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Magnetocaloric investigation in microspheres of 0.95 (La0.45Nd0.25Sr0.3MnO₃)/0.05CuO composite materials prepared by spray drying**L Fkhar^{1,2}, A Mahmoud³, F Boschini³, A Schrijnemakers³, O Mounkachi^{2,4}, M Hamedoun², A Benyoussef^{2,4,5}, E K Hlil⁶ and M AitAli¹**¹Cadi Ayyad University, Marrakech, Morocco²MAScIR Foundation, Morocco³University of Liege, Belgium⁴Mohammed V University, Morocco⁵Hassan II Academy of Science and Technology, Morocco⁶Institut Néel, France

This study presents an investigation of the structural, magnetic and magnetocaloric properties of 0.95 (La_{0.45}Nd_{0.25})Sr_{0.3}MnO₃/0.05 CuO polycrystalline composite. The investigated samples have been elaborated using a coupling between solid state reaction and spray-drying method in order to obtain a homogeneous composite material with regular particle size. The obtained composites were subjected to many characterizations. X-ray diffraction (XRD), scanning electron microscopy (SEM) to display the particles morphology and SQUID technique for the magnetic measurements. The XRD and SEM proved the co-existence of the perovskite and copper oxide phases. The magnetic measurements show a magnetic transition to paramagnetic phase at around room temperature and the magnetocaloric effect was evaluated by calculating the magnetic entropy change. The obtained value is 4.06 J/(kg.K) in the case of pellet.

Biography

L Fkhar is a PhD student from Cadi Ayyad University Marrakech Morocco, he works on collaboration with MAScIR foundation at Rabat and his subject deals with magnetic materials and magnetocaloric effect of magnetic materials. He has published five papers in reputed journals.

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