

Abstract Submitted
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Entropy changes and caloric effects in RAl_2 and RNi_5 single crystals¹ NILSON ANTUNES DE OLIVEIRA, UERJ — In this work we theoretically discuss the entropy changes and the caloric properties of RAl_2 , RNi_5 single crystals where R stands for rare earth element. For this purpose, we use a model of interacting magnetic moments including an extra term to take into account the magnetocrystalline anisotropy [1]. We perform calculations for different physical scenarios and make a comparative study of the conventional and rotating magnetocaloric effects in these compounds. Our calculations show that in RAl_2 the conventional magnetocaloric quantities are large. Besides that, our calculations also show that RAl_2 compounds may exhibit change of sign in the caloric quantities, for some values of the magnetic field applied in a given direction. However, the corresponding rotating magnetocaloric quantities are not so large. In the case of RNi_5 our calculations predict large values for both the conventional and rotating magnetocaloric quantities. Part of our results is in good agreement with the available experimental data[2] and some of them need experimental data to be confirmed. [1] N. A. de Oliveira and P. J. von Ranke, Phys. Rep. **489**, 89 (2010). [2] M. Patra et al, Jour. Phys.:Cond Mat. **26**, 046004 (2014).

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