

EFFECT OF YB-SUBSTITUTION ON THE ELECTRICAL
TRANSPORT PROPERTIES OF $(La_{0.95-x}Yb_x)_{0.9}MnO_3$,
 $x=0.010, 0.025, 0.050, 0.075$

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**EFFECT OF Yb-SUBSTITUTION ON THE ELECTRICAL
TRANSPORT PROPERTIES OF $(La_{0.7-x}Yb_x)_{0.7}Pb_{0.3}MnO_3$,
 $x=0.000, 0.025, 0.050, 0.075$**

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ABSTRACT

EFFECT OF Yb-SUBSTITUTION ON THE ELECTRICAL TRANSPORT PROPERTIES OF $(\text{La}_{0.7-x}\text{Yb}_x)_{0.7}\text{Pb}_{0.3}\text{MnO}_3$, $x = 0.000, 0.025, 0.050, 0.075$

This research purposely to investigate the effect due to doping process for Pb ion and Yb ion substitution on polycrystalline $\text{La}_{0.7}\text{Pb}_{0.3}\text{MnO}_3$ and $(\text{La}_{0.7-x}\text{Yb}_x)_{0.7}\text{Pb}_{0.3}\text{MnO}_3$ respectively with concentration $x = 0.000, 0.025, 0.050, 0.075$ at La-site based on manganites regarding the structural properties and electrical transport properties. Double exchange interaction and Jahn-Teller effect explain the whole changes aspects in this research. Doping alkaline-earth element such as Pb^{2+} into LaMnO_3 and doping rare-earth element such as Yb^{3+} into $(\text{La}_{0.7-x}\text{Yb}_x)_{0.7}\text{Pb}_{0.3}\text{MnO}_3$ at La-site were shown their changes on electrical transport properties and the difference on structural view of those compounds had been recognized. Substitution of Pb^{2+} ion at La-site on LaMnO_3 and doping Yb^{3+} ion at La-site on $(\text{La}_{0.7-x}\text{Yb}_x)_{0.7}\text{Pb}_{0.3}\text{MnO}_3$ compound were prepared using the conventional solid state reaction method. All samples were calcined at 850°C for 12 hours in air, grinded for 2 hours, compacted to pellet shape and sintered at 900°C for 24 hours. The metal-insulator transition temperature, T_{MI} measured by using standard four-point probe resistivity under 0 Tesla. The structural properties had been observed and analyzed by using XRD technique. The resistivity for both perovskite manganese oxide had change drastically. In this investigation, resistivity shows decrement as increment of Yb-substitution while temperature shifted to the higher temperature. All investigated samples are well-fitted to electron-magnon scatter.