Revised version

Electronic Supporting Information

1D hetero-bimetallic 4*f*-3*d* coordination polymers based on *N*-oxide-4,4'-bipyridine (bipyMO) as linker: photoluminescent and magnetic properties

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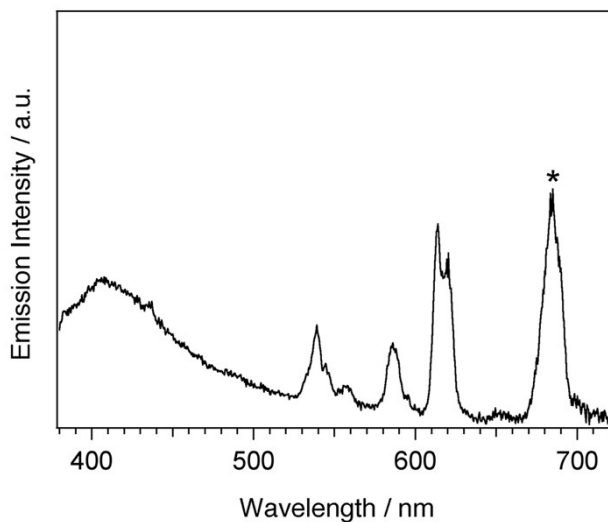*Corresponding author: (e-mail : luca.labella@unipi.it)

Figure S1. Emission spectrum of **1** excited at 350 nm. The (*) signal is due to second-order diffraction of excitation wavelength.
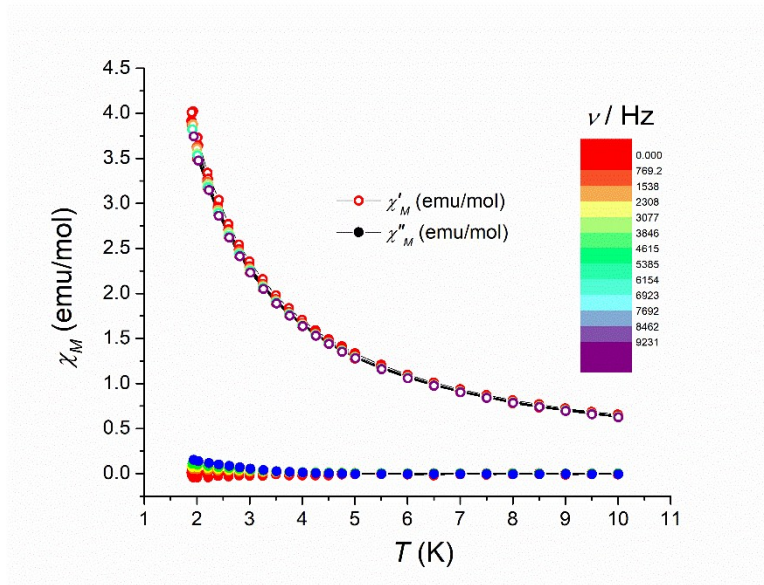
Figure S2. Temperature dependence of the in-phase (empty circles) and out-of-phase (full circles) molar magnetic susceptibilities of **3** for 10 frequencies logarithmically spanning the $10 - 10^4$ Hz range at zero static applied field. Lines are guide to the eye.
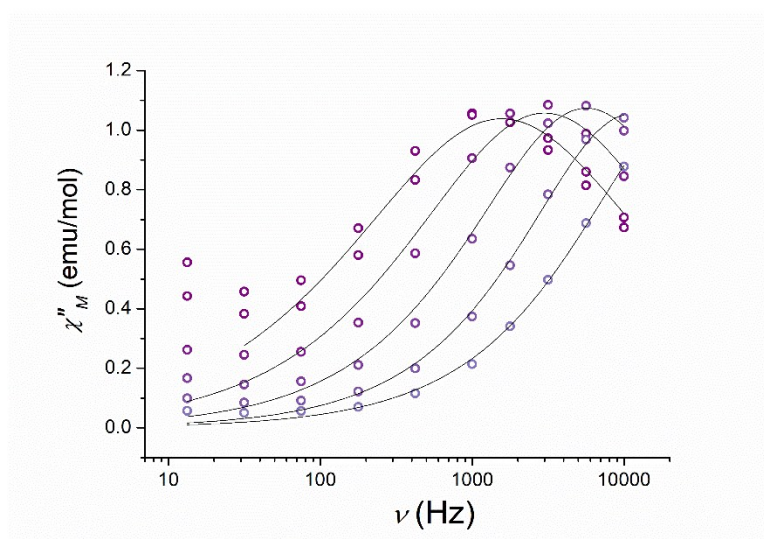

Figure S3. Frequency dependence of the out-of-phase molar magnetic susceptibility of **3** in 0.1 T static applied field in the 1.9 – 3.0 K interval. Lines are the results of the best fitting procedure with the extended Debye model described in the Experimental Section.

Table S1. Parameters obtained from the best fitting procedure of $\chi''_M(\nu)$ of **3** in 1000 Oe field, using the extended Debye model, as described in the main text. Data within parentheses arise from the best fitting procedure of the Cole-Cole plots reported in Figure S5.

| T (K)	$X_T - X_S$ (emu/mol)	Error (emu/mol)	τ (μs)	Error (μs)	α	Error	R^2
1.9	4.04482 (4.1236)	0.06896	127.95021	4.0998	0.39153 (0.40555)	0.01177	0.99098
2	3.82023 (3.84092)	0.0663	100.27293	3.26895	0.35695 (0.3632)	0.01228	0.99274
2.2	3.43445 (3.41416)	0.08332	55.26999	2.37266	0.28181 (0.28187)	0.01744	0.99362
2.4	3.35478 (2.94115)	0.29563	28.10742	4.81425	0.27499 (0.18635)	0.05385	0.97516
2.6	3.05512 (2.86513)	0.38362	14.24272	3.50916	0.23109 (0.1912)	0.05707	0.98768
2.8	3.33334	0.95064	5.37884	3.06873	0.25945	0.0616	0.99326
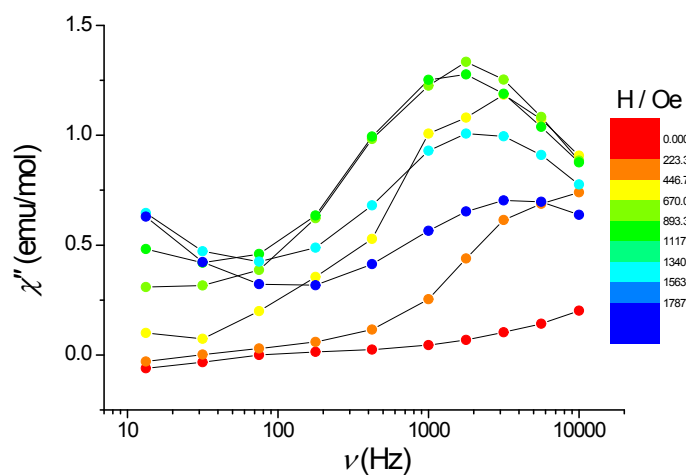
Figure S4. Field dependence of the out-of-phase molar magnetic susceptibility of **3** at 2.0 K. Lines are guide to the eye.
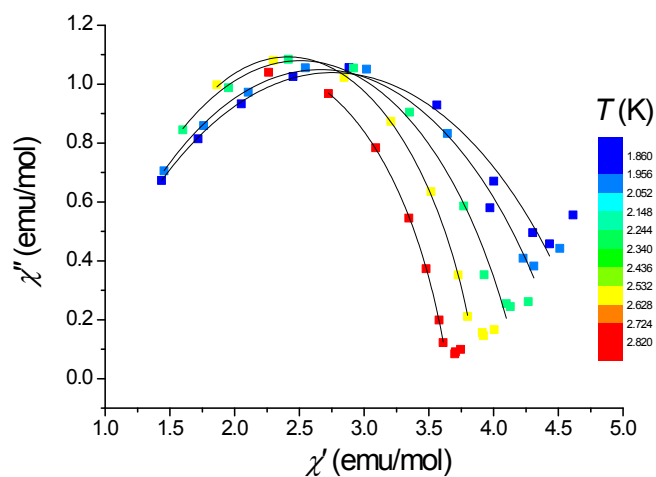

Figure S5. Cole-Cole plot measured for **3** in a 1000 Oe magnetic field. Lines are results of the best fitting procedure using the extended Debye model. The determined values of $\chi_T - \chi_S$ and of the α parameters have been plotted in Table S1 between parenthesis, next to the corresponding values arising from the best fitting results of the $\chi''(\nu)$ isothermal profiles reported in Figure S3. .