

*Electronic Supplementary Information (ESI) for*

# Coligand Syntheses, Crystal Structures, Luminescence and Photocatalytic Properties of Five Coordination Polymers Based on Rigid Tetracarboxylic Acids and Imidazole Linkers

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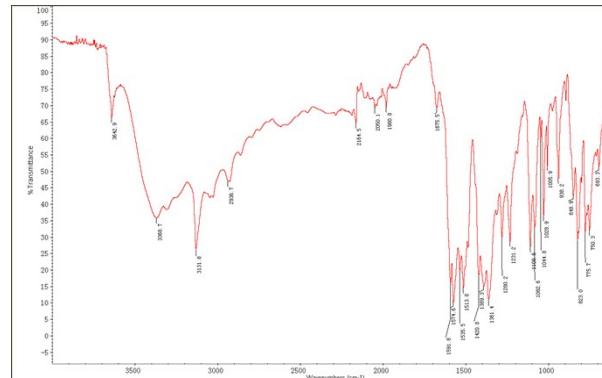
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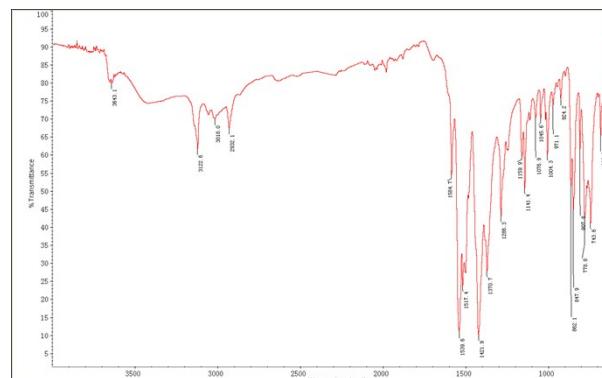
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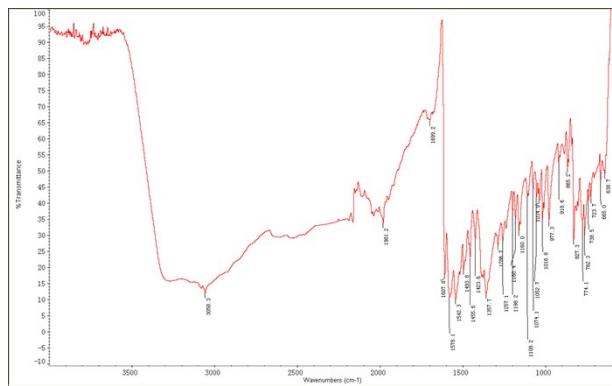


(1)

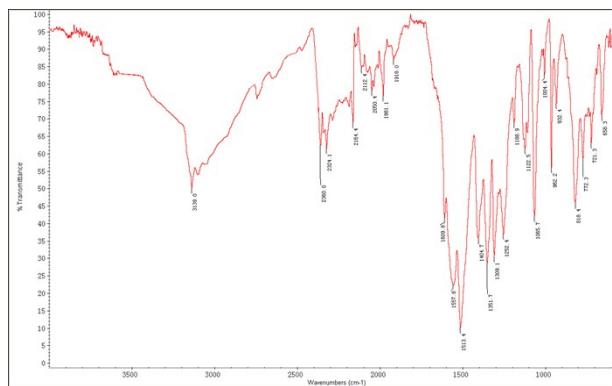


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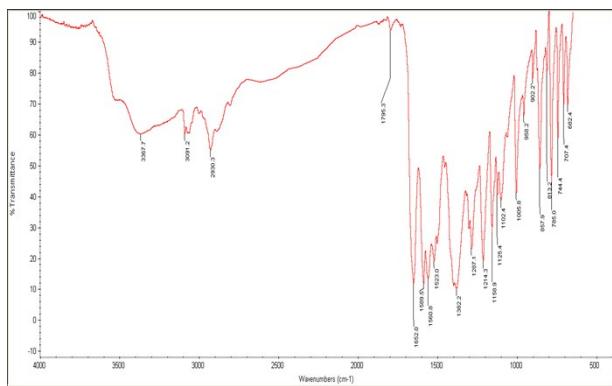
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(3)



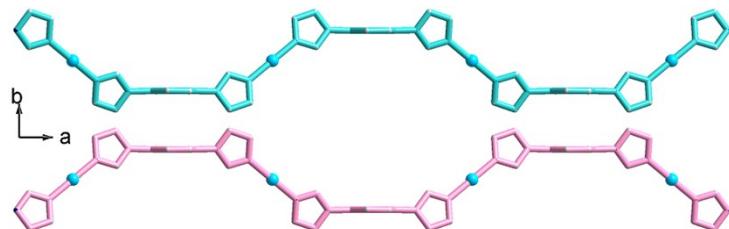
(4)



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(5)

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



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

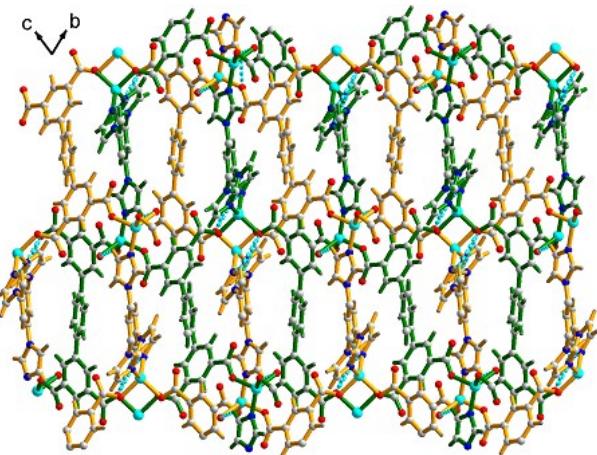
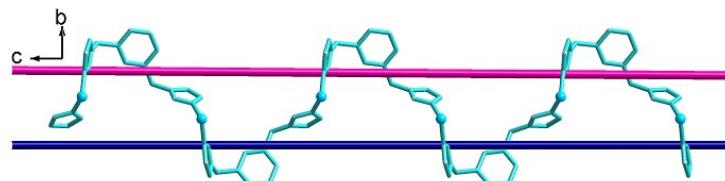


Figure S3. The interactions between two nets in 2 views along  $a$  axis.



5 Figure S4. The 1D  $[\text{Ni}(1,3\text{-bimb})]_n$  chain in 3 view along  $a$  axis.

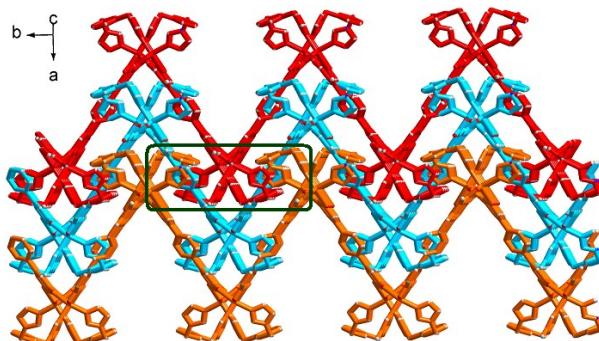
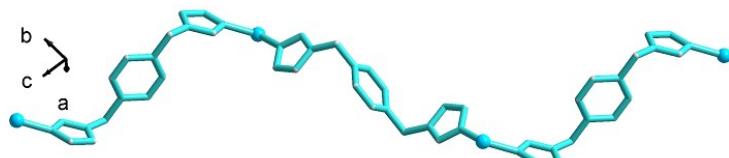


Figure S5. The lock knot structure in 3.



10 Figure S6. The 1D  $[\text{Zn}(1,4\text{-bimb})]_n$  chain in 4.

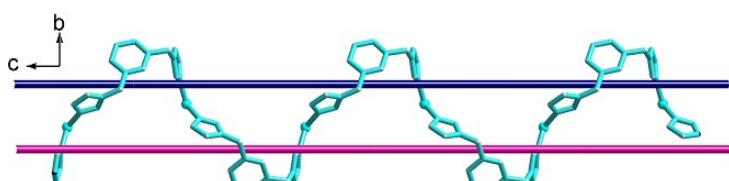
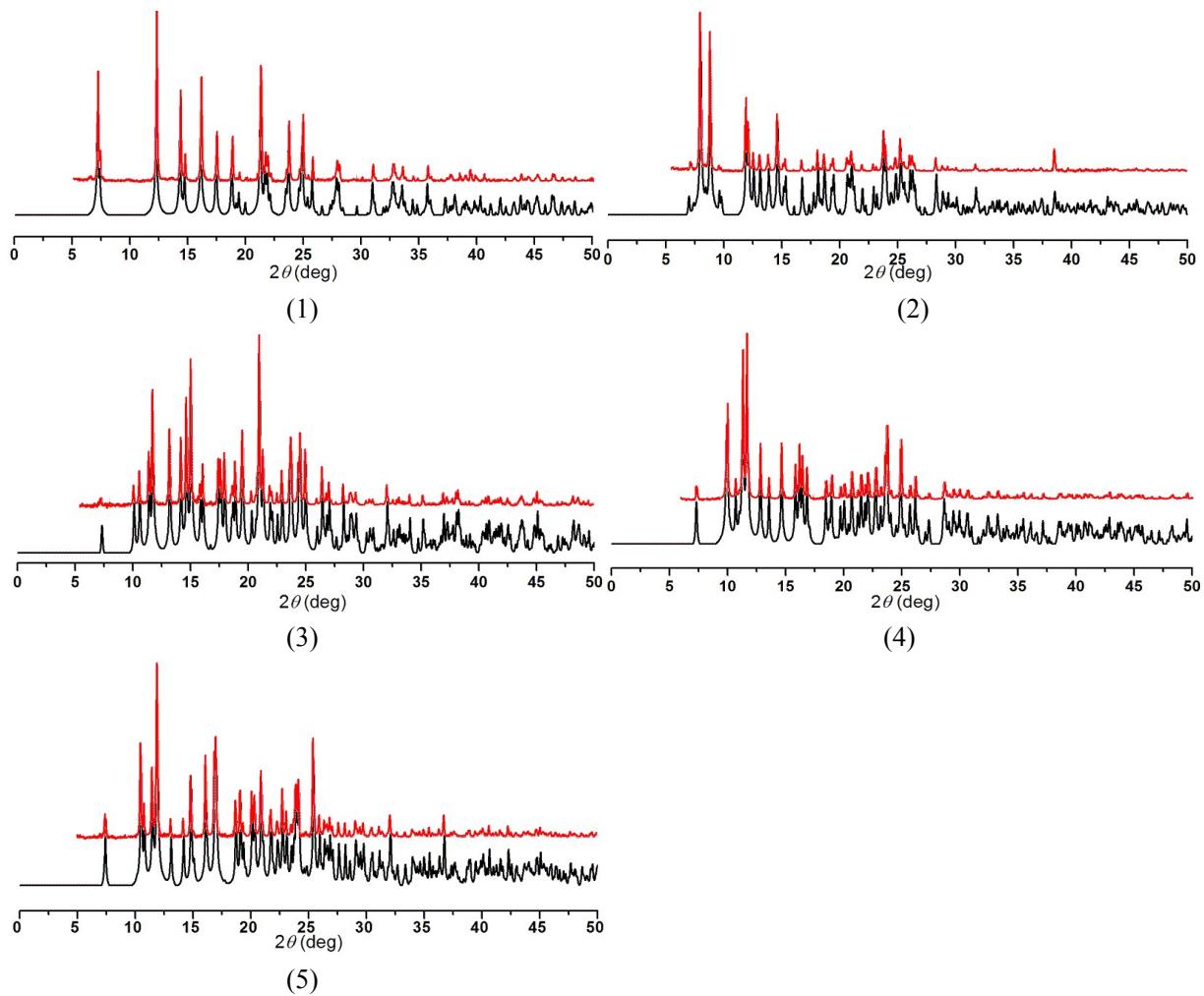
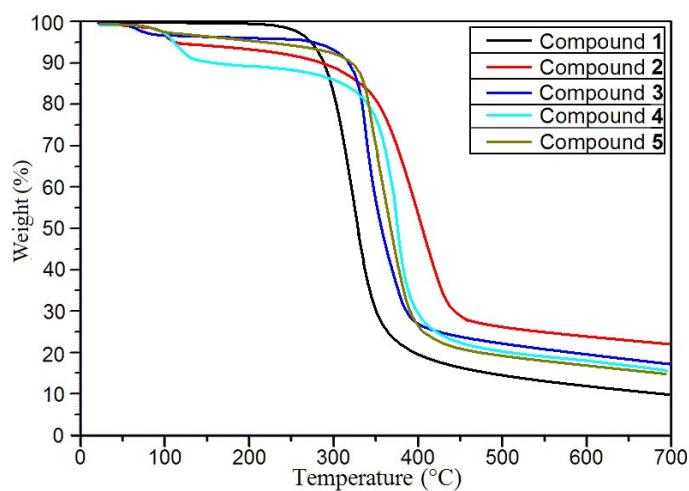


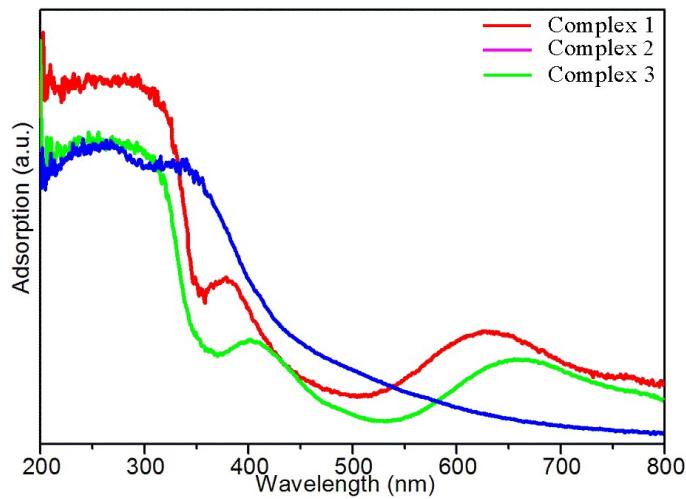
Figure S7. The 1D  $[\text{Zn}(1,3\text{-bimb})]_n$  chain in 5.



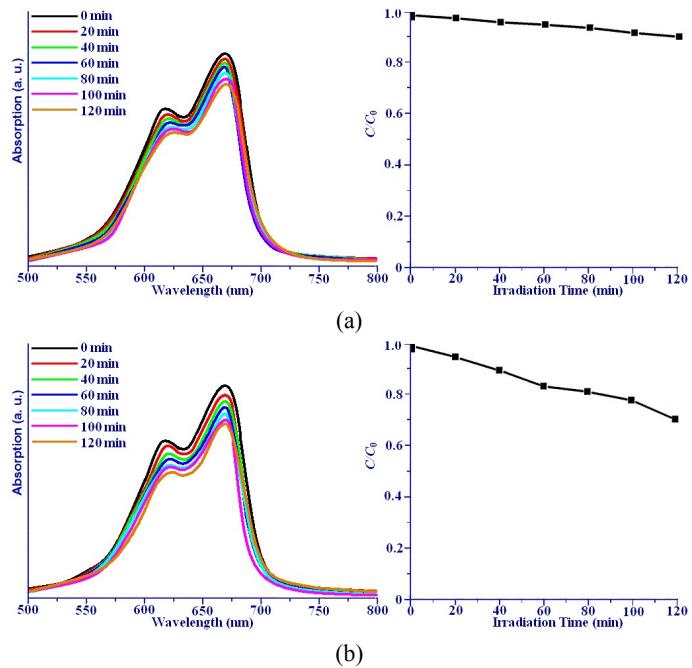
**Figure S8.** PXRD patterns of **1-5**. Dark: calculated from the X-ray single-crystal data; Red: observed for the as-synthesized solids.



**Figure S9.** TGA curves for compounds **1–5**.



**Figure S10.** UV-vis diffuse-reflectance spectra of compounds **1–3** with  $\text{BaSO}_4$  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).

**Table S1** Selected bond lengths (Å) and angles (°) for **1 – 5**.