Electronic Supplementary Information (ESI) for

Coligand Syntheses, Crystal Structures, Luminscence and Photocatalystic Properties of Five Coordination Polymers Based on Rigid Tetracarboxylic Acids and Imidazole Linkers

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Figure S1. The IR spectras of complexes 1-5.



Figure S2. The 1D flat $[Cu(1,4-bidb)]_n$ chain in 1.



Figure S3. The interactions between two nets in 2 views along *a* axis.



Figure S4. The 1D $[Ni(1,3-bimb)]_n$ chain in **3** view along *a* axis.



Figure S5. The lock knot structure in 3.



Figure S6. The 1D $[Zn(1,4-bimb)]_n$ chain in 4.



Figure S7. The 1D $[Zn(1,3-bimb)]_n$ chain in 5.





Figure S8. PXRD patterns of 1-5. Dark: calculated from the X-ray single-crystal data; Red: observed for the as-synthesized solids.



Figure S9. TGA curves for compounds 1–5.



Figure S10. UV-vis diffuse-reflectance spectra of compounds 1–3 with BaSO₄ as background.



Figure S11. UV-Vis absorption spectra of the MB solutions degraded under dark and under illumination (without catalyst) under UV irradiation at different time intervals: (a) dark; (b) illumination (without catalyst).
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Table S1 Selected	bond lengths (Å) and angles (°) for	1 – 5.				
Complex 1							
Cu(1)-O(1)	1.932(3)	Cu(1)-O(1)#2	1.932(3)	Cu(1)-N(2)#2	1.981(4)	Cu(1)-N(2)	1.981(4)
O(1)-Cu(1)-O(1)#2	180.00	O(1)#2-Cu(1)-N(2)#2	88.99(17)	$O(1)^{#2}-Cu(1)-N(2)$	91.01(17)	N(2)#2-Cu(1)-N(2)	180.000
O(1)-Cu(1)-N(2)#2	91.01(17)	O(1)-Cu(1)-N(2)	88.99(17)				
Symmetry code: #2 -x	+1/2, -y+3/2, -z	•					
Complex 2							
Co(1)-O(4)	1.935(3)	Co(1)-N(1)	1.967(3)	Co(2)-O(2)	1.944(3)	Co(2)-N(4)#5	2.002(4)
Co(1)-O(5)	1.964(3)	Co(1)-N(6)#3	2.023(4)	Co(2)-O(9)#4	1.952(4)	Co(2)-O(1W)	2.015(4)
O(4)-Co(1)-O(5)	94.97(13)	O(4)-Co(1)-N(6)#3	103.14(14)	O(2)-Co(2)-O(9)#4	111.28(17)	O(2)-Co(2)-O(1W)	99.99(16)
O(4)-Co(1)-N(1)	113.24(14)	O(5)-Co(1)-N(6)#3	107.86(13)	O(2)-Co(2)-N(4)#5	94.85(16)	O(9)#4-Co(2)-O(1W)	99.65(19)
O(5)-Co(1)-N(1)	119.98(14)	N(1)-Co(1)-N(6)#3	114.79(15)	O(9)#4-Co(2)-N(4)#5	129.89(16)	N(4)#5-Co(2)-O(1W)	117.54(18)
Symmetry codes: #3 x	:-1, <i>y</i> , <i>z</i> ; #4 <i>x</i> +1,	<i>y</i> +1, <i>z</i> -1; #5 - <i>x</i> +2, - <i>y</i> +1,	- <i>z</i> .				
Complex 3							
N(1)-Ni(1)	2.039(4)	O(2)-Ni(1)	2.235(3)	Ni(1)-O(3)#3	1.981(3)	Ni(1)-N(4)#3	2.045(4)
O(1)-Ni(1)	2.032(3)	O(1)-Ni(1)-N(1)	93.99(13)	N(1)-Ni(1)-N(4)#3	96.80(16)	N(1)-Ni(1)-O(2)	153.32(13)
O(3)#3-Ni(1)-O(1)	157.48(13)	O(3)#3-Ni(1)-N(4)#3	90.87(14)	O(3)#3-Ni(1)-O(2)	98.14(13)	N(4)#3-Ni(1)-O(2)	96.76(14)
O(3)#3-Ni(1)-N(1)	104.51(14)	O(1)-Ni(1)-N(4)#3	99.69(15)	O(1)-Ni(1)-O(2)	61.09(12)		
Symmetry code: #3 x+	+1/2, -y+3/2, z+1	1/2.					
Complex 4							
N(1)-Zn(1)	1.997(2)	N(3)-Zn(1)	2.0175(19)	O(2)-Zn(1)	1.9802(18)	Zn(1)-O(3)#5	1.9592(18)
O(3)#5-Zn(1)-O(2)	112.78(8)	O(2)-Zn(1)-N(1)	106.94(9)	O(2)-Zn(1)-N(3)	112.46(8)	N(1)-Zn(1)-N(3)	110.58(9)
O(3)#5-Zn(1)-N(1)	116.62(9)	O(3)#5-Zn(1)-N(3)	97.39(8)				
Symmetry code: #5 x-	1/2, -y+1/2, z-1/	/2.					
Complex 5							
N(3)-Zn(1)	1.998(3)	O(4)-Zn(1)	1.946(2)	Zn(1)-O(2)#3	1.951(3)	Zn(1)-N(1)#3	2.052(3)
O(4)-Zn(1)-O(2)#3	108.12(12)	$O(2)^{#3}$ -Zn(1)-N(3)	117.75(13)	O(2)#3-Zn(1)-N(1)#3	94.93(13)	N(3)-Zn(1)-N(1)#3	109.93(14)
O(4)-Zn(1)-N(3)	112.90(12)	O(4)-Zn(1)-N(1)#3	111.94(12)				
Symmetry code: #3 x-	1/2, -y+1/2, z-1/	/2.					