A detailed study of the hysteresis in La\textsubscript{0.67}Ca\textsubscript{0.33}MnO\textsubscript{3} - DTU Orbit (09/04/2019)

We report a thorough study of the thermal hysteretic behaviour of a single phase sample of the magnetocaloric material La\textsubscript{0.67}Ca\textsubscript{0.33}MnO\textsubscript{3}. Previous reports in the literature have variously found hysteretic and non-hysteretic behaviour. We show the importance of measuring under carefully defined heating and cooling procedures. Careful analysis of the specific heat, measured at five different temperature ramp rates, and the magnetic entropy change indicates that there is no observable hysteresis, even though the behaviour of both quantities is consistent with a first-order phase transition. We discuss the reasons for this and for the differing results previously found.

General information
Publication status: Published
Organisations: Department of Energy Conversion and Storage, Electrofunctional materials
Contributors: Neves Bez, H., Nielsen, K. K., Smith, A., Bahl, C. R. H.
Pages: 429-433
Publication date: 2016
Peer-reviewed: Yes

Publication information
Journal: Journal of Magnetism and Magnetic Materials
Volume: 416
ISSN (Print): 0304-8853
Ratings:
BFI (2016): BFI-level 1
Scopus rating (2016): CiteScore 2.41 SJR 0.699 SNIP 1.181
Web of Science (2016): Impact factor 2.63
Web of Science (2016): Indexed yes
Original language: English
Keywords: Magnetocaloric effect, Hysteresis, Phase transition, Manganites
Electronic versions:
HNB_JMMM_Hysteresis_submitted.pdf. Embargo ended: 08/05/2018
DOIs:
10.1016/j.jmmm.2016.05.011
Source: FindIt
Source-ID: 2304288963
Research output: Contribution to journal › Journal article – Annual report year: 2016 › Research › peer-review