

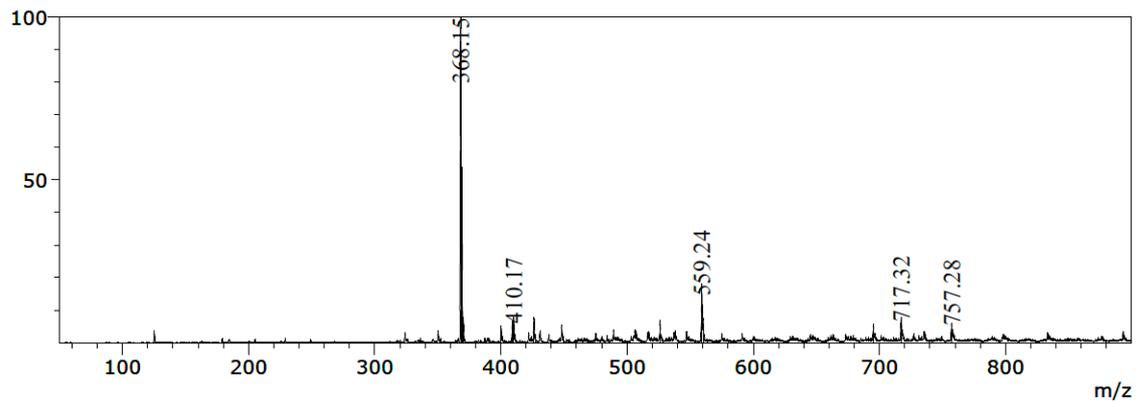
Supporting Information

Directing 2D-coordination networks: combined effects of a conformationally flexible 3,2':6',3"-terpyridine and chain length variation in 4'-(4-*n*-alkyloxyphenyl) substituents

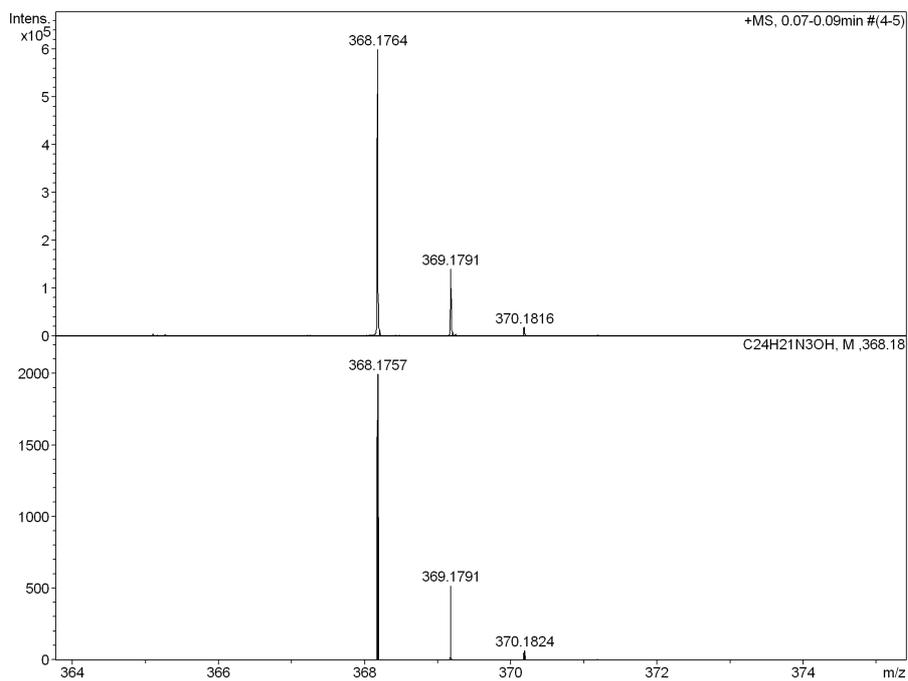
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(a)



(b)

Figure S1. (a) Electrospray (ESI) mass spectrum of compound 3 showing the $[M+H]^+$ ion. (b) High-resolution (ESI) mass spectrum of 3 (top) with simulated spectrum (below).

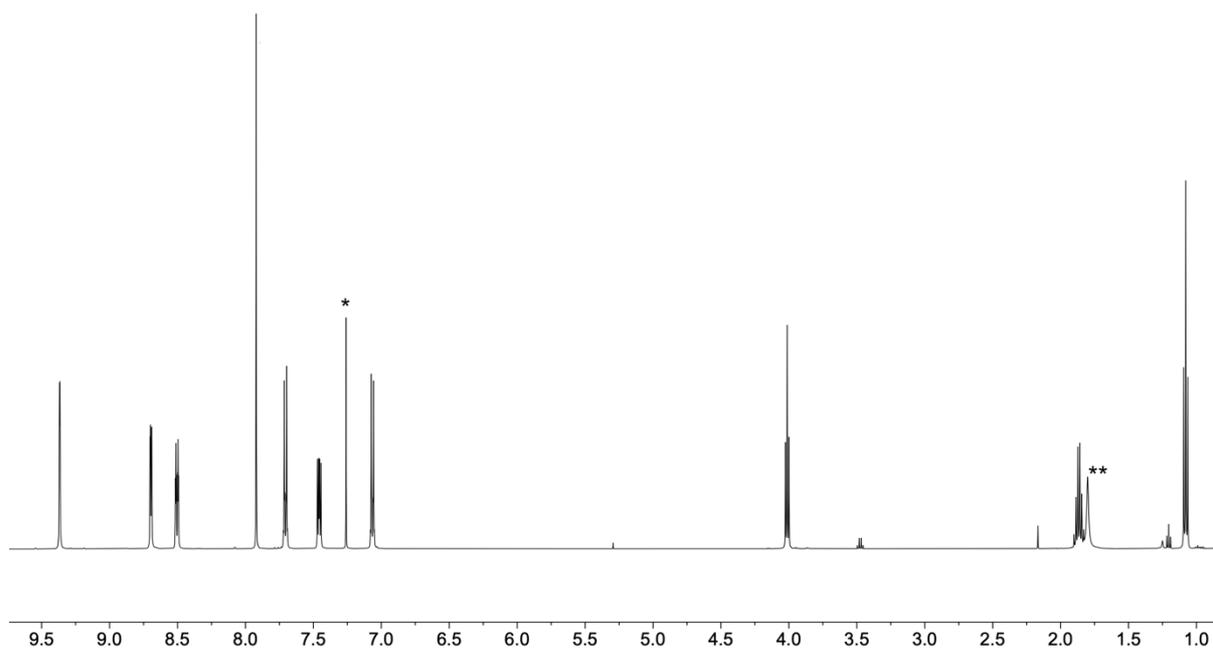


Figure S2. ^1H NMR (500 HMz, CDCl_3 , 298 K) spectrum of **3**. * = residual CHCl_3 , ** = H_2O .

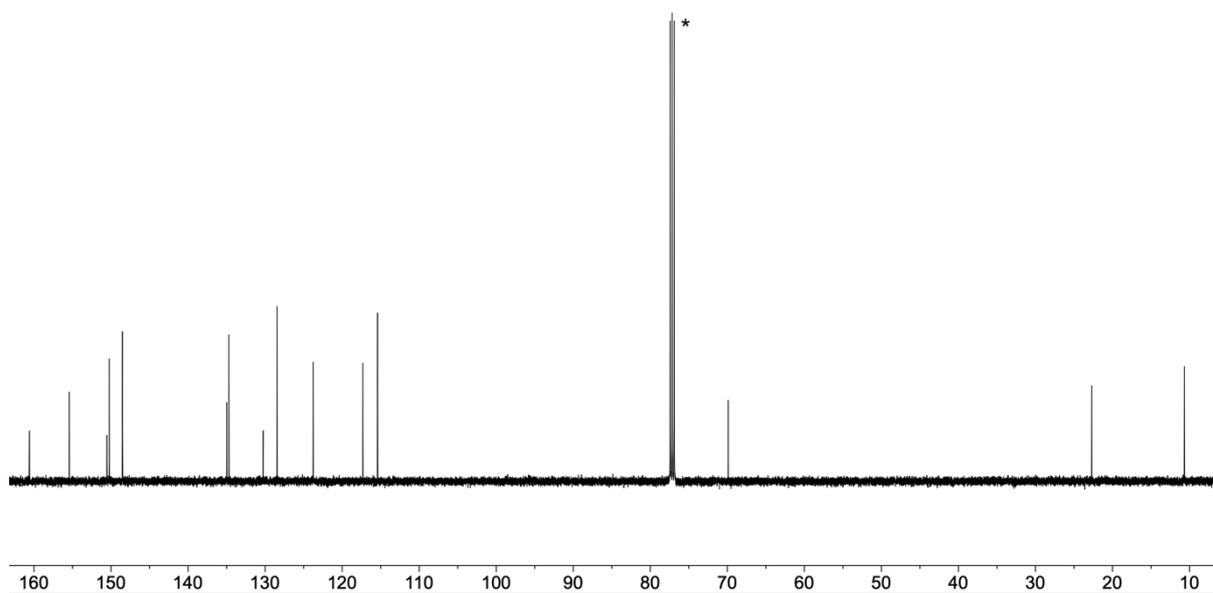


Figure S3. $^{13}\text{C}\{^1\text{H}\}$ NMR (126 HMz, CDCl_3 , 298 K) spectrum of **3**. * = CDCl_3 .

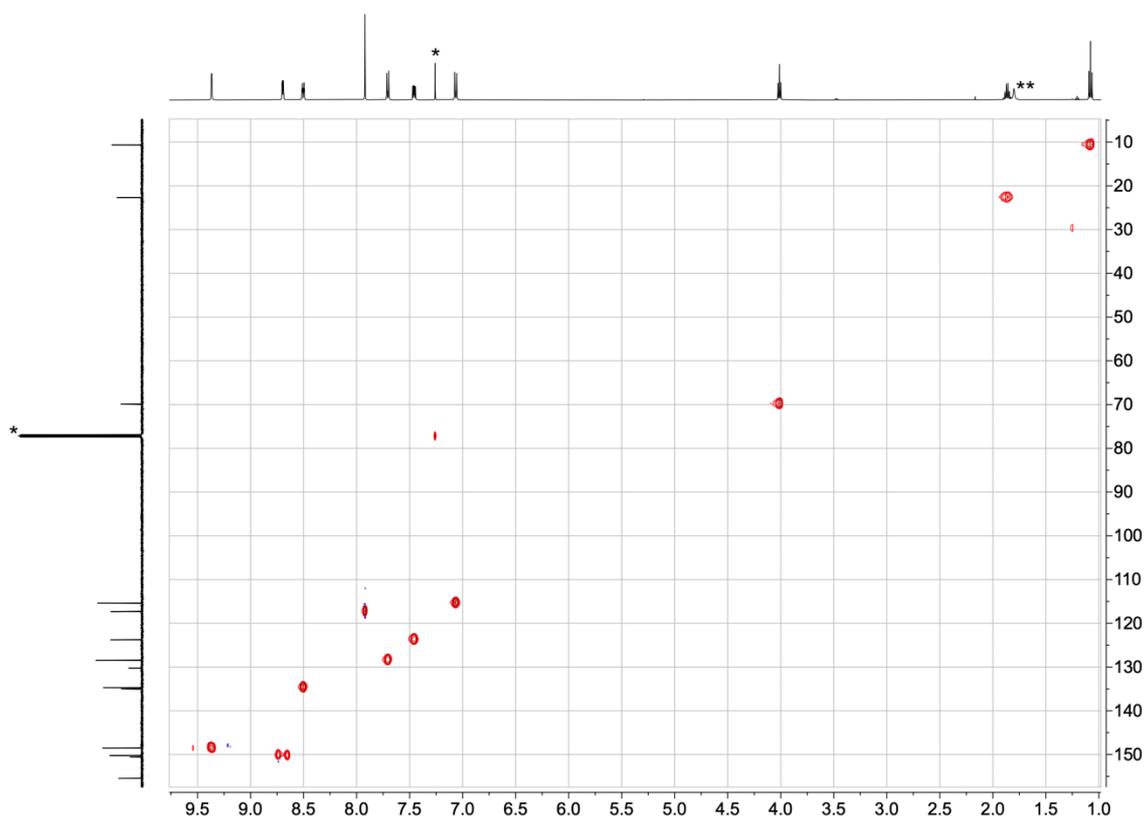


Figure S4. HMQC (^1H 500 MHz, $^{13}\text{C}\{^1\text{H}\}$ 126 HMz, CDCl_3 , 298 K) spectrum of **3**. * = CDCl_3 or residual CHCl_3 , ** = H_2O .

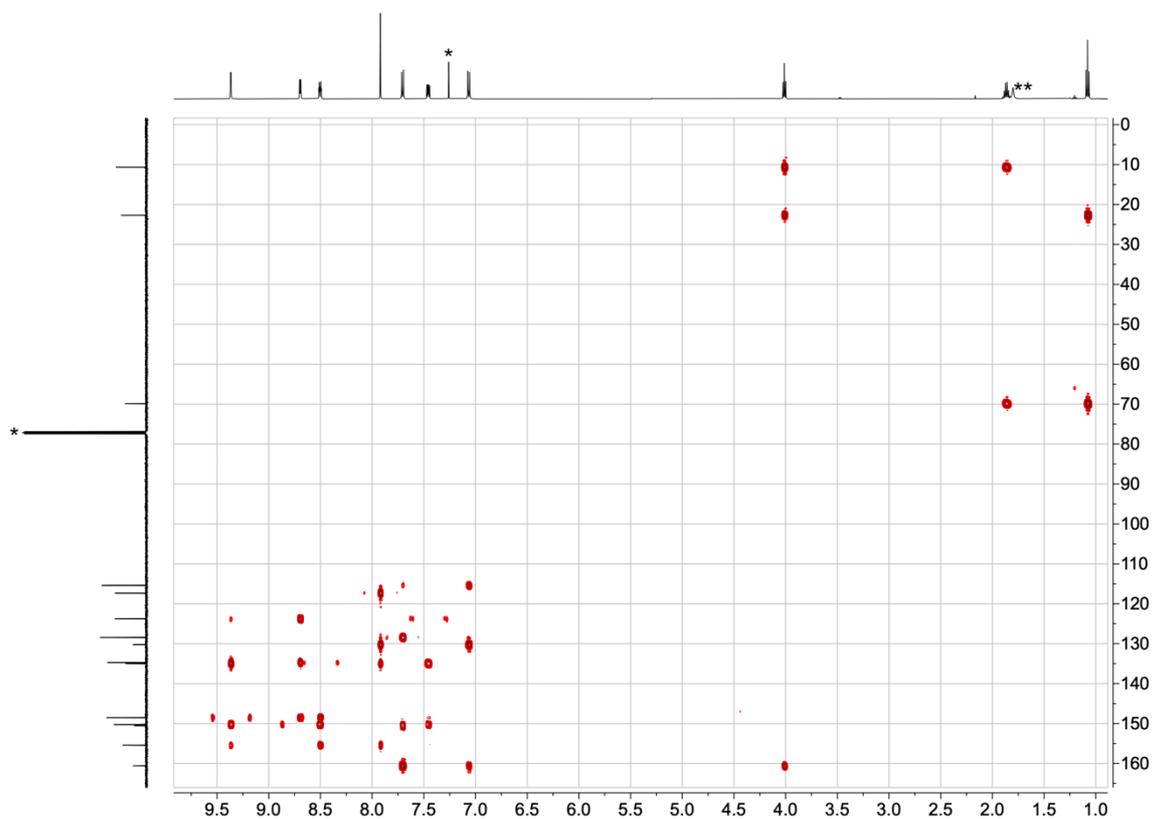


Figure S5. HMBC (^1H 500 MHz, $^{13}\text{C}\{^1\text{H}\}$ 126 HMz, CDCl_3 , 298 K) spectrum of **3**. * = CDCl_3 or residual CHCl_3 , ** = H_2O .

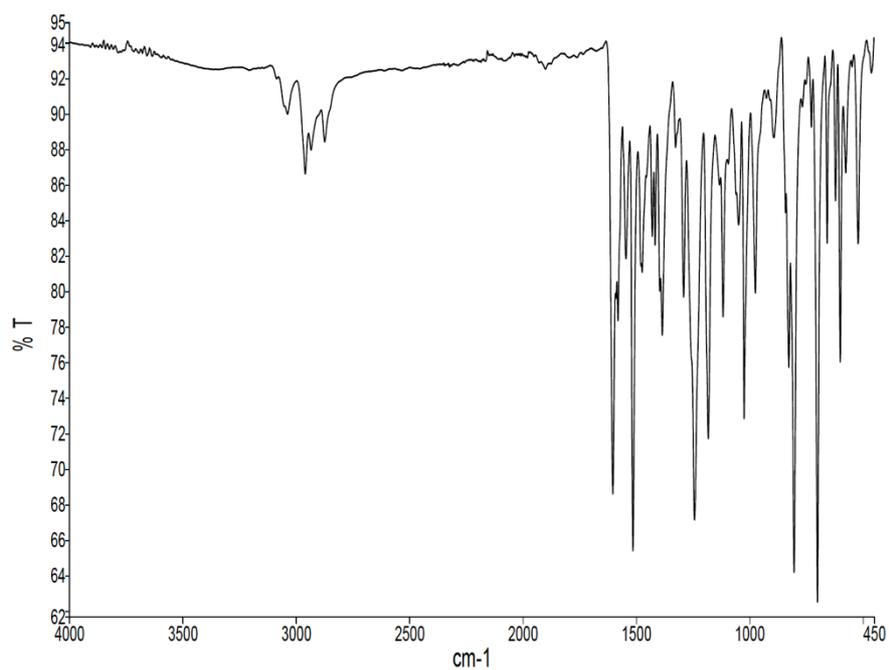


Figure S6. Solid-state IR spectrum of compound 3.

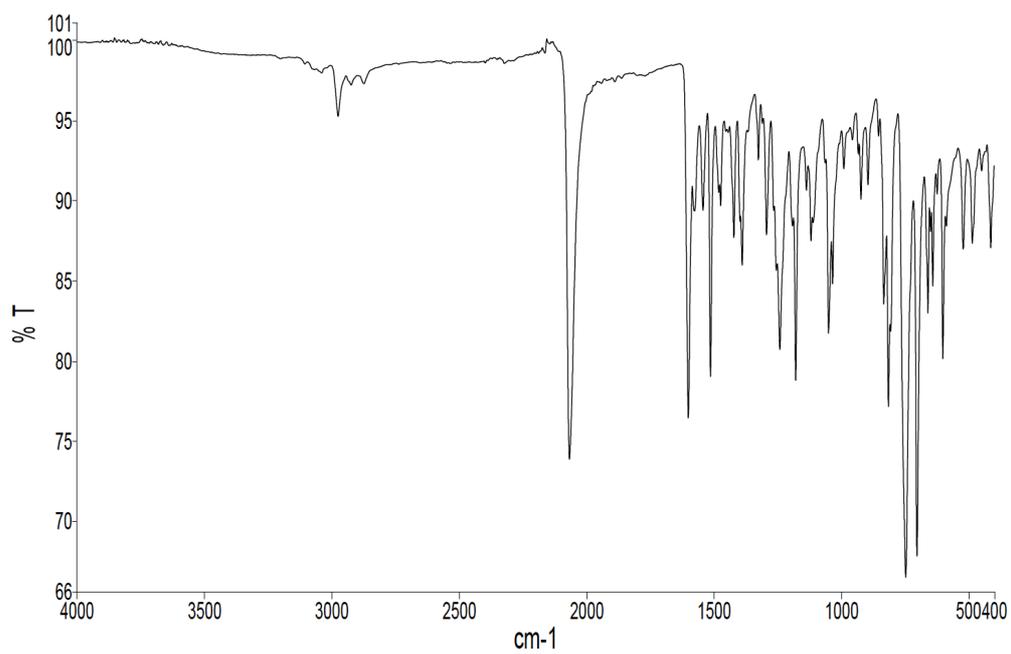


Figure S7. Solid-state IR spectrum of single crystals of $[\{\text{Co}(\mathbf{2})(\text{NCS})_2\} \cdot 0.6\text{CHCl}_3]_n$.

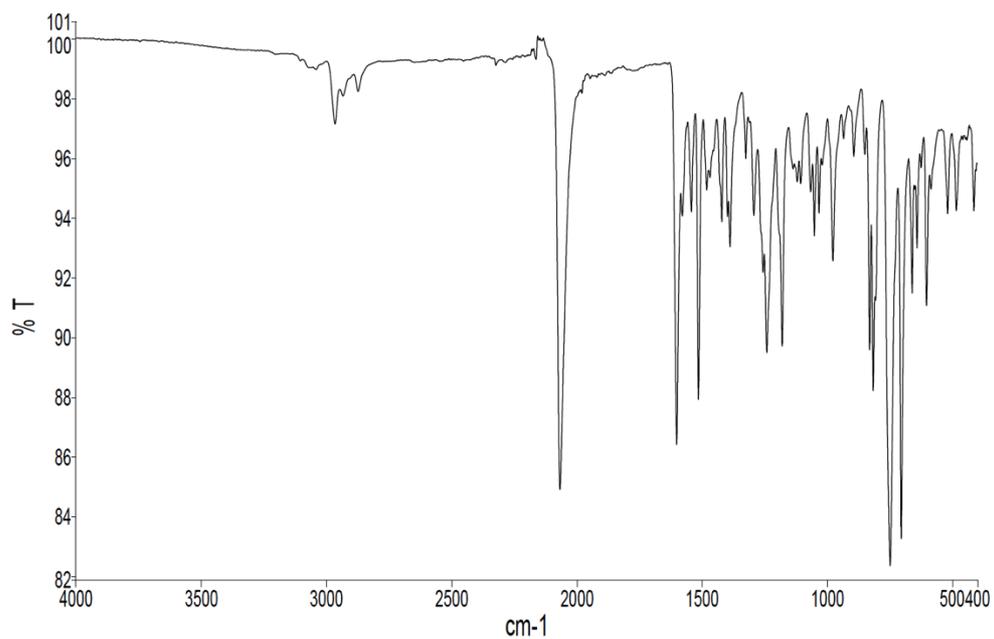


Figure S8. Solid-state IR spectrum of single crystals of $[\{\text{Co}(3)(\text{NCS})_2\} \cdot 4\text{CHCl}_3 \cdot 0.25\text{H}_2\text{O}]_n$.

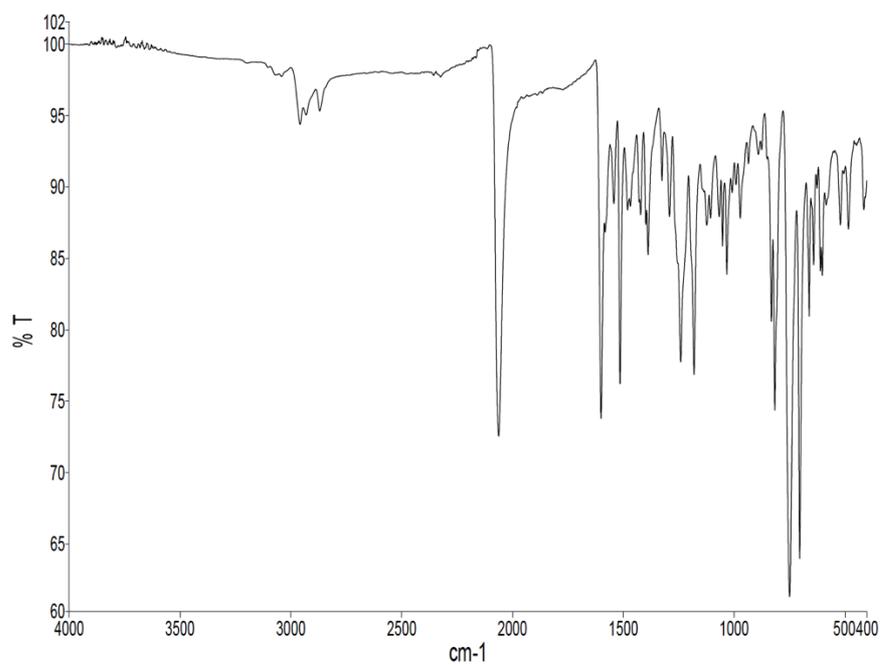


Figure S9. Solid-state IR spectrum of single crystals of $[\{\text{Co}(4)_2(\text{NCS})_2\} \cdot 4\text{CHCl}_3]_n$.

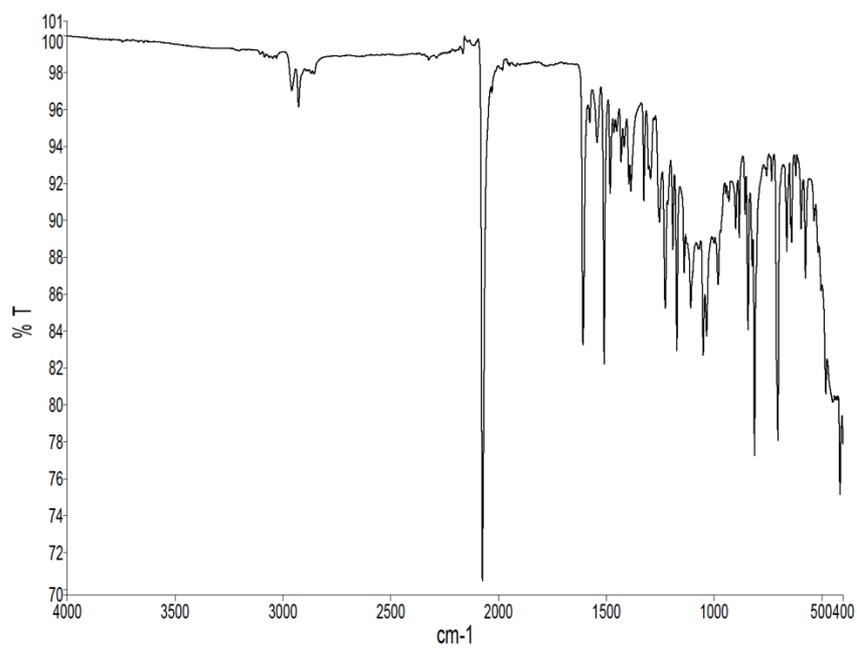


Figure S10. Solid-state IR spectrum of single crystals of $[\text{Co}_2(\mathbf{5})_4(\text{NCS})_4]_n$.

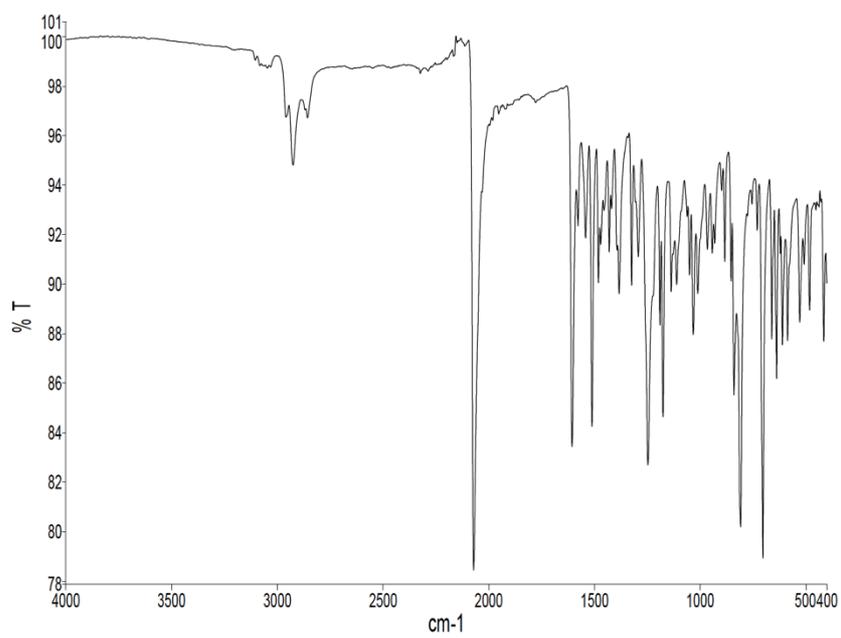


Figure S11. Solid-state IR spectrum of single crystals of $[\text{Co}(\mathbf{6})_2(\text{NCS})_2]_n$.

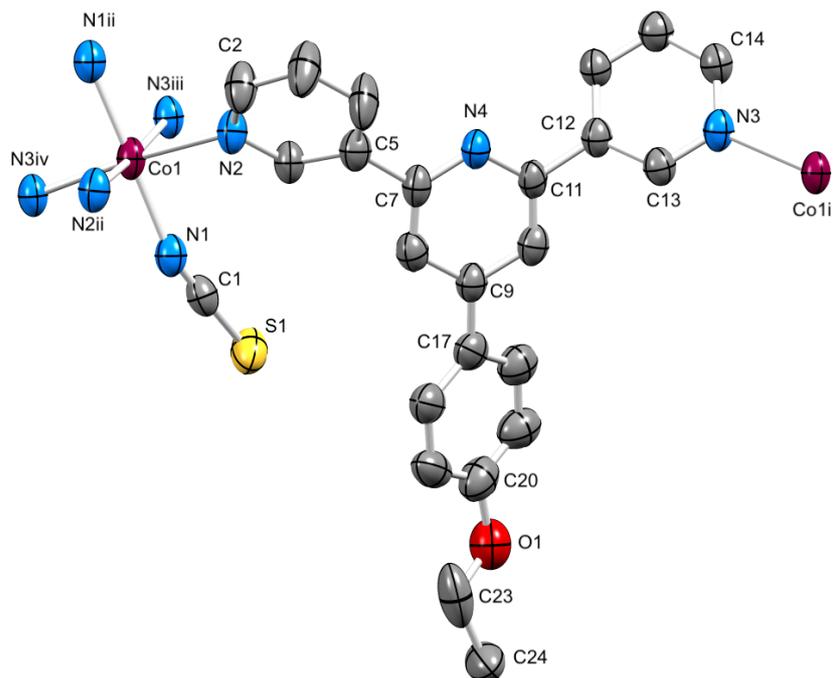


Figure S12. ORTEP representation of the asymmetric unit in $[\{\text{Co}(2)_2(\text{NCS})_2\} \cdot 0.6\text{CHCl}_3]_n$ with symmetry generated atoms. Ellipsoids are plotted at a 40% probability level, and H atoms are omitted. Symmetry codes: $i = 1/2 - y, x, z$; $ii = 1 - y, 1 - x, 3/2 - z$; $iii = y, 1/2 - x, z$; $iv = 1/2 + x, 1 - y, 3/2 - z$.

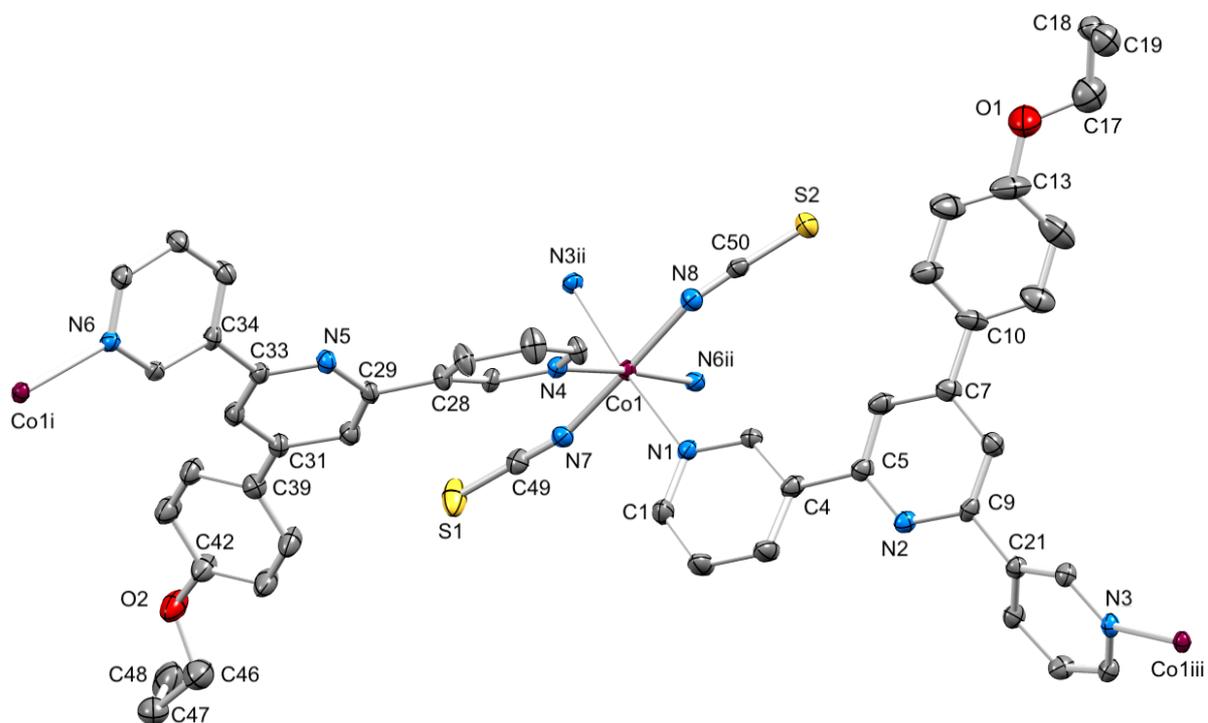


Figure S13. ORTEP representation of the asymmetric unit in $[\{\text{Co}(3)_2(\text{NCS})_2\} \cdot 4\text{CHCl}_3 \cdot 0.25\text{H}_2\text{O}]_n$ with symmetry generated atoms. Ellipsoids are plotted at a 40% probability level, and H atoms are omitted. Symmetry codes: $i = 1/2 - x, -1/2 + y, 1/2 - z$; $ii = 1/2 - x, 1/2 + y, 1/2 - z$; $iii = 1/2 + x, 3/2 - y, 1/2 - z$.

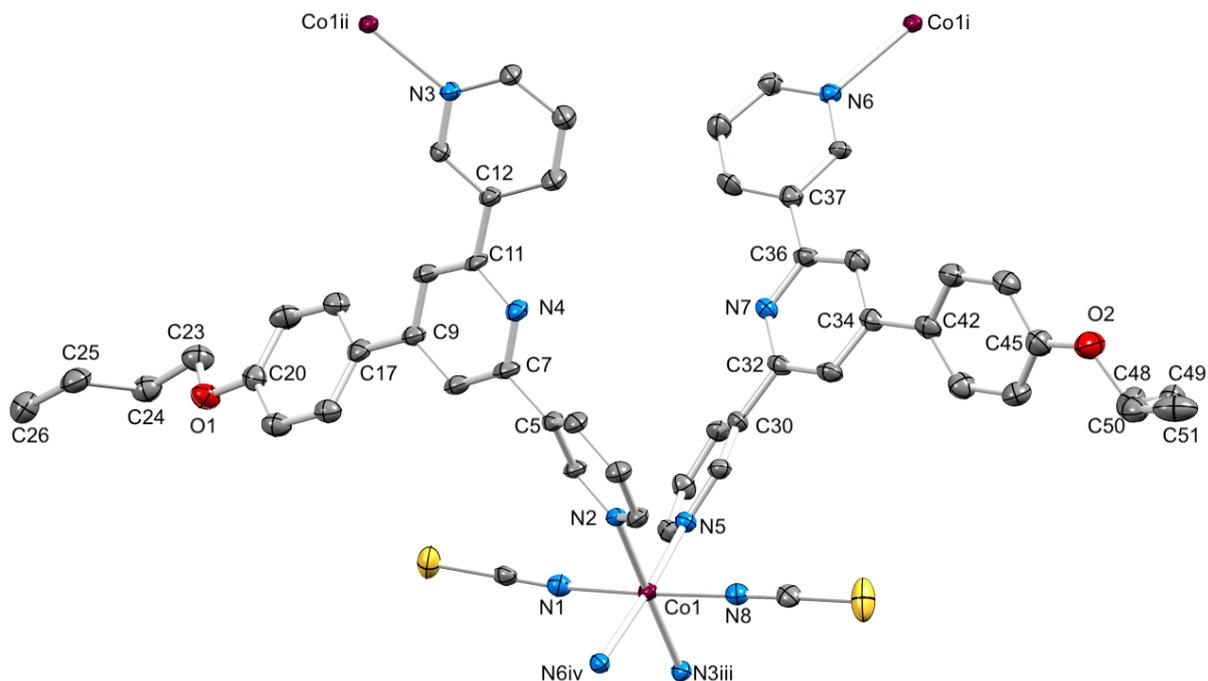


Figure S14. ORTEP representation of the asymmetric unit in $[\{\text{Co}(4)_2(\text{NCS})_2\} \cdot 4\text{CHCl}_3]_n$ with symmetry generated atoms. Ellipsoids are plotted at a 40% probability level, and H atoms omitted. Symmetry codes: $i = 3/2-x, 1/2+y, 1/2-z$; $ii = -1/2+x, 1/2-y, 1/2-z$; $iii = 1/2+x, 1/2-y, 1/2-z$; $iv = 3/2-x, -1/2+y, 1/2-z$.

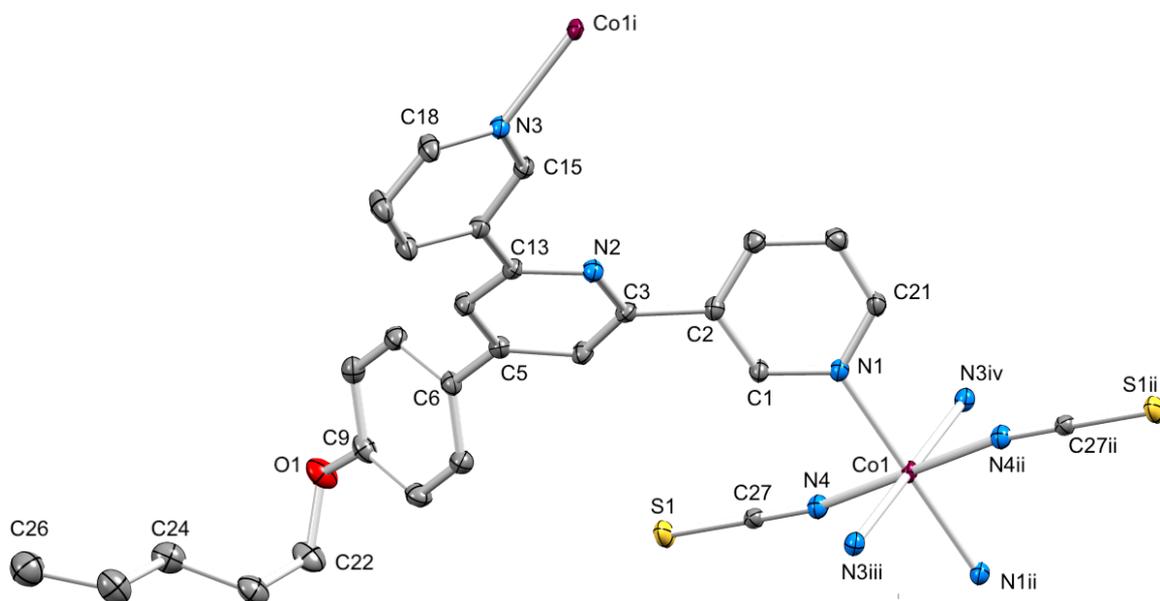


Figure S15. ORTEP representation of the asymmetric unit in $[\text{Co}_2(5)_4(\text{NCS})_4]_n$ with symmetry generated atoms. Ellipsoids are plotted at a 40% probability level, and H atoms omitted. Symmetry codes: $i = 1/2-x, -1/2+y, 3/2-z$; $ii = 1-x, 1-y, 2-z$; $iii = 1/2+x, 1/2-y, 1/2+z$; $iv = 1/2-x, 1/2+y, 3/2+z$.

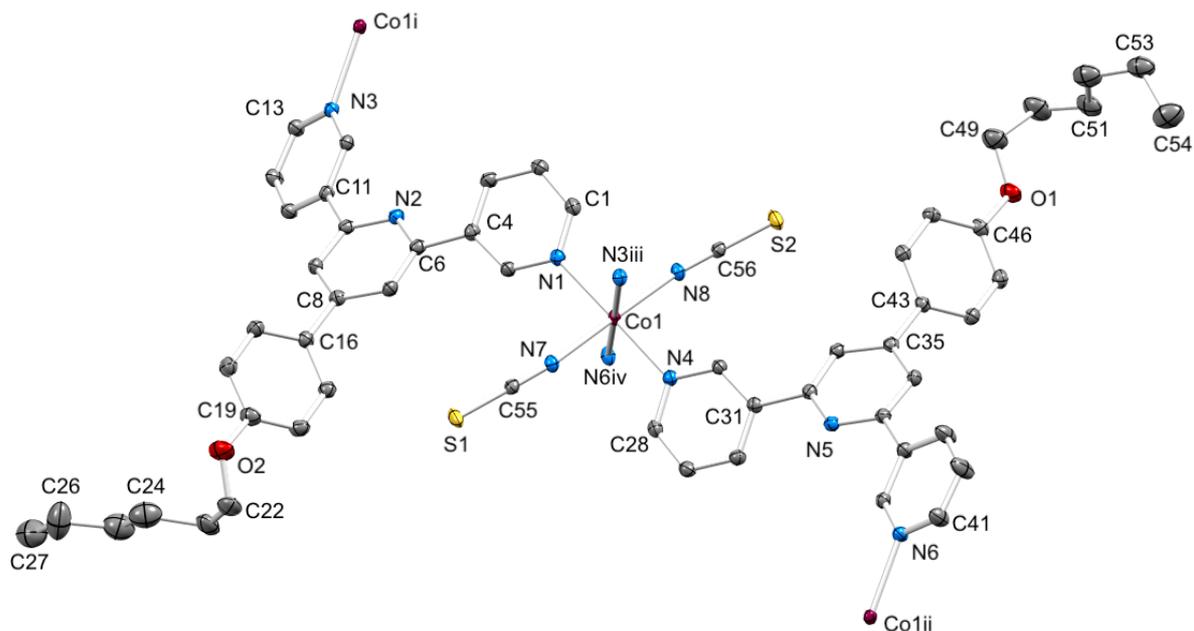


Figure S16. ORTEP representation of the asymmetric unit in $[\text{Co}(6)_2(\text{NCS})_2]_n$ with symmetry generated atoms. Ellipsoids are plotted at a 40% probability level, and H atoms omitted. Symmetry codes: i = $2-x, -1/2+y, 3/2-z$; ii = $1-x, 1/2+y, 3/2-z$; iii = $2-x, 1/2+y, 3/2-z$; iv = $1-x, -1/2+y, 3/2-z$.

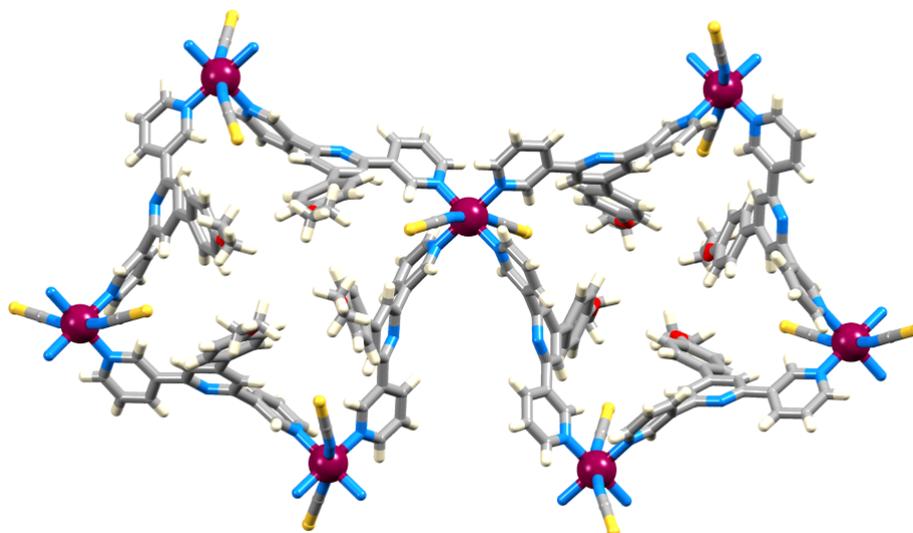


Figure S17. Detail of the relative orientations of 4-ethoxyphenyl around the edges of two corner-sharing squares in the (4,4) net in $[\{\text{Co}(2)_2(\text{NCS})_2\} \cdot 0.6\text{CHCl}_3]_n$.

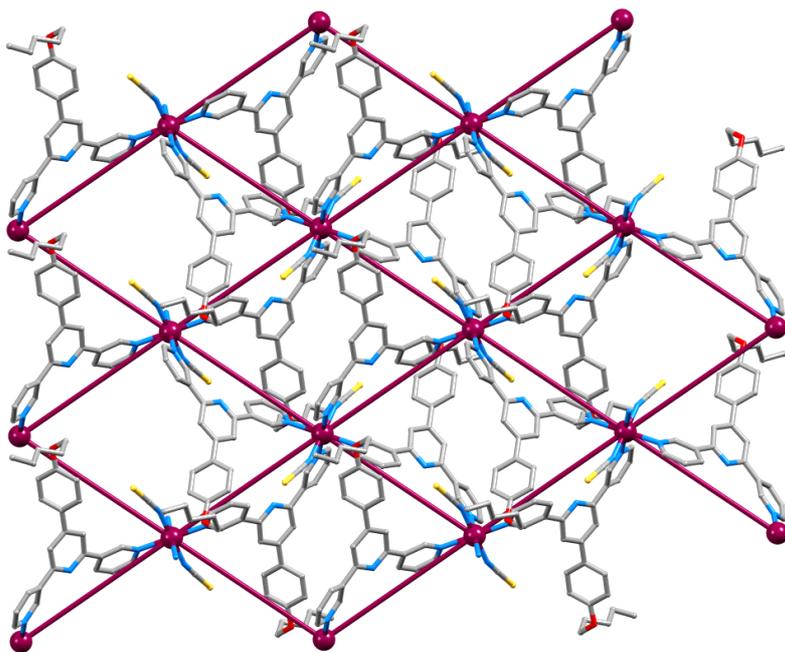


Figure S18. Part of one (4,4) net in $[\text{Co}_2(5)_4(\text{NCS})_4]_n$, with the net defined by the lines connecting the Co atoms; H atoms are omitted.

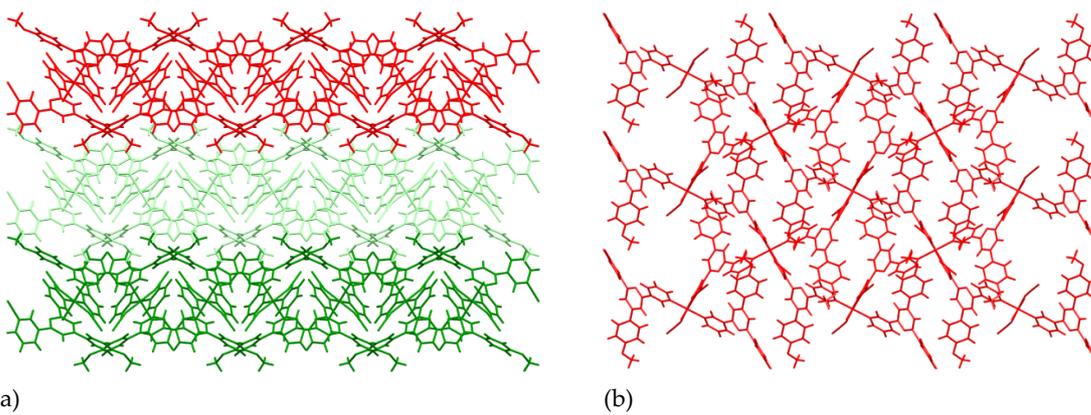


Figure S19. Eclipsed 2D-sheets in $[[\text{Co}(\mathbf{1})_2(\text{NCS})_2] \cdot 3\text{MeOH}]_n$: (a) view down the c -axis, and (b) view down the a -axis. CSD refcode FOXQUH.