Magnetic and Structural Properties of Rare Earth Hybrid Frameworks

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Aliphatic dicarboxilates (**AD**), $-O_2C(CH_2)_nCO_2$ -, have shown to be excellent ligands for crystal engineering transition metal molecular magnets [1]. With the aim of extending these studies to rare earth systems we have synthesized a series of organic inorganic hybrids of Ln(III) and **AD** anions, with $1 \le n \le 4$, from solutions under ambient conditions. Their single crystal x ray structural analysis show the formation of inorganic polymeric arrangements of different dimensionalities. AC susceptibility, χ' , measurements performed within the temperature range 13 < T < 330K show noticeable changes in the $\chi'T$ curve slope at different T values. To investigate the potential structural contribution to those magnetic ordering variations, we performed single crystal x-ray analysis in the temperature ranges of interest in steps of 2K. We discuss possible links between modifications in superexchange paths connecting cations —and eventually in hydrogen bonds networks— and magnetic response.

[1] Rodríguez-Martín Y., et al., Cryst Eng Comm, 2002, 87, 522.

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