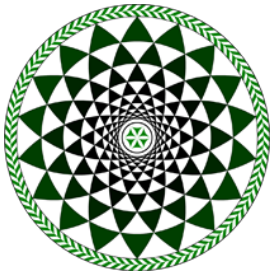

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# Photomagnetic effect in discrete Cu-Mo cyanido-bridged molecules

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The molecular systems based on [M<sup>V</sup>(CN)<sub>8</sub>]<sup>3−/4−</sup> (M=Mo, W) have attracted great attention over last years, mainly due to the formation of many interesting magnetic systems [1]. The charge-transfer phenomena in cyanido-bridged molecular systems allows for the control of magnetic bistability, leading to potential functional materials. The diamagnetic [Mo<sup>IV</sup>(CN)<sub>8</sub>]<sup>4−</sup> ions have been successfully used in design of molecular systems switchable by light [2]. The most intensively studied group of photomagnetic cyanido-bridged assemblies is based on copper(II) complexes and octacyanidomolybdate(IV) ions.
Here we present two cyanido-bridged molecules: [Cu(L1)(py)]<sub>4</sub>[Mo<sup>IV</sup>(CN)<sub>8</sub>]•14H<sub>2</sub>O (1) and {[Cu(L2)][Cu(L2)(H<sub>2</sub>O)][Mo<sup>IV</sup>(CN)<sub>8</sub>]•10H<sub>2</sub>O} (2) employing the tridentate L1 and tetradentate L2 tailored Schiff base ligands, respectively. The control of the number of metal centers has been obtained by the number of labile coordination sites at Cu<sup>II</sup> as well as the charge balance.
The magnetic properties of (1) and (2) are typical for uncoupled paramagnetic copper(II) complexes. The solid state spectra revealed the presence of the bands near 500 nm and 440 nm for (1) and (2), respectively, which can be attributed to the MMCT bands. The irradiation of (1) with the light of 470 nm resulted in 20% increase of the magnetic susceptibility.

References

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