Iranian Journal of Physics Research, Vol. 23, No. 4, 2024
DOI: 10.47176/ijpr.23.4.71724

Anisotropic magnetoresistance in $La_{0.4}Pr_{0.3}Ca_{0.3}MnO_3$ thin films

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(Received 16 July 2023 ; in final form 13 November 2023)

Abstract
The paper presents a study on the magnetoresistance (MR) and anisotropic magnetoresistance (AMR) properties of La0.4Pr0.3Ca0.3MnO3 (LPCMO) thin films. The thin films were grown using pulsed laser deposition method on LaAlO3 (LAO) (111) and MgO (MGO) (100) substrates, with a thickness of approximately 90 nm as estimated by X-Ray reflectometry (XRR) method. The LPCMO sample on the LAO substrate exhibited a lower metal-insulation transition than the one on the MgO substrate due to high compressive stress. The MR was found to be 57% and 98% for LPCMO/LAO and the LPCMO/MGO films, respectively. The LPCMO/MGO sample also showed a significantly higher MR (80%) compared to LPCMO/LAO sample (32%), indicating its potential application.

Keywords: manganite, thin film, anisotropic magnetoresistance.

For full article, refer to the Persian section