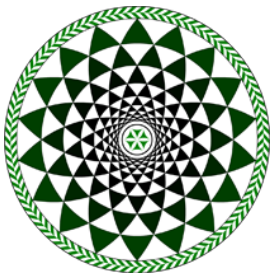

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Studies of slow magnetic relaxations in monocrystalline of [$Mn^{III}F_4TPP$][TCNE]* methanol

Tuesday, 4 July 2017 19:10 (2 hours)

The [$Mn^{III}F_4TPP$][TCNE]* compound dissolved in methanol is a quasi 1D single chain magnet (SCM). Two families of chains in the crystal structure lie at an angle of 66 degrees relative to each other. The chains are made of alternately placed donors $Mn^{III}F_4TPP^{+}$ and acceptors $TCNE^{-}$. Due to strong antiferromagnetic interchain interactions $J = 100 \pm 8K$ between manganese ion with $S = 2$, $g = 2.0$ and ligand TCNE with $S = \frac{1}{2}$, $g = 2.0$ the compound is classified as ferrimagnet with ordering temperature $T_c = 10K$. Magnetic properties of monocrystalline compound was fully characterized in static and alternating magnetic field in two specific orientations of sample: $a \parallel H$ and $a \perp H$. The studied material exhibits two relaxations processes, fast and slow, which are well described by the generalized Debye model with the wide relaxation times distributions. Relaxation times were determined in two approaches: by Cole - Cole plots obtained from AC field measurements and from relaxation in DC field. Both of relaxation processes are thermally activated according to the Arrhenius equation with the different energy barrier for each process.

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