

## Accepted Manuscript

Magnetocaloric properties of the A-site co-doping double-perovskite of Sr<sub>2</sub>Fe-MoO<sub>6</sub>

Yanchun Hu, Tengyu Guo, Xianwei Wang, Yawen Cui, Weixia Li, Xiangyu Zhao, Hongyan Liu

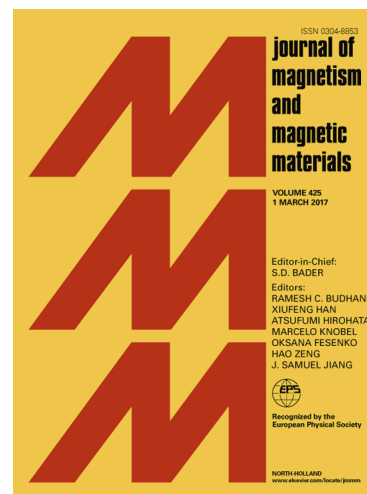
PII: S0304-8853(18)31595-6  
DOI: <https://doi.org/10.1016/j.jmmm.2018.07.001>  
Reference: MAGMA 64107

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

Received Date: 25 May 2018  
Revised Date: 29 June 2018  
Accepted Date: 2 July 2018

Please cite this article as: Y. Hu, T. Guo, X. Wang, Y. Cui, W. Li, X. Zhao, H. Liu, Magnetocaloric properties of the A-site co-doping double-perovskite of Sr<sub>2</sub>FeMoO<sub>6</sub>, *Journal of Magnetism and Magnetic Materials* (2018), doi: <https://doi.org/10.1016/j.jmmm.2018.07.001>

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 proof before it is published in its final 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.



## Magnetocaloric properties of the A-site co-doping double-perovskite of $\text{Sr}_2\text{FeMoO}_6$

Yanchun Hu<sup>a,\*</sup>, Tengyu Guo<sup>a</sup>, Xianwei Wang<sup>a,†</sup>, Yawen Cui<sup>a</sup>, Weixia Li<sup>a</sup>, Xiangyu Zhao<sup>a</sup>, and  
Hongyan Liu<sup>b</sup>

<sup>a</sup>College of Physics and Materials Science, Henan Province Key Laboratory of Photovoltaic Materials, Henan Normal University, Xinxiang, Henan 453007, China

<sup>b</sup>College of Physics and Electronic Engineering, Heze University, Heze 274015, China

**ABSTRACT:** In this paper, the effect of Gd/Ba co-doping on magnetocaloric properties for  $\text{Sr}_2\text{FeMoO}_6$  is presented. Double-perovskite ( $\text{Sr}_{2-3x}\text{Gd}_x\text{Ba}_{2x}\text{FeMoO}_6$  ( $0.00 \leq x \leq 0.20$ )) were prepared by the solid reaction method. X-ray diffraction results showed that all samples were single phase and belonged to  $I4/m$  space group. X-ray photoelectron spectroscopy analysis of ( $\text{Sr}_{2-3x}\text{Gd}_x\text{Ba}_{2x}\text{FeMoO}_6$ ) samples showed that proportional variations in  $\text{Fe}^{3+}/\text{Fe}^{2+}$  and  $\text{Mo}^{5+}/\text{Mo}^{6+}$  were found under Gd/Ba co-doping. Field-cooled magnetization curves indicated that Gd/Ba co-doping led to the Curie temperature ( $T_c$ ) drop from 394K to 357K. Arrot plots analysis of samples revealed a second-order magnetic transition. The magnetic entropy change of all samples increased initially and then decreased with temperature, and all samples exhibited the maximum magnetic entropy change near  $T_c$ . The maximum magnetic entropy change of samples in the magnetic field of 2T decreased from  $0.72 \text{ J K}^{-1} \text{ kg}^{-1}$  to  $0.54 \text{ J K}^{-1} \text{ kg}^{-1}$  because of Gd/Ba co-doping. Relative cooling power decreased correspondingly.

**Keywords:** Crystal structure; Magnetic properties; Magnetocaloric effect

---

\* Corresponding author.

E-mail: yanchunhu@htu.cn (Y.C. Hu)

† Corresponding author.

E-mail: xwwang2000@163.com (X.W. Wang)

Download English Version:

<https://daneshyari.com/en/article/8152545>

Download Persian Version:

<https://daneshyari.com/article/8152545>

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