Supplementary material for the manuscript,

Long-lived photoluminescence and high quantum yield of copper (II) complexes with novel nanostructures

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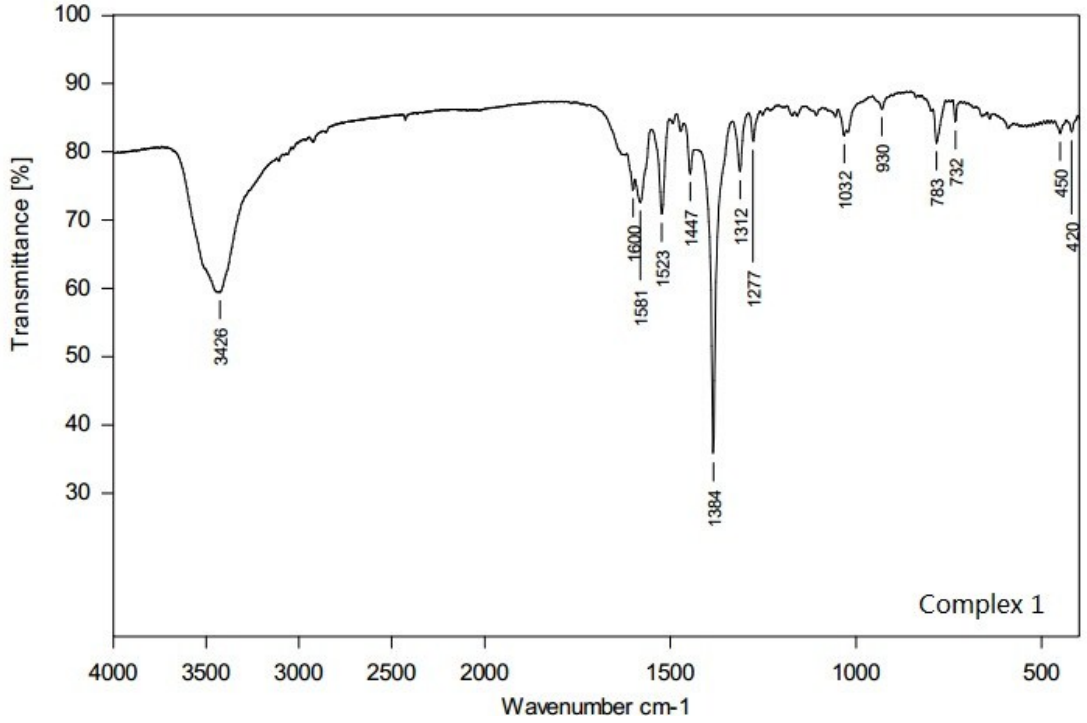

Fig. S1 the IR spectrum of Complex **1**

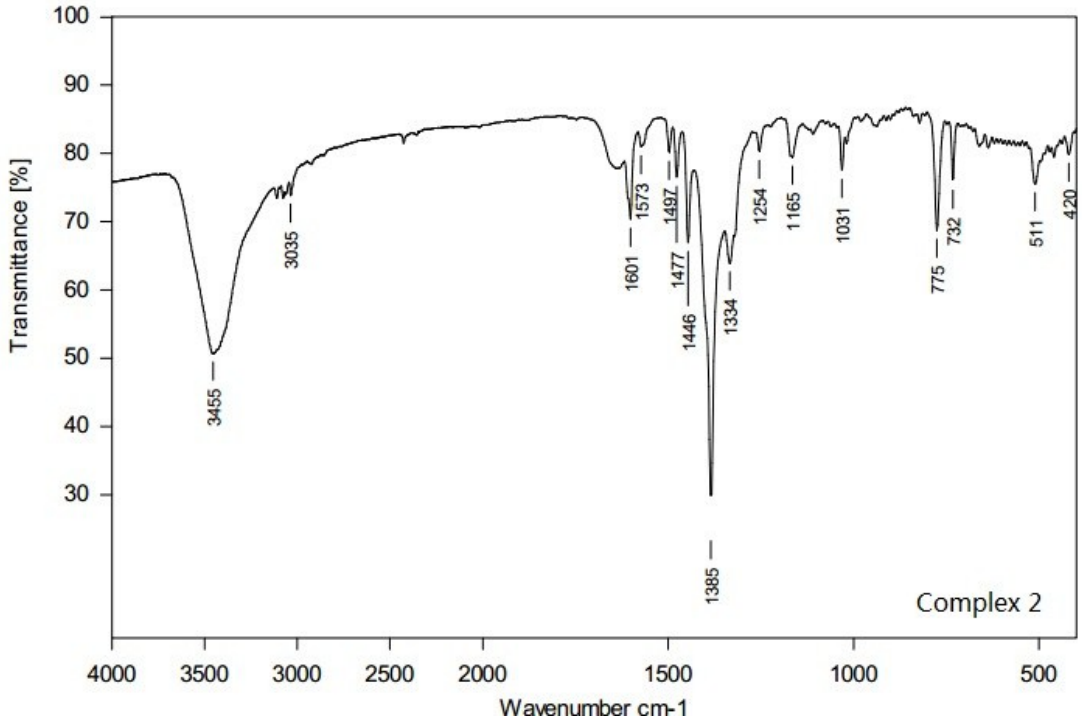

Fig. S2 the IR spectrum of Complex 2

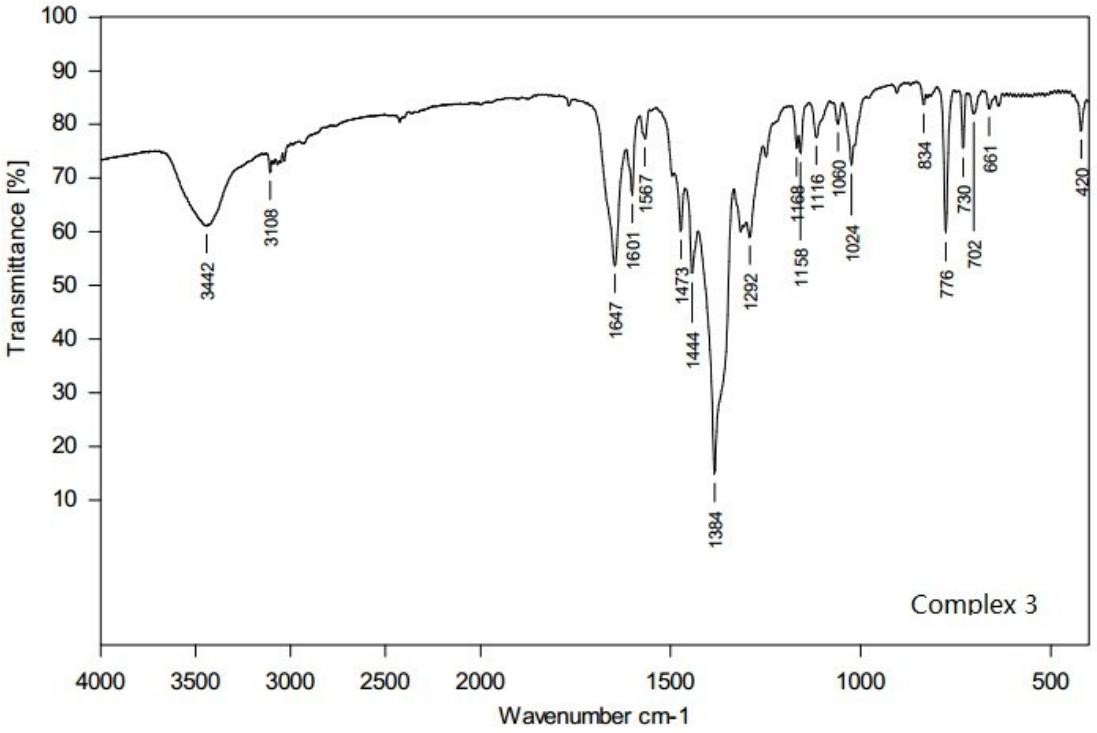

Fig. S**3** the IR spectrum of Complex 3

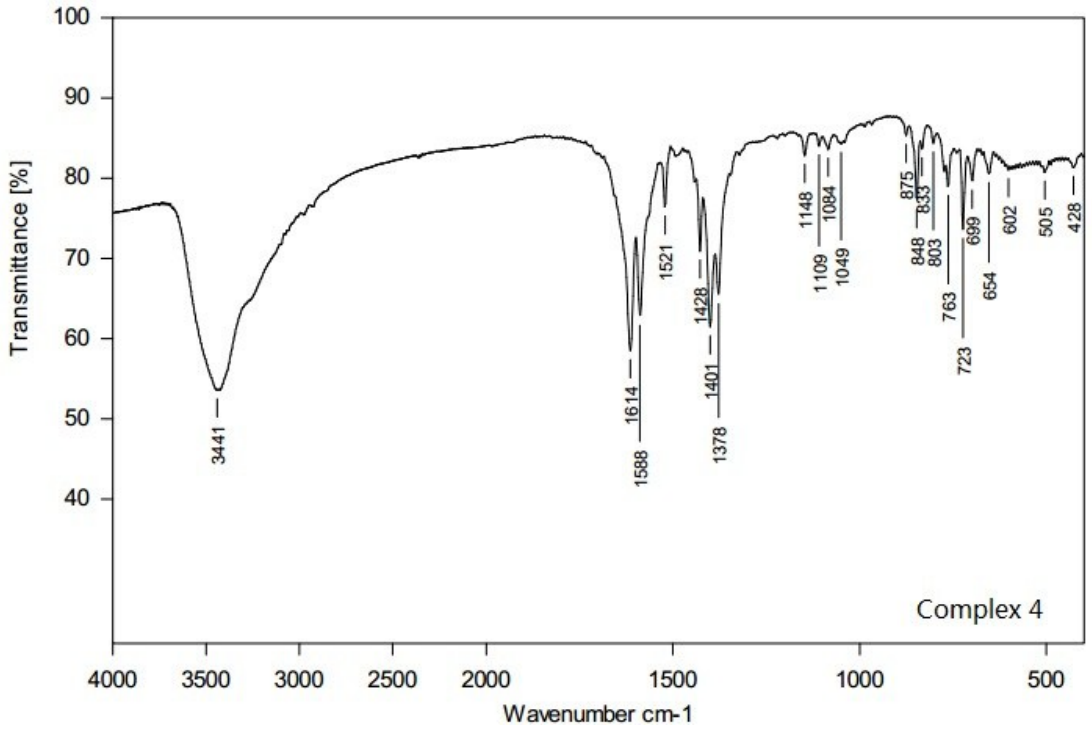

Fig. S4 the IR spectrum of Complex 4

Table S1 Selected bond distances (Å) and angles (◦) for complex 1- 4

bond distances (Å)		**angles (◦)**			
1					
Cu1-O5	1.9068(14)	O5-Cu1-O4	94.32(6)	O5-Cu1-N1	171.46(7)
Cu1-O4	1.9180(14)	O4-Cu1-N1	91.86(7)	O5-Cu1-N2	91.88(7)
Cu1-N1	1.9940(17)	O4-Cu1-N2	165.64(7)	N1-Cu1-N2	80.79(7)
Cu1-N2	2.0005(17)	O5-Cu1-O3	91.84(6)	O4-Cu1-O3	94.30(6)
Cu1-O3	2.3538(16)	N1-Cu1-O3	93.57(6)	N2-Cu1-O3	98.43(6)
2					
Cu1-O1#1	1.991(4)	O1#1-Cu1-O1	89.4(3)	O1-Cu1-N1	94.38(19)
Cu1-O1	1.991(4)	O1#1-Cu1-N1	171.86(18)	O1#1-Cu1-O4	88.38(16)
Cu1-N1	1.996(4)	O1#1-Cu1-N1#1	94.38(19)	O1-Cu1-O4	88.38(16)
Cu1-N1#1	1.996(4)	O1-Cu1-N1#1	171.86(18)	N1-Cu1-O4	98.92(17)
Cu1-O4	2.201(5)	N1-Cu1-N1#1	81.0(2)	N1#1-Cu1-O4	98.92(17)
3					
Cu1-O1	1.933(2)	O1-Cu1-N2	92.29(9)	O1-Cu1-N1	173.40(9)
Cu1-N2	2.016(2)	O1-Cu1-O2	95.22(11)	O1-Cu1- O10	91.07(12)
Cu1-N1	1.977(2)	N2-Cu1-O2	145.67(13)	N2-Cu1-O10	141.38(13)
Cu1-O2	2.150(3)	N1-Cu1-N2	81.23(10)	N1-Cu1-O2	90.85(11)
Cu1-O10	2.145(4)	N1-Cu1-O10	93.27(12)	O10-Cu1-O2	72.00(15)
4					
Cu1-O1	1.915(9)	O1-Cu1-N3	93.8(5)	O1-Cu1-N1	85.7(4)
Cu1-N3	1.982(11)	N3-Cu1-N1	176.3(5)	O1-Cu1-N2	175.2(4)
Cu1-N1	2.008(11)	N3-Cu1-N2	81.7(5)	N1-Cu1-N2	98.9(5)
Cu1-N2	2.014(11)	O1-Cu1-O3	93.8(4)	N3-Cu1-O3	89.1(4)
Cu1-O3	2.464(11)	N1-Cu1-O3	94.6(4)	N2-Cu1-O3	84.7(4)
Cu1-O4	2.708(12)	O1-Cu1-O4	92.0(4)	N3-Cu1-O4	81.9(4)
		N1-Cu1-O4	94.5(4)	N2-Cu1-O4	88.9(4)
		O3-Cu1-O4	169.7(3)		

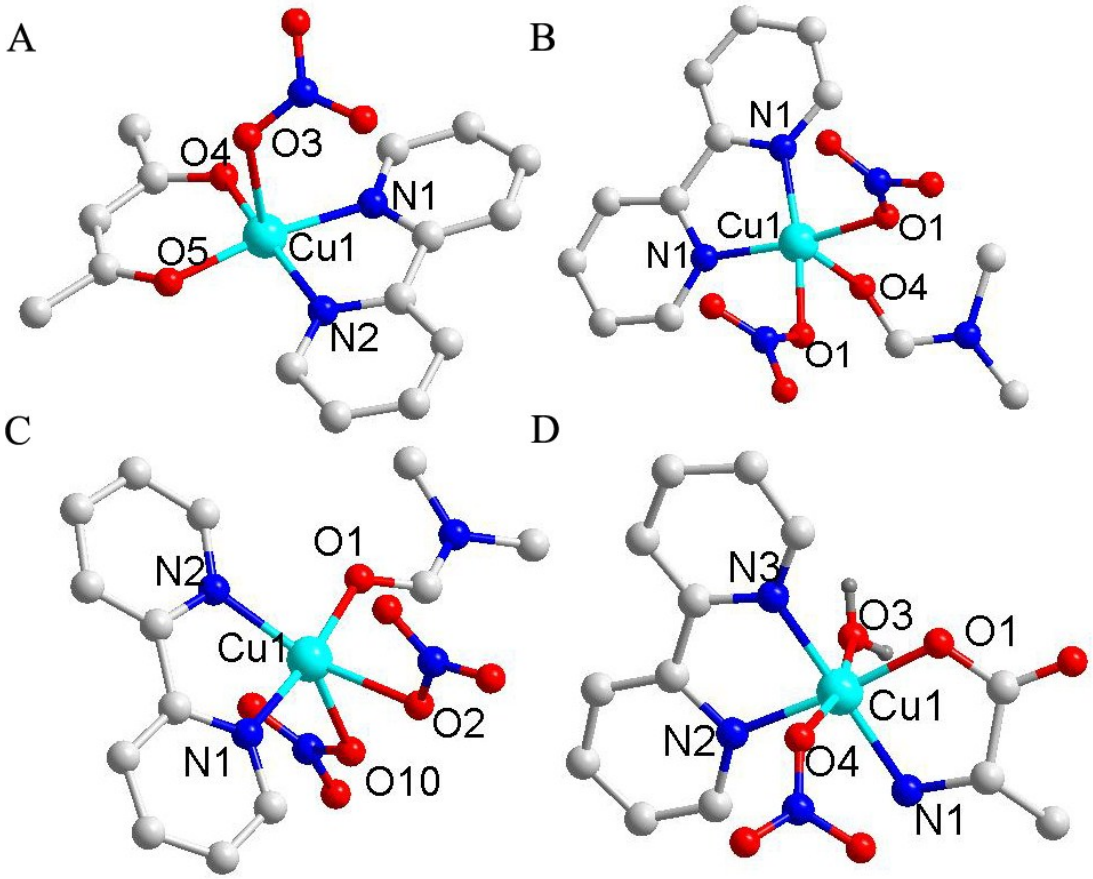

Fig. S5 The molecular structure of complexes 1-4 were studied by X-ray diffraction.

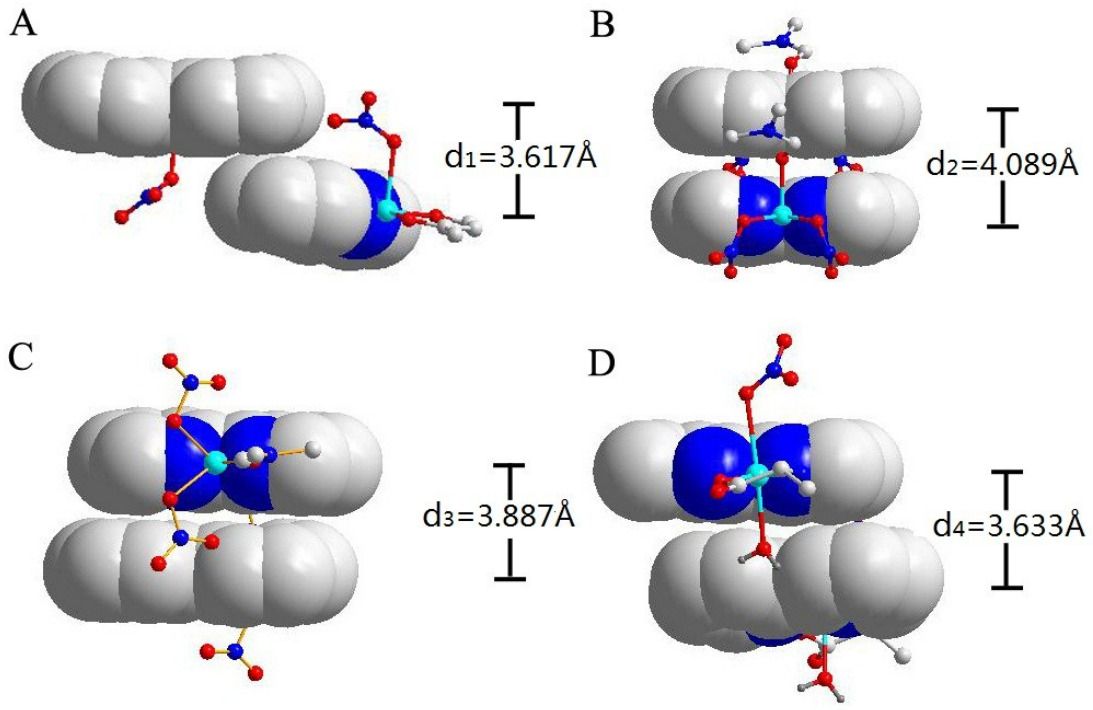

Fig. S6 The ligand-centered emission (π-π^*) system was shown in the space-filling model and their centroid– centroid distances.

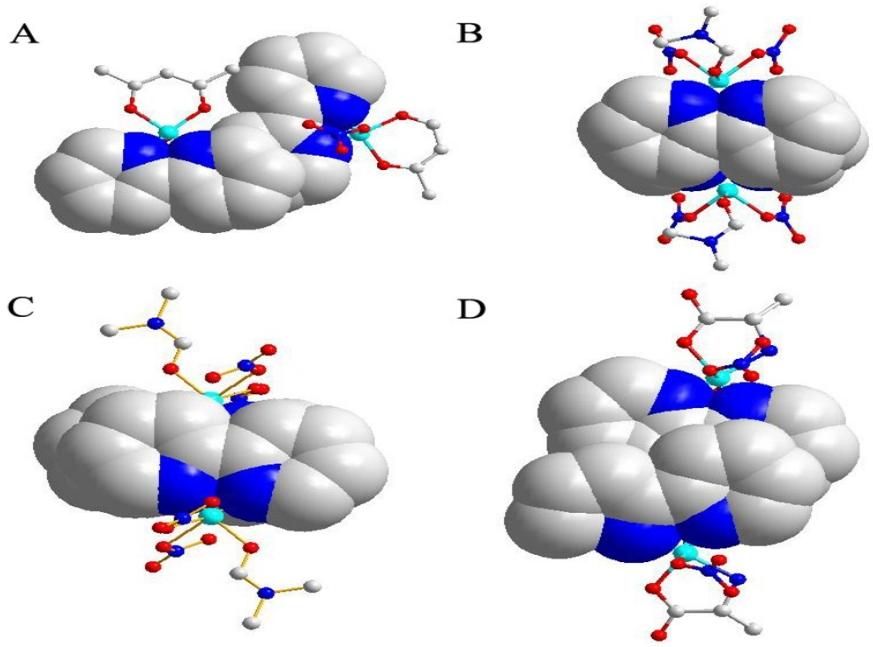

Fig. S7 The packing modes between two adjacent molecules were shown in the space-filling model.

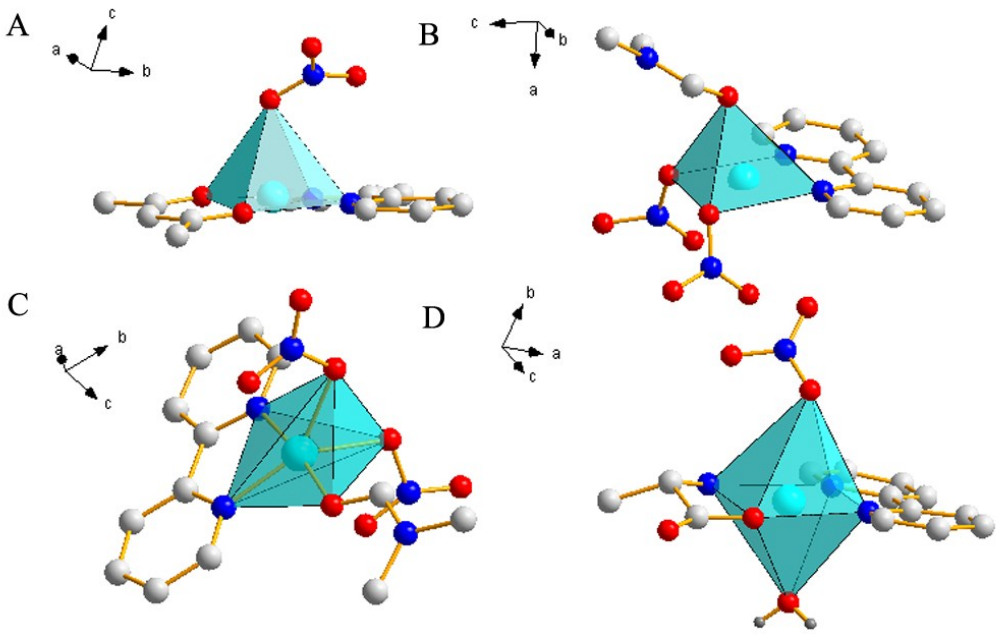

Fig. S8 Comparative views of the four complexes, showing the different geometrical configuration: (A) and (B) were showed as tetragonal pyramid structure, (C) was showed as an irregular hexahedron (the istorted trigonal bipyramid), and (D) is a octahedral structure.