Supplementary Information

Table Sl Select bond distance (Å) and angle (º) for the complexes **1-10**

Select bond distances (Å) and angles (º) for **1**

Cu(1)-N(1)	1.9997(17)	Cu(1)-N(1)#2	1.9997(17)
Cu(1)-Cl(1)	2.2954(5)	Cu(1)-Cl(1)#2	2.2954(5)
N(1)-Cu(1)-N(1)#2	180.00(9)	N(1)-Cu(1)-Cl(1)#2	89.80(5)
N(1)#2-Cu(1)-Cl(1)#2	90.20(5)	N(1)-Cu(1)-Cl(1)	90.20(5)
N(1)#2-Cu(1)-Cl(1)	89.80(5)	Cl(1)#2-Cu(1)-Cl(1)	180.0

Symmetry transformations used to generate equivalent atoms: #2 2-x, 1-y, -z

Select bond distances (Å) and angles (º) for **2**

Cu(1)-N(1)	2.009(2)	Cu(1)-N(1)#1	2.009(2)
Cu(1)-N(6)#2	2.045(2)	Cu(1)-N(6)#3	2.045(2)
N(1)-Cu(1)-N(1)#1	180.0	N(1)-Cu(1)-N(6)#2	90.92(8)
N(1)#1-Cu(1)-N(6)#2	89.08(8)	N(1)-Cu(1)-N(6)#3	89.08(8)
N(1)#1-Cu(1)-N(6)#3	90.92(8)	N(6)#2-Cu(1)-N(6)#3	180.0

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

Select bond distances (Å) and angles (º) for **3**

Cu(1)-N(1)	2.014(2)	Cu(1)-N(1)#1	2.0141(19)
Cu(1)-N(1)#2	2.014(2)	Cu(1)-N(1)#3	2.0141(19)
Cu(1)- O(5)	2.423(3)	Cu(1)- O(5)#3	2.423(3)
N(1)-Cu(1)-N(1)#1	175.55(11)	N(1)-Cu(1)-N(1)#2	90.00(12)
N(1)#1-Cu(1)-N(1)#2	90.18(12)	N(1)-Cu(1)-N(1)#3	90.18(12)
N(1)#1-Cu(1)-N(1)#3	90.00(12)	N(1)#2-Cu(1)-N(1)#3	175.55(11)

N(1)-Cu(1)-O(5)	92.22(5)	N(1)#1-Cu(1)-O(5)	92.22(5)
N(1)#2-Cu(1)-O(5)	87.78(5)	N(1)#3-Cu(1)-O(5)	87.78(5)
N(1)-Cu(1)-O(5)#3	87.78(5)	N(1)#1-Cu(1)-O(5)#3	87.78(5)
N(1)#2-Cu(1)-O(5)#3	92.22(5)	N(1)#3-Cu(1)-O(5)#3	92.22(5)
O(5)-Cu(1)-O(5)#3	180.0		

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

Select bond distances (Å) and angles (º) for **4**

Cu(1)-O(3)	1.961(3)	Cu(1)-O(1)	1.964(3)
Cu(1)-O(4)	1.974(2)	Cu(1)-O(2)#1	1.977(3)
Cu(1)-N(1)	2.156(3)		

O(3)-Cu(1)-O(1)	89.78(12)	O(3)-Cu(1)-O(4)	168.18(10)
O(1)-Cu(1)-O(4)	88.11(11)	O(3)-Cu(1)-O(2)#1	89.89(12)
O(1)-Cu(1)-O(2)#1	167.92(11)	O(4)-Cu(1)-O(2)#1	89.75(12)
O(3)-Cu(1)-N(1)	100.52(11)	O(1)-Cu(1)-N(1)	98.90(12)
O(4)-Cu(1)-N(1)	91.30(11)	O(2)#1-Cu(1)-N(1)	93.03(12)

Symmetry transformations used to generate equivalent atoms: #1 -x, 1-y, 1-z

Select bond distances (Å) and angles (º) for **5**

Ni(1)-N(1)	2.065(3)	Ni (1)-O(1)	2.056(4)
Ni (1)-N(1)#2	2.065(3)	Ni (1)-O(3)	2.086(4)
Ni (1)- O(2)	2.102(3)	Ni (1)- O2(6)#2	2.102(3)

O(1)-Ni(1)-N(1)#2	91.48(12)	O(1) -Ni(1)-N(1)	91.48(12)
N(1)#2-Ni(1)-N(1)	95.11(19)	O(1)-Ni(1)-O(3)	172.74(16)
N(1)#2-Ni(1)-O(3)	93.41(12)	N(1)-Ni(1)-O(3)	93.41(12)
O(1)-Ni(1)-O(2)	85.56(12)	N(1)#2-Ni(1)-O(2)	176.64(12)
N(1)-Ni(1)-O(2)	86.58(13)	O(3)-Ni(1)-O(2)	89.38(11)
O(1)-Ni(1)-O(2)#2	85.56(12)	N(1)#2-Ni(1)-O(2)#2	86.58(13)

N(1)-Ni(1)-O(2)#2	176.64(12)	O(3)-Ni(1)-O(2)#2	89.38(11)
O(2)-Ni(1)-O(2)#2	91.59(17)		

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

Select bond distances (Å) and angles (º) for **6**

Ni(1)-N(1)	2.1249(17)	Ni (1)-N(1) #2	2.1249(17)
Ni (1)-N(1)#3	2.1249(17)	Ni (1)-N(6)#4	2.1103(17)
Ni (1)- N(6)#5	2.1104(17)	Ni (1)- N(6)#6	2.1104(17)
Ni (2)-N(7)	2.1033(18)	Ni (2)-N(7)#7	2.1033(18)
Ni (2)-N(7)#8	2.1034(18)	Ni (2)-N(7)#9	2.1034(18)
Ni (2)- N(7)#10	2.1034(18)	Ni (2)- N(7)#11	2.1034(18)

N(6)#4-Ni(1)-N(6)#5	90.77(7)	N(6)#4-Ni(1)-N(6)#6	90.77(7)
N(6)#5-Ni(1)-N(6)#6	90.77(7)	N(6)#4-Ni(1)-N(1)#2	88.65(7)
N(6)#5-Ni(1)-N(1)#2	177.77(6)	N(6)#6-Ni(1)-N(1)#2	91.39(6)
N(6)#4-Ni(1)-N(1)#3	91.39(6)	N(6)#5-Ni(1)-N(1)#3	88.66(7)
N(6)#6-Ni(1)-N(1)#3	177.77(6)	N(6)#4-Ni(1)-N(1)	177.76(6)
N(6)#5-Ni(1)-N(1)	91.39(6)	N(6)#6-Ni(1)-N(1)	88.65(7)
N(1)#2-Ni(1)-N(1)#3	89.20(7)	N(1)#2-Ni(1)-N(1)	89.21(7)
N(1)#3-Ni(1)-N(1)	89.21(7)	N(7)#8-Ni(2)-N(7)#9	180.0
N(7)#8-Ni(2)-N(7)#7	91.45(7)	N(7)#9-Ni(2)-N(7)#7	88.55(7)
N(7)#8-Ni(2)-N(7)	88.55(7)	N(7)#9-Ni(2)-N(7)	91.45(7)
N(7)#7-Ni(2)-N(7)	180.0	N(7)#8-Ni(2)-N(7)#11	91.45(7)
N(7)#9-Ni(2)-N(7)#11	88.55(7)	N(7)#7-Ni(2)-N(7)#11	88.55(7)
N(7)-Ni(2)-N(7)#11	91.45(7)	N(7)#8-Ni(2)-N(7)#10	88.55(7)
N(7)#9-Ni(2)-N(7)#10	91.45(7)	N(7)#7-Ni(2)-N(7)#10	91.45(7)
N(7)-Ni(2)-N(7)#10	88.55(7)	N(7)#11-Ni(2)-N(7)#10	180.00(8)

Symmetry transformations used to generate equivalent atoms : #2 -y+1, x-y+1, z; #3 -x+y, -x+1, z; #4 x+1/3, y+2/3, z-1/3; #5-y+1/3, x-y+2/3, z-1/3; #6 -x+y+1/3, -x+2/3, z-1/3; #7 -x, -y, -z; #8 -y, x-y, z; #9 y, -x+y, -z; #10 -x+y, -x, z; #11 x-y, x, -z.

Select bond distances (Å) and angles (º) for **7**

Ni(1)-N(1)#4	2.1043(13)	Ni(1)-N(1)#5	2.1043(13)
Ni(1)-N(1)#6	2.1043(13)	Ni(1)-N(1)#7	2.1043(13)
Ni(1)-N(1)#8	2.1043(13)	Ni(1)-N(1)	2.1043(13)

N(1)#4-Ni(1)-N(1)	180.00(9)	N(1)#4-Ni(1)-N(1)#5	89.87(5)
N(1)-Ni(1)-N(1)#5	90.13(5)	N(1)#4-Ni(1)-N(1)#6	90.13(5)
N(1)-Ni(1)-N(1)#6	89.87(5)	N(1)#5-Ni(1)-N(1)#6	90.13(5)
N(1)#4-Ni(1)-N(1)#7	90.13(5)	N(1)-Ni(1)-N(1)#7	89.87(5)
N(1)#5-Ni(1)-N(1)#7	180.00(8)	N(1)#6-Ni(1)-N(1)#7	89.87(5)
N(1)#4-Ni(1)-N(1)#8	89.87(5)	N(1)-Ni(1)-N(1)#8	90.13(5)
N(1)#5-Ni(1)-N(1)#8	89.87(5)	N(1)#6-Ni(1)-N(1)#8	180.00(13)
N(1)#7-Ni(1)-N(1)#8	90.13(5)		

Symmetry transformations used to generate equivalent atoms : #4 –x, -y -z; #5 x-y, x, -z; #6 -y, x-y, z; #7 –x+y, -x, z; #8 y, -x+y, -z.

Select bond distances (Å) and angles (º) for **8**

Co(1)-O(5)	2.070(2)	Co(1)-O(1)	2.107(2)
Co(1)-N(1)#2	2.107(2)	Co(1)-N(1)	2.107(2)
Co(1)-O(4)#2	2.1375(18)	Co(1)-O(4)	2.1375(18)

O(5)-Co(1)-O(1)	172.20(10)	O(5)-Co(1)-N(1)#2	91.59(7)
O(1)-Co(1)-N(1)#2	93.68(7)	O(5)-Co(1)-N(1)	91.59(7)
O(1)-Co(1)-N(1)	93.68(7)	N(1)#2-Co(1)-N(1)	94.87(11)
O(5)-Co(1)-O(4)#2	85.13(7)	O(1)-Co(1)-O(4)#2	89.42(7)
N(1)#2-Co(1)-O(4)#2	86.83(7)	N(1)-Co(1)-O(4)#2	176.35(7)
O(5)-Co(1)-O(4)	85.13(7)	O(1)-Co(1)-O(4)	89.42(7)
N(1)#2-Co(1)-O(4)	176.35(7)	N(1)-Co(1)-O(4)	86.83(7)
O(4)#2-Co(1)-O(4)	91.29(10)		

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

Select bond distances (Å) and angles (º) for **9**

Co(1)-N(7)	2.093(2)	Co(1)-N(7)#1	2.093(2)
Co(1)-N(1)	2.158(3)	Co(1)-N(1)#1	2.158(3)
Co(1)-N(6)#1	2.1375(18)	Co(1)-N(6)	2.1375(18)
N(7)-Co(1)-N(7)#1	180.000(1)	N(7) #1-Co(1)-N(6) #1	89.86(13)
N(7) -Co(1)-N(6)#1	90.14(13)	N(7)#1-Co(1)-N(6)	90.14(13)
N(7) -Co(1)-N(6)	89.86(13)	N(6)#1-Co(1)-N(6)	180.000(1)
N(7)#1-Co(1)-N(1)	91.12(12)	N(7)-Co(1)-N(1)	88.88(12)
N(6)#1-Co(1)-N(1)	86.83(11)	N(6)-Co(1)-N(1)	93.17(11)
N(7)#1-Co(1)-N(1)#1	88.88(12)	N(7)-Co(1)-N(1) #1	91.12(12)
N(6)#1-Co(1)-N(1)#1	93.17(11)	N(6)-Co(1)-N(1)#1	86.83(11)
N(1)-Co(1)-N(1)#1	180.00(16)		

Symmetry transformations used to generate equivalent atoms: #1 2-x, -y, 2-z

Select bond distances (Å) and angles (º) for **10**

Co(1)-O(1)#4	2.0801(16)	Co(1)-O(1)	2.0801(16)
Co(1)-N(1)#4	2.161(2)	Co(1)-N(1)	2.161(2)
Co(1)-N(7)	2.167(2)	Co(1)-N(7)#4	2.167(2)
Co(2)-O(6)	2.088(2)	Co(2)-O(6)#5	2.088(2)
Co(2)-O(3)#5	2.1273(18)	Co(2)-O(3)	2.1273(18)
Co(2)-N(5)#5	2.136(3)	Co(2)-N(5)	2.136(3)
O(1)#4-Co(1)-O(1)	180.000(1)	O(1)#4-Co(1)-N(1)#4	94.23(7)
O(1)-Co(1)-N(1)#4	85.77(7)	O(1)#4-Co(1)-N(1)	85.77(7)
O(1)-Co(1)-N(1)	94.23(7)	N(1)#4-Co(1)-N(1)	180.000(1)
O(1)#4-Co(1)-N(7)	93.43(7)	O(1)-Co(1)-N(7)	86.57(7)
N(1)#4-Co(1)-N(7)	93.46(8)	N(1)-Co(1)-N(7)	86.54(8)
O(1)#4-Co(1)-N(7)#4	86.57(7)	O(1)-Co(1)-N(7)#4	93.43(7)
N(1)#4-Co(1)-N(7)#4	86.54(8)	N(1)-Co(1)-N(7)#4	93.46(8)

N(7)-Co(1)-N(7)#4	180.0	O(6)-Co(2)-O(6)#5	180.000(1)
O(6)-Co(2)-O(3)#5	88.87(8)	O(6)#5-Co(2)-O(3)#5	91.13(8)
O(6)-Co(2)-O(3)	91.13(8)	O(6)#5-Co(2)-O(3)	88.87(8)
O(3)#5-Co(2)-O(3)	180.0	O(6)-Co(2)-N(5)#5	88.45(10)
O(6)#5-Co(2)-N(5)#5	91.55(10)	O(3)#5-Co(2)-N(5)#5	87.18(9)
O(3)-Co(2)-N(5)#5	92.82(9)	O(6)-Co(2)-N(5)	91.55(10)
O(6)#5-Co(2)-N(5)	88.45(10)	O(3)#5-Co(2)-N(5)	92.82(9)
O(3)-Co(2)-N(5)	87.18(9)	N(5)#5-Co(2)-N(5)	180.000(1)

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

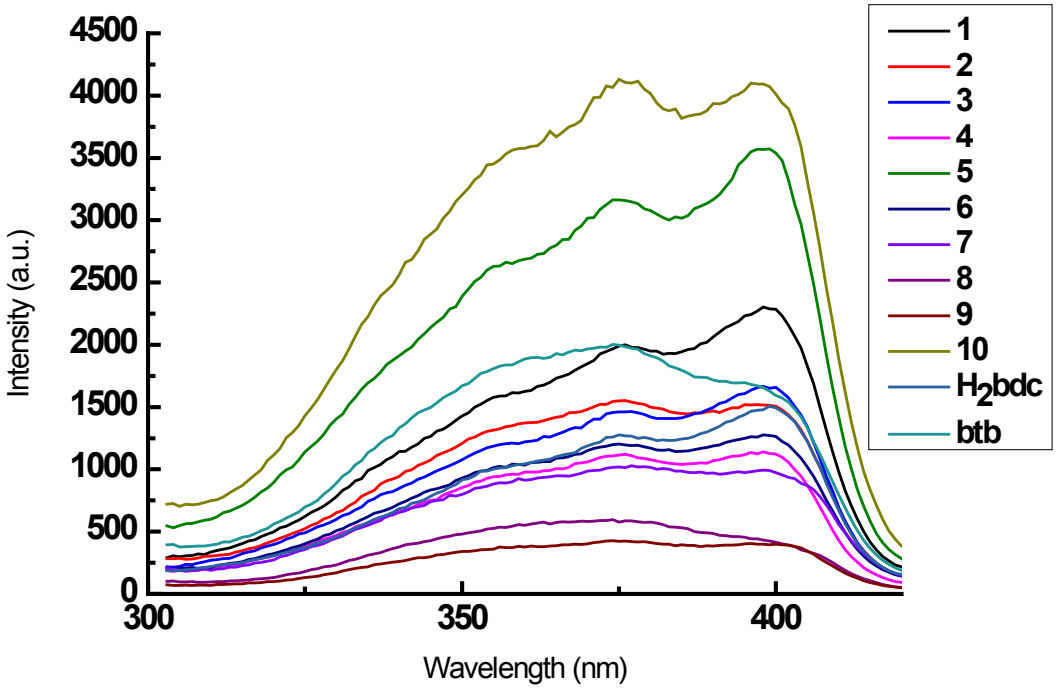

Fig. S1 The excitation spectra of the complexes and free ligands in solid state at room temperature. The excitation spectra were measured at the emission (λmax, 433 nm for btb, 431 nm for H_2bdc, 430 nm for **1**, 430 nm for **2**, 431 nm for **3**, 430 nm for **4**, 429 nm for **5**, 431 nm for **6**, 432 nm for **7**, 430 nm for **8**, 430 nm for **9** and 431nm for **10**).