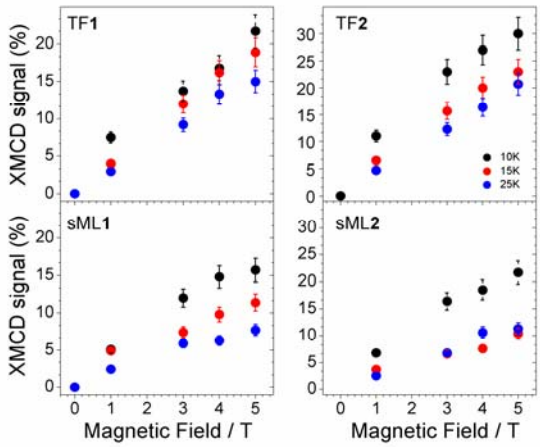
In the beamtime HE 2972 the electronic and magnetic properties of two functionalised derivatives of the Mn_6 SMM family deposited on Au(111) have been investigated by XAS and XMCD techniques. They were $[Mn^{III}_6O_2(sao)_6(O_2C\text{-}tp\text{-}3)_2(EtOH)_4]$ (**1**) and $[Mn^{III}_6O_2(Et\text{-}sao)_6(O_2C\text{-}tpc\text{-}3)_2(EtOH)_4(H_2O)_2]$ (**2**) with spin-ground state 4 and 12 respectively. The surface effects of the gold surface on deposited Mn_6 derivatives have been disclosed by comparing the variable temperature and field XMCD spectra of the Mn_6 sub-monolayers with those of the relative thick films. The results show that the average Mn^{III} spin magnetic moment of the sub-monolayers samples turns to be decreased with respect to the relative thick films in both derivatives. The main effect responsible for this result has been ascribed due to local distortions of Mn environments followed by modified Mn-Mn exchange couplings when Mn_6 clusters are deposited on the gold surface. We argue that the origin of these local distortions might be ascribed to the molecule-gold surface covalent bond interactions and/or to the lack of the isotropic interactions with all the surrounding molecules. In addition we proved that i) the tpc functionalisation of **1** and **2** does not affect the main electronic and magnetic properties of the Mn_6 magnetic core and ii) the Mn^{III} oxidation state is preserved even after the deposition of Mn_6 **1** and **2** on gold surface. The quite robust Mn_6 magnetic cores make this class of SMM suitable for the synthesis of new derivatives with different sulphur-based functionalisations which may drive the deposition of ordered arrays of Mn_6 SMM on gold surface. In addition it encourages the use of Mn^{III} ions having large magnetic anisotropy as building blocks for SMM with enhanced anisotropy energy barriers in view of their potential application as molecular unit of data storage devices.



Variable temperature variable field XMCD signal (%) measured for the samples TF1, TF2, sML1 and sML2**.**

For more detail see:_ Fabrizio Moro, Valdis Corradini, Marco Evangelisti, Roberto Biagi, Valentina De Renzi, Umberto del Pennino, Julio C. Cezar, Ross Inglis, Constantinos J. Milios, Euan K. Brechin
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