

## NMR and MUSR on molecular nanomagnets

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Since their discovery molecular nanomagnets, also called single-molecule magnets (SMM), have attracted a lot of scientists as they were promising systems for applications and offered the possibility to study fundamental physical properties in finite-size molecular systems whose units are replicated over a bulk quantity of sample. Among different experimental discoveries and theoretical treatments we recall the quantum tunneling of the magnetization, the evidence of the Berry phase, studies about quantum levels' crossing and many other issues regarding the spin dynamics in different temperature ranges. We report here a brief summary of the main MUSR and NMR studies on molecular nanomagnets in the last 15 years [1-3], whose results cover most of the above cited research fields.

[1] NMR in Magnetic Molecular Rings and Clusters, F. Borsa, A. Lascialfari, Y. Furukawa, in *Novel NMR and EPR Techniques*, eds. J. Dolinsek, M. Vifan, S. Zumer, Springer (Berlin Heidelberg, 2006), pp.297-349

[2] NMR in magnetic single molecule magnets, F. Borsa, in *NMR-MRI, MUSR and Mossbauer Spectroscopies in Molecular Magnets*, eds.P. Carretta, A. Lascialfari, Springer Italia (2007)

[3] F. Borsa, Y. Furukawa, A. Lascialfari, *Inorganica Chimica Acta* 361 (2008) 3777–3784