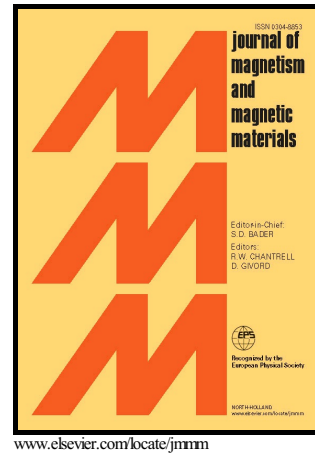


# Author's Accepted Manuscript

Influence of sodium doping on the electrical and magnetic properties of  $\text{La}_{0.90}\text{Li}_{0.10}\text{MnO}_3$  manganites

H.F. Mohamed



PII: S0304-8853(16)30811-3  
DOI: <http://dx.doi.org/10.1016/j.jmmm.2016.10.029>  
Reference: MAGMA61942

To appear in: *Journal of Magnetism and Magnetic Materials*

Received date: 24 May 2016  
Revised date: 6 September 2016  
Accepted date: 6 October 2016

Cite this article as: H.F. Mohamed, Influence of sodium doping on the electrical and magnetic properties of  $\text{La}_{0.90}\text{Li}_{0.10}\text{MnO}_3$  manganites, *Journal of Magnetism and Magnetic Materials*, <http://dx.doi.org/10.1016/j.jmmm.2016.10.029>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting galley proof before it is published in its final citable form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

**Influence of sodium doping on the electrical and magnetic properties of  
La<sub>0.90</sub>Li<sub>0.10</sub>MnO<sub>3</sub> manganites**

**H. F. Mohamed\***

Physics department, Faculty of Science, Sohag University, 82524, Sohag, Egypt

h.fathy@science.sohag.edu.eg  
dr\_hanyfathy@yahoo.com

\*Corresponding author. (H. F. Mohamed), Tel/fax.: +20934602964/+20934601159, Sohag 82524.

**Abstract**

Monovalent perovskite manganites La<sub>0.90</sub>Li<sub>0.10-x</sub>Na<sub>x</sub>MnO<sub>3</sub> were synthesized by using the solid-state reaction method. The crystal structure analysis presented that the samples are a single-phase rhombohedral ( $R\bar{3}c$ ) structure with no detectable impurity phases. Magnetic measurement showed a cusp at a certain temperature  $T_{C/F}$  that gradually disappeared with adding the Na content. The samples undergo ferromagnetic-paramagnetic transition, accompanying the metal-semiconductor transition at  $T_{ms}$ . There is irreversible on low field  $M(T)_{ZFC}$  and  $M(T)_{FC}$  curves which gradual decrease with increasing the Na doping. The resistivity values decreased and the  $T_{ms}$  increased as doping of sodium increased. In addition, two-transition temperature  $T_{ms}$  appeared just by adding the sodium. In short, the influence of partial substitution of lithium by sodium at A-site cation of lanthanum manganite on its physical properties was studied.

**Keywords:** A. Manganites, B. Crystallisation, C. X-ray diffraction topography, C. electrical characterization, C. magnetometer.

**I. INTRODUCTION**

The appearance of colossal magnetoresistance on the perovskite manganite materials provides an opportunity for scientists to reconsider the study of such materials again (a property that promises for their storage and memory applications) [1]. The Ln<sub>1-x</sub>A<sub>x</sub>MnO<sub>3</sub> materials (Ln = rare earth and A =

Download English Version:

<https://daneshyari.com/en/article/5491215>

Download Persian Version:

<https://daneshyari.com/article/5491215>

[Daneshyari.com](https://daneshyari.com)