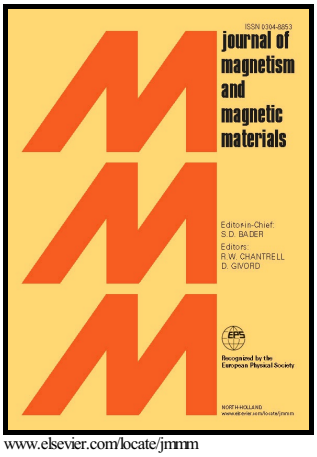

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Magnetization of manganite thin films on ferroelectric substrates

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Abstract

Here we report the magnetic susceptibility measurements of magnetron sputtered orthorhombic manganite $RMnO_3$ (R=Yb, Gd) thin films deposited on dielectric $LaAlO_3$ and ferroelectric $SrTiO_3$, $LiNbO_3$ substrates. We observed that all of investigated o-$RMnO_3$ films show a splitting in the temperature dependence of ZFC and FC magnetization curves. We found that the substrate can impact on the splitting temperature ZFC-FC curves and absolute value of the magnetization of thin films.

Keywords: thin film, multiferroic, ferroelectric, magnetization
PACS: 75.70.-i

1. Introduction

The physical properties of multiferroics can be changed in thin films, where magnetic, electric properties and lattice parameters of substrates and also topology of thin films became important. Previously X. Li et al. reported exotic multiferroic behaviors, including high-T_C ferroelectric state, a large spontaneous polarization and relatively strong ferromagnetism emerging in orthorhombic $GdMnO_3/SrTiO_3$ (001) thin films of thickness 10-110 nm with self-assembled nano-scale twin-like domains [1, 2]. Moreover, both the onset

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