

## Electronic Supplementary Information (ESI)

### Ligand geometry-directed assembly of seven entangled coordination polymers

Fei-Long Hu,<sup>ab</sup> Shu-Long Wang,<sup>c</sup> Bing Wu,<sup>a</sup> Hong Yu,<sup>\*a</sup> Fan Wang,<sup>a</sup> and Jian-Ping. Lang<sup>\*a</sup>

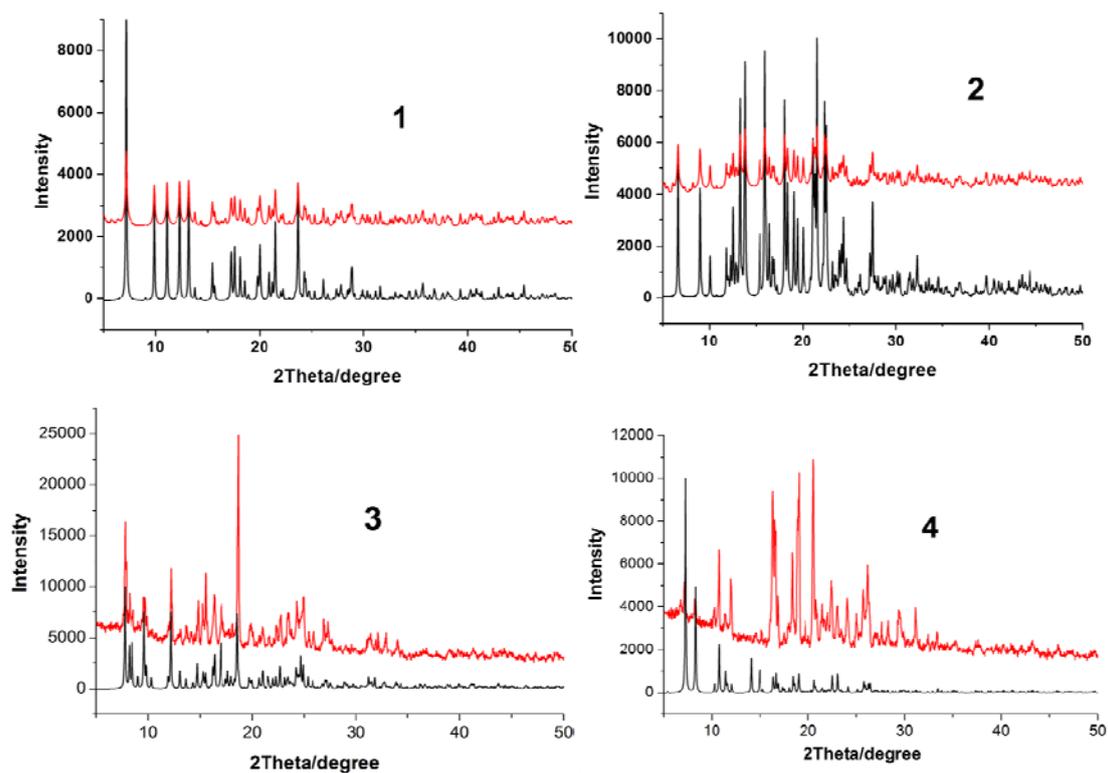
<sup>a</sup> *College of Chemistry, Chemical Engineering and Materials Science, Soochow University, Suzhou 215123, P. R. China. Fax: 86-512-65880328; E-mail: jplang@suda.edu.cn (jplang)*

<sup>b</sup> *College of Chemistry and Materials, Yulin Normal University, Yulin 537000, P. R. China*

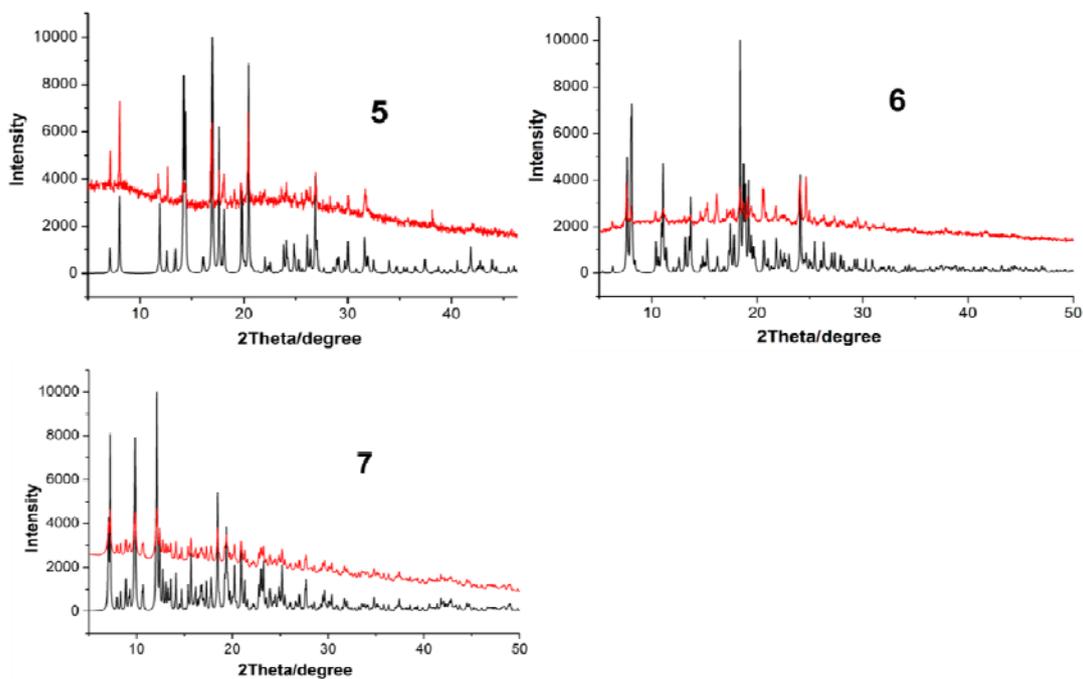
<sup>c</sup> *College of Chemistry and Chemical Engineering, Guangxi University for Nationalities, Nanning 530006, PR China*

## Table of Contents

<b>Fig. S1.</b> Experimental (red) and simulated (black) PXRD patterns of <b>1-4</b> .....	S3
<b>Fig. S2.</b> Experimental (red) and simulated (black) PXRD patterns of <b>5-7</b> .....	S3
<b>Fig. S3.</b> Illustration of the single helical chain in <b>5</b> .....	S4
<b>Fig. S4.</b> Hexanuclear 82-membered metallomacrocyclic of <b>6</b> .....	S4
<b>Fig. S5.</b> View of the 2D grid-like network of <b>6</b> .....	S5
<b>Fig. S6.</b> View of the alternately appeared $[\text{Ni}_6(\text{bpb})_2(\text{oba})_4]$ and $[\text{Ni}_4(\text{oba})_4]$ SUB units in <b>7</b> .....	S5
<b>Fig. S7.</b> TGA curves of complexes <b>1-4</b> .....	S6
<b>Fig. S8.</b> TGA curves of complexes <b>5-7</b> .....	S6
<b>Fig.S9.</b> Solid state emission spectra of complexes <b>1-7</b> .....	S7
<b>Fig.S10.</b> Kubelka-Munk-transformed diffuse reflectance spectra of complexes <b>3</b> and <b>6</b> .....	S7
<b>Fig.S11.</b> Absorption spectra of the solution of MB (5mg/L, 100ml).....	S8
<b>Fig.S12.</b> (a) (a) Simulated PXRD patterns of <b>3</b> and the PXRD patterns of the recycled sample. (b) Simulated PXRD patterns of <b>6</b> and the PXRD patterns of the recycled sample.....	S8



**Fig. S1.** Experimental (red) and simulated (black) PXR D patterns of 1-4



**Fig. S2.** Experimental (red) and simulated (black) PXR D patterns of 5-7.

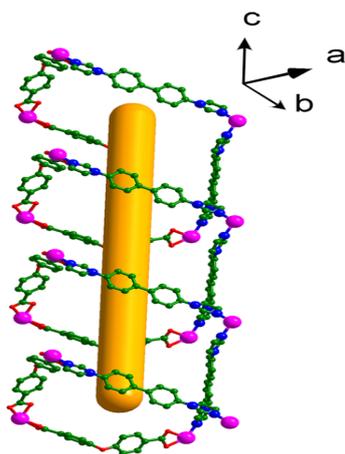


Fig. S3. Illustration of the single helical chain in **5**

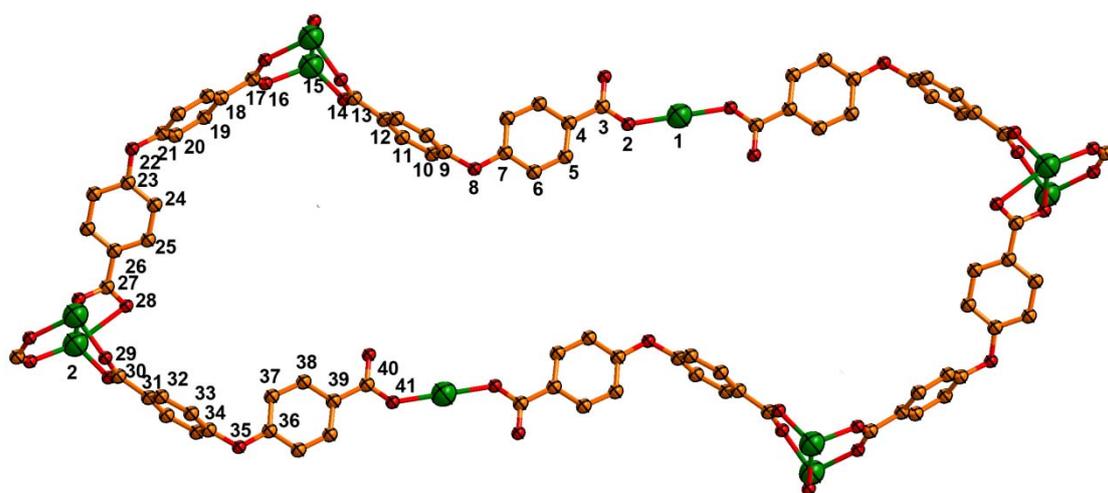


Fig. S4. Hexanuclear 82-membered macrocycle of **6** with all bpb ligands and H<sub>2</sub>O molecules were omitted.

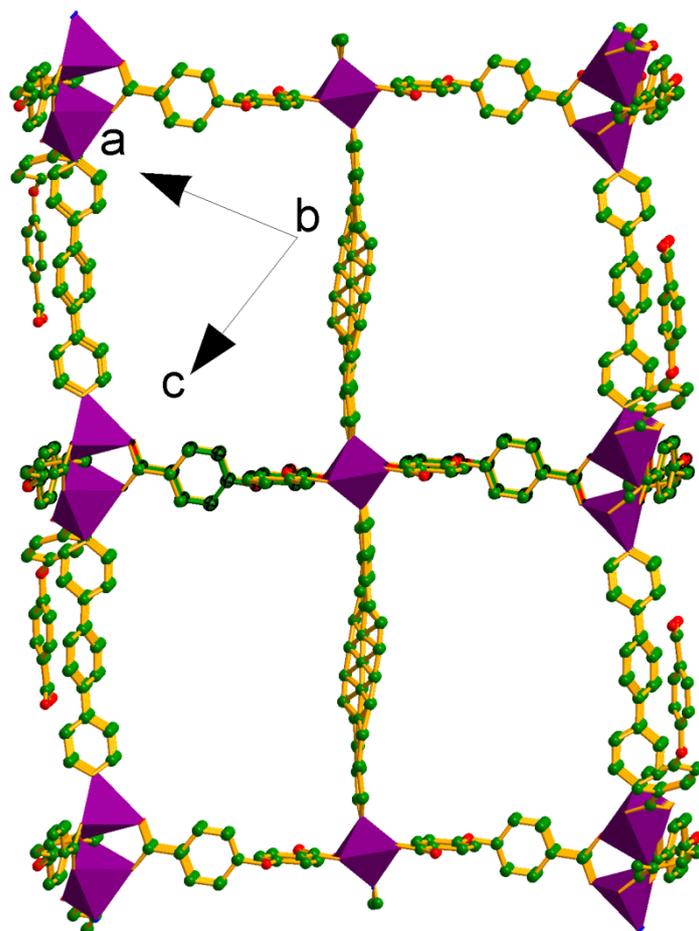


Fig. S5. View of the 2D grid-like network of **6**.

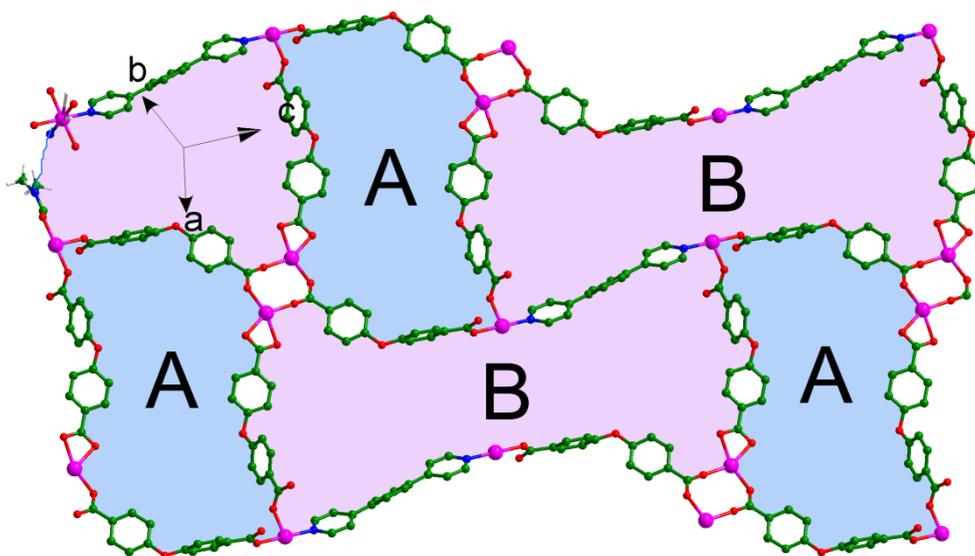
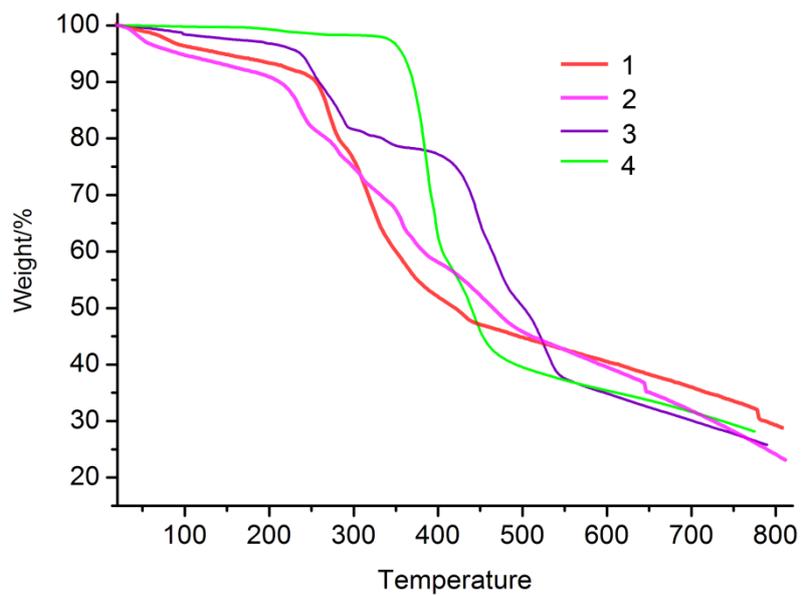
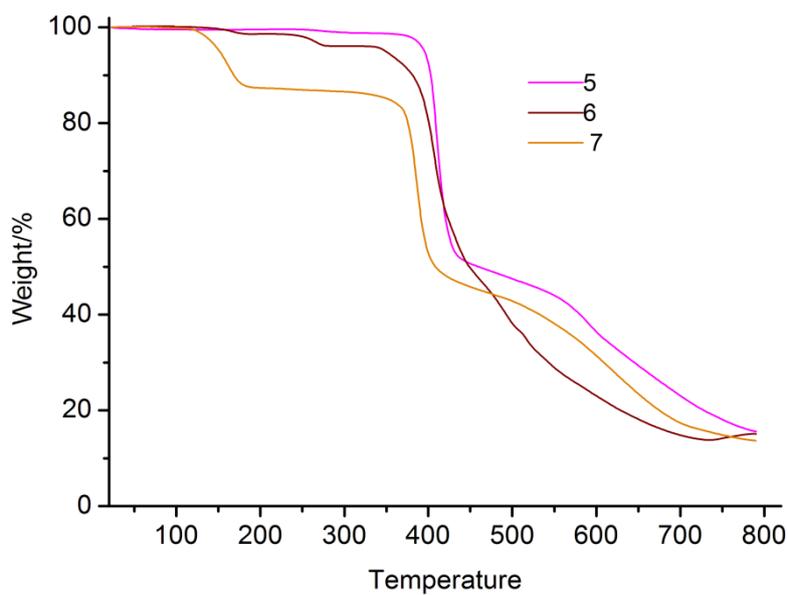


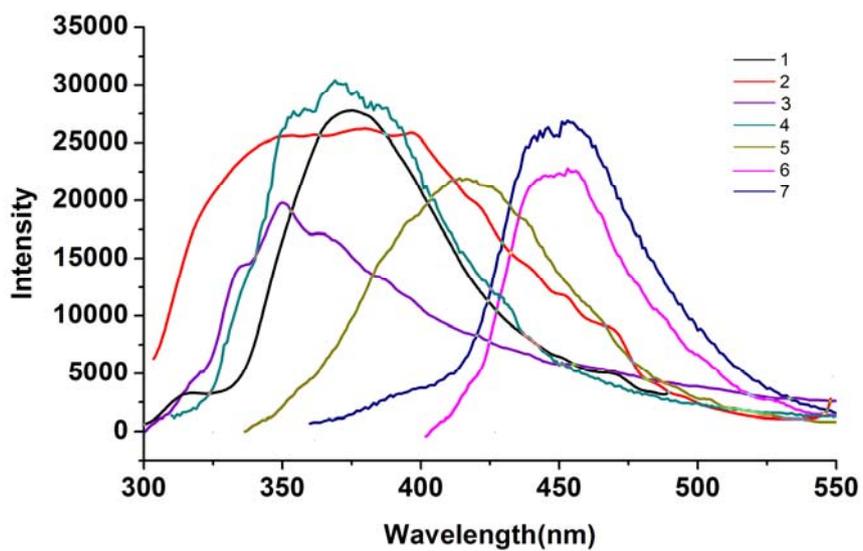
Fig. S6. View of the alternately appeared  $[\text{Ni}_6(\text{bpb})_2(\text{oba})_4]$  and  $[\text{Ni}_4(\text{oba})_4]$  SUB units in **7**.



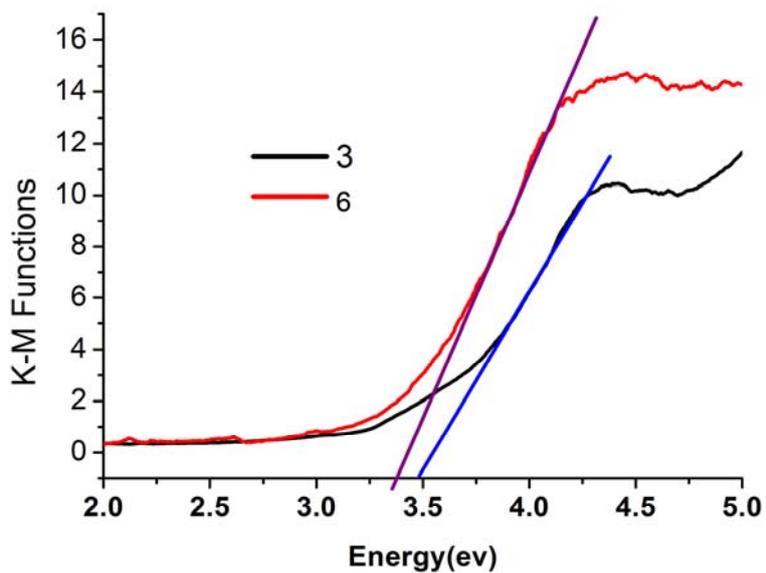
**Fig. S7.** TGA curves of complexes 1-4.



**Fig. S8.** TGA curves of complexes 5-7.



**Fig. S9.** Solid state emission spectra of complexes **1-7**



**Fig. S10** Kubelka-Munk-transformed diffuse reflectance spectra of complexes **3** and **6**

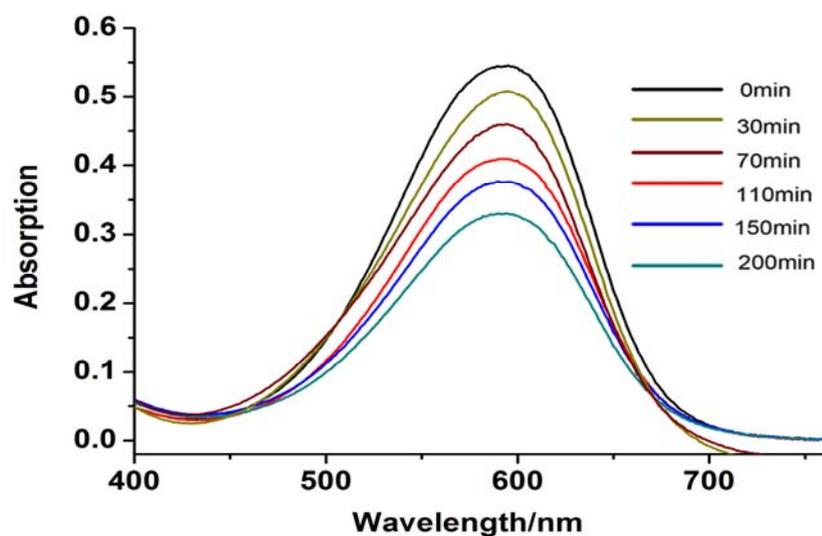


Fig.S11. Absorption spectra of the solution of MB (5mg/L, 100ml)

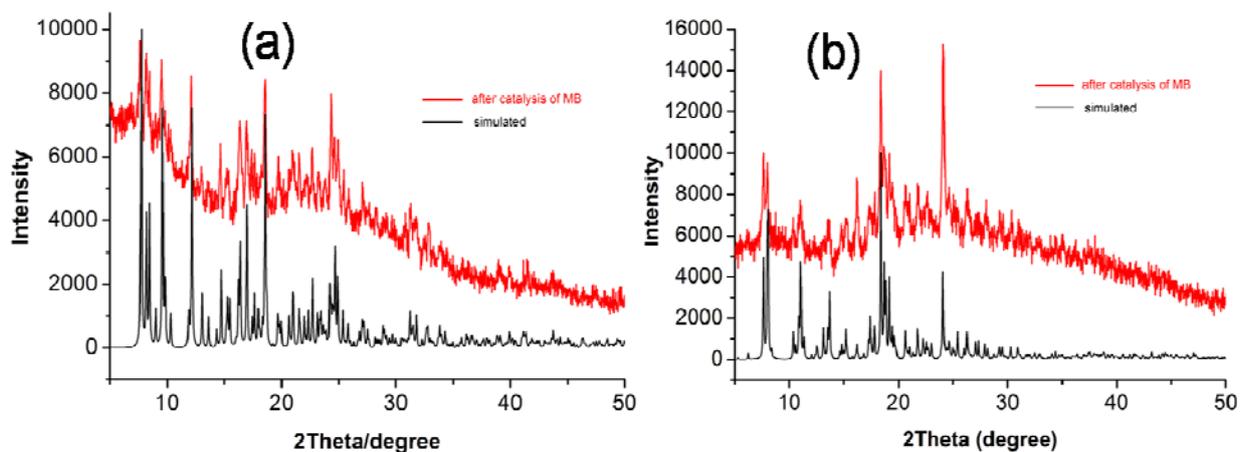


Fig. S12. (a) Simulated PXRD patterns of **3** and the PXRD patterns of the recycled sample. (b) Simulated PXRD patterns of **6** and the PXRD patterns of the recycled sample.