Supporting Information

Effects of Metal Ions and *N*-Donor Ligands with Different Coordination Characters on the Construction of d^{10} Metal-organic Complexes with Selective Photocatalytic Activities

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Table S1. Selected bond lengths (Å) and angles (deg) for compound **1**.

1			
Zn1–O1	1.9938(17)	Zn1–O3(A)	1.9988(18)
Zn1–O1W	2.1619(19)	Zn1–N1	2.1293(19)
Zn1–N2	2.166(2)		
O1–Zn1–O3(A)	132.63(7)	O1–Zn1–O1W	88.70(7)
O3(A)–Zn1–O1W	93.39(7)	O1–Zn1–N1	111.91(7)
O3(A)–Zn1–N1	115.45(7)	O1W–Zn1–N1	88.43(7)
O1–Zn1–N2	97.00(7)	O3(A)–Zn1–N2	92.15(7)
O1W–Zn1–N2	165.96(7)	N1–Zn1–N2	77.54(7)

Symmetry code: A: –*x*+1, *y*+1/2, –*z*+1/2.

Table S2. Selected bond lengths (Å) and angles (deg) for compound **2**.

2			
Cd1–O1	2.2415(16)	Cd1–O3(A)	2.3110(17)
Cd1–O4(B)	2.3641(16)	Cd1–N2	2.3644(18)
Cd1–N1	2.3671(18)	Cd1–O4(A)	2.584(2)
Cd1–O2	2.644(2)		
O1–Cd1–O3(A)	129.88(7)	O1–Cd1–O4(B)	83.33(6)
O3(A)–Cd1–O4(B)	115.64(6)	O1–Cd1–N2	145.91(7)
O3(A)–Cd1–N2	84.20(6)	O4(B)–Cd1–N2	79.83(6)
O1–Cd1–N1	101.35(7)	O3(A)–Cd1–N1	97.19(6)
O4(B)–Cd1–N1	132.85(7)	N2–Cd1–N1	70.43(6)
O1–Cd1–O4(A)	96.58(6)	O3(A)–Cd1–O4(A)	52.57(5)
O4(B)–Cd1–O4(A)	73.58(7)	N2–Cd1–O4(A)	106.64(6)
N1–Cd1–O4(A)	149.35(6)	O1–Cd1–O2	52.43(6)
O3(A)–Cd1–O2	85.51(6)	O4(B)–Cd1–O2	131.06(6)
N2–Cd1–O2	148.64(6)	N1–Cd1–O2	81.62(6)
O4(A)–Cd1–O2	90.08(6)		

Symmetry code: A: *x*–1, *y*, *z*; B: –*x*+3, –*y*+1, –*z*+1.

Table S3. Selected bond lengths (Å) and angles (deg) for compound **3**.

3			
Zn1–O1	1.958(3)	Zn1···O2	2.826(3)
Zn1–N1	2.080(2)	Zn1–N5(A)	2.083(2)
Zn1–O3(B)	2.290(3)	Zn1–O4(B)	2.108(2)
O1–Zn1–N5(A)	94.52(10)	O1–Zn1–N1	106.53(11)
N5(A)–Zn1–N1	103.70(9)	O1–Zn1–O4(B)	101.51(11)
N5(A)–Zn1–O4(B)	98.72(9)	N1–Zn1–O4(B)	142.21(10)
N5(A)–Zn1–O3(B)	91.24(9)	N1–Zn1–O3(B)	90.19(9)
O4(B)–Zn1–O3(B)	59.04(9)	O1–Zn1–O3(B)	160.40(10)

Symmetry code: A: *x*+1/2, –*y*+1/2, *z*–1/2; B: *x*+1, *y*, *z*.

Table S4. Selected bond lengths (Å) and angles (deg) for compound **4**.

4			
Cd1–O3(A)	2.300(4)	Cd1–O4(A)	2.400(3)
Cd1–N1	2.295(3)	Cd1–N5(B)	2.323(3)
Cd1–O1	2.297(2)	Cd1–O2	2.428(2)
N1–Cd1–O1	140.39(10)	N1–Cd1–O3(A)	121.95(18)
O1–Cd1–O3(A)	95.49(17)	N1–Cd1–N5(B)	97.05(10)
O1–Cd1–N5(B)	99.47(9)	O3(A)–Cd1–N5(B)	84.01(11)
N1–Cd1–O4(A)	90.56(11)	O1–Cd1–O4(A)	102.66(11)
O3(A)–Cd1–O4(A)	54.79(12)	N5(B)–Cd1–O4(A)	134.46(11)
N1–Cd1–O2	90.14(9)	O1–Cd1–O2	55.42(9)
O3(A)–Cd1–O2	147.42(17)	N5(B)–Cd1–O2	86.70(9)
O4(A)–Cd1–O2	138.31(11)		

Symmetry code: A: 1+*x*, *y*, *z*; B: –1/2+*x*, 1/2–*y*, 1/2+*z*.

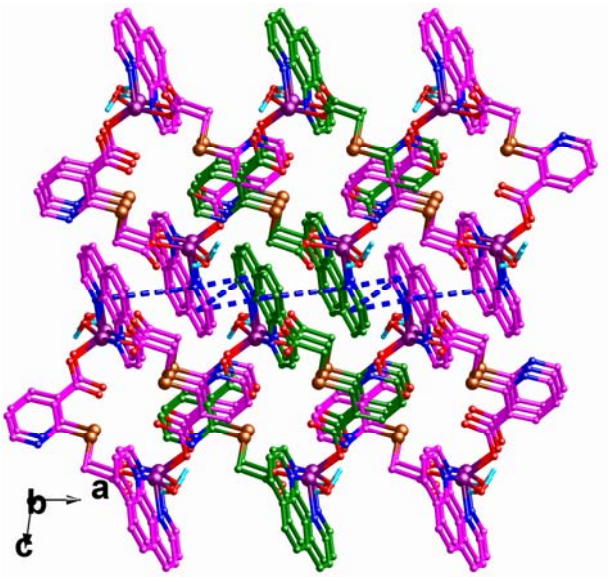


Fig. S1. 3-D supramolecular framework of **1**.

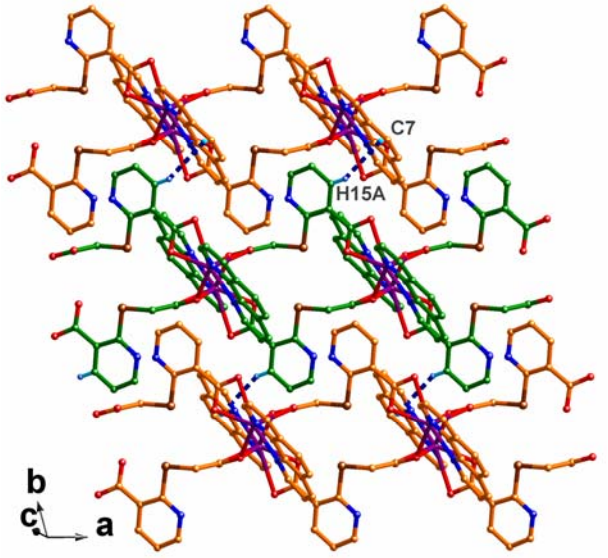
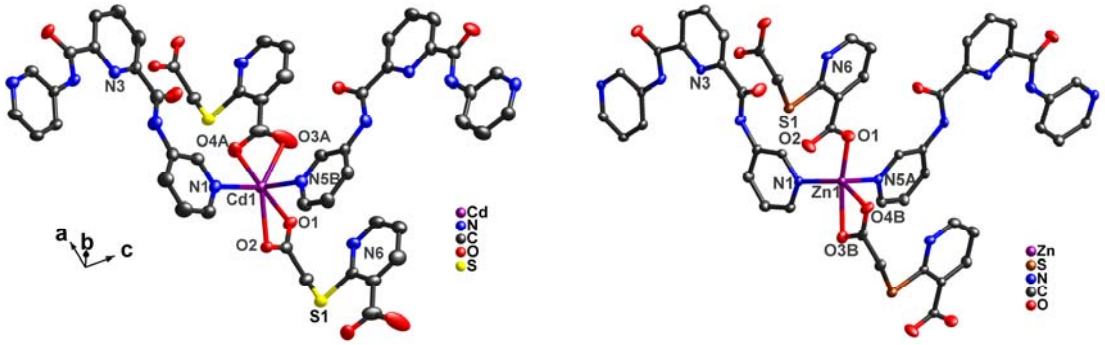
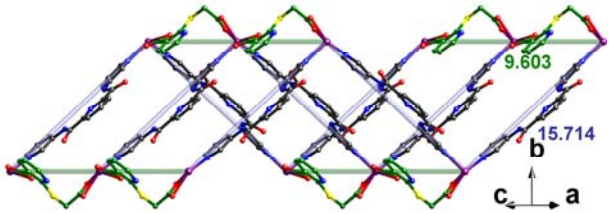


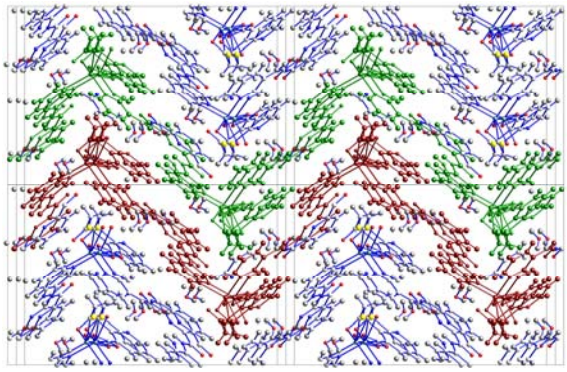
Fig. S2. Supramolecular layer connected by C–H···π interactions of **2**.



(a)



(b)



(c)

Fig. S3. (a) The coordination environment of the Cd^{II} ion in compound **4** (A: 1+*x*, *y*, *z*; B: –1/2+*x*, 1/2–*y*, 1/2+*z*) (left) and the Zn^{II} ion in compound **3** (right); (b) view of the wave-like network in **4**; (c) 3-D supramolecular framework derived from layers bridged by hydrogen bonding interactions in **4** (N2–H2A···O1W = 3.068(4) Å, 148°; O2W–H2WA···O2(C) = 2.850(5) Å, 171°; O2W–H2WB···O5(C) = 2.969(5) Å, 167°; C: –1+*x*, *y*, *z*; N4–H4B···O1W = 3.033(4) Å, 155°).

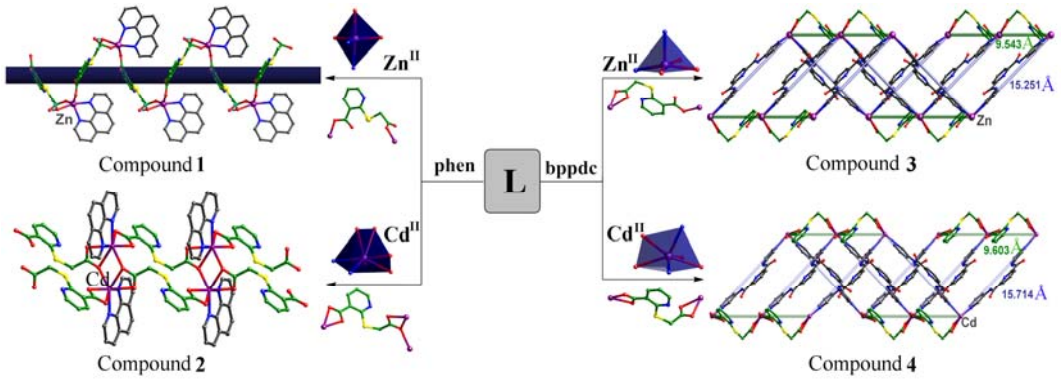
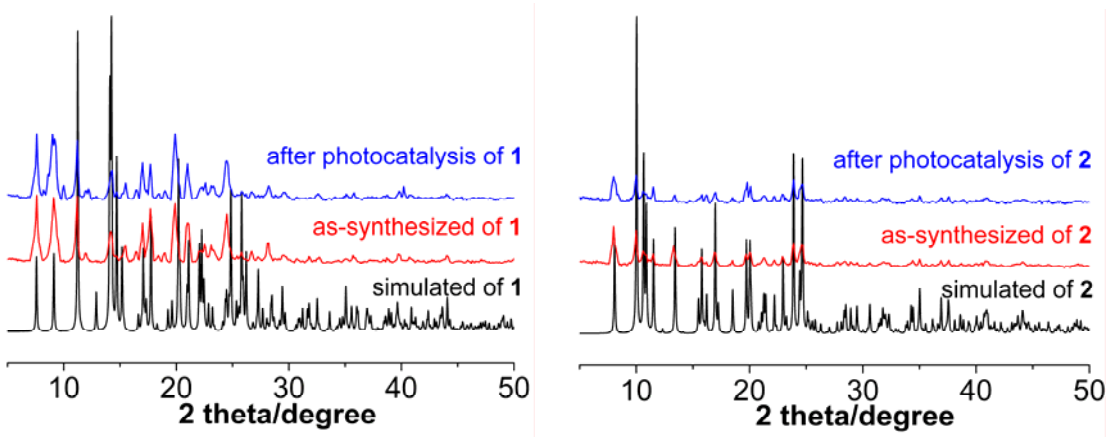
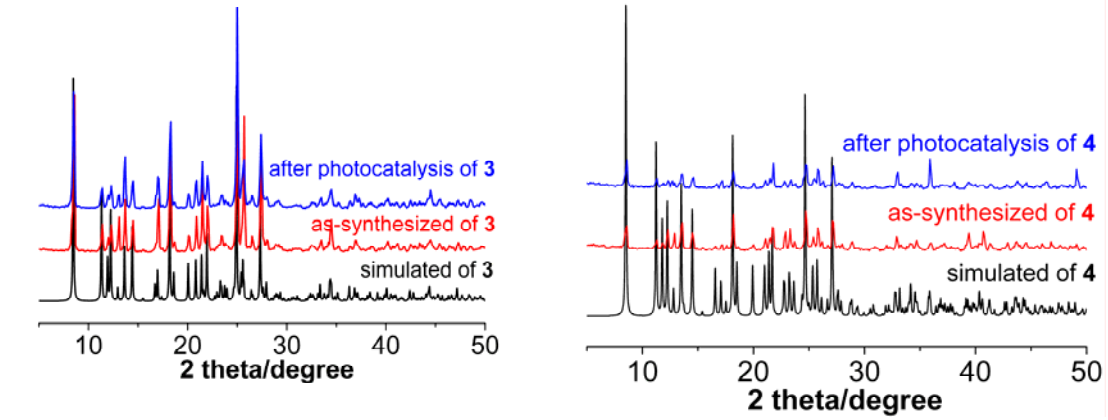


Fig. S4. Schematic view of the effects of N-donor ligands and metal ions on the L-based coordination polymers **1**–**4**.

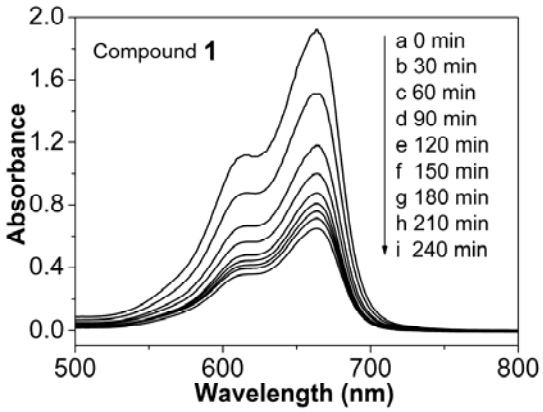


(a) (b)

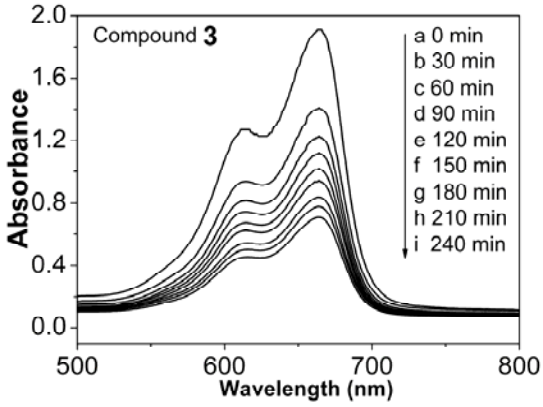


(c) (d)

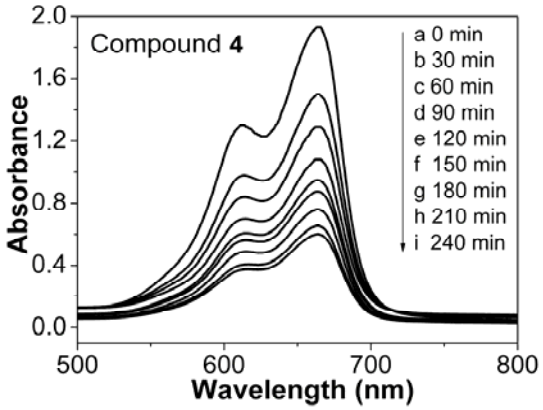
Fig. S5. Simulated (black) and experimental (red) PXRD patterns for compounds **1**–**4**, the PXRD patterns of compounds **1**–**4** after photocatalytic processes (blue).



(a)



(b)



(c)

Fig. S6. Absorption spectra of the MB solution during the decomposition reaction under UV light irradiation with the use of compounds **1** (a), **3** (b) and **4** (c).