Electronic Supplementary Information (ESI)

Structure diversities of ten entangled coordination polymers assembled from reactions of Co(II) or Ni(II) salts with 5-(pyridin-4-yl)isophthalic acid in the absence or presence of auxiliary N-donor ligands

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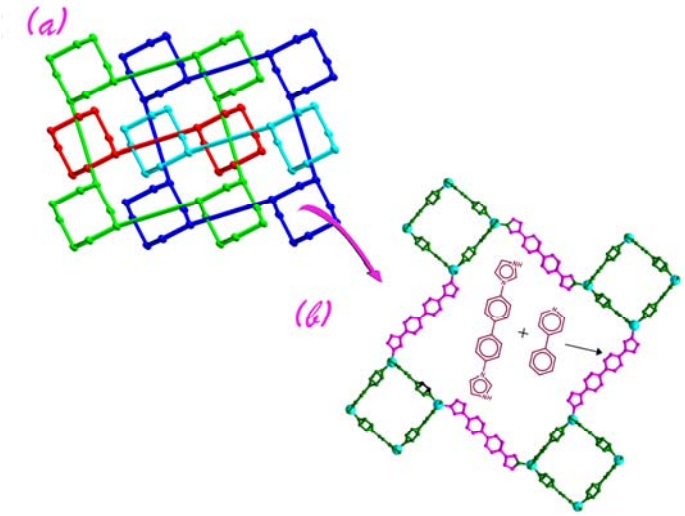

Fig. S1. (*a*) The 4-fold interpenetrating structure of **10**. (*b*) The pillar which formed by the short and/or long pillars.

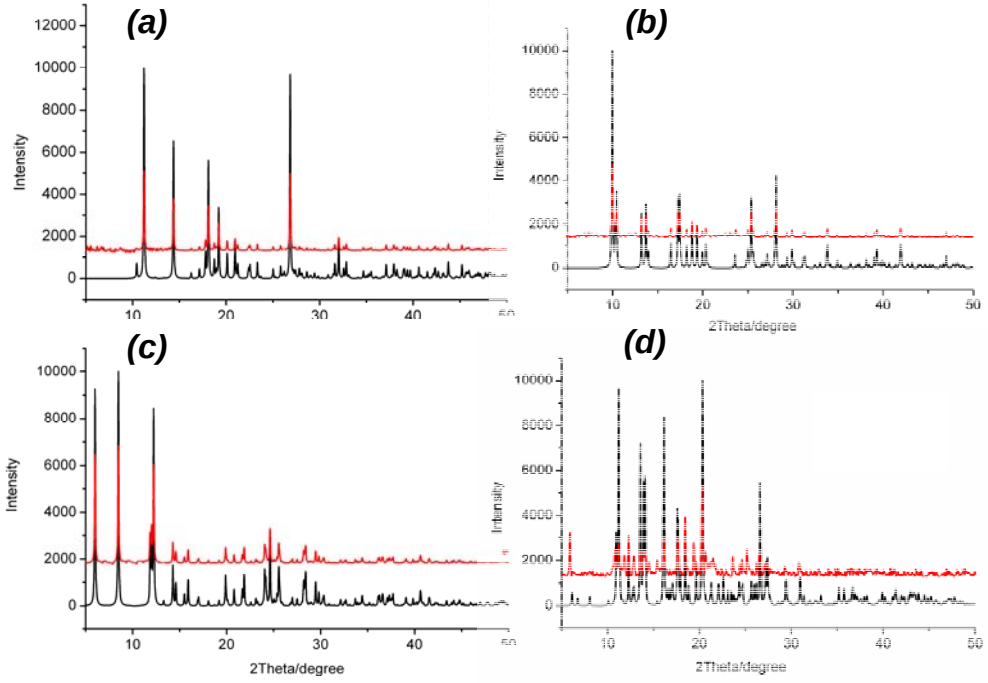

Fig. S2. PXRD patterns for **1**-**4**. (*a*) simulated (black) and single-phase polycrystalline sample (red) of **1**. (*b*) simulated (black) and single-phase polycrystalline sample (red) of **2**. (*c*) simulated (black) and single-phase polycrystalline sample (red) of **3**. (*d*) simulated (black) and single-phase polycrystalline sample (red) of **4**.

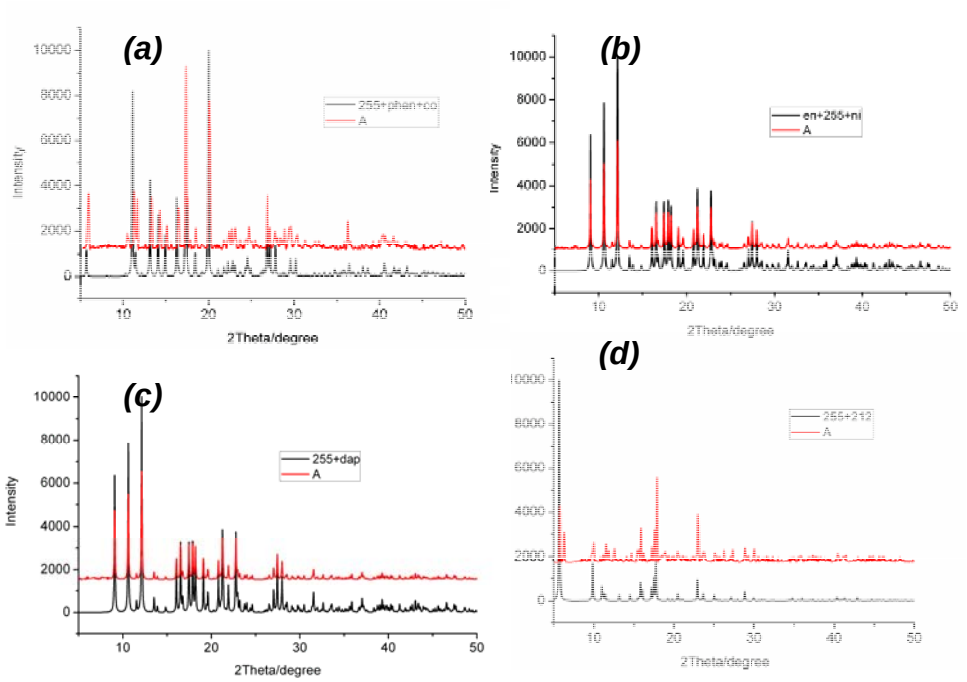

Fig. S3. PXRD patterns for **5**-**8**. (*a*) simulated (black) and single-phase polycrystalline sample (red) of **5**. (*b*) simulated (black) and single-phase polycrystalline sample (red) of **6**. (*c*) simulated (black) and single-phase polycrystalline sample (red) of **7**. (*d*) simulated (black) and single-phase polycrystalline sample (red) of **8**.

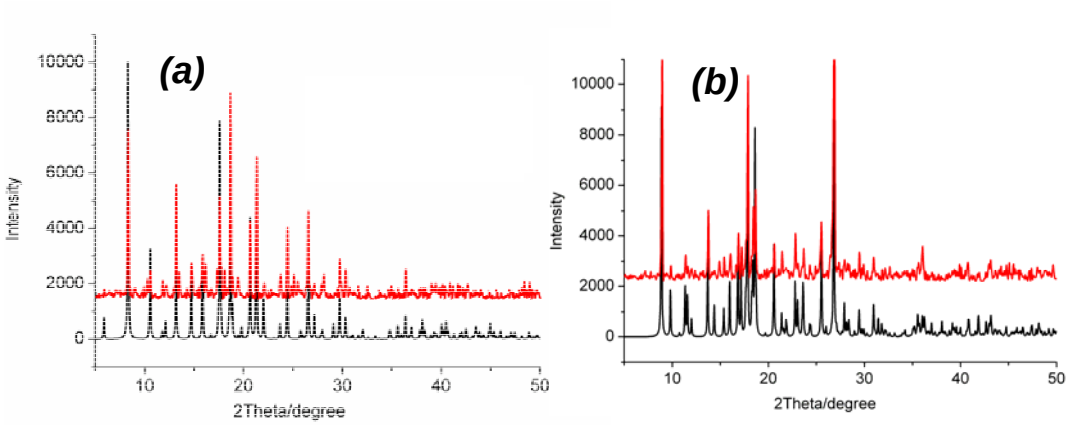

Fig. S4. PXRD patterns for **8**-**10**. (*a*) simulated (black) and single-phase polycrystalline sample (red) of **9**. (*b*) simulated (black) and single-phase polycrystalline sample (red) of **10**.

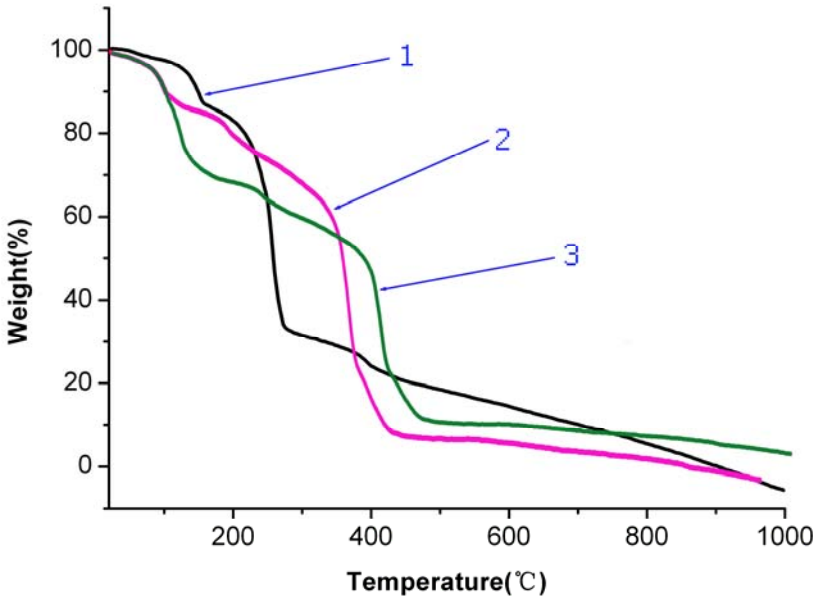

Fig. S5. The TGA curves for compounds **1**-**3**.

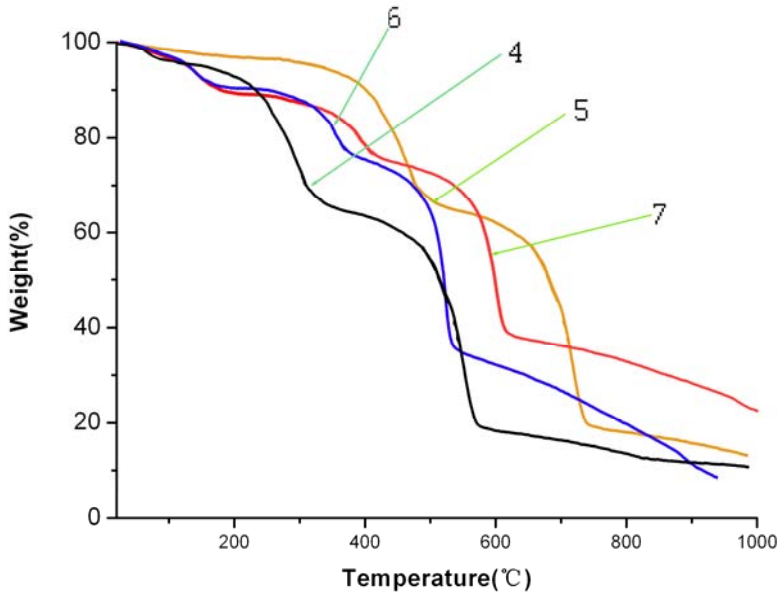

Fig. S6. The TGA curves for compounds **4**-**7**.

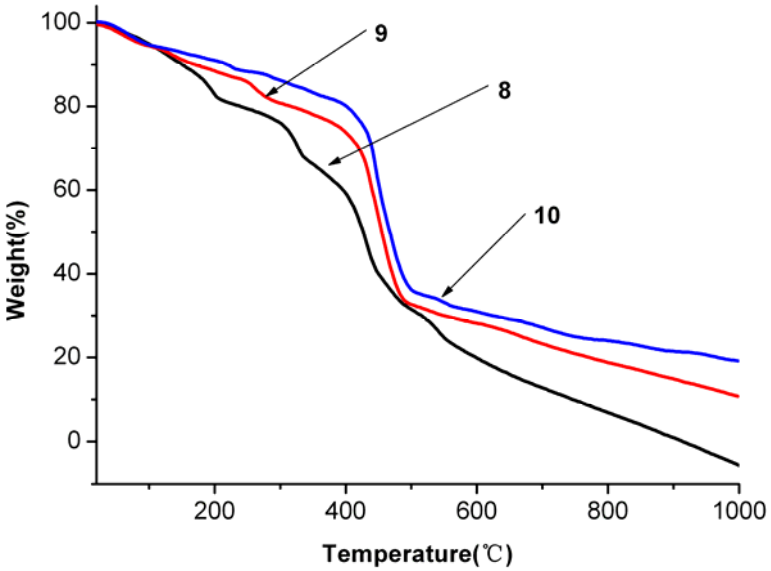

Fig. S7. The TGA curves for compounds **8**-**10**.

Magnetic properties

In order to further study the magnetic interactions in **3**, the noncritical-scaling theory with the following simple phenomenological Eqn (1) was used to fit experimental data from 300 to 2K.

$$\chi_m T = A\exp(-E_1/kT) + B\exp(-E_2/kT) \qquad (1)$$

Here, A+B equals the high-temperature Curie constant for Co(II) cluster unit, and E_1 and E_2 represent the activation energies corresponding to the spin-orbit coupling and antiferromagnetic exchange interactions, respectively. The best fit of the experimental data gives A + B = 9.1cm^{3}Kmol^{-1}, E1/k=86.5K, E2/k=7.2K. These values indicate that dominant antiferromagnetic interactions between Co(II) ions exist in **3**.

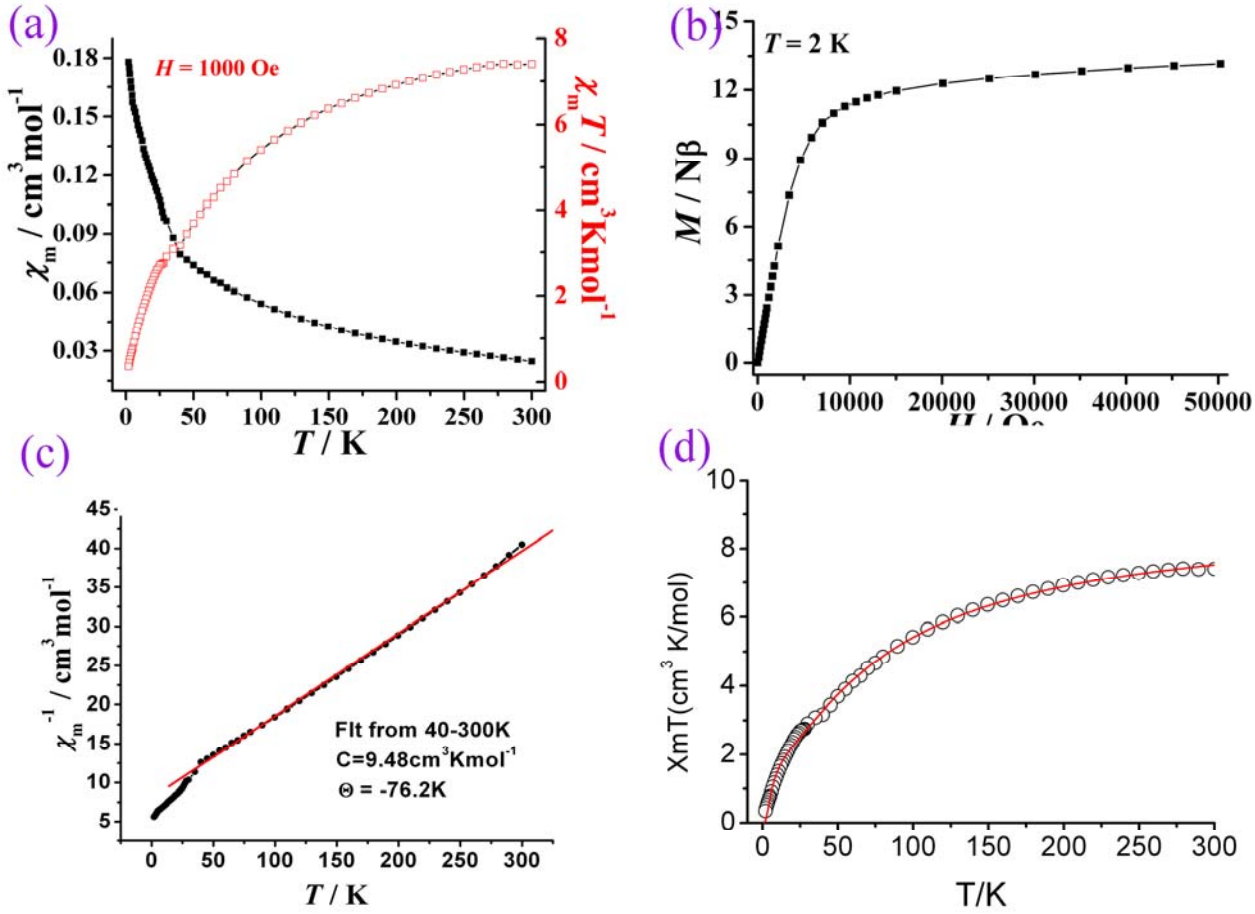

Fig. S8. (*a*) $\chi_m T$ vs. T curve of **3** under 0.1 T applied field. (*b*) Field dependence of the magnetization of **3** at 2K. (*c*) Plot of χ^{-1} vs. T and the fit of Curie-Weiss law (red curve) of **3**. (*d*) Temperature dependence of magnetic susceptibilities in the forms of $\chi_m T$ at an applied field of 1 kOe and red solid line shows the best fit at 2–300 K.