Supplementary Material

Two novel topological structure of [Cu(CN)] coordination polymers modified by flexible triazole ligands

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1. Structural figures

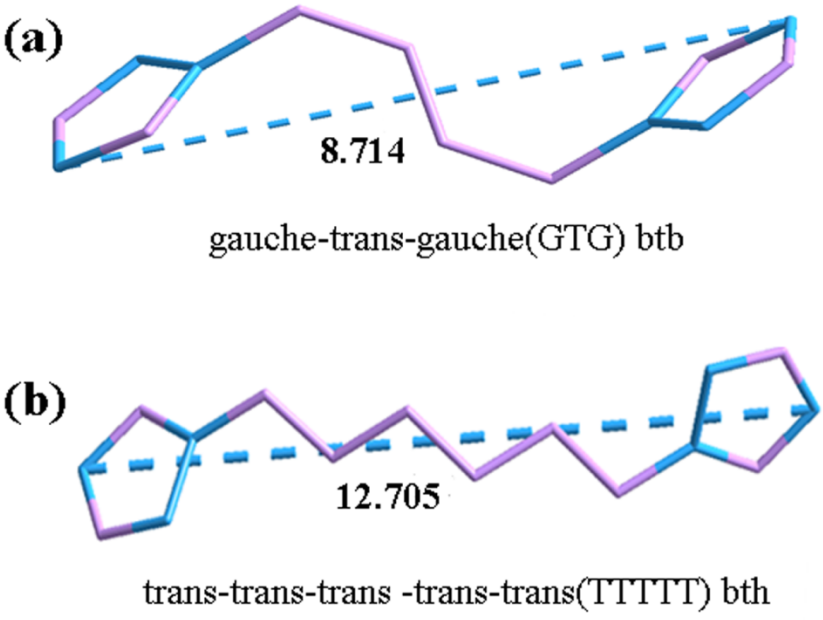

Fig. S1 The coordination modes of the auxiliary flexible ligands btb and bth

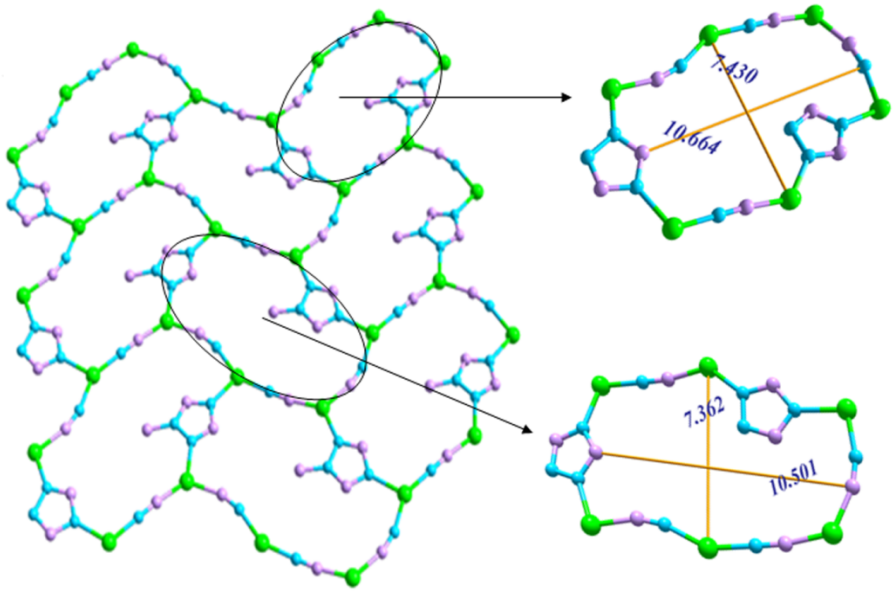

Fig. S2 The layer structure with rings A and B of the polymer **1**.

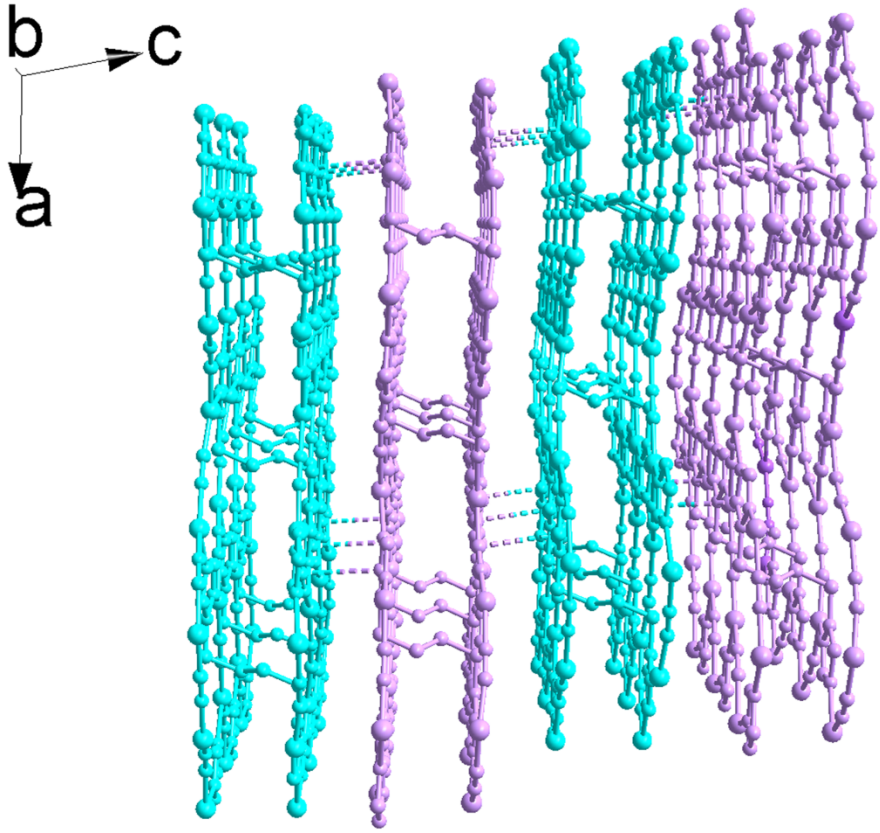

Fig. S3 3-D supramolecular structure of the polymer **1**.

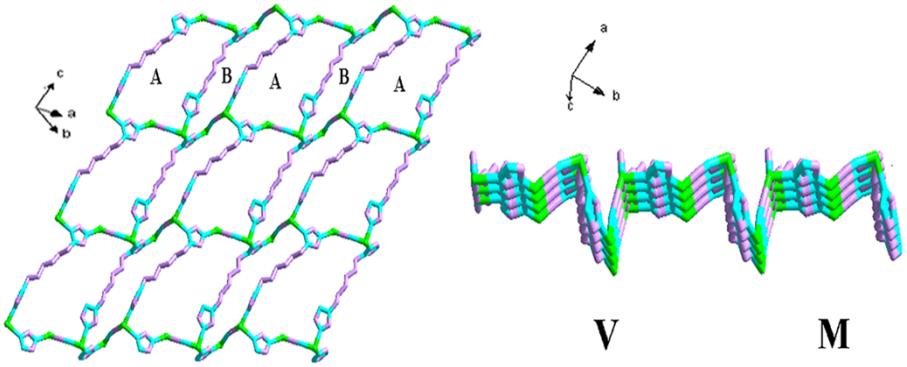

Fig. S4 Five-membered metal ring units in the polymer **2**.

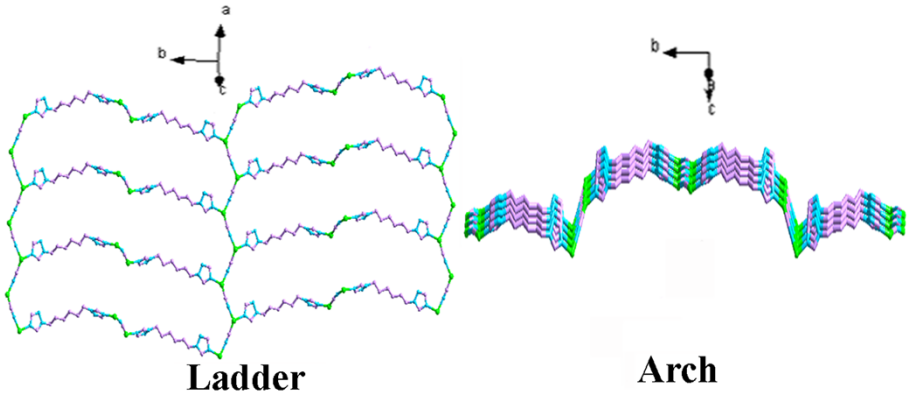

Fig. S5 Ten-membered metal ring units in the polymer **2**.

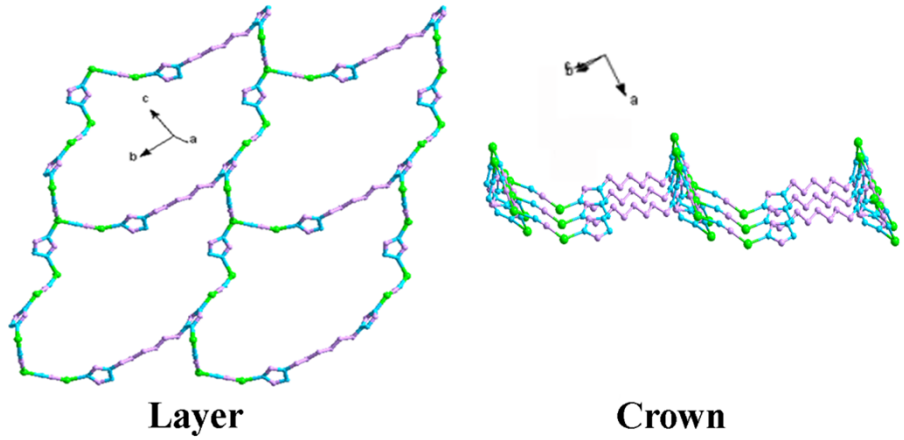

Fig. S6 Eleven-membered metal ring units in the polymer **2**.

2.Physical characterization

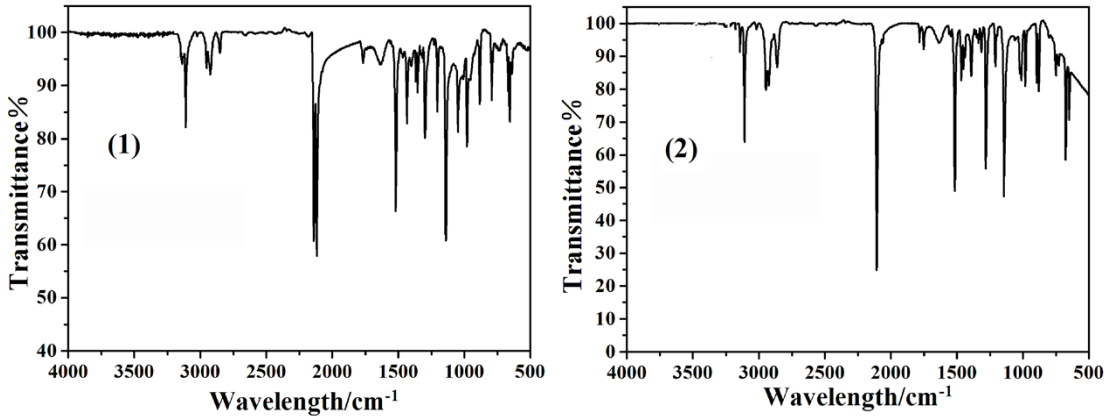

Fig. S7 The IR spectra of polymers **1** and **2**.

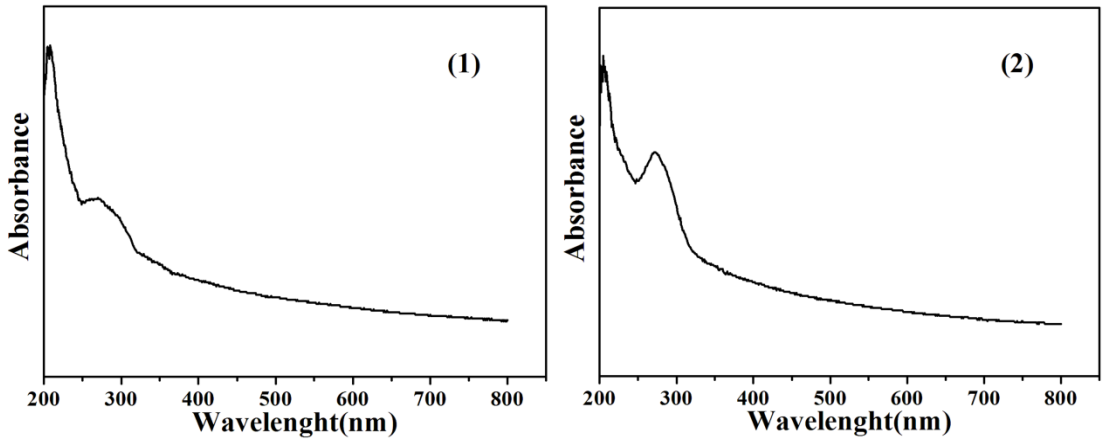

Fig. S8 Solid state UV-vis spectra of polymers **1** and **2**.

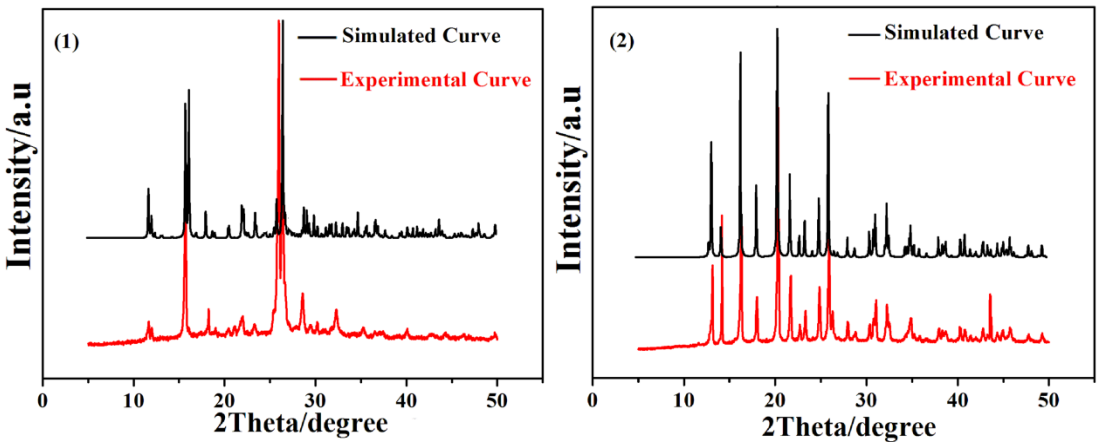

Fig. S9 The PXRD contrast curves of (1) polymer **1** and (2) polymer **2.**

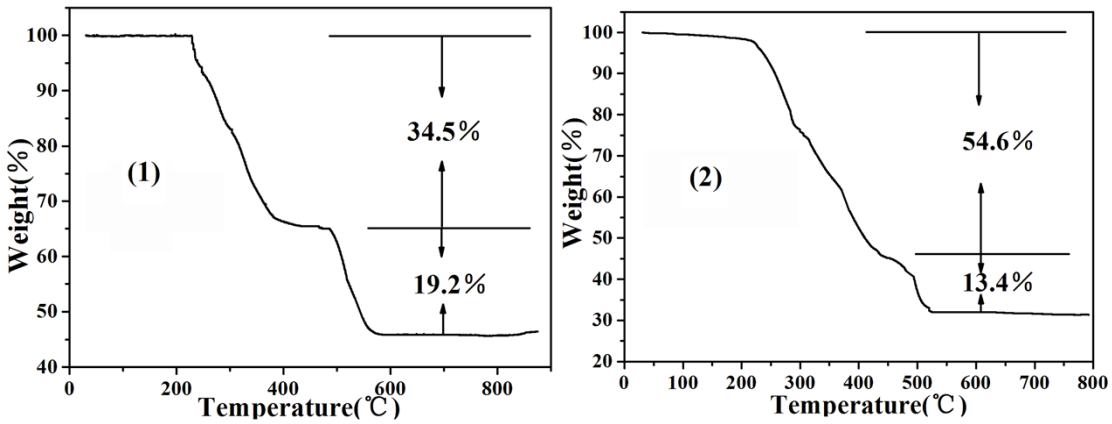

Fig. S10 TG curve of polymers **1** and **2**.

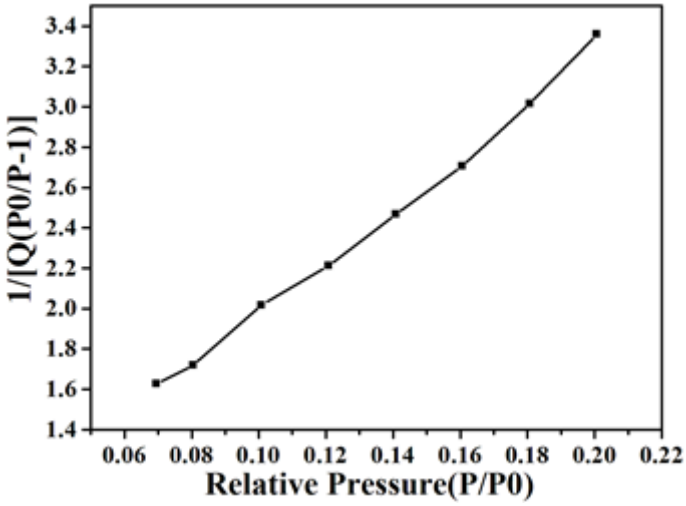

Fig. S11 The linear relationship diagram of the BET in polymer **2.**

3. Structural data

Table S1 Selected bond lengths (Å) and bond angles (°) of polymers **1** and **2**

Polymer 1

Cu(3)-N(10)	1.864(5)	Cu(2)-C(12)#1	1.848(6)
Cu(3)-N(8)	1.889(6)	Cu(2)-C(5)	1.921(5)
Cu(3)-N(9)	2.071(5)	Cu(2)-N(1)	2.020(4)
Cu(1)-C(6)	1.862(6)	Cu(4)-N(5)	1.876(5)
Cu(1)-C(10)	1.915(6)	Cu(4)-N(4)	1.904(6)
Cu(1)-N(7)	1.999(4)	Cu(4)-N(3)	2.092(4)
N(10)-Cu(3)-N(8)	148.4(2)	C(12)#1-Cu(2)-C(5)	128.5(2)
N(10)-Cu(3)-N(9)	112.2(2)	C(12)#1-Cu(2)-N(1)	129.8(2)

N(8)-Cu(3)-N(9)	99.18(19)	C(5)-Cu(2)-N(1)	101.6(2)
C(6)-Cu(1)-C(10)	126.8(2)	N(5)-Cu(4)-N(4)	150.6(2)
C(6)-Cu(1)-N(7)	129.0(2)	N(5)-Cu(4)-N(3)	110.2(2)
C(10)-Cu(1)-N(7)	104.2(2)	N(4)-Cu(4)-N(3)	98.55(19)

Symmetry transformations used to generate equivalent atoms: #1 x+1,y+1,z #2 x,y+1,z #3 x,y-1,z
#4 -x+2,y-1/2,-z+3/2 #5 -x+2,y+1/2,-z+3/2 #6 x-1,y-1,z

Polymer 2

Cu(1)-C(6)	1.877(4)	Cu(1)-N(2)#2	2.348(3)
Cu(1)-N(4)#1	1.988(3)	N(4)-Cu(1)#3	1.988(3)
Cu(1)-N(3)	2.075(3)	N(2)-Cu(1)#4	2.348(3)
C(6)-Cu(1)-N(4)#1	124.36(15)	N(4)-C(6)-Cu(1)	174.9(4)
C(6)-Cu(1)-N(3)	126.39(14)	C(6)-N(4)-Cu(1)#3	167.6(3)
N(4)#1-Cu(1)-N(3)	99.54(13)	C(4)-N(3)-Cu(1)	135.7(3)
C(6)-Cu(1)-N(2)#2	112.01(15)	C(5)-N(3)-Cu(1)	121.5(2)
N(4)#1-Cu(1)-N(2)#2	96.81(13)	C(5)-N(2)-Cu(1)#4	121.8(2)
N(3)-Cu(1)-N(2)#2	88.74(12)	N(1)-N(2)-Cu(1)#4	134.5(2)

Symmetry transformations used to generate equivalent atoms: #1 x-1/4,-y+1/4,z-1/4
#2 -x,-y+1/2,z+1/2 #3 x+1/4,-y+1/4,z+1/4 #4 -x,-y+1/2,z-1/2 #5 -x,-y+1,z

Table S2 Bond-valence sum calculations values in polymers **1** and **2**.

Polymer 1	
Cu1	1.362
Cu2	1.359
Cu3	1.143
Cu4	1.097
Polymer 2	
Cu1	1.249