

Nitronyl nitroxide bridged 3d-4f hetero-tri-spin chains: synthesis strategy, crystal structure and magnetic properties

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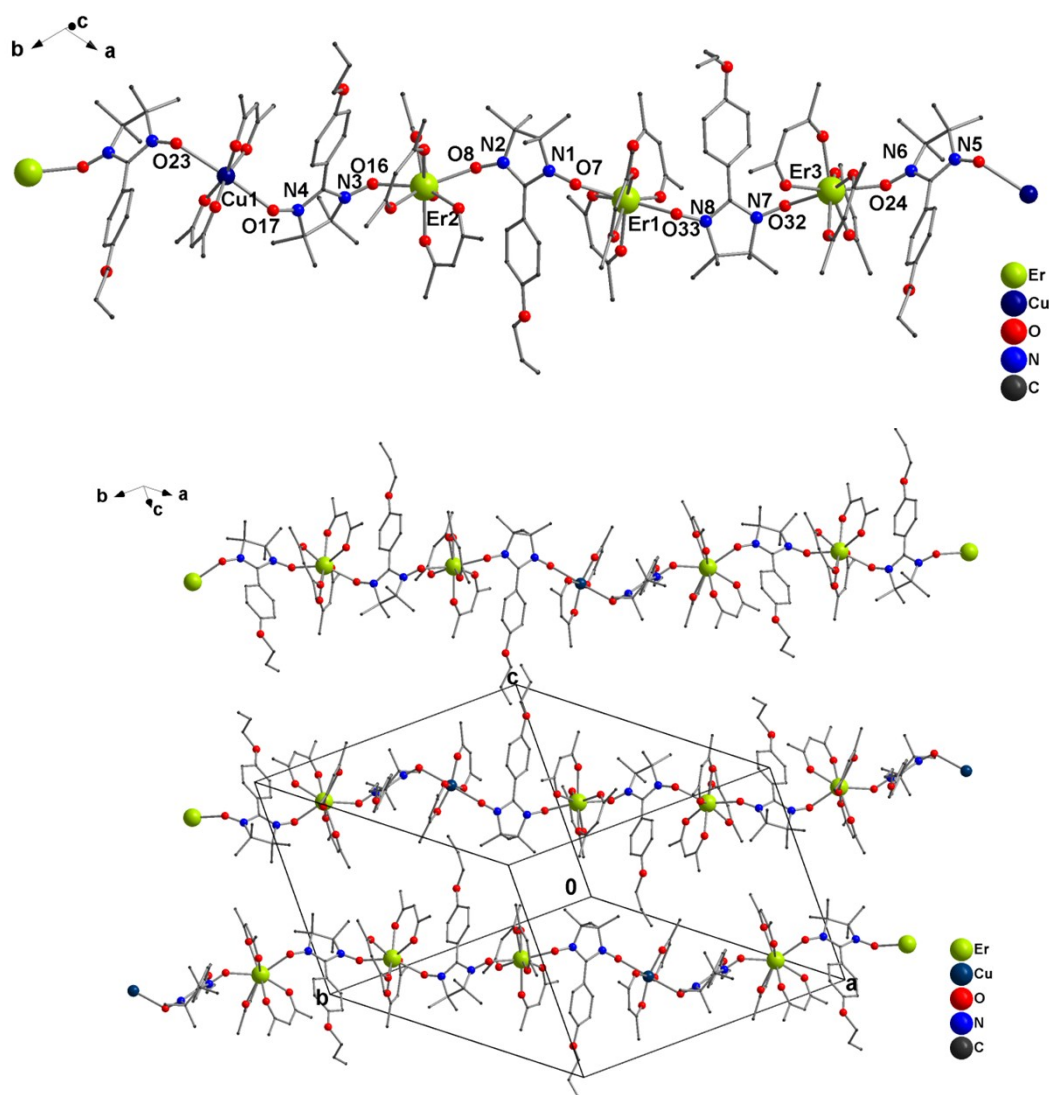


Figure S1. (*top*) Crystal structure for **4** (all hydrogen and fluorine atoms are omitted for clarity) and (*bottom*) crystal packing of the chains.

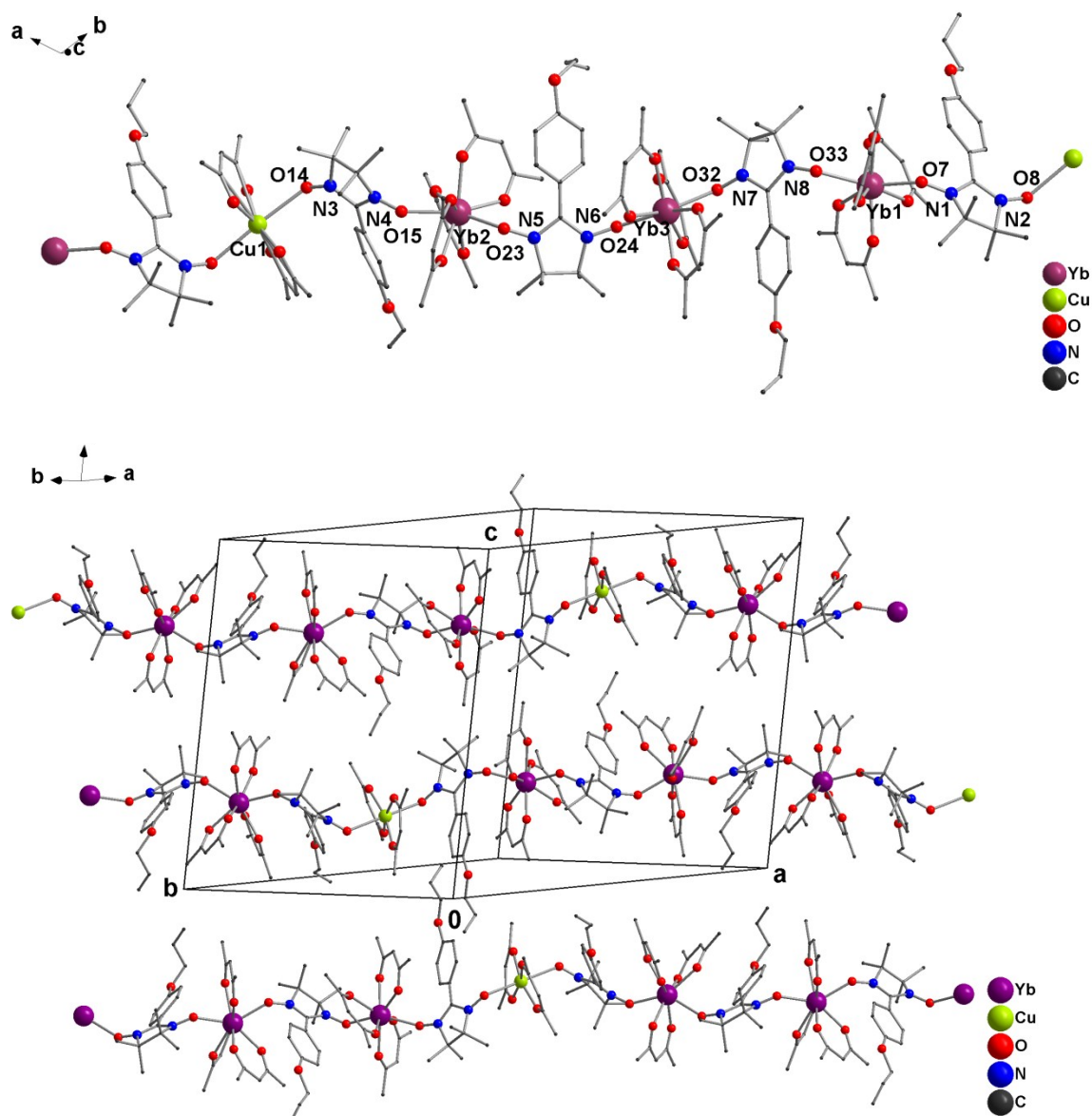


Figure S2. (*top*) Crystal structure for **5** (all hydrogen and fluorine atoms are omitted for clarity) and (*bottom*) crystal packing of the chains.

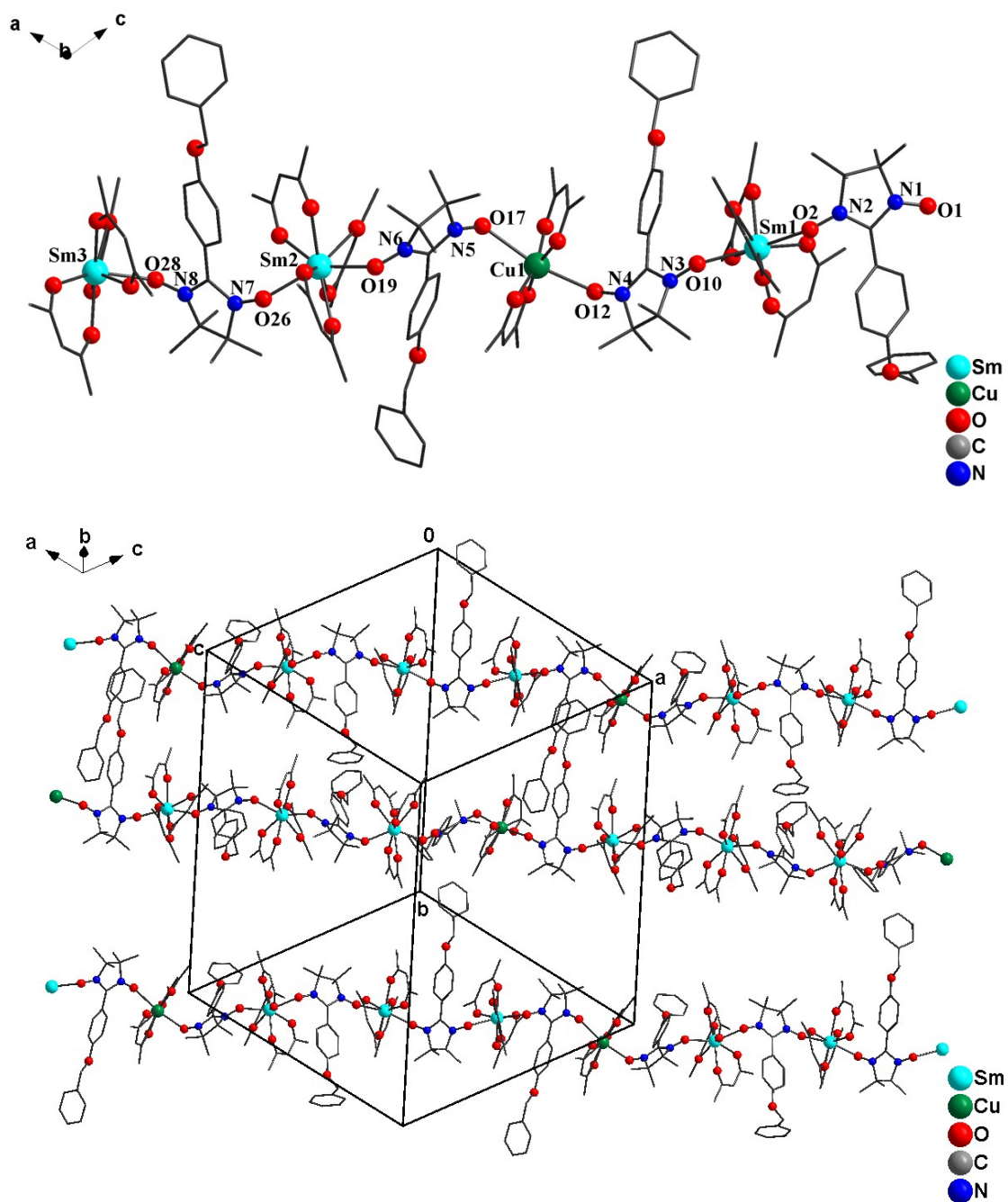


Figure S3. (*top*) Crystal structure for **7** (all hydrogen and fluorine atoms are omitted for clarity) and (*bottom*) crystal packing of the chains.

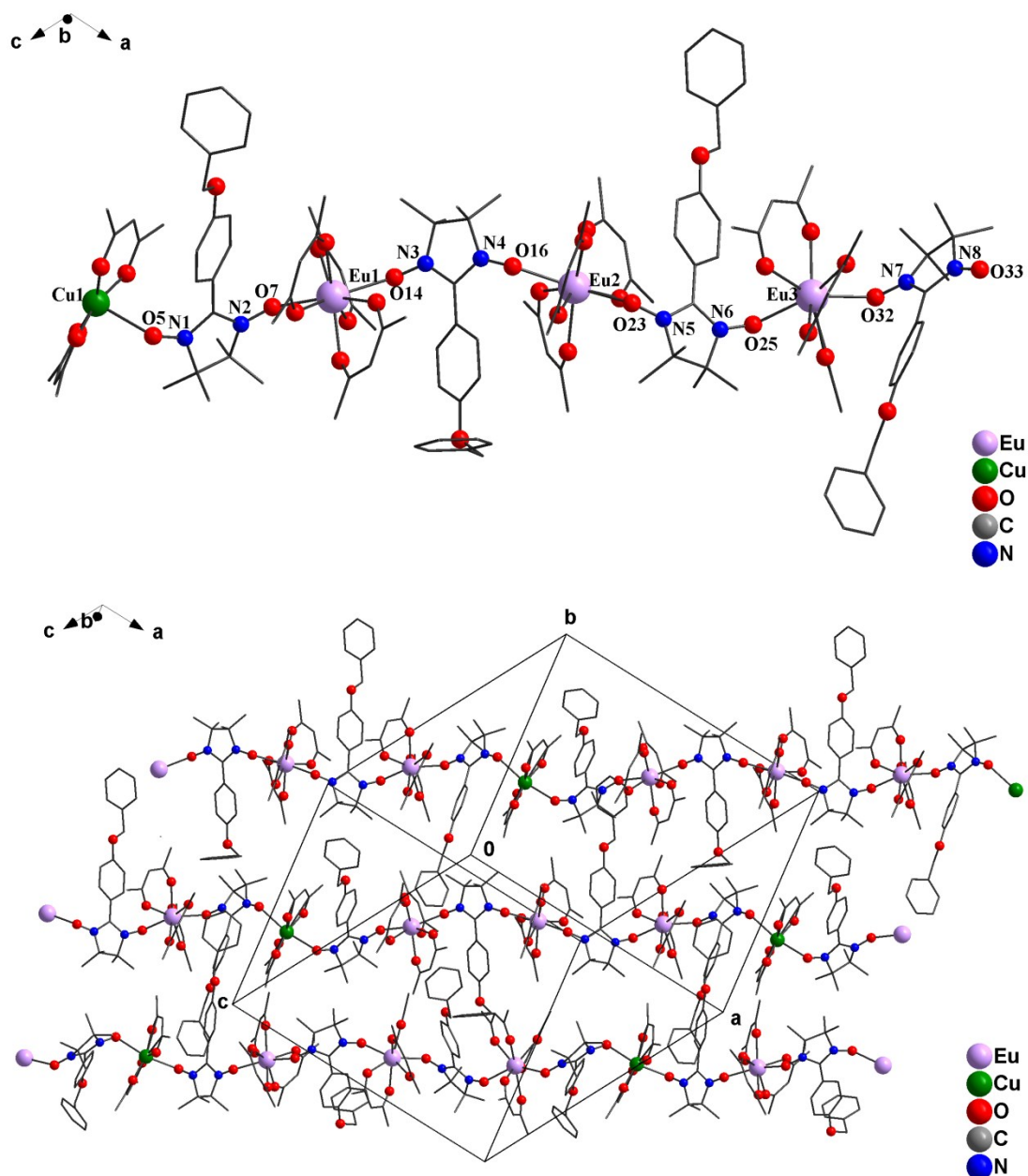


Figure S4. (top) Crystal structure for **8** (all hydrogen and fluorine atoms are omitted for clarity) and (bottom) crystal packing of the chains.

Table S1. Results of continuous shape measures analysis for the Ln coordination spheres

Complex	Ln	SAPR-8	TDD-8	BTPR-8
1	Dy1	1.286	0.332	1.894
	Dy2	1.229	0.382	1.938
2	Dy1	1.089	0.772	1.364
	Dy2	1.128	0.558	1.784
	Dy3	1.955	0.359	2.164
3	Ho1	0.972	0.845	1.378
	Ho2	0.989	0.632	1.768

	Ho3	1.894	0.307	2.282
4	Er1	0.952	0.663	1.809
	Er2	0.940	0.801	1.395
	Er3	1.898	0.304	2.373
5	Yb1	0.964	0.666	1.819
	Yb2	1.900	0.299	2.437
	Yb3	0.968	0.802	1.340
6	Pr1	1.453	0.686	2.183
	Pr2	0.801	0.976	1.682
	Pr3	0.927	0.748	1.823
7	Sm1	1.411	0.558	2.117
	Sm2	0.797	0.860	1.663
	Sm3	0.993	0.619	1.808
8	Eu1	1.353	0.553	2.070
	Eu2	1.025	0.572	1.777
	Eu3	0.801	0.836	1.671

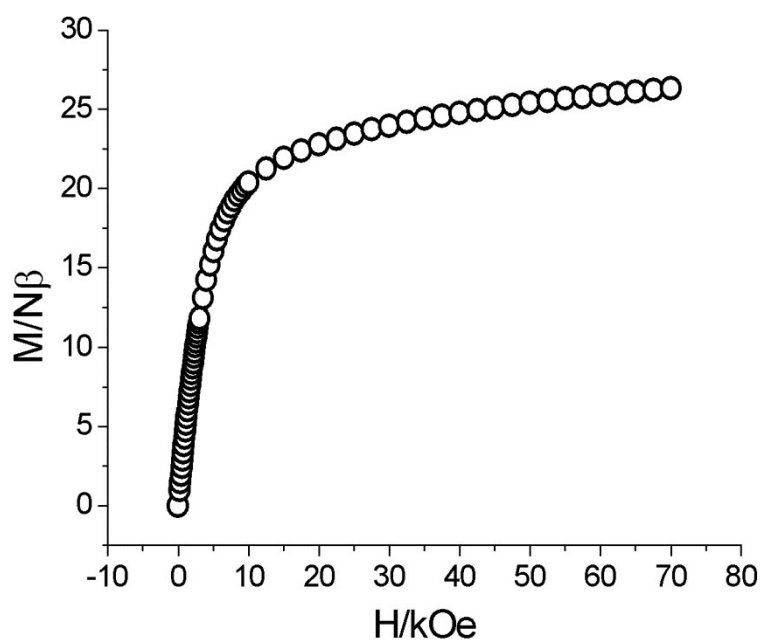


Figure S5 M versus H plot at 2 K for complex **2**.

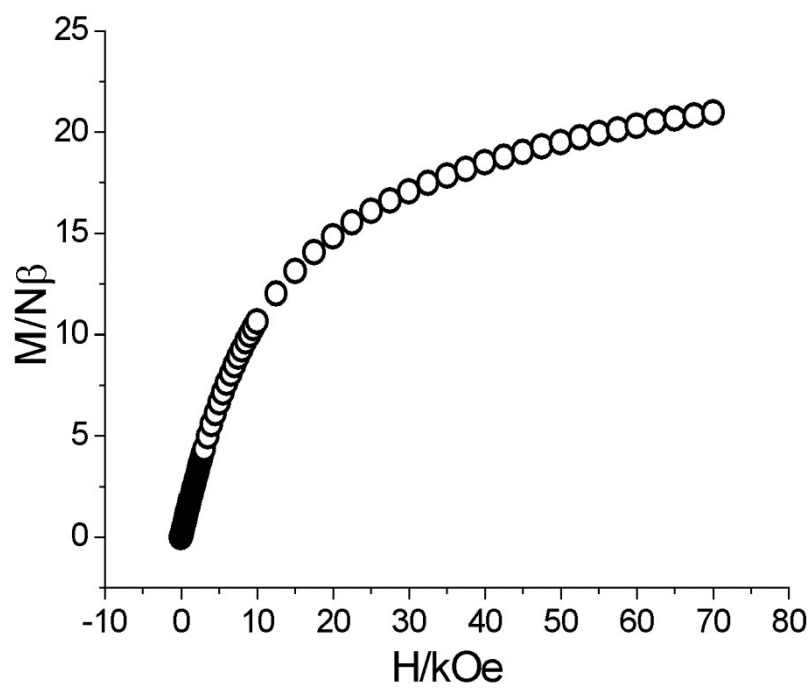


Figure S6 M versus H plot at 2 K for complex 3.

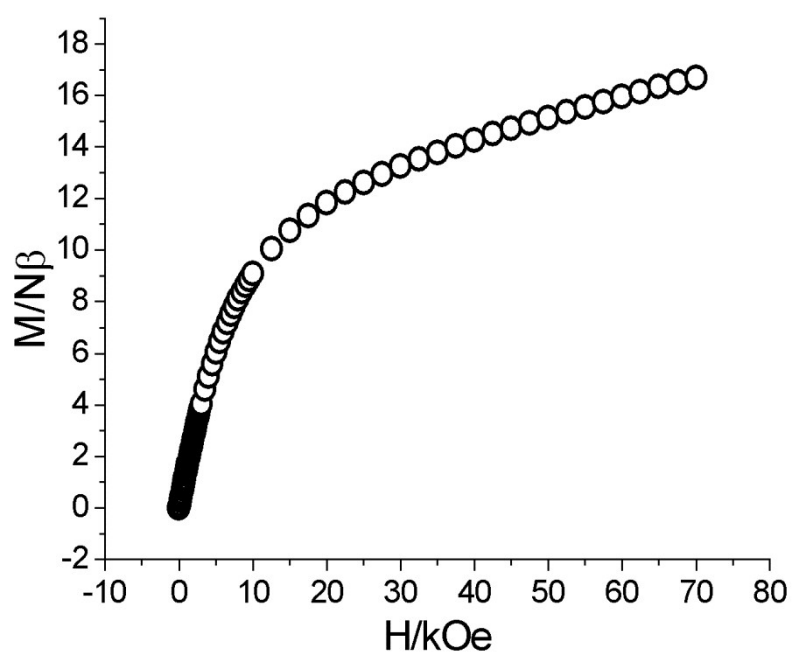


Figure S7 M versus H plot at 2 K for complex 4.

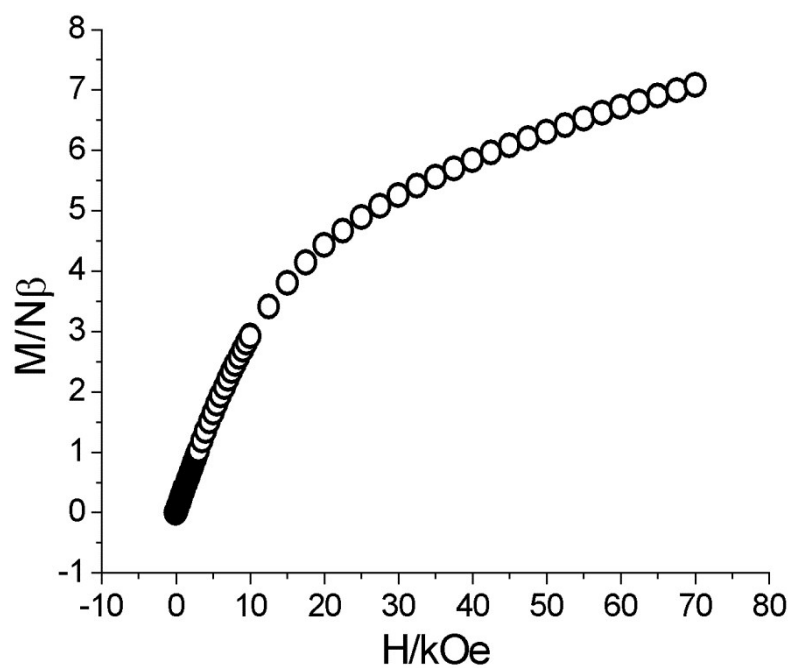


Figure S8 M versus H plot at 2 K for complex **5**.

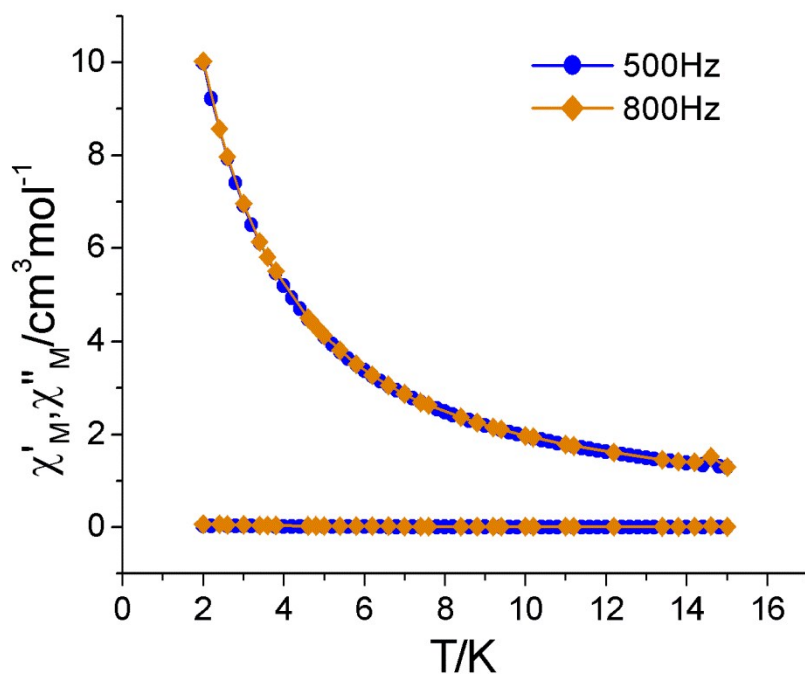


Figure S9 Temperature dependence of the in-phase and out-of-phase components of the ac magnetic susceptibility in zero field with an oscillation 3 Oe at 500,800Hz for complex **2**.

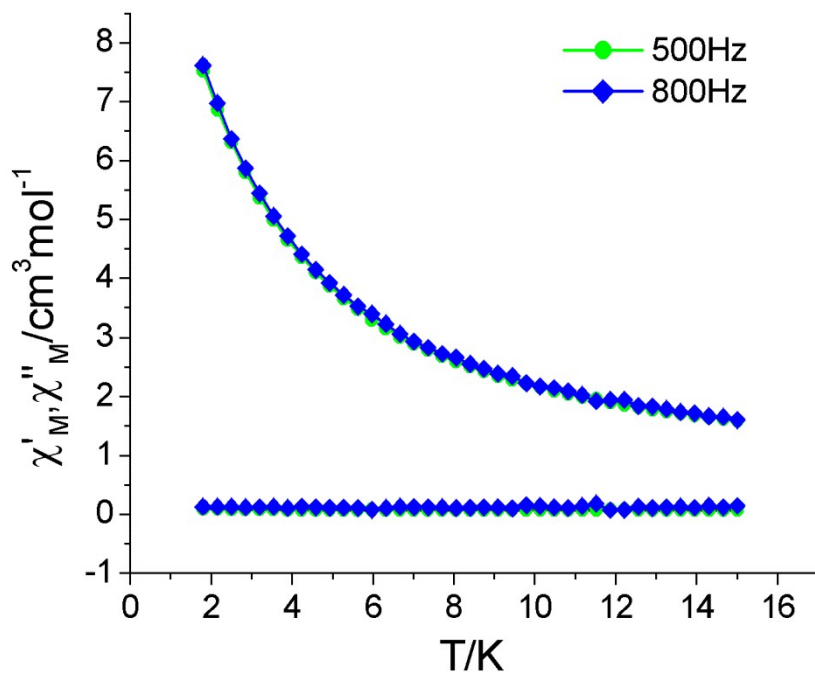


Figure S10 Temperature dependence of the in-phase and out-of-phase components of the ac magnetic susceptibility in zero field with an oscillation 3 Oe at 500,800Hz for complex 4.

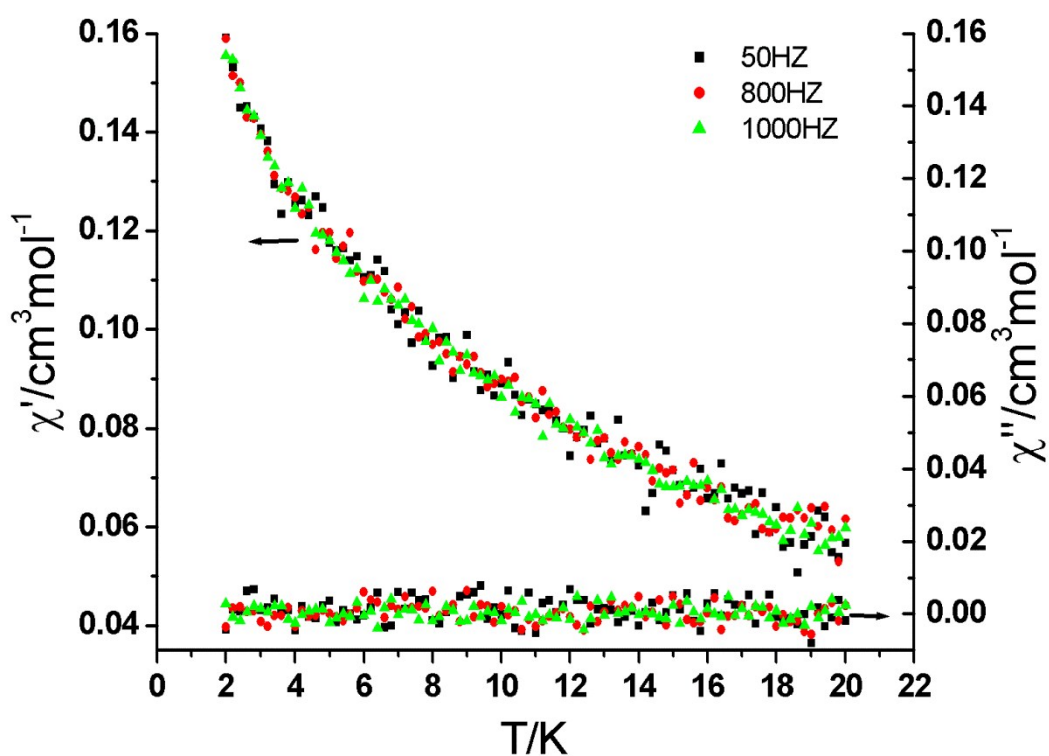


Figure S9 Temperature dependence of the in-phase and out-of-phase components of the ac magnetic susceptibility in zero dc field with an oscillation 3.5 Oe for complex 7.