $\nu \sim 10^{10}$ Cps at room temperature the $\chi''(H)$ absorption curves in certain Mn^{++} and Fe^{+++} salts possess a maximum when investigated in parallel fields (an oscillating magnetic field H_ν directed parallel to a constant magnetic field H). This absorption in parallel fields was explained by a spin-spin relaxation and identified with the phenomenon discovered experimentally by Gorter et al.[3] In addition it was also noted in references 1 and 2 that the experimental $\chi''(H)$ curves do not fit Shaposhnikov's theory.[4]

As is known, for certain Mn^{++} and Fe^{+++} salts[5] in perpendicular fields, at $\nu \sim 10^{10}$ cps and room temperature, a peak due to the forbidden transition from $\Delta m = \pm 2$ is observed in addition to the main resonance peak corresponding to the allowed transition from $\Delta m = \pm 1$. The intensity of this peak is approximately a hundred times smaller than the intensity of the main peak.

Our measurements of $\chi''(H)$ at 9500 Mcs and $T = 295°K$ in $FeNH_4(SO_4)_2 \cdot 12H_2O$ have shown that in the course of a smooth change from perpendicular to parallel fields (the angle between H_ν and H changes from 90° to 0°) the intensity of the peak for the transition from $\Delta m = \pm 2$ increases by approximately one order of magnitude, while the intensity for $\Delta m = \pm 1$ decreases practically to zero. At the same time, the resonance value of the intensity of the constant magnetic field H = 1680 oersteds remains unchanged for the transition from $\Delta m = \pm 2$.

On the basis of this experiment, we can draw the conclusion that the maximum absorption $\chi''(H)$ in parallel fields observed by Kurushin and Kutuzov is not caused by spin-spin relaxation, but by resonance. There are grounds to believe that the phenomena discovered by Gorter in parallel fields at lower frequencies of H_ν are also, in a number of instances, due to resonance transitions.

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