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Magnetic properties of (Ph₄P)₂[Mn(acacen)M(CN)₆] single chain magnets for M=Fe, Os, and M=Co

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Single chain magnet (SCM) behavior may be observed in crystals in which the exchange interaction between spins creates a quasi one dimensional system. Despite the lack of a long-range magnetic order at a finite temperature, SCMs may exhibit below a blocking temperature the remanent magnetization due to slow magnetic relaxation. The relaxation time of ferromagnetically coupled chain of Ising spins follows the Arrhenius law with an activation energy barrier. Few clear examples of such behavior are known.

We will present magnetic properties of the family of compounds built of Mn(III) and Fe(III) (or Os(III)) ions linked into chains by cyanide bridges -CN-. These compounds appear to be very good SCMs. The parameters related to the SCM behavior will be discussed basing on the experimental data analysis. This includes:

- (1) the energy barrier of relaxation processes and their mechanism,
- (2) the easy axis magnetic anisotropy,
- (3) exchange interaction within the chains,
- (4) inter-chain interaction,
- (5) the influence of defects in the crystal structure.

[1] E.V. Peresypkina, A.M. Majcher, M. Rams, K.E. Vostrikova, A single chain magnet involving hexacyanoosmate, *Chem. Commun.* 50 (2014) 7150

[2] M. Rams, E.V. Peresypkina, V.S. Mironov, W. Wernsdorfer, K.E. Vostrikova, Magnetic relaxation of 1D coordination polymers X₂[Mn(acacen)Fe(CN)₆], X = Ph₄P⁺, Et₄N⁺, *Inorg. Chem.* 53 (2014) 10291

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