Supplementary information

Two topologically new trinodal cobalt(II) metal-organic frameworks characterized as 1D metallic oxide antiferromagnet and 2D→3D penetrated porous solid

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Table S1 Selected bond lengths (Å) and angles (º) for MOFs **1** and **2**.

1			
Co(1)-O(11)	2.008(3)	Co(2)-O(3)#4	2.032(3)
Co(1)-O(4)#1	2.024(3)	Co(2)-O(2)	2.050(3)
Co(1)-O(7)#2	2.120(3)	Co(2)-O(11)	2.082(3)
Co(1)-O(1)#3	2.122(3)	Co(2)-O(11)#5	2.084(3)
Co(1)-O(1)	2.168(3)	Co(2)-O(10)	2.177(4)
Co(1)-O(8)#2	2.221(3)	Co(2)-O(12)	2.215(4)
O(11)-Co(1)-O(4)#1	98.00(12)	O(3)#4-Co(2)-O(2)	90.32(13)
O(11)-Co(1)-O(7)#2	101.01(12)	O(3)#4-Co(2)-O(11)	174.15(11)
O(4)#1-Co(1)-O(7)#2	94.88(14)	O(2)-Co(2)-O(11)	94.96(12)
O(11)-Co(1)-O(1)#3	92.64(12)	O(3)#4-Co(2)-O(11)#5	94.08(12)
O(4)#1-Co(1)-O(1)#3	91.46(12)	O(2)-Co(2)-O(11)#5	167.55(14)
O(7)#2-Co(1)-O(1)#3	163.97(12)	O(11)-Co(2)-O(11)#5	81.28(12)
O(11)-Co(1)-O(1)	89.29(11)	O(3)#4-Co(2)-O(10)	91.38(16)
O(4)#1-Co(1)-O(1)	170.41(12)	O(2)-Co(2)-O(10)	90.86(16)
O(7)#2-Co(1)-O(1)	89.80(12)	O(11)-Co(2)-O(10)	86.01(15)
O(1)#3-Co(1)-O(1)	81.94(11)	O(11)#5-Co(2)-O(10)	100.66(14)
O(11)-Co(1)-O(8)#2	159.33(12)	O(3)#4-Co(2)-O(12)	91.60(14)
O(4)#1-Co(1)-O(8)#2	93.72(13)	O(2)-Co(2)-O(12)	87.08(14)
O(7)#2-Co(1)-O(8)#2	60.89(12)	O(11)-Co(2)-O(12)	91.20(12)
O(1)#3-Co(1)-O(8)#2	104.06(12)	O(11)#5-Co(2)-O(12)	81.16(13)
O(1)-Co(1)-O(8)#2	81.24(12)	O(10)-Co(2)-O(12)	176.39(15)
2			
Co(1)-O(6)#1	2.0542(18)	Co(2)-O(4)	2.096(2)
Co(1)-O(10)	2.0903(19)	Co(2)-O(4)#3	2.096(2)
Co(1)-O(9)	2.1317(18)	Co(2)-N(4)#3	2.178(2)
Co(1)-N(2)	2.163(2)	Co(2)-N(4)	2.178(2)
Co(1)-N(3)#2	2.171(2)	Co(2)-N(5)#4	2.210(2)
Co(1)-O(8)	2.1942(18)	Co(2)-N(5)#5	2.210(2)
Co(1)-C(15)	2.491(3)		
O(6)#1-Co(1)-O(10)	96.23(8)	O(9)-Co(1)-N(3)#2	89.91(8)

O(6)#1-Co(1)-O(9)	101.81(7)	N(2)-Co(1)-N(3)#2	175.18(9)
O(10)-Co(1)-O(9)	161.96(7)	O(6)#1-Co(1)-O(8)	162.67(7)
O(6)#1-Co(1)-N(2)	89.27(8)	O(10)-Co(1)-O(8)	101.00(7)
O(10)-Co(1)-N(2)	94.25(8)	O(9)-Co(1)-O(8)	60.98(7)
O(9)-Co(1)-N(2)	86.08(8)	N(2)-Co(1)-O(8)	87.65(8)
O(6)#1-Co(1)-N(3)#2	88.94(8)	N(3)#2-Co(1)-O(8)	92.74(8)
O(10)-Co(1)-N(3)#2	90.39(8)		

Symmetry codes for compound **1**: #1 x, y+1, z; #2 -x+2, -y, -z; #3 -x+2, -y+1, -z+1; #4 -x+1, -y, -z+1; #5 -x+1, -y+1, -z+1; #6 x, y-1, z; Compound **2**: #1 x, y-1, z; #2 x+1, y, z; #3 -x+3/2, y, -z+3/2; #4 x, y+1, z; #5 -x+3/2, y+1, -z+3/2; #6 x-1, y, z.

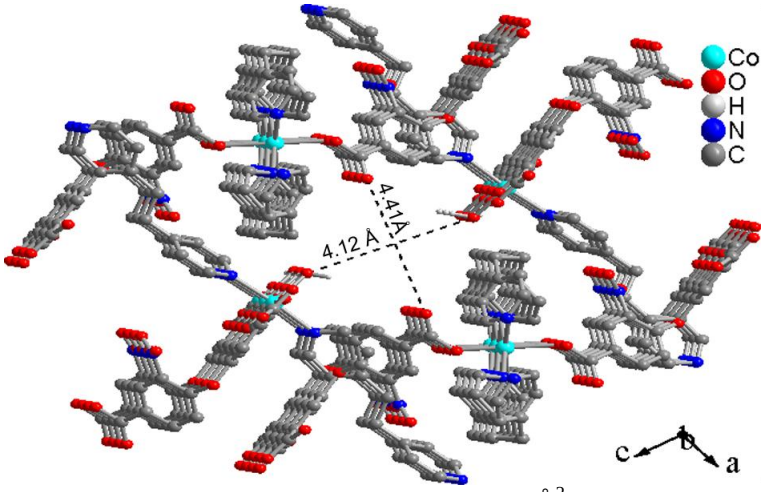

Fig. S1 View of a linear channel with the free aperture about 4.12×4.41 $Å^2$ (the short O···O distance not including the van der Waals radii).

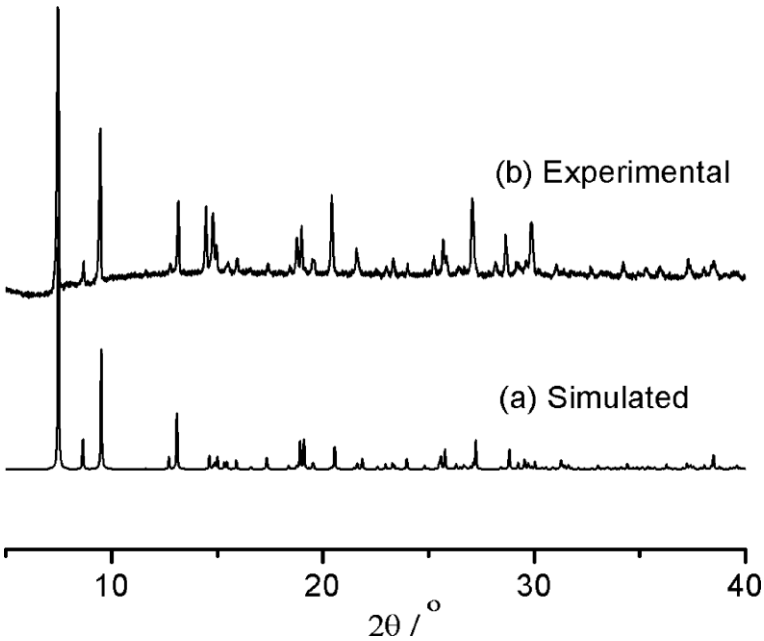

Fig. S2 The experimental and simulated PXRD patterns for MOF **1**.

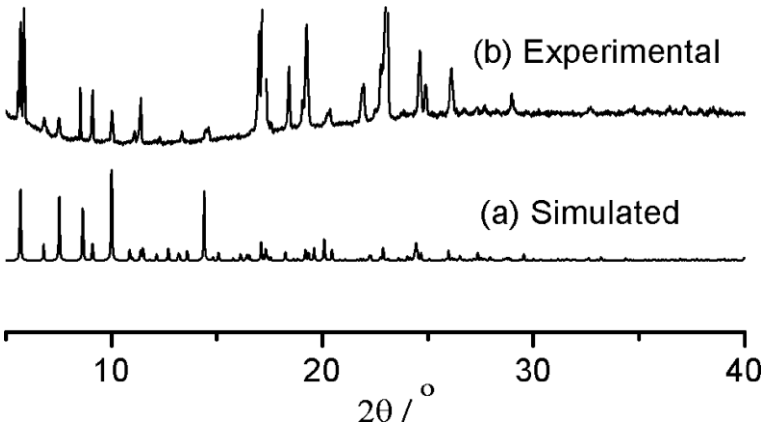

Fig. S3 The experimental and simulated PXRD patterns for MOF **2**.