MAGNETIC PROPERTIES OF THE $\mathbf{Pr_{1-x}K_xMnO_3}$ PEROVSKITES

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9.7 cm

We have investigated $Pr_{1-x}K_xMnO_3$ (x=0, 0.05, 0.1, 0.15) perovskites over a wide temperature range. The strong composition and temperature dependences of electron spin resonance (ESR) at 9.4 GHz and Pr^{141} NMR spectra were observed. Single resonance line with large linewidth and asymetric line shape was observed in the ESP spectra. The increase of K contents in $Pr_{1-x}K_xMnO_3$ leads to a large shift (300 mT) of the ESR field in spectra to high field region on 300mT. The NMR spectra on Pr^{141} were measured at room temperature and at 77 K. We have observed no composition dependence of the resonance peak (near 58.1 MHz at room temperature). But decrease of temperature to 77 K leads to a shift of the resonance peak to 57.0 MHz. The ESR experimental data were analyzed in the frameworks of the Dyson's approach. The observed temperature dependence of the ESR and NMR spectra are connected with paramagnetic-ferromagnetic transition in perovskite manganites [1]. We have also measured the resistance for temperatures between 77 K and 300 K and magnetic field up to 1.8 T.

[1] Hejtmanek et at. J. Appl. Phys. 81 (1997) 4975

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