

Supporting information for
Solvent-controlled formation of four Ni(II) coordination
polymers based on flexible bis(imidazole) ligand: syntheses,
structural diversification, properties

Xiu-Yuan Li,^a Xia-Xia Liu,^a Ke-Fen Yue,^{*a} Ya-Pan Wu,^{*b} Tian He,^a Ni Yan,^a Yao-

Yu Wang^a

^aKey Laboratory of Synthetic and Natural Functional Molecule Chemistry of the
Ministry of Education, College of Chemistry & Materials Science, Northwest
University, Xi'an 710069, China.

^bCollege of Materials Science and Engineering, Research Institute of Materials, China
Three Gorges University, Yichang 443002, China.

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1. **Table S1** The selected bond distances (Å) and angles (°) for **1-4**.

1			
Ni(1)-N(4)#1	2.044(6)	Ni(1)-O(4)	2.052(4)
Ni(1)-N(1)	2.085(6)	Ni(1)-O(5)	2.129(5)
Ni(1)-O(1)#2	2.130(4)	Ni(1)-O(2)#2	2.137(5)
N(4)#1-Ni(1)-O(4)	92.5(2)	N(4)#1-Ni(1)-N(1)	93.5(2)
O(4)-Ni(1)-N(1)	92.57(19)	N(4)#1-Ni(1)-O(5)	89.7(2)
O(4)-Ni(1)-O(5)	91.11(17)	N(1)-Ni(1)-O(5)	175.0(2)
N(4)#1-Ni(1)-O(1)#2	106.2(2)	O(4)-Ni(1)-O(1)#2	160.34(18)
N(1)-Ni(1)-O(1)#2	92.19(19)	O(5)-Ni(1)-O(1)#2	83.22(17)
N(4)#1-Ni(1)-O(2)#2	166.4(2)	O(4)-Ni(1)-O(2)#2	99.20(17)
N(1)-Ni(1)-O(2)#2	92.7(2)	O(5)-Ni(1)-O(2)#2	83.3(2)
O(1)#2-Ni(1)-O(2)#2	61.51(17)		
2			
Ni(1)-N(1)	2.002(6)	Ni(1)-N(4)	2.019(7)
Ni(1)-O(1)	2.090(5)	Ni(1)-O(3)#1	2.100(6)
Ni(1)-O(4)#1	2.154(6)	Ni(1)-O(2)	2.189(6)
N(1)-Ni(1)-N(4)	92.8(3)	N(1)-Ni(1)-O(1)	96.1(3)
N(4)-Ni(1)-O(1)	96.5(2)	N(1)-Ni(1)-O(3)#1	100.5(3)
N(4)-Ni(1)-O(3)#1	107.0(2)	O(1)-Ni(1)-O(3)#1	150.3(2)
N(1)-Ni(1)-O(4)#1	92.2(3)	N(4)-Ni(1)-O(4)#1	168.4(2)
O(1)-Ni(1)-O(4)#1	93.3(2)	O(3)#1-Ni(1)-O(4)#1	61.8(2)
N(1)-Ni(1)-O(2)	158.2(3)	N(4)-Ni(1)-O(2)	92.0(2)
O(1)-Ni(1)-O(2)	62.2(2)	O(3)#1-Ni(1)-O(2)	98.4(2)
O(4)#1-Ni(1)-O(2)	87.1(2)		
3			
Ni(1)-O(1)	2.010(3)	Ni(1)-O(5)	2.081(3)
Ni(1)-N(1)	2.098(4)	Ni(1)-O(3)#1	2.100(3)
Ni(1)-O(7)#2	2.106(3)	Ni(1)-O(4)#1	2.111(3)

Ni(2)-O(2)	2.014(3)	Ni(2)-O(6)	2.018(3)
Ni(2)-O(7)#2	2.045(3)	Ni(2)-N(4)	2.050(4)
Ni(2)-O(1W)	2.127(4)	Ni(2)-O(8)#2	2.380(4)
O(1)-Ni(1)-O(5)	88.16(15)	O(1)-Ni(1)-N(1)	90.08(15)
O(5)-Ni(1)-N(1)	172.76(15)	O(1)-Ni(1)-O(3)#1	157.79(14)
O(5)-Ni(1)-O(3)#1	84.88(14)	N(1)-Ni(1)-O(3)#1	99.25(15)
O(1)-Ni(1)-O(7)#2	102.86(13)	O(5)-Ni(1)-O(7)#2	883.61(13)
N(1)-Ni(1)-O(7)#2	89.93(15)	O(3)#1-Ni(1)-O(7)#2	97.31(13)
O(1)-Ni(1)-O(4)#1	96.32(14)	O(5)-Ni(1)-O(4)#1	91.16(15)
N(1)-Ni(1)-O(4)#1	96.02(16)	O(3)#1-Ni(1)-O(4)#1	62.84(13)
O(7)#2-Ni(1)-O(4)#1	159.92(13)	O(2)-Ni(2)-O(6)	95.74(15)
O(2)-Ni(2)-O(7)#2	92.61(14)	O(6)-Ni(2)-O(7)#2	97.59(13)
O(2)-Ni(2)-N(4)	86.75(16)	O(6)-Ni(2)-N(4)	97.18(16)
O(7)#2-Ni(2)-N(4)	165.21(15)	O(2)-Ni(2)-O(1W)	176.22(15)
O(6)-Ni(2)-O(1W)	87.75(15)	O(7)#2-Ni(2)-O(1W)	88.35(15)
N(4)-Ni(2)-O(1W)	91.39(17)	O(2)-Ni(2)-O(8)#2	96.81(14)
O(6)-Ni(2)-O(8)#2	153.54(14)	O(7)#2-Ni(2)-O(8)#2	58.68(12)
N(4)-Ni(2)-O(8)#2	106.70(15)	O(1W)-Ni(2)-O(8)#2	80.57(14)

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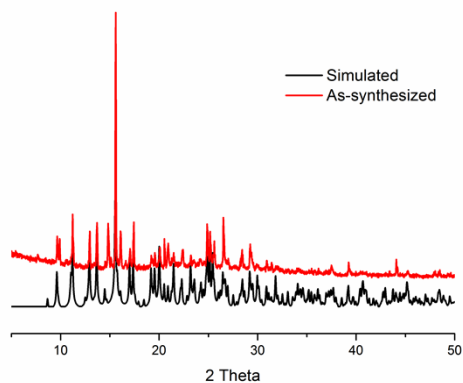
Ni(1)-N(4)	2.034(6)	Ni(1)-N(1)	2.040(6)
Ni(1)-O(4)	2.058(5)	Ni(1)-O(1)	2.060(5)
Ni(1)-O(3)	2.243(5)	Ni(1)-O(2)	2.248(5)
N(4)-Ni(1)-N(1)	91.5(2)	N(4)-Ni(1)-O(4)	102.3(2)
N(1)-Ni(1)-O(4)	98.6(2)	N(4)-Ni(1)-O(1)	92.8(2)
N(1)-Ni(1)-O(1)	96.5(2)	O(4)-Ni(1)-O(1)	158.3(2)
N(4)-Ni(1)-O(3)	95.2(2)	N(1)-Ni(1)-O(3)	159.0(2)
O(4)-Ni(1)-O(3)	60.58(19)	O(1)-Ni(1)-O(3)	103.1(2)
N(4)-Ni(1)-O(2)	154.0(2)	N(1)-Ni(1)-O(2)	93.8(2)
O(4)-Ni(1)-O(2)	102.05(19)	O(1)-Ni(1)-O(2)	61.3(2)

O(3)-Ni(1)-O(2)

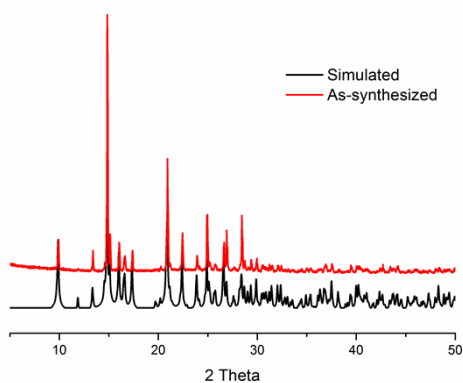
88.9(2)

symmetrical codes: **1**: #1 x, -y+3/2, z-1/2; #2 x+1, -y+1/2, z+1/2. **2**: #1 -x+1, y-1/2, -z+3/2. **3**: #1 x, y-1, z; #2 x-1, y, z.

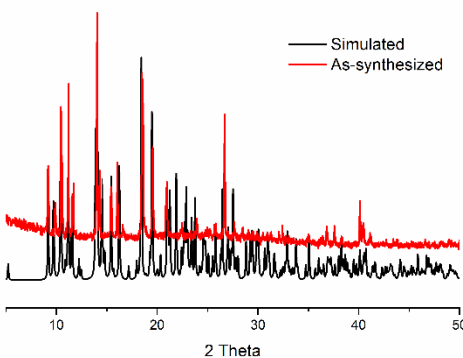
2. **Fig.S1** PXRD patterns of **1**.



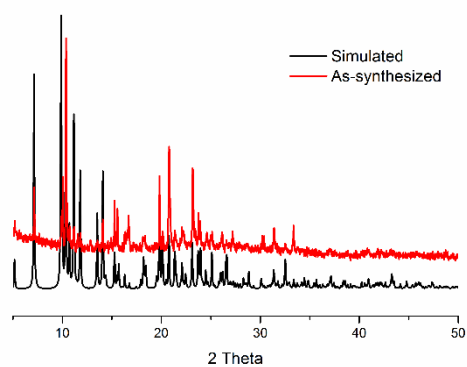
3. **Fig.S2** PXRD patterns of **2**.



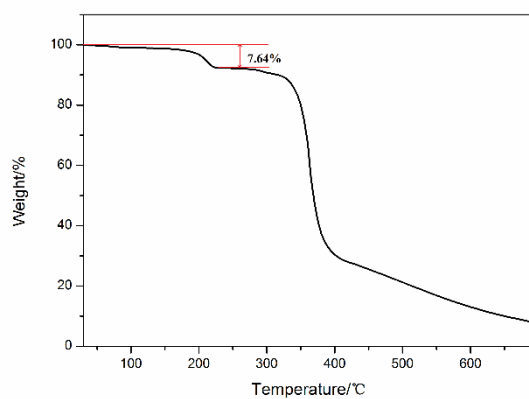
4. **Fig.S3** PXRD patterns of **3**.



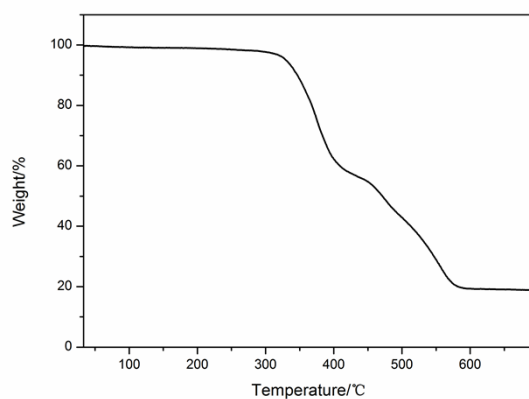
5. **Fig.S4** PXRD patterns of **4**.



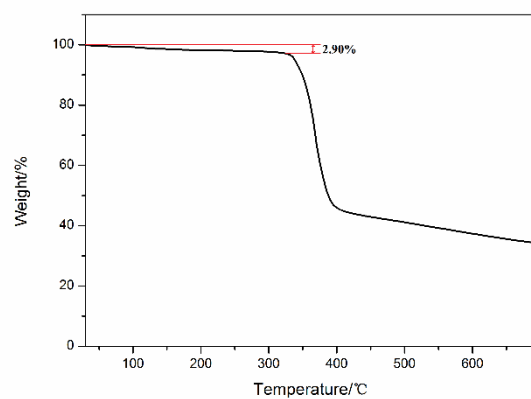
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8. Fig.S7 TGA curves of 3.



9. Fig.S8 TGA curves of 4.

