

The impact of film thickness on optical and magneto-optical properties of $\text{La}_{2/3}\text{Sr}_{1/3}\text{O}_3$ (LSMO) thin films was studied by optical and magneto-optical methods. A series of LSMO samples with increasing thicknesses was prepared by pulsed laser deposition on a silicon substrate with a $\text{Ca}_2\text{Nb}_3\text{O}_{10}$ seed layer. The topology of both the substrates and the deposited films was examined by atomic force microscopy. The samples were subsequently analysed by spectroscopic ellipsometry and magneto-optical spectroscopy. The off-diagonal elements of the permittivity tensor of each layer were afterwards determined numerically from these measurements. The obtained spectra exhibited spectroscopic structures found in epitaxial LSMO films grown on SrTiO_3 (STO), reflecting good crystalline quality of investigated samples. Effects related to gradual strain relaxation with increasing film thickness were observed on the spectra.