

# The magnetocaloric effect: A useful tool for the characterization of phase transitions

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The increasing concern of modern societies about energy efficiency, together with the fact that temperature control accounts for a large portion of the energy consumption at homes and commercial buildings, has fostered research on the applicability of magnetocaloric materials for magnetic refrigeration [1]. But in addition to the studies on magnetocaloric materials for the optimization of their properties for room temperature magnetic refrigeration, in this talk we will show that MCE can be used for characterizing magnetic phase transitions [2], showing examples of how critical exponents can be determined, evidencing that the magnetocaloric response can be used to determine the order of a phase transition [3] or to infer the presence of impurity phases in the samples. Examples of the application of these kind of analyses to different kind of materials will be presented.

## References:

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- [3] C.M. Bonilla, J. Herrero-Albillos, F. Bartolomé, L.M. García, M. Parra-Borderías, V. Franco, *Phys. Rev. B* 81, 224424 (2010).

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