

## **EPR spectra of a GdMnO<sub>3</sub> thin film on a SrTiO<sub>3</sub> 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 GdMnO<sub>3</sub>/SrTiO<sub>3</sub> 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 Gd<sup>3+</sup> 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  $\Delta H$  several times less than the width  $\Delta H$  of an exchange-narrowed line observed in the GdMnO<sub>3</sub> single crystal. Unusual magnetic properties are due to the mismatch of the lattice parameters of the GdMnO<sub>3</sub> thin film and the SrTiO<sub>3</sub> substrate. © 2013 Pleiades Publishing, Inc.

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

---