ROLE OF THE MAGNETIC ANISOTROPY IN THE MAGNETOCALORIC EFFECT FOR A SUPERPARAMAGNETIC NANOPARTICLE SYSTEM: A MONTE CARLO STUDY.

D. Baldomir,[1,2] D. Serantes,[1,2] M. Pereiro,[1,2] J. Rivas,[2]
C. Vázquez-Vázquez,[3] M. C. Buján-Núñez,[3] J. E. Arias[1]

[1] Instituto de Investigacións Tecnolóxicas, Universidade de Santiago de Compostela; 15782 Santiago de Compostela, Galicia (Spain)

[2] Facultade de Física, Departamento de Física Aplicada, Universidade de Santiago de Compostela; 15782 Santiago de Compostela, Galicia (Spain)

[3] Facultade de Química, Departamento de Química Física, Universidade de Santiago de Compostela; 15782 Santiago de Compostela , Galicia (Spain)
fadbal@usc.es

The magnetocaloric properties of a fine magnetic particle system are studied by means of a Monte Carlo technique, focusing on the role played by the magnetic anisotropy. Fixing the size and magnetization of the particles, it is possible to fit a particular value of the anisotropy that leads to a larger entropy change. It is also observed that the blocking temperature increases with increasing values of the anisotropy, as it is expected.