Supporting Information

Solvent-dependent assemblies, structure diversities and magnetic properties of two homochiral Co(II)/Na(I) coordination polymers

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Table S1 Selected bond lengths (Å) and angles (º) for ***S*-1** and ***S*-2**

		***S*-1**	
Co1—O4	2.069 (2)	Na1—O1	2.659 (3)
Co1—O7	2.065 (2)	Na1—O7^{i}	2.697 (4)
Co1—O1	2.089 (2)	Na1—O2^{ii}	2.828 (4)
Co1—O6	2.087 (2)	O2—Na1^{iii}	2.828 (4)
Co1—O5	2.114 (2)	O7—Na1^{iv}	2.697 (4)
Co1—N1	2.165 (3)		
O4—Co1—O7	179.04 (11)	C2—O1—Co1	116.2 (2)
O4—Co1—O1	91.79 (11)	C2—O1—Na1	126.1 (2)
O7—Co1—O1	87.81 (10)	Co1—O1—Na1	116.38 (13)
O4—Co1—O6	89.98 (10)	C2—O2—Na1^{iii}	110.0 (2)
O7—Co1—O6	89.33 (11)	C4—O4—Co1	116.7 (2)
O1—Co1—O6	109.42 (10)	C6—O5—Co1	113.6 (2)
O4—Co1—O5	92.88 (11)	Co1—O7—Na1^{iv}	122.49 (12)
O7—Co1—O5	87.81 (10)	O5—Co1—N1	79.83 (10)
O1—Co1—O5	157.16 (10)	O1—Na1—O7^{i}	122.76 (13)
O6—Co1—O5	92.93 (10)	O1—Na1—O2^{ii}	101.00 (12)
O4—Co1—N1	81.29 (9)	O7^{i}—Na1—O2^{ii}	114.90 (14)
O7—Co1—N1	99.49 (11)	C3—N1—Co1	108.06 (19)
O1—Co1—N1	78.82 (10)	C1—N1—Co1	106.05 (19)
O6—Co1—N1	168.29 (10)	C5—N1—Co1	103.8 (2)

Symmetry codes: (i) x−1, y, z; (ii) −x, y+1/2, −z+3/2; (iii) −x, y−1/2, −z+3/2; (iv) x+1, y, z.

		***S*-2**	
Co1—O1	2.050 (2)	Na1—O3	2.625 (4)

Co1—O4^{i}	2.075 (2)	Na1—O5^{ii}	2.722 (4)
Co1—O2	2.090 (2)	Na1—O4^{iii}	2.901 (4)
Co1—O3	2.095 (2)	O4—Co1^{iv}	2.075 (2)
Co1—O6	2.151 (2)	O4—Na1^{v}	2.901 (4)
Co1—N1	2.169 (3)	O5—Na1^{vi}	2.722 (4)
O1—Co1—O4^{i}	93.82 (9)	C1—N1—Co1	107.0 (2)
O1—Co1—O2	95.28 (10)	C6—N1—Co1	105.06 (19)
O4^{i}—Co1—O2	96.63 (9)	C3—N1—Co1	105.75 (19)
O1—Co1—O3	89.63 (10)	C2—O1—Co1	116.1 (2)
O4^{i}—Co1—O3	104.17 (9)	C9—O2—Co1	115.7 (2)
O2—Co1—O3	158.26 (9)	C4—O3—Co1	111.9 (2)
O1—Co1—O6	176.52 (11)	C4—O3—Na1	103.9 (2)
O4^{i}—Co1—O6	86.07 (10)	Co1—O3—Na1	120.75 (12)
O2—Co1—O6	88.19 (10)	C9—O4—Co1^{iv}	124.7 (2)
O3—Co1—O6	87.02 (10)	C9—O4—Na1^{v}	115.4 (2)
O1—Co1—N1	81.57 (9)	Co1^{iv}—O4—Na1^{v}	102.87 (11)
O4^{i}—Co1—N1	172.88 (10)	C2—O5—Na1^{vi}	113.1 (2)
O2—Co1—N1	78.49 (9)	O3—Na1—O5^{ii}	116.90 (13)
O3—Co1—N1	81.32 (10)	O3—Na1—O4^{iii}	130.17 (13)
O6—Co1—N1	98.87 (10)	O5^{ii}—Na1—O4^{iii}	105.46 (12)

Symmetry codes: (i) −*x*+2, *y*−1/2, −*z*+1/2; (ii) *x*−1/2, −*y*+1/2, −*z*; (iii) *x*, *y*−1, *z*; (iv) −*x*+2, *y*+1/2, −*z*+1/2; (v) *x*, *y*+1, *z*; (vi) *x*+1/2, −*y*+1/2, −*z*.

Table S2 Bond lengths (Å) and angles (º) of hydrogen bonds for ***S*-1**

D—H···*A*	*D*—H	H···*A*	*D*···*A*	*D*—H···*A*
O6-H6C···O3^{iii}	0.90	2.25	2.7993	119
O6-H6D···O2^{ii}	0.90	2.16	2.7498	122
O7-H7D···O3^{i}	0.90	2.14	2.7148	121

Symmetry codes: (i) 1/2-x,-y,1/2+z; (ii) -x,1/2+y,3/2-z; (iii) 1/2+x,1/2-y,1-z.

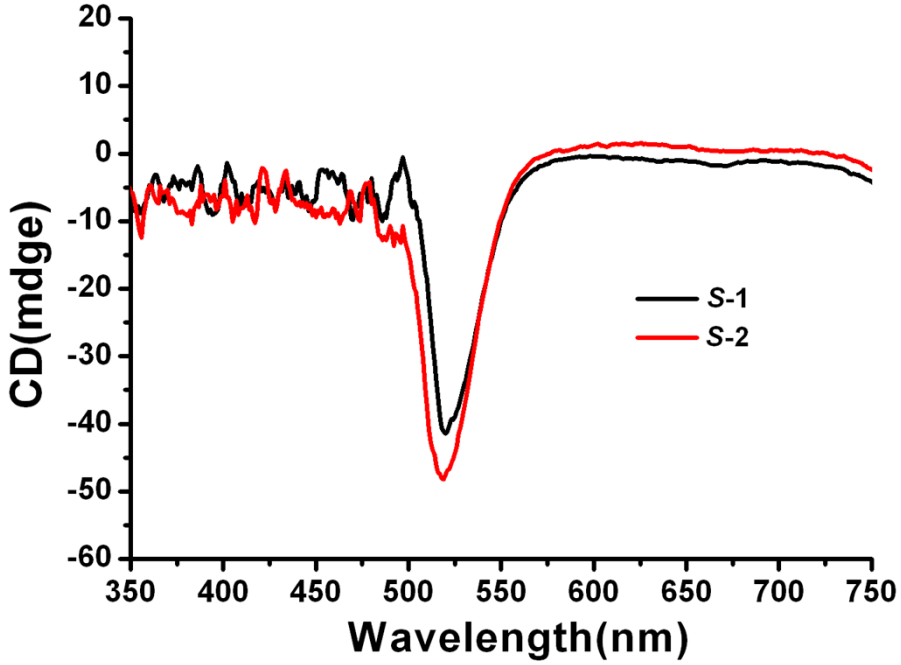

Fig. S1 The solid-state CD spectra of ***S*-1** and ***S*-2**.

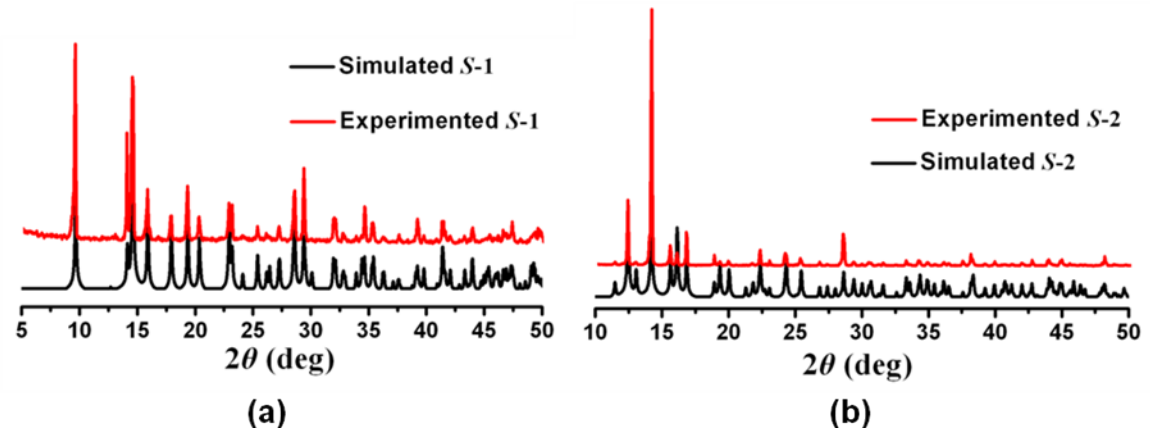

Fig. S2X-ray powder diffraction (XRPD) patterns of ***S*-1** and ***S*-2**

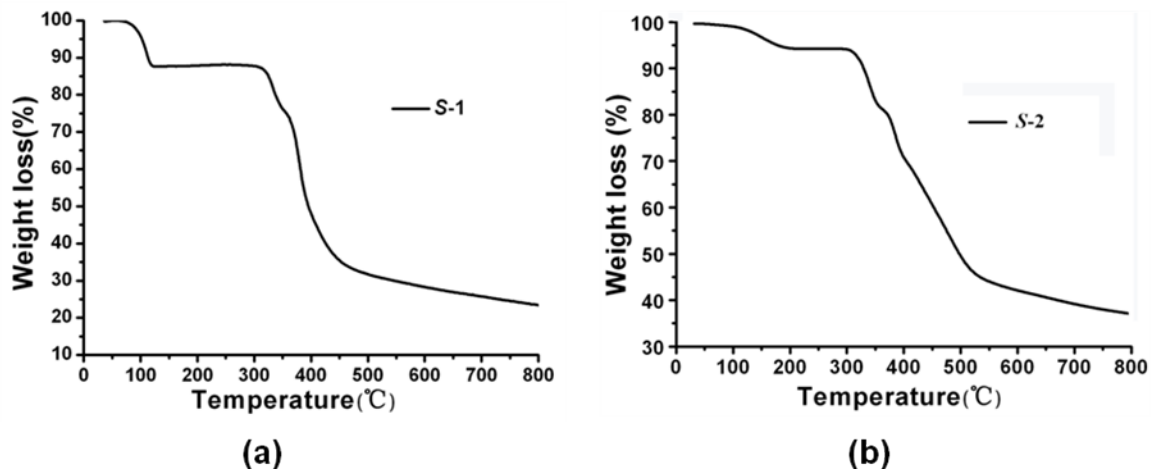

Fig. S3 View of the TGA curves of ***S*-1** and ***S*-2**

For ***S*-1**:

$$\hat{H} = D\left[\hat{S}_z^{\,2} - \frac{1}{3}S(S+1)\right] + g_{\parallel}\beta H_z S_z + g_{\perp}\beta(H_x S_x + H_y S_y)$$

The expressions of the molar magnetic susceptibility (χ_m) can be derived from the above Hamiltonian, where N is Avogadro's number, β is the Bohr magneton, k is Boltzmann's constant, g is the Landé g-factor and D is the zero-field splitting.

$$\chi_{\parallel} = \frac{N g_{\parallel}^{\,2}\beta^2}{kT} \times \frac{1 + 9\mathrm{e}^{-2D/kT}}{4(1+\mathrm{e}^{-2D/kT})}$$

$$\chi_{\perp} = \frac{N g_{\perp}^{\,2}\beta^2}{kT} \times \frac{4 + (3kT/D)(1-\mathrm{e}^{-2D/kT})}{4(1+\mathrm{e}^{-2D/kT})}$$

$$\chi_{\mathrm{m}} = \frac{\chi_{\parallel} + 2\chi_{\perp}}{3}$$