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Magnetic properties of YMnO₃ ceramic samples

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Polycrystalline samples of yttrium manganites YMnO₃ were synthesized according to the standard ceramic technology. The magnetization measurements showed that the phase transition temperature in YMnO₃ is $T \sim 45\text{K}$ and $\theta_{CW} \sim 445\text{K}$ (Fig. 1 a). ESR measurements were carried out in the paramagnetic regime at the temperature above the phase transition temperature $T \sim 45\text{K}$ at the frequency of 9.48GHz. In this temperature range the ESR spectrum of YMnO₃ consists of one broad exchange-narrowed resonance line (Fig.1 b). The g-factor of the resonance signal shifts towards to lower fields starting from the value $g=2.28$ at $T=200\text{K}$ and getting the value $g=3.05$ at $T=70\text{K}$. These values of g-factors are not usual for Mn³⁺ ions with $S=2$, so we can suggest the more complicated nature of the signal.

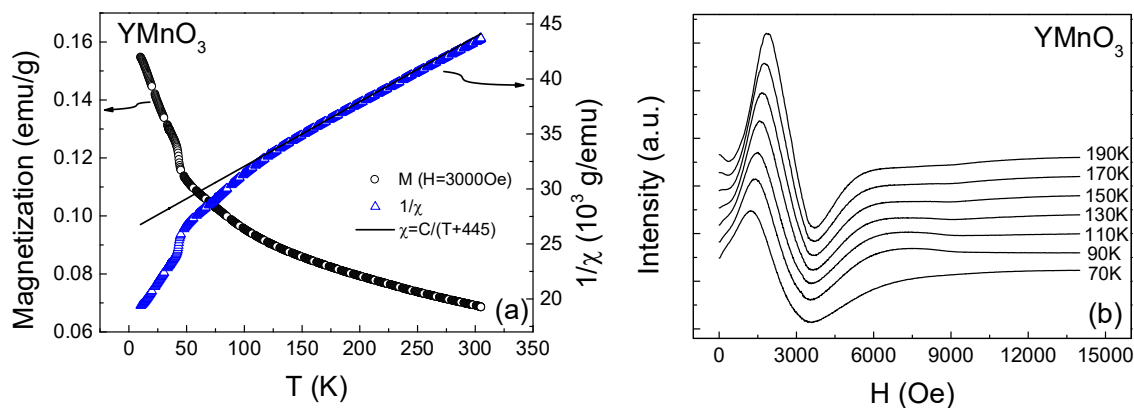


Fig. 1. (a) Temperature dependence of magnetization and inverse magnetic susceptibility of YMnO₃; (b) – ESR spectra at different temperatures in YMnO₃.

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