

Abstract Submitted
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Engineering **magnetic**
properties and microstructure of $\text{La}_2\text{CoMnO}_6$ thin films by tailoring the oxygen stoichiometry¹ BENJAMIN MARTINEZ, REGINA GALCERAN, CARLOS FRONTERA, LLUIS BALCELLS, JOSE CISNEROS-FERNANDEZ, ICMAB-CSIC, JAUME ROQUETA, JOSE SANTISO, ICN2-CSIC, ALBERTO POMAR, FELIP SANDIUMENGE, ICMAB-CSIC, ADVANCED MATERIALS CHARACTERIZATION TEAM, THIN FILMS GROWTH TEAM — We report on the magnetic and structural properties of ferromagnetic-insulating $\text{La}_2\text{CoMnO}_6$ thin films grown on top of (001) STO substrates by means of RF sputtering technique. Insulating ferromagnets are of interest because of the exchange splitting of the bands allowing obtaining tunnel barriers with different height for spin-up and spin-down carriers. Belonging to the perovskite family, this material can be easily integrated in spintronic devices, such as magnetic tunneling junctions and spin filters, with upgraded and distinctive functionalities. An exhaustive structural analysis, by using synchrotron X-ray diffraction, allows identifying a close correlation between the film composition and their magnetic properties. Both Curie temperature and the features of the hysteresis loops turn out to be dependent on the oxygen stoichiometry. In situ annealing conditions allow tailoring the oxygen content of the films, therefore controlling their microstructure and magnetic properties. On the other hand, transport measurements confirm the insulating character of the films.

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