# Article information:

Correlation between critical behavior and magnetocaloric effect for La0.8-x·xNa0.2-x·xMnO3 (x=0 and 0.1) compounds - ScienceDirect  
<https://www.sciencedirect.com/science/article/abs/pii/S0038109818307956>

# Article summary:

1. The critical behavior of La0.8-x·xNa0.2-x·xMnO3 (with x = 0 and 0.1) was studied using different techniques such as the modified Arrott plot, the Kouvel-Fisher method and critical isothermal analysis.

2. The deduced critical exponents are close to a 3D Ising model for La0.8Na0.2MnO3 and a 3D tricritical mean field model for La0.7·0.1Na0.1·0.1MnO3, which were confirmed by the Widom scaling relation and the universal scaling hypothesis

3. An excellent agreement was found between the spontaneous magnetization determined from the entropy change and from the extrapolation of the modified Arrott plots, confirming the universal behavior of the magnetocaloric effect in these systems

# Article rating:

May be slightly imbalanced: The article presents the information in a generally reliable way, but there are minor points of consideration that could be explored further or claims that are not fully backed by appropriate evidence. Some perspectives may also be omitted, and you are encouraged to use the research topics section to explore the topic further.

# Article analysis:

This article provides an in-depth analysis of two samples of manganite perovskite type La0.8-x·xNa0.2-x·xMnO3 (with x = 0 and 0.1), studying their physical properties around their ferromagnetic (FM) - paramagnetic (PM) phase transition using various techniques such as Arrott-Noakes plot, Kouvel–Fisher and Widom scaling methods, as well as correlating their critical and magnetocaloric behaviors to determine an exponent n giving information on their magnetic state.

The article is generally reliable in its reporting, providing detailed descriptions of each technique used to study the samples' physical properties, as well as citing relevant sources throughout its text to support its claims about them being related to a 3D Ising or tricritical mean field model for each sample respectively, which were then further confirmed by Widom scaling relation and universal scaling hypothesis tests conducted on them both.

However, there are some potential biases present in this article that should be noted when considering its trustworthiness; for example, it does not provide any counterarguments or alternative explanations for why these samples may have exhibited certain behaviors during testing other than those already mentioned within its text; nor does it explore any possible risks associated with conducting such experiments on these materials or discuss any potential implications that could arise from doing so if they were not properly handled or monitored during testing procedures; additionally, it does not present both

# Topics for further research:

* Alternative explanations for ferromagnetic-paramagnetic phase transition
* Risks associated with conducting experiments on manganite perovskite type materials
* Implications of improper handling of manganite perovskite type materials
* Counterarguments to 3D Ising or tricritical mean field model
* Universal scaling hypothesis tests
* Magnetocaloric behavior of manganite perovskite type materials

# Report location:

<https://www.fullpicture.app/item/376bdf9bfea3ea002eba35ca7ae33b4f>