

# Magnetic and Lattice Contributions to the Magnetocaloric Effect in the First Order Phase Transition Materials

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Materials with magnetostructural phase transitions are considered as the most promising for the magnetic refrigeration technology. In addition to a magnetic entropy change in these materials a lattice entropy change can be observed due to a large magnetostriction. But to date there is no suitable and generally accepted procedure to evaluate the contributions to the magnetocaloric effect (MCE). In this report a method to estimate the lattice and magnetic contributions to the magnetocaloric effect is proposed. The method is based on the analysis of the field dependences of the MCE and magnetostriction, measured under identical conditions in cyclic magnetic fields. Two assumptions are used for that: the lattice contribution is proportional to the magnetostriction and the field dependence of the magnetic contribution obeys  $\Delta T_m = aH^n$  relation. The results of estimation of contributions in the different families of magnetocaloric materials are reported.