

Deconstructing magnetocaloric effect in manganites

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During the last fifteen years the study of the magnetocaloric effect has experienced an important development mainly motivated in the necessity of cheaper materials pointing to massive application in magnetic refrigeration. In that sense manganites appears as one of the promising materials due to the possibility of tuning its magnetic properties changing the doping of the different components, applying external pressure or grain size (in ceramic materials). The methods used to study magnetocaloric effect can be divided in direct (measuring the temperature change of the sample) or indirect (estimating the entropy change from magnetization measurements). As the indirect methods present intrinsic problems due to the heat exchange between the sample and the measure apparatus, the indirect methods are nowadays the most used. But, as the complexity of the studied system increases, the validity of the indirect methods must be revised case by case to ensure a correct estimation. In this presentation the validity of the indirect approach will be analyzed using direct and indirect methods in different manganites.