

**SYNTHESIS AND ELERTRICAL
TRANSPORT PROPERTY OF (La_{0.7-x} Y_x)
Ca_{0.3} MnO₃ CERAMICS**

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ABSTRACT

SYNTHESIS AND ELECTRICAL TRANSPORT PROPERTY OF (La_{0.7-x}Y_x) Ca_{0.3}MnO₃ CERAMICS

This report about the Colossal magnetoresistance ceramics with the nominal composition of (La_{0.7-x}Y_x) Ca_{0.3}MnO₃ were synthesis and their electrical transport property with the sample concentration of x=0.00, 0.05, 0.015 and 0.20. The samples were synthesized by solid-state reaction method. The scanning electron microscope, SEM used to scan the surface morphology and X-ray diffraction pattern, XRD discuss to find the phase of the sample. As formed and heat treated the sample are crystalline, and showing cubic symmetry. However, as formed cubic (La_{0.7-x}Y_x) Ca_{0.3}MnO₃ on calcinations at 900°C for 12 hour, the sample transform to the orthorhombic crystal structure. The microstructure and morphology of the compounds represents the particles are nearly spherical and dumbbell in shape. The resistance measured by using a conventional four-probe method and exhibits only one peak of metal-insulator transition temperature, T_{MI}. The characteristic of the samples of the metal-insulator transition temperature, T_{MI} is nearly same with the single crystalline of its parent La_{1-x}Ca_xMnO₃. The metal-insulator transition temperature, T_{MI} are found lie in the range of 170K to 190K. The magnitude of the resistivity at metal-insulator transition temperature, T_{MI} increase linearly depends on increase of the Yttrium doped in the sample. The resistivity $\rho(T)$ of the samples in the doped of highest concentration of the Yttrium make a slightly different result, which the resistivity decreasing and almost 50 percent.