The Crystallines and Transport Properties of Manganites with High Temperature Coefficient of Resistance

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ABSTRACT

In this article, We will study the effects of different doping on the temperature coefficient of restistance(TCR), metal-insulator transiyion temperature(TP) of La-Ca-Ba-Sr-MnO3 sample. We found that the Maximun of TCR was decreased when TP was increased. We also stude the effects of oxygen on TCRMAX and TP. For La0.75CaxSr0.25-xMnO3 with oxygen annealing at 800 ℃,the value of the ratio of O/M about 4.2,with TP increasing from 293 K to 317 K, and TCRMAX increasing from 5 %/K to 5 %/K. Finally, the relationship of TCRMAX and bipolaron bindung energy (λ1) is deduced by the current-carries-density-collapse model. It is found that the TCRMAX increases as λ1 is decreased.

Keywords : infrared detectors ; TCR ; TP ; current-carries-density-collapse ; polaron

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