

ONE DIMENSIONAL SYSTEM WITH HELICAL STRUCTURE

Mihail Secu^a, Oleg Palamarciuc^a, Rodolphe Clérac^b

^aMoldova State University; ^bCNRS, UPR 8641, Centre de Recherche Paul Pascal (CRPP), Laboratory for "Molecular Materials and Magnetism", 115 avenue du Dr. Albert Schweitzer, Pessac, F-33600, France

In memoriam to Prof. Mihail Revenco

Cyanide is an efficient and versatile mediator for magnetic coupling. The cyanido-bridged bimetallic assemblies have been widely studied because of their rich magnetic behavior, including high-T_c magnetism, photo- and electromagnetism, and single-molecule or single-chain magnetism [1]. Miyasaka et al. have prepared a series of cyanido-bridged complexes derived from the reaction of manganese(III) Schiff base complexes and hexacyanidometallic anions [2].

To develop new magnets, we focused our attention on bimetallic systems with cyanidometallic anion and manganese(III) Schiff base complex. In this context, the thiosemicarbazide type ligands possess interesting chelating and coordinating properties for metal ions and in particular manganese at different oxidation states. Herein, we report the synthesis of a new cyanido-bridged heterobimetallic one dimensional system obtained from anisotropic building-block based on manganese(III) N1,N4-bis(salicylidene)S-methylisothiosemicarbazide (MnL⁺) and ferricyanide anion. Single-crystal X-ray diffraction studies revealed helical one dimensional system with the formula [Mn(L)(CH₃OH)₂][{Mn(L)}₂{Fe^{III}(CN)₆}CH₃CN]·CH₃CN (Figure 1).

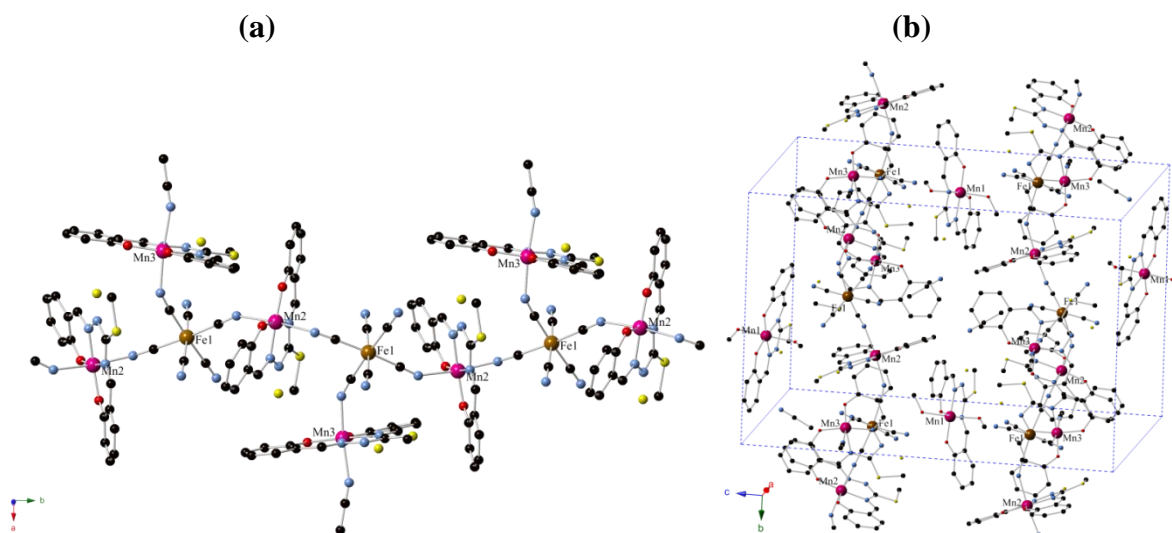


Figure 1. (a) Representation of one dimensional system $[Mn(L)(CH_3OH)_2][\{Mn(L)\}_2\{Fe^{III}(CN)_6\}CH_3CN]$ and (b) Packing of the $[Mn(L)(CH_3OH)_2][\{Mn(L)\}_2\{Fe^{III}(CN)_6\}CH_3CN] \cdot CH_3CN$

[1] M. N. Leuenberger, D. Loss, *Nature*, **410**, 2001, 789.

[2] H. Miyasaka, R. Clérac, W. Wernsdorfer, L. Lecren, C. Bonhomme, K.-i. Sugiura, and M. Yamashita, *Angew. Chem. Int. Ed.*, 2004, **43**, 2801; R. Clérac, H. Miyasaka, M. Yamashita and C. Coulon, *J. Am. Chem. Soc.*, 2002, **124**, 12837; H. Miyasaka, A. Saitoh, M. Yamashita and R. Clérac *Dalton Trans.* 2008, 2422.