

## **Growth and characterization of $\text{La}_{5/8}\text{Ca}_{3/8}\text{MnO}_3$ films by pulsed laser deposition on silicon wafer substrate**

### **ABSTRACT**

By pulsed laser ablation magnetoresistive perovskite-like  $\text{La}_{5/8}\text{Ca}_{3/8}\text{MnO}_3$  films have been successfully grown on silicon wafer substrates without any buffer layer. The X-ray diffraction (XRD) patterns of the LCMO/Si heterostructure indicate that well crystalline LCMO grows polycrystalline with average grain size of 15nm. The LCMO films exhibited typical characteristics of CMR material with the metal-insulator transition temperature at  $T_P=245$  K. The film has a maximum %MR of about %16.52 and mean surface roughness of about 147.4 nm.

**Keyword:** Magnetoresistance; Manganite; Grain boundary; Metal–insulator transition temperature