Electronic Supplementary Material (ESI) for RSC Advances.

Supplementary Information

Homo- and heterometallic coordination networks based on linear trinuclear Co(II) units: synthesis, structures and magnetic properties

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Table S1. Selected bond distances (Å) and angles (°) for **1**.

distances			
Co(1)-O(6)	1.968(2)	Co(1)-O(2)	1.980(2)
Co(1)-N(1)	2.067(3)	Co(1)-O(4A)	2.134(2)
Co(1)-O(5A)	2.1808(18)	Co(2)-O(7)	2.035(2)
Co(2)-O(7B)	2.035(2)	Co(2)-O(3)	2.0519(18)
Co(2)-O(3B)	2.0520(18)	Co(2)-O(5C)	2.1301(19)
Co(2)-O(5A)	2.1301(19)		

angles			
O(6)-Co(1)-O(2)	115.06(11)	O(6)-Co(1)-N(1)	95.82(10)
O(2)-Co(1)-N(1)	93.14(10)	O(6)-Co(1)-O(4A)	143.49(11)
O(2)-Co(1)-O(4A)	96.02(12)	N(1)-Co(1)-O(4A)	101.34(10)
O(6)-Co(1)-O(5A)	95.20(9)	O(2)-Co(1)-O(5A)	98.86(8)
N(1)-Co(1)-O(5A)	158.46(9)	O(4A)-Co(1)-O(5A)	59.80(8)
O(7)-Co(2)-O(7B)	179.999(1)	O(7)-Co(2)-O(3)	94.31(9)
O(7B)-Co(2)-O(3)	85.69(9)	O(7)-Co(2)-O(3B)	85.69(9)
O(7B)-Co(2)-O(3B)	94.31(9)	O(3)-Co(2)-O(3B)	180.00(10)
O(7)-Co(2)-O(5A)	90.17(8)	O(7B)-Co(2)-O(5A)	89.83(8)
O(3)-Co(2)-O(5A)	92.41(8)	O(3B)-Co(2)-O(5A)	87.59(8)

Symmetry transformations used to generate equivalent atoms:

(A) x, -y + 2, z + 1/2 (B) –x + 3/2, -y + 3/2, -z - 1

Table S2. Selected bond distances (Å) and angles (°) for **2**.

Co(1)-O(9A)	1.940(2)	K-O(5C)	2.860(3)
Co(1)-O(1)	2.006(2)	K-O(2)	2.585(3)
Co(1)-O(3B)	1.992(3)	K-O(7)	2.705(3)
Co(1)-O(6)	1.962(2)	K-O(7G)	2.790(2)
Co(2)-O(1E)	2.270(2)	K-O(5)	2.859(3)
Co(2)-O(8D)	2.086(2)	K-O(10F)	2.755(4)
Co(2)-O(4B)	1.988(2)	K-O(9A)	3.006(3)
O(9A)-Co(1)-O(6)	110.83(10)	O(3B)-Co(1)-O(1)	104.33(10)
O(9A)-Co(1)-O(3B)	108.04(12)	O(9A)-Co(1)-K	52.71(8)
O(6)-Co(1)-O(3B)	100.17(10)	O(6)-Co(1)-K	77.28(7)
O(9A)-Co(1)-O(1)	113.17(10)	O(3B)-Co(1)-K	155.62(8)
O(6)-Co(1)-O(1)	118.69(10)	O(1)-Co(1)-K	97.89(7)
O(4B)-Co(2)-O(4C)	180.00(5)	O(4B)-Co(2)-O(8D)	87.71(11)
O(4C)-Co(2)-O(8D)	92.29(11)	O(4B)-Co(2)-O(8A)	92.29(11)
O(4C)-Co(2)-O(8A)	87.71(11)	O(8D)-Co(2)-O(8A)	180.0(2)
O(4B)-Co(2)-O(1E)	90.22(9)	O(4C)-Co(2)-O(1E)	89.78(9)
O(8D)-Co(2)-O(1E)	94.80(8)	O(8A)-Co(2)-O(1E)	85.20(8)
O(4B)-Co(2)-O(1)	89.78(9)	O(4C)-Co(2)-O(1)	90.22(9)
O(8D)-Co(2)-O(1)	85.20(8)	O(8A)-Co(2)-O(1)	94.80(8)
O(1E)-Co(2)-O(1)	180.0	O(2)-K-O(7)	91.82(9)
O(2)-K-O(10F)	85.38(10)	O(7)-K-O(10F)	74.83(11)
O(2)-K-O(7G)	171.40(10)	O(7)-K-O(7G)	94.41(7)
O(10F)-K-O(7G)	90.52(9)	O(2)-K-O(5C)	76.67(9)

O(7)-K-O(5C)	165.55(9)	O(10F)-K-O(5C)	112.27(11)
O(7G)-K-O(5C)	98.01(8)	O(2)-K-O(9A)	64.98(8)
O(7)-K-O(9A)	68.34(8)	O(10F)-K-O(9A)	130.86(11)
O(7G)-K-O(9A)	122.98(8)	O(5C)-K-O(9A)	98.50(8)

Symmetry transformations used to generate equivalent atoms:
(A) x, y - 1, z; (B) x, -y + 1, z + 1/2; (C) -x + 1/2, y - 1/2, -z - 1/2; (D) -x + 1/2, -y + 3/2, -z; (E) -x + 1/2, -y + 1/2, -z; (F) -x + 1, -y + 2, -z;
(G) -x + 1, -y + 1, -z.

Fig. S1. TGA curve of **1**.

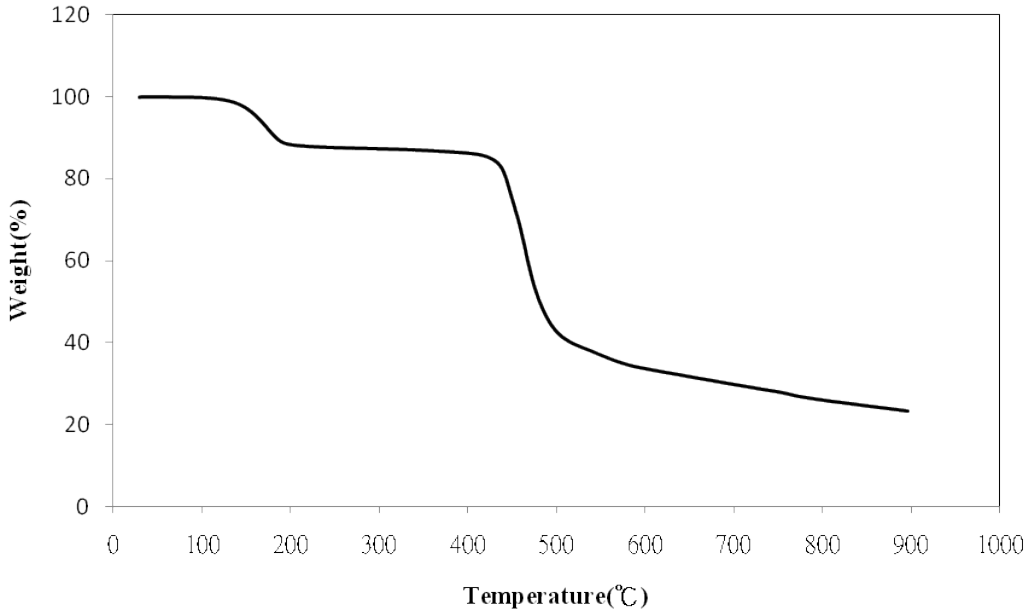

Fig. S2. TGA curve of **2**.

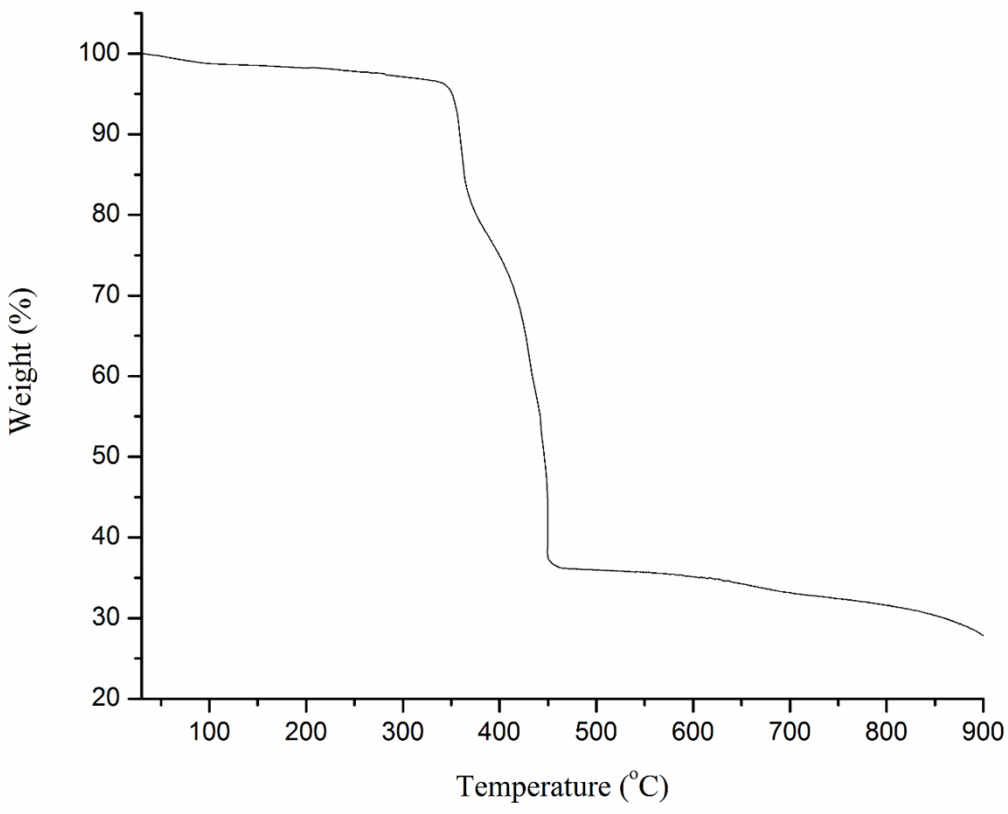

Fig. S3. Refinement results of powder X-ray diffraction patterns of **1**, showing observed (red crosses) and calculated (green solid line) spectra and their difference (purple line), with estimated peak positions (black dash).

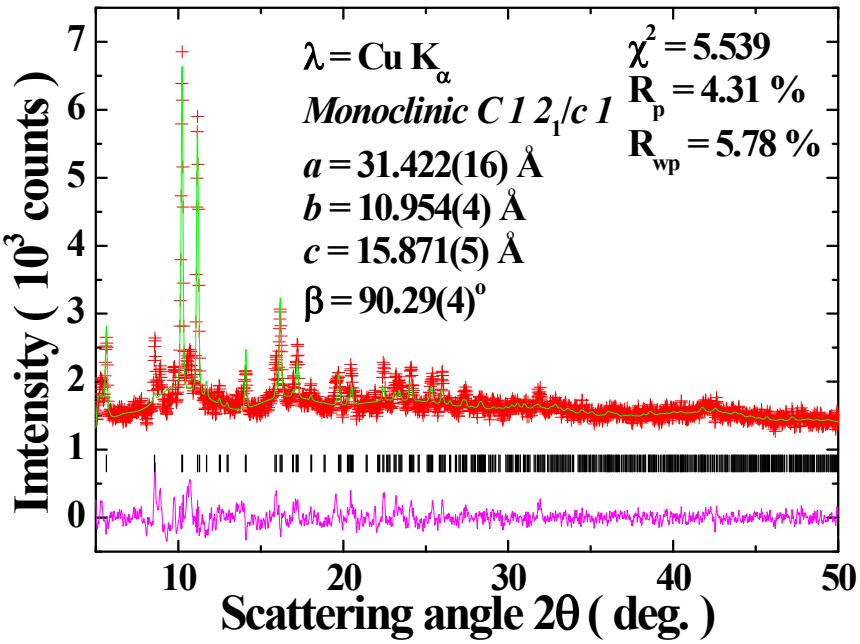

Fig. S4. Refinement results of powder X-ray diffraction patterns of **2**, showing observed (red crosses) and calculated (green solid line) spectra and their difference (purple line), with estimated peak positions (black dash).