Supporting Information for the manuscript:

N-Donor Ligand Mediated Assembly of Divalent Zinc and Cadmium Coordination Polymers Based on 2,3,2',3'-Thiaphthalic Acid: Syntheses, Structures and Luminescent Properties

Jia-Bin Li,[a] **Xi-Yan Dong,**[a,b] **Li-Hui Cao,**[a] **Shuang-Quan Zang,**[a*] **and Thomas. C. W. Mak,**[ac]

[a]The College of Chemistry and Molecular Engineering, Zhengzhou University, Zhengzhou 450001, P. R. China.

[b]Department of Physics and Chemistry, Henan Polytechnic University, Zhengzhou Henan, P. R. China.

[c]Department of Chemistry, The Chinese University of Hong Kong, Shatin, New Territories, Hong Kong SAR, P. R. China.

Author for correspondence: Dr. S.-Q. Zang, E-mail: zangsqzg@zzu.edu.cn.

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Table S1.Selected hydrogen-bonding geometries for 4 and 5 (in Å, º)

O−H···O	d(O···H)	d(O···O)	d(H···O)	∠OHO
Compound **4**				
O(W)−H(1WA)···O(7W)#1	0.85	2.920(4)	1.87	166.3
O(2W)−H(2WB)···O(7)#2	0.85	3.035(4)	2.34	138.8
O(2W)−H(2WA)···O(6W)#3	0.85	2.782(4)	1.95	163.4
O(3W)−H(3WA)···O(8)#4	0.75	2.722(4)	1.97	179.2
O(3W)−H(3WB)···O(7)	0.86	3.103(4)	2.24	179.5
O(5W)−H(5WA)···O(4)#5	0.85	2.706(3)	1.86	178.8
O(5W)−H(5WB)···O(10)#6	0.75	2.743(5)	1.99	178.8
O(6W)−H(6WA)···O(3W)#7	0.85	2.888(4)	2.37	119.6
O(6W)−H(6WB)···O(1)	0.85	2.782(2)	1.95	163.9
O(7W)−H(7WA)···O(5)#8	0.86	2.772(3)	1.91	177.9
O(7W)−H(7WB)···O(5W)	0.75	2.810(2)	2.14	148.0
O(10)−H(10A)···O(2)#9	0.82	2.652	1.83	173.5
Compound **5**				
O(5W)−H(5WA)···O(8)#1	0.75	2.672(2)	1.992	177.5
O(5W)−H(5WB)···O(12W)	0.75	2.646(3)	1.909	167.3
O(6W)−H(6WB)···O(13)#2	0.73	2.686(1)	2.205	124.4
O(7W)−H(7WA)···O(15W)#3	0.82	2.708(4)	1.910	164.2
O(7W)−H(7WB)···O(16)#4	0.83	2.687(2)	1.901	155.9
O(13W)−H(13WA)···O(14)#2	0.85	2.850(3)	2.246	128.05
O(13W)−H(13WB)···O(14W)	0.85	2.674(1)	1.900	150.8
O(14W)−H(14WA)···O(16)#5	0.85	2.956(2)	2.332	130.6
O(14W)−H(14WB)···O(7W)	0.75	2.772(2)	2.324	119.5
O(15W)−H(15WA)···O(5)#6	0.75	2.732(4)	2.005	163.4
O(15W)−H(15WB)···O(13W)#7	0.75	2.783(5)	2.005	163.8

Table S2. Emission and excitation maxima wavelengths (nm)

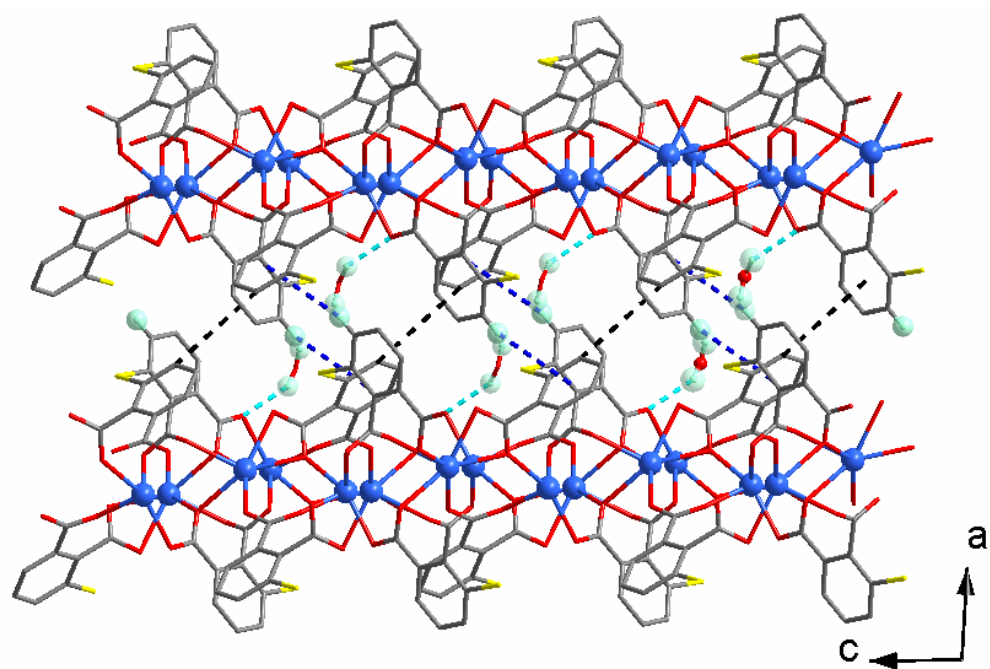| polymer	**HL**	**1**	**2**	**3**	**4**	**5**
λ_{em} (nm)	480	468	481	429	481	450
λ_{ex} (nm)	370	369	391	321	371	375

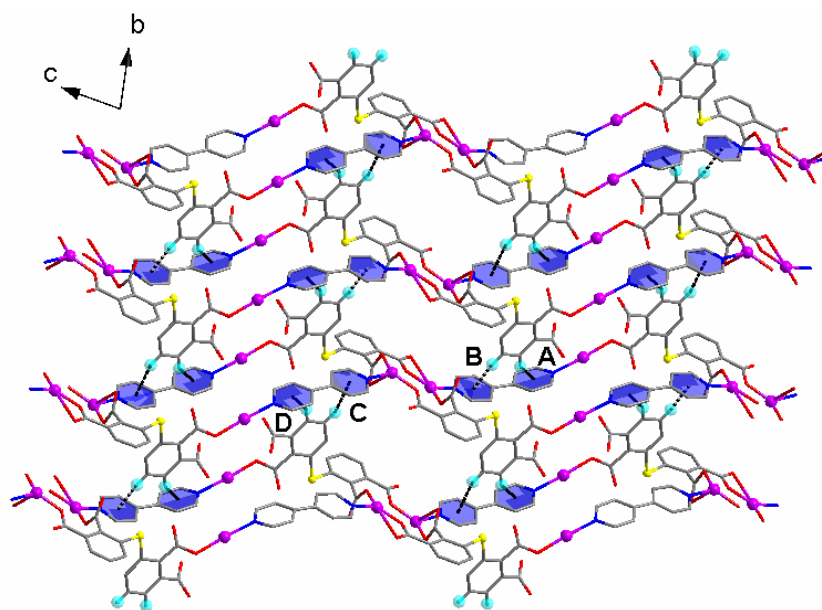**Figure S1**.3D supramolecular network for compound **1**.

Figure S2. In compound **5**, 3D network is formed by the inter-chain C−H···π interactions between 2D layers.
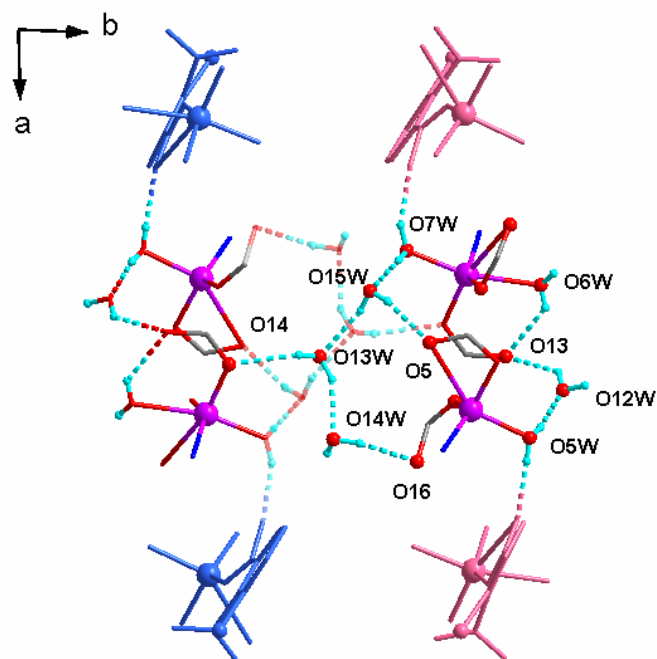
Figure S3. Representation of the solvent water found in the channels of compound **5**.
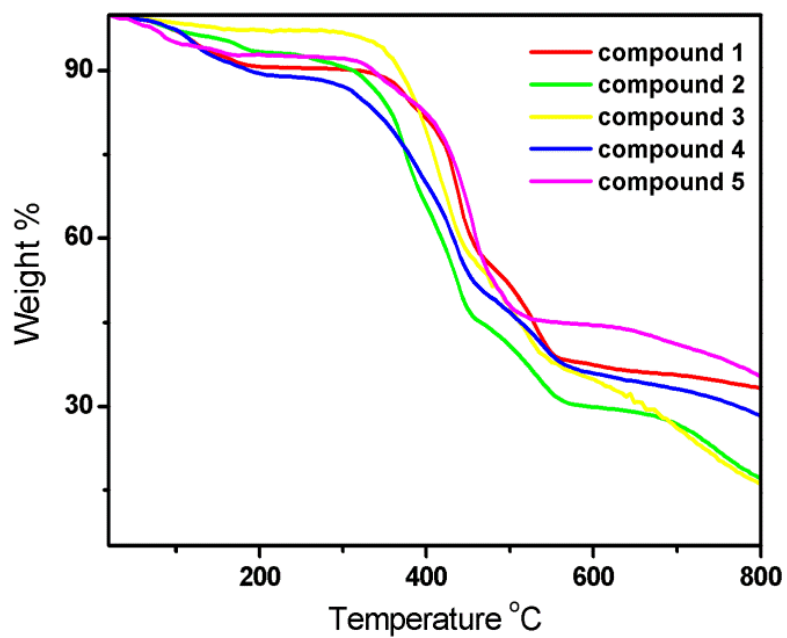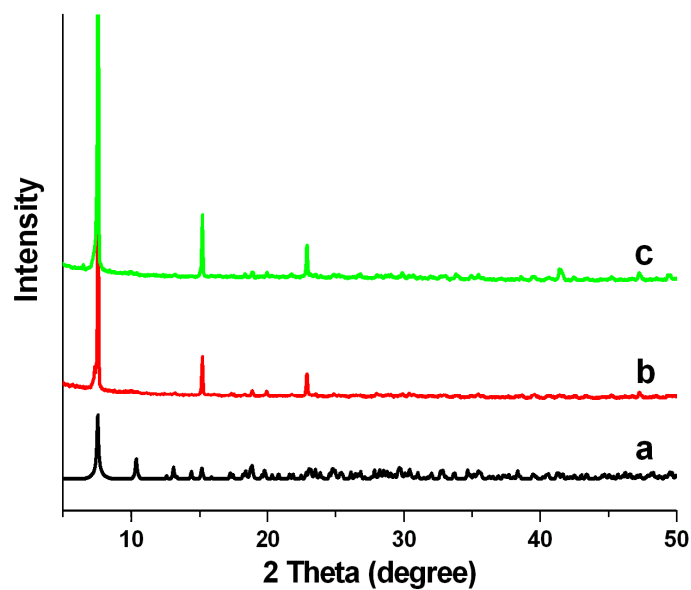

Figure S4. Thermogravimetric curve of the complexs.

Figure. S5. X-ray powder diffraction of complex **1.** (a) Simulated from single crystal data. (b) observed for complex **1**. (c) Heated to 100°C at vacuum.
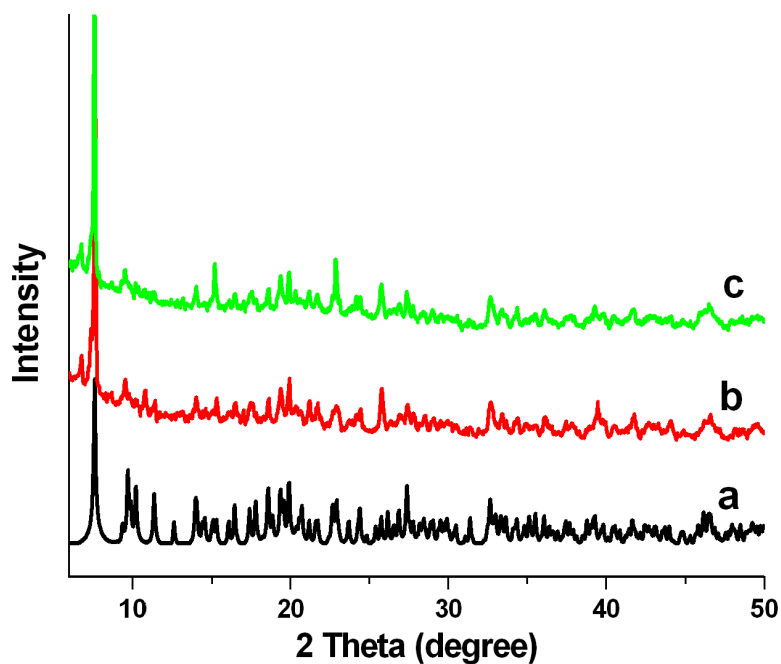

Figure. S6. X-ray powder diffraction of complex **2.** (a) Simulated from single crystal data. (b) observed for complex **2**. (c) Heated to 100°C at vacuum.
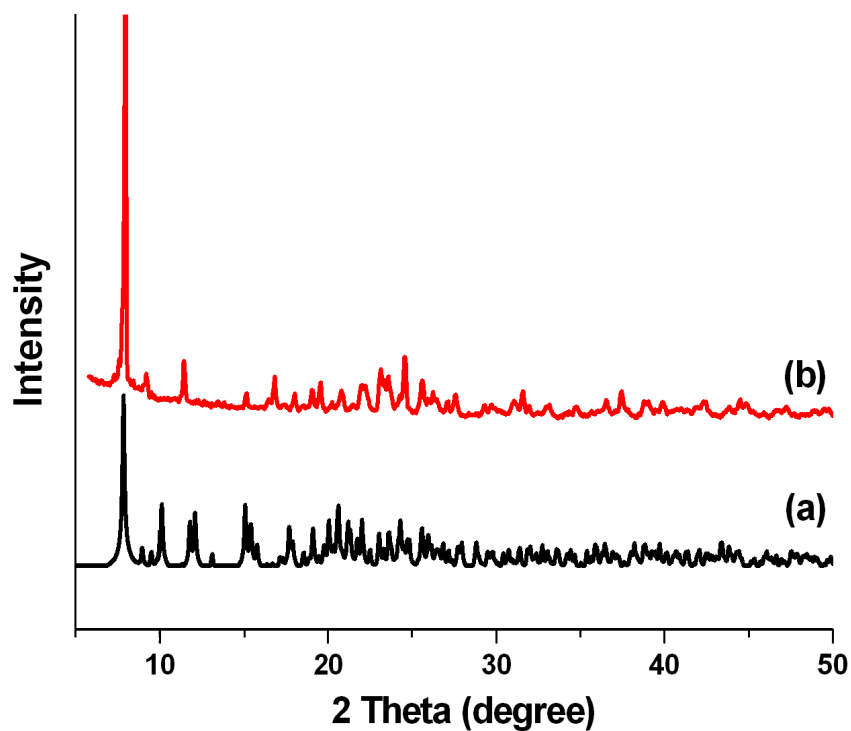
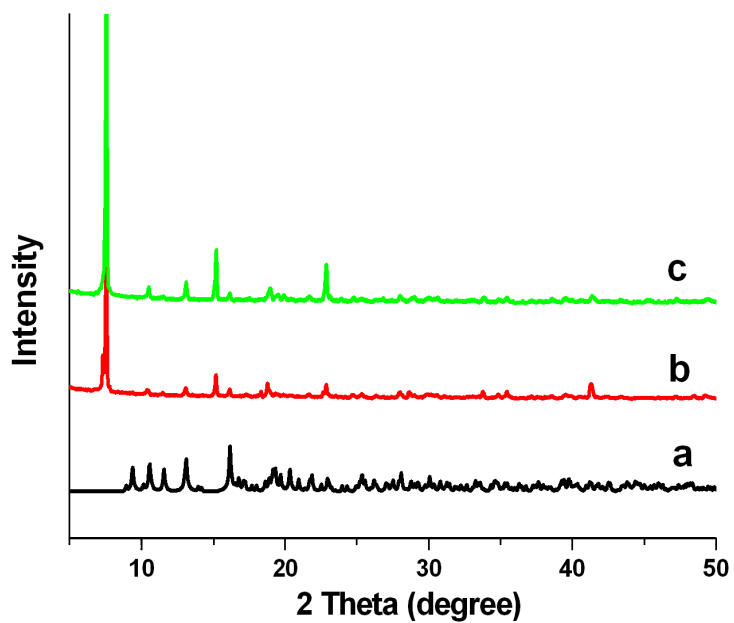**Figure. S7.** X-ray powder diffraction of complex **3**. (a) Simulated from single crystal data. (b) observed for complex **3** at vacuum.

Figure. S8. X-ray powder diffraction of complex **4**. (a) Simulated from single crystal data. (b) observed for complex **4**. (c) Heated to 100°C at vacuum.
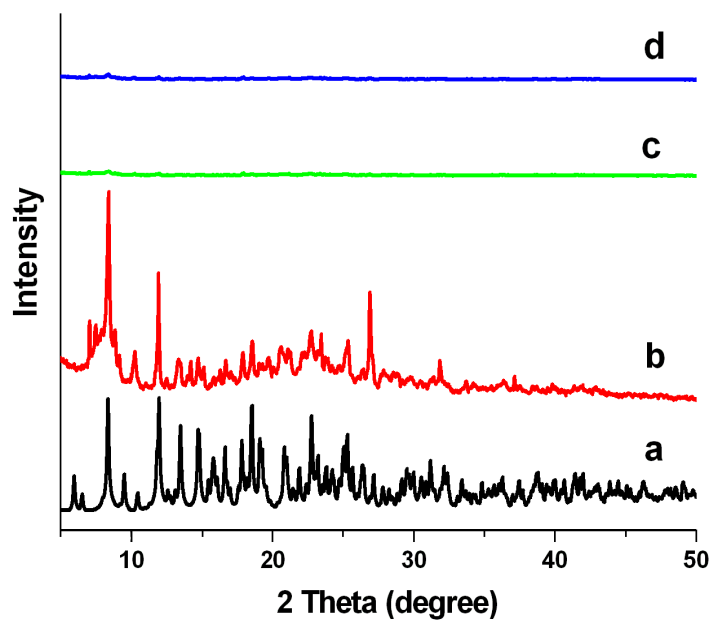
Figure. S9. X-ray powder diffraction of complex **5.** (a) Simulated from single crystal data,(b) observed for complex **5**. (c) Heated to 100°C at vacuum. (d) rehydrated sample for **5**.