HYPERFINE FIELD IN YIG WITH CHARGED SUBSTITUTION

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9.7 cm

^{57}Fe NMR spectra were measured on single crystal films of yttrium iron garnet with paired charged substitution (Ge^{4+}-Ca^{2+}) using spin echo technique at 4.2 K. A series of samples with various concentration of substitution was prepared by an epitaxial growth from $BaO/B_2O_3/BaF_2$ on GGG substrate. Satellite lines corresponding to the iron ions having the Ge^{4+} and Ca^{2+} in their neighbourhood were identified. The sample with the germanium content of x(Ge)=0.03 and substrate orientation (110) was used for the further study: NMR spectra of this sample were measured in an external magnetic field of 0.1 T applied along several directions in the plane of the film. The modification of the isotropic part and the anisotropy tensor of the hyperfine interaction caused by the Ge^{4+} substituent were obtained from the experimental data. The results were compared with those previously reported for threevalent substitution (Ga^{3+}).

13.4 cm

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