**Rare earth effect on structural, magnetic and magnetocaloric proprieties of La0.75Ln0.05Sr0.2MnO3 manganites**

**A. Elghoul 1, A. Krichene 1, N. Chniba Boudjada1, 2, W. Boujelben 1**

1Laboratoire de Physique des Matériaux, Faculté des Sciences de Sfax, Université de Sfax, B.P. 1171, 3000 Sfax, Tunisia.

2Institut Néel, B.P. 166, 38042 Grenoble Cedex 9, France.

**Abstract**

In this work, we have investigated the rare earth substitution effect on structural, magnetic and magnetocaloric properties of La0.75Ln0.05Sr0.2MnO3 polycrystalline manganites (Ln=La, Sm, Eu, Gd, Dy and Ho), synthesized using the sol-gel technique. Replacing La with other rare earth elements induces an enhancement of cationic mismatch inducing a structural transition from rhombohedral to orthorhombic symmetry for highly disordered samples. Temperature dependence of magnetization indicates that our samples undergo a paramagnetic-ferromagnetic transition with decreasing temperature. The Curie temperature values decrease with the mismatch increase, but Ho based sample shows a different behavior. The magnetic entropy change curves -∆S(T) show a large magnetocaloric effect near room temperature. We have also improved the magnetocaloric effect by using theoretical calculation to get theoretical composites.

**Keywords:** Manganite; Sol-Gel; Magnetocaloric effect; Theoretical Composite.

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Here are my contacts:

elghoulaymen01@gmail.com

whatsapp Number : +21652887389