SUPPLEMENTARY MATERIAL

A Novel Family of Triangular $Co^{II}_2Ln^{III}$ and $Co^{II}_2Y^{III}$ Clusters by the Employment of Di-2-Pyridyl Ketone

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‡ This paper is dedicated to Professor Masahiro Yamashita, a leading and inspiring Scientist on Molecular Magnetism

Table S1. Crystallographic data for complex **1**

Parameter	1
Empirical formula	$C_{52}H_{52}ClCo_2Gd_{1.50}N_{11.50}O_{23.50}$
Formula weight	1603.23
Crystal system	monoclinic
Space group	$C\ 2/c$
a (Å)	12.0962(4)
b (Å)	21.8620(10)
c (Å)	52.1883(14)
β (º)	93.813(4)°
V (Å^3)	13770.5(9)
Z	8
ρ_{calc} (g cm^{-3})	1.547
Radiation, λ (Å)	0.71073
μ (mm^{-1})	2.020
Temperature (K)	100(2)
Measd/independent	27084/ 11743

reflns

Parameters refined	828
GoF (on F^2)	1.052
$R_1{}^a$ ($I > 2\sigma(I)$)	0.1690
$wR_2{}^b$ ($I > 2\sigma(I)$)	0.2184
$(\Delta\rho)_{max}/(\Delta\rho)_{min}$ (e Å^{-3})	0.233 /-0.342

^{a} $R_1 = \Sigma(|F_o|-|F_c|)/\Sigma(|F_o|)$.

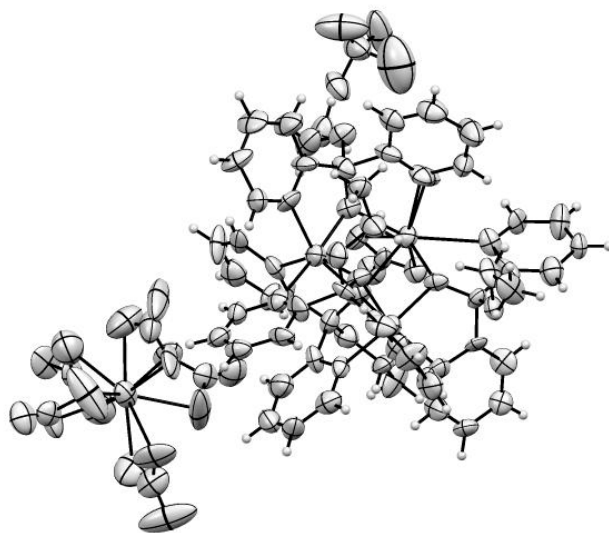^{b} $wR_2 = \{\Sigma[w(F_o{}^2-F_c{}^2)^2]/\Sigma[w(F_o{}^2)^2]\}^{1/2}$.

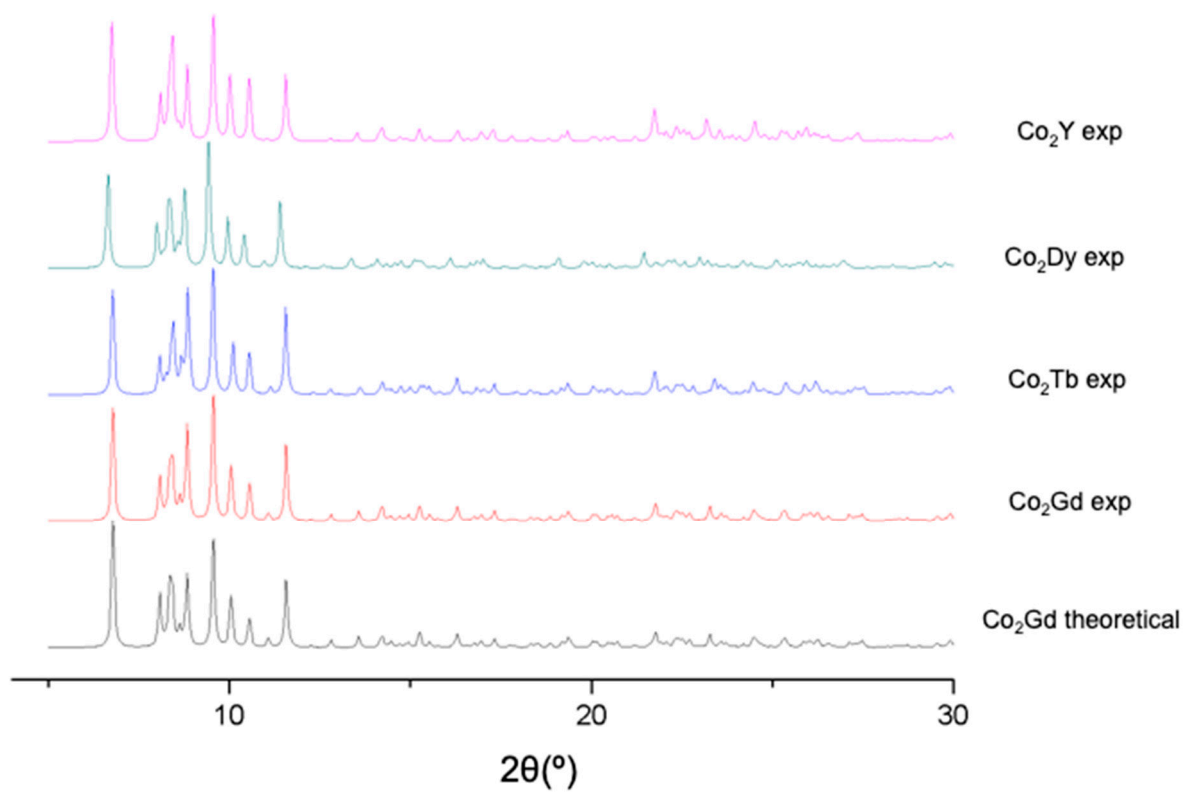**Figure S1**. Representation of the elipsoid plot for **1.**

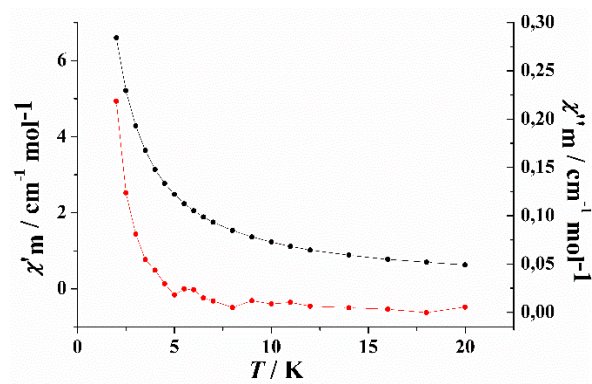**Figure S2**. Theoretical and experimental pxrd patterns for **1-4**.

Figure S3. Representation of χ' (black line) and χ'' (red line) for **2** at 1000 Hz.