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Structural and electrical properties of the ceramicmanganite $\text{Pr}_{0.6}\text{Sr}_{0.4}\text{Mn}_{1-x}\text{Cu}_x\text{O}_3$

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Abstract : The ceramics that are the focus of this paper ,have a Perovskite structure (ABO),with the general chemical formula $\text{Pr}_{0.6}\text{Sr}_{0.4}\text{Mn}_{1-x}\text{Cu}_x\text{O}_3$ ($x=0.05$) .The compounds are prepared by solid state reaction. The X-ray diffraction data are analyzed and it has been found that all the compounds crystallize in the orthorhombic structure. The observations by SEM show that the grain size decreases by copper doping. The temperature of magneto-resistivity curves are registered from room temperature down to 50K under a magnetic field up to 5 Tesla and showed that the undoped sample present a metalinsulator transition (I-M) at a temperature $T = 210,23$ K. Some physical parameters are extracted and their evolution with magnetic field are presented and discussed.

Keywords : manganite, ceramic, Doping, resistivity