

JETP Letters 2013 vol.98 N7, pages 380-383

EPR spectra of a GdMnO₃ thin film on a SrTiO₃ substrate

Gavrilova T., Eremina R., Yatsyk I., Fazlizhanov I., Rodionov A., Mamedov D., Andreev N., Chichkov V., Mukovskii Y.

Kazan Federal University, 420008, Kremlevskaya 18, Kazan, Russia

Abstract

Electron paramagnetic resonance (EPR) spectra of a GdMnO₃/SrTiO₃ thin film in the X band have been measured in the temperature interval from 200 to 450 K. Signals from two types of paramagnetic centers have been observed in the spectra. The first paramagnetic center is a subsystem of Gd³⁺ ions, in the EPR spectrum of which the fine structure lines are resolved below 350 K. The second paramagnetic center is a system of manganese and gadolinium ions, in the EPR spectrum of which an exchange-narrowed line is observed with the width ΔH several times less than the width ΔH of an exchange-narrowed line observed in the GdMnO₃ single crystal. Unusual magnetic properties are due to the mismatch of the lattice parameters of the GdMnO₃ thin film and the SrTiO₃ substrate. © 2013 Pleiades Publishing, Inc.

<http://dx.doi.org/10.1134/S0021364013200058>
