摘要

Special Topic: Molecular Magnetism

Spin-canting and weak ferromagnetism in two novel 1D alternating chains with single *cis*-end-to-end azido bridges

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Abstract: By combining *trans*-4-styrylpyridine (tsp) with azide system, we obtained two rare 1D *cis*-EE-azido-bridged compounds of $[M_2(N_3)_4(tsp)_4(H_2O)_2]$ [$M = Mn$ (**1**), Co (**2**)]. The magnetic study reveals that metal ions are anti-ferromagnetically coupled by *cis*-EE-azido-bridges and they show weak ferromagnetism below 4.0 K (**1**) and 4.2 K (**2**) due to the spin-canting caused by asymmetric magnetic interaction.

Keywords: single *cis*-end-to-end azide, 1D complex, anti-ferromagnetic coupling, spin-canting, weak ferromagnetism

(a) The fragment of 1D chain in **1** and **2**; (b) supramolecular layers formed by O–H...N hydrogen bonds.

Temperature dependences of χ_M and $\chi_M T$ for a polycrystalline sample of **1**. The line across $\chi_M T$ curve represents the best fit by 1D Fisher mode.

Isothermal magnetization plots for **1** at 1.9 K.

Zero-field cooled magnetization (ZFCM) and field-cooled magnetization (FCM) for **1** under 100 Oe.

The zero-field *ac* magnetic signals of **1**.

Temperature dependences of $\chi_M T$ for a polycrystalline sample of **2**. The solid line represents the best fitting results of single-ions magnetic behavior of Co^{2+} with the consideration of molecular field.