



ELSEVIER

Available online at www.sciencedirect.com

SCIENCE @ DIRECT®

Journal of Magnetism and Magnetic Materials 272–276 (2004) 2159–2160

M Journal of
M magnetism
M and
magnetic
materials

www.elsevier.com/locate/jmmm

Neutron diffraction and Mössbauer studies of the isotope iron doped La–Ba–Mn–O

Kang Ryong Choi, Sam Jin Kim, In-Bo Shim, Chul Sung Kim*

Department of Physics, Kookmin University, Seoul 136-702, South Korea

Abstract

The perovskite $\text{La}_{0.67}\text{Ba}_{0.33}\text{Mn}_{0.99}^{57}\text{Fe}_{0.01}\text{O}_3$ compound has been studied with X-ray, neutron diffraction and Mössbauer spectroscopy. The sample had orthorhombic structure of Pnma symmetry. Mössbauer spectra showed that with lowering temperature of the sample, two magnetic phases were increased and finally, showed two sharp sextets of spectra at 15 K. Above 45 K, the outer sextet rapidly changed to paramagnetic phase. This result corresponded with the sudden change of magnetic peaks at same temperature region in neutron diffraction patterns.

© 2004 Elsevier B.V. All rights reserved.

PACS: 61.10.–i; 61.12.–q; 76.80.+y

Keywords: Colossal magnetoresistance; Neutron diffraction; Mössbauer spectroscopy
