

Supporting information for

Modulating the magnetic properties by structural modification in a family of mixed valent Co-Ln (Ln= Gd, Dy) aggregates

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Table S1. BVS calculations for complexes 1-4.

1		2		3		4	
Co site	BVS (AOS) ^a	Co site	BVS (AOS) ^a	Co site	BVS (AOS) ^a	Co site	BVS (AOS) ^a
Co1	1.95(2)	Co1	1.95(2)	Co1	2.86(3)	Co1	2.86(3)
Co2	2.83(3)	Co2	2.83(3)	Co2	2.82(3)	Co2	2.82(3)
Co3	1.75(2)	Co3	1.75(2)	Co3	2.83(3)	Co3	2.83(3)

a = Assigned oxidation state

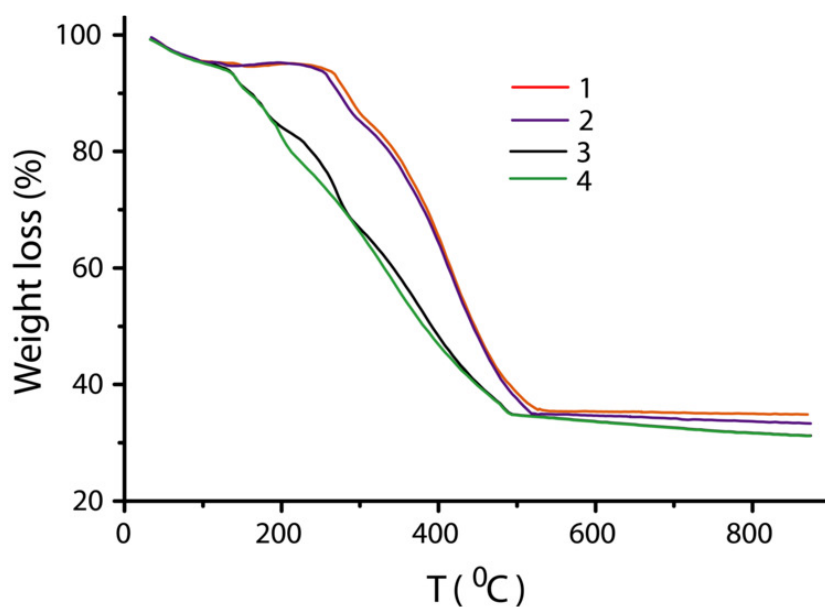


Fig. S1 TGA plots of complexes 1-4.

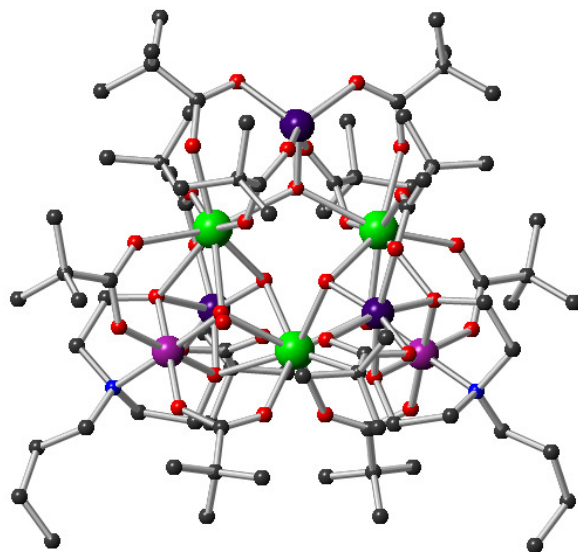


Fig. S2 Ball & stick model showing molecular structure of **2** in the crystal, colour code: purple, Co^{III} ; violet, Co^{II} ; green, Dy; red, O; blue, N; gray, C; Hydrogen atoms are omitted for clarity.

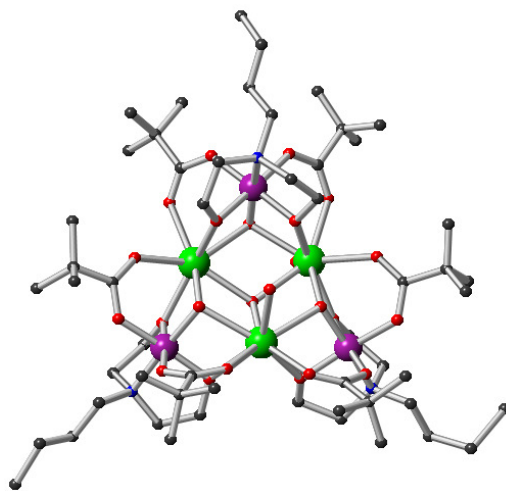


Fig. S3 Ball & stick model showing molecular structure of **4** in the crystal, colour code: purple, Co^{III} ; green, Dy; red, O; blue, N; gray, C; Hydrogen atoms are omitted for clarity.

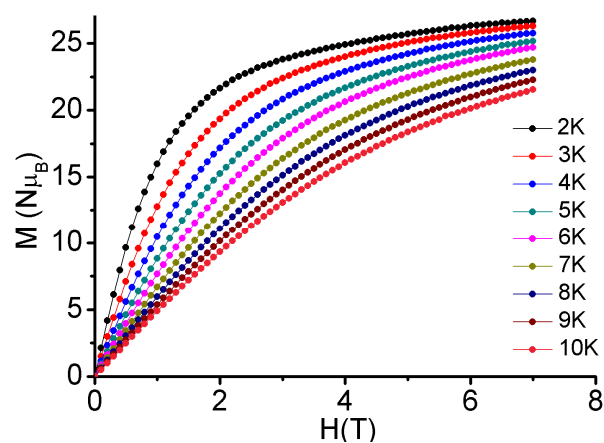


Fig. S4 Field-dependencies of isothermal normalized magnetizations for complex **1** collected for temperatures ranging from 2-10 K

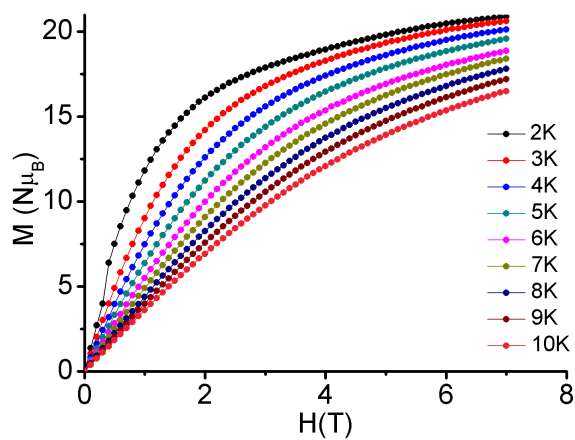


Fig. S5 Field-dependencies of isothermal normalized magnetizations for complex **3** collected for temperatures ranging from 2-10 K.

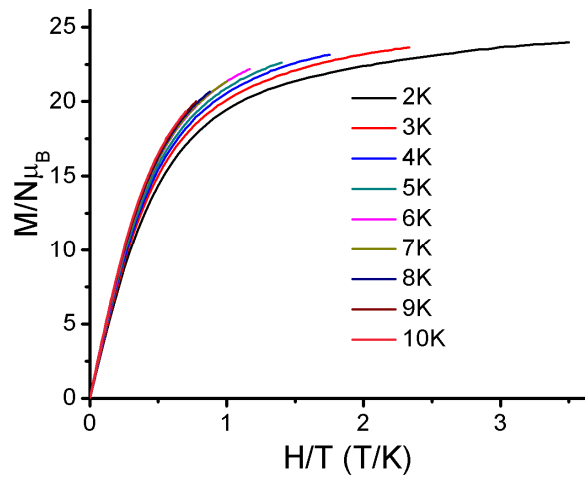


Fig. S6 $M/N\mu_B$ vs H/T plots for complex **1** at 2-10 K.

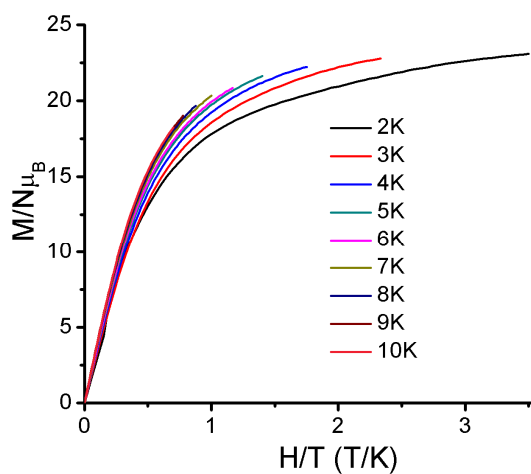


Fig. S7 $M/N\mu_B$ vs H/T plots for complex **3** at 2-10 K

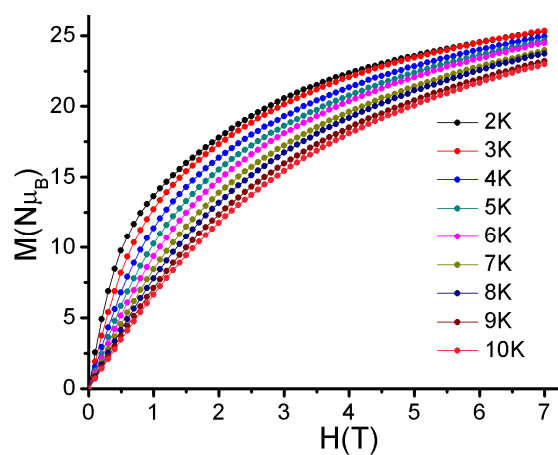


Fig. S8 Field-dependencies of isothermal normalized magnetizations for complex **2** collected for temperatures ranging from 2-10 K

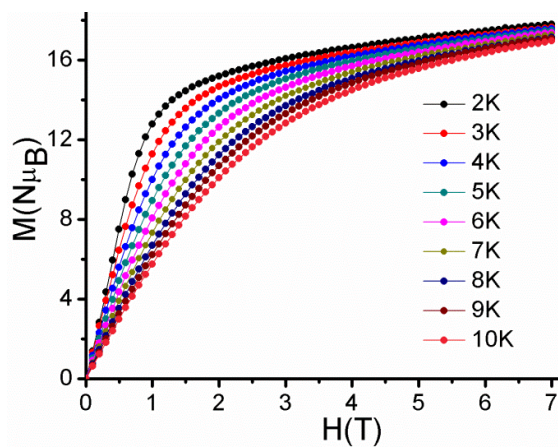


Fig. S9 Field-dependencies of isothermal normalized magnetizations for complex **4** collected for temperatures ranging from 2-10 K.

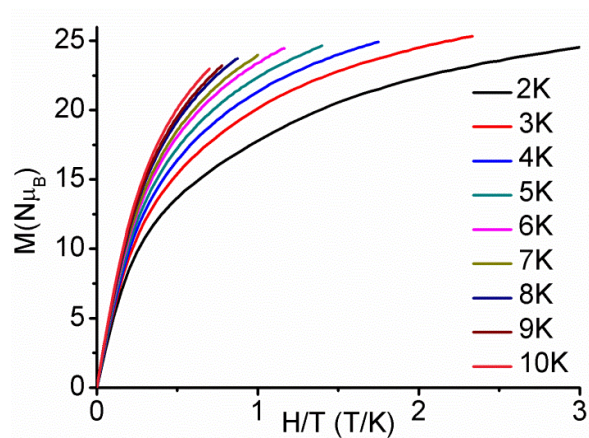


Fig. S10 $M/N\mu_B$ vs H/T plots for complex **2** at 2-10 K.

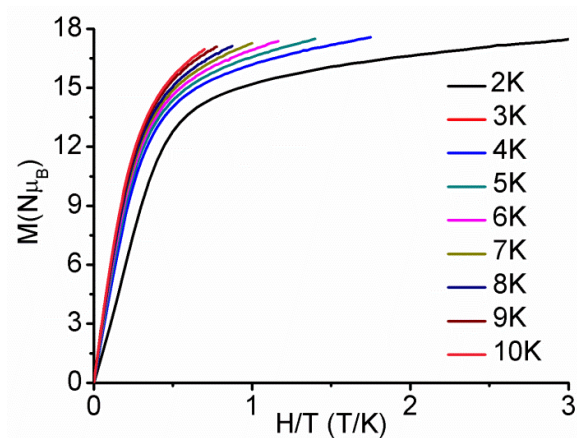


Fig. S11 $M/N\mu_B$ vs H/T plots for complex **4** at 2-10 K.

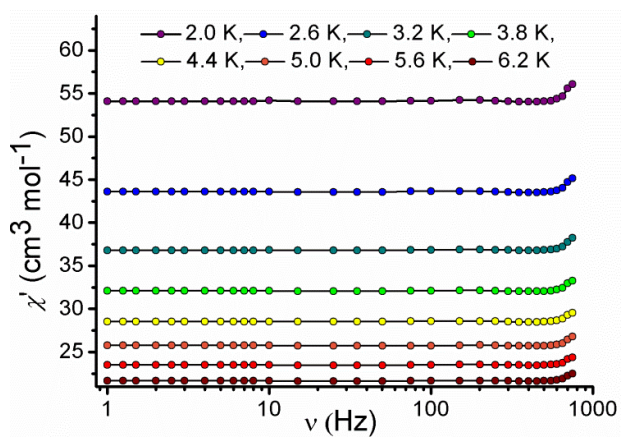


Fig. S12 Frequency dependence of the in-phase (χ') ac susceptibility for complex **2** under zero dc field

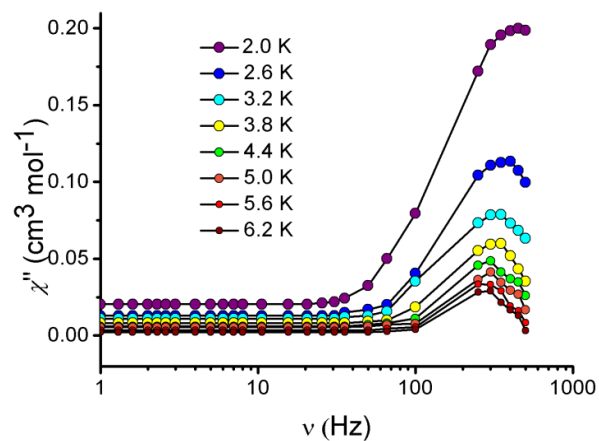


Fig. S13 Frequency dependence of the out of phase (χ'') ac susceptibility for complex **2** under zero dc field.

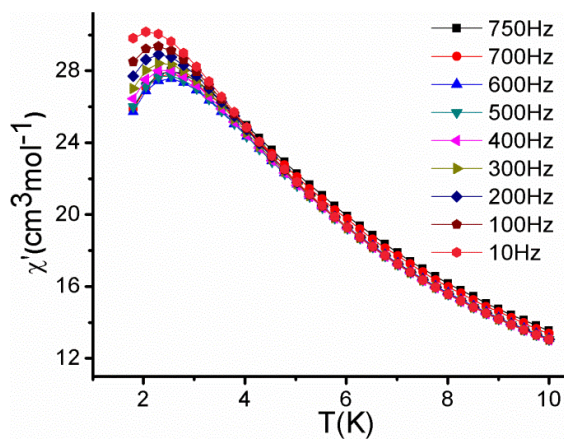


Fig. S14 Temperature dependence of the in-phase (χ') ac susceptibility for complex **4** under zero dc field.

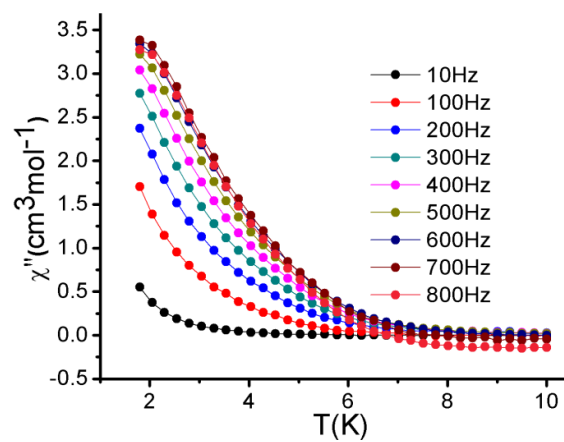


Fig. S15 Temperature dependence of the out of phase (χ'') ac susceptibility for complex **4** under zero dc field.

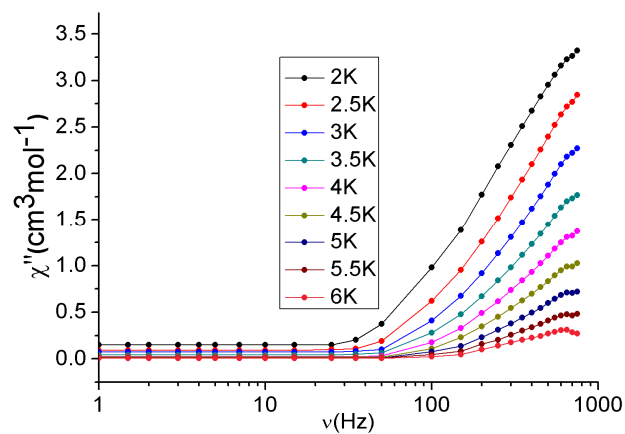


Fig. S16 Frequency dependence of the out of phase (χ'') ac susceptibility for complex **4** under zero dc field.