

## Supporting Information

### **A rare 4-connected net topological metal-organic framework with ferromagnetic characteristic**

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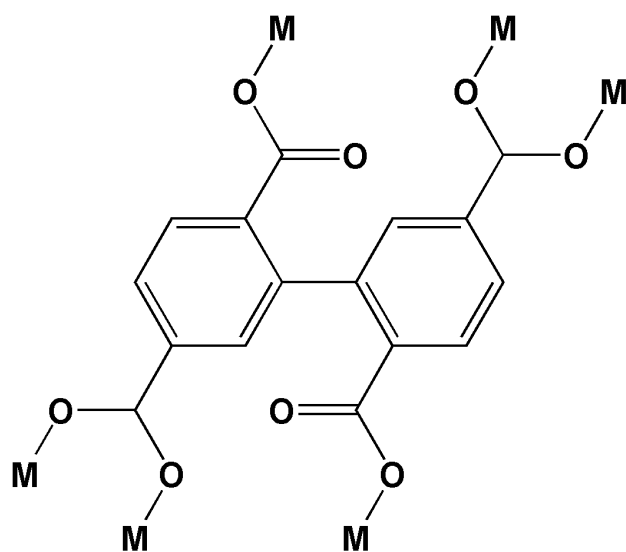
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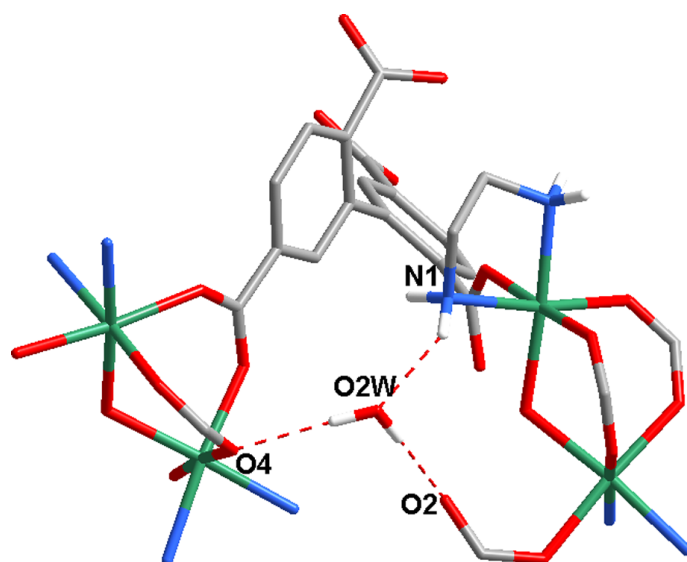
Table S1. Bond lengths [Å] and angles [°] for **1**<sup>a</sup>.

Ni(1)–O(4)	2.053(2)	Ni(1)–O3	2.051(2)
Ni(1)–N(2)	2.088(3)	Ni(1)–O1	2.094(2)
Ni(1)–O(1W)	2.0990(17)	Ni(1)–N1	2.102(3)
Ni(1A)–O(1W)	2.0990(17)	O(3)–Ni(1)–O(4)	96.17(11)
O(3)–Ni(1)–N(2)	89.46(12)	O(4)–Ni(1)–N(2)	92.83(12)
O(3)–Ni(1)–O(1)	87.09(9)	O(4)–Ni(1)–O(1)	175.03(10)
N(2)–Ni(1)–O(1)	83.43(11)	O(3)–Ni(1)–O(1W)	91.17(8)
O(4)–Ni(1)–O(1W)	91.88(9)	N(2)–Ni(1)–O(1W)	175.15(12)
O(1)–Ni(1)–O(1W)	91.80(8)	O(3)–Ni(1)–N(1)	170.64(13)
O(4)–Ni(1)–N(1)	90.01(13)	N(2)–Ni(1)–N(1)	83.20(15)
O(1)–Ni(1)–N(1)	86.30(12)	O(1W)–Ni(1)–N(1)	95.66(12)
Ni(1A)–O(1W)–Ni(1)	115.28(14)		

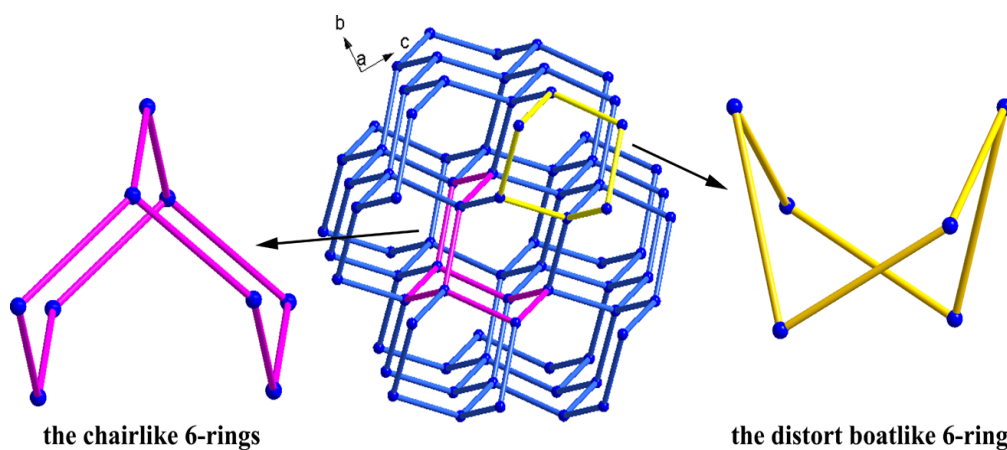
<sup>a</sup> symmetry codes: A: -x+1, -y, z.



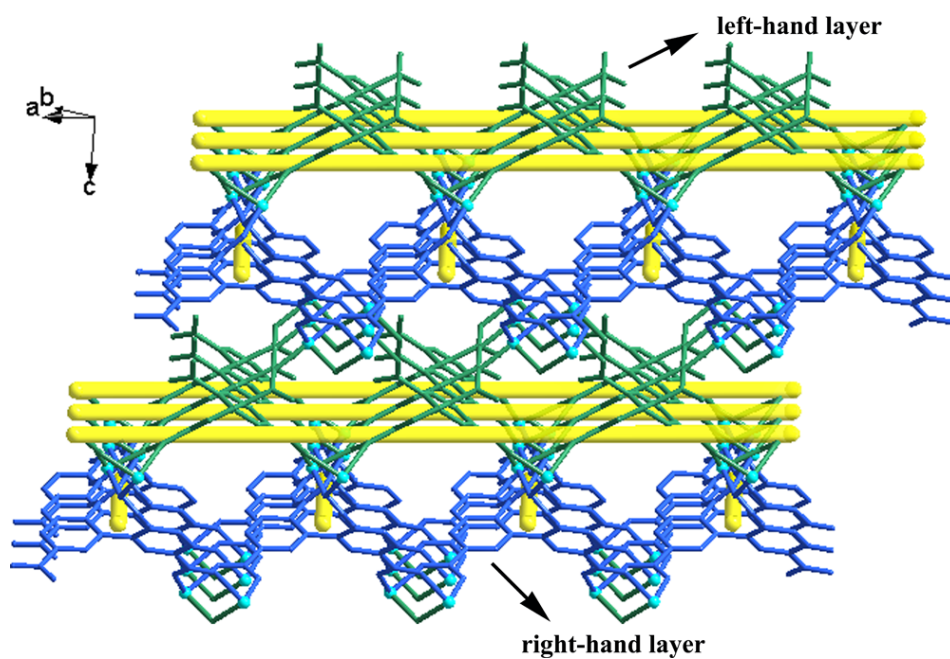
**Chart. S1** Coordination modes of H<sub>4</sub>bptc in **1**.



**Fig. S1** Hydrogen bonds between the main structure and free water molecule.



**Fig. S2** The chairlike and distorted boatlike 6-rings in the basic unit of this topological network.



**Fig. S3** The perpendicular arrangement of the helices in adjacent layers of **1**.

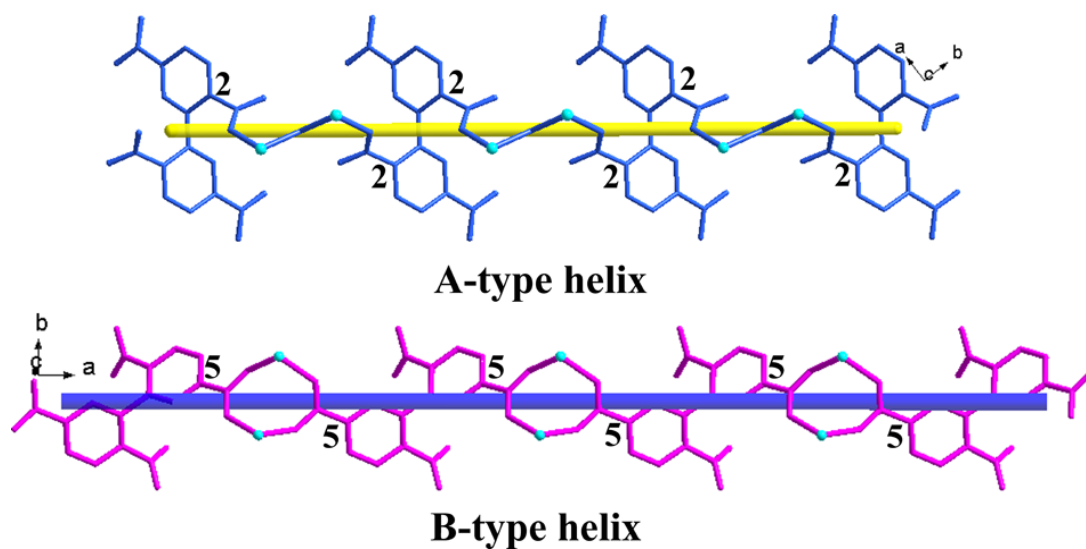


Fig. S4 The A-type and B-type helical chains in 1.

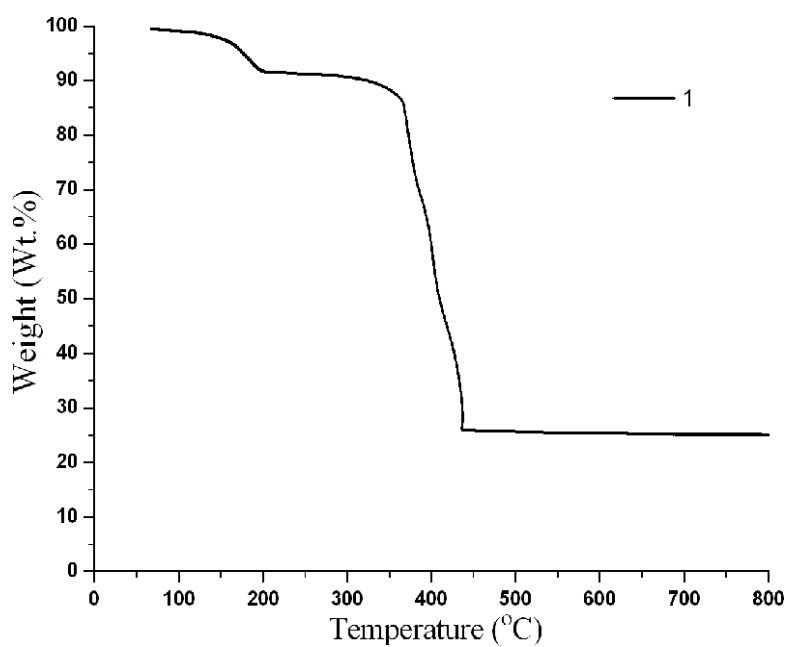
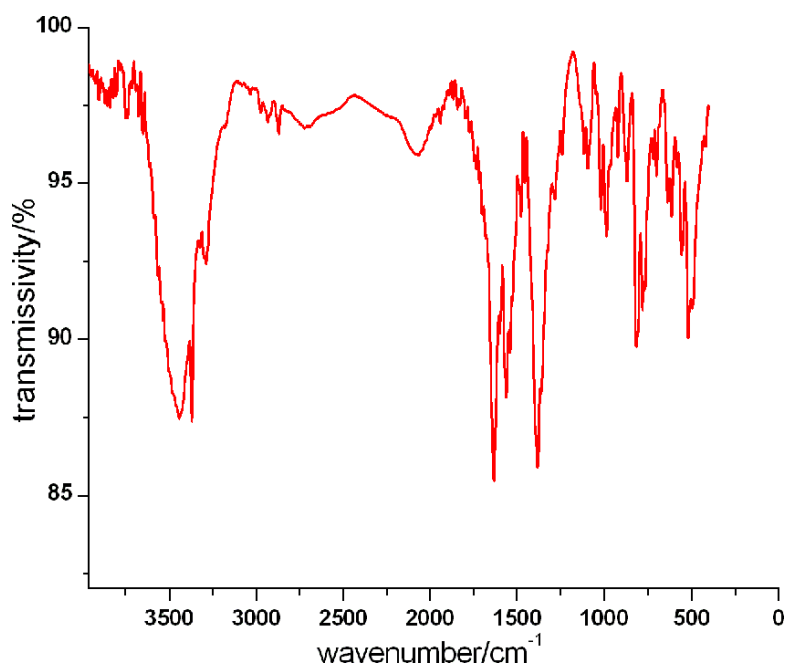
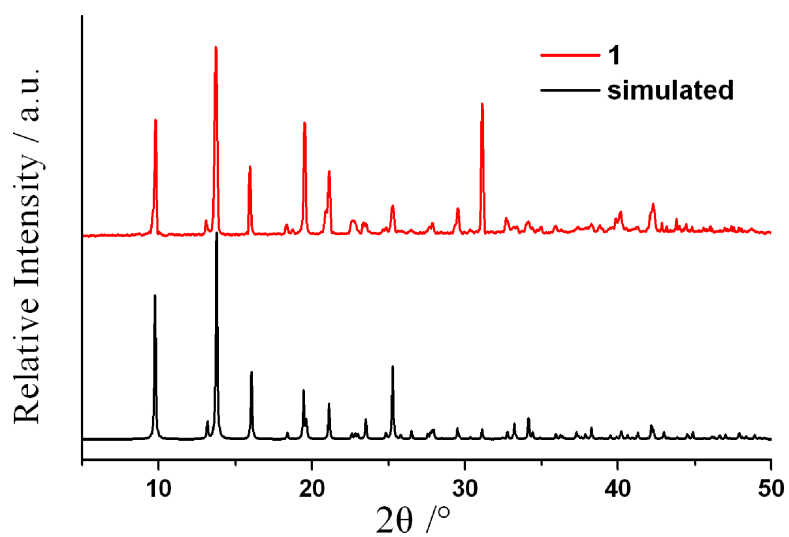


Fig. S5 Thermogravimetric curve of complex 1.



**Fig. S6** IR spectrum of complex 1.



**Fig. S7** The PXRD patterns of complex 1: the as-synthesized patterns (red) and the simulated based on X-ray single-crystal data (black).