Supporting Information

Single and double-stranded 1D-coordination polymers with 4'-(4-alkyloxyphenyl)-3,2':6',3"-terpyridines and $\{Cu_2(\mu\text{-}OAc)_4\}$ or $\{Cu_4(\mu_3\text{-}OH)_2(\mu\text{-}OAc)_2(\mu_3\text{-}OAc)_2(AcO\text{-}\kappa O)_2\}$ motifs

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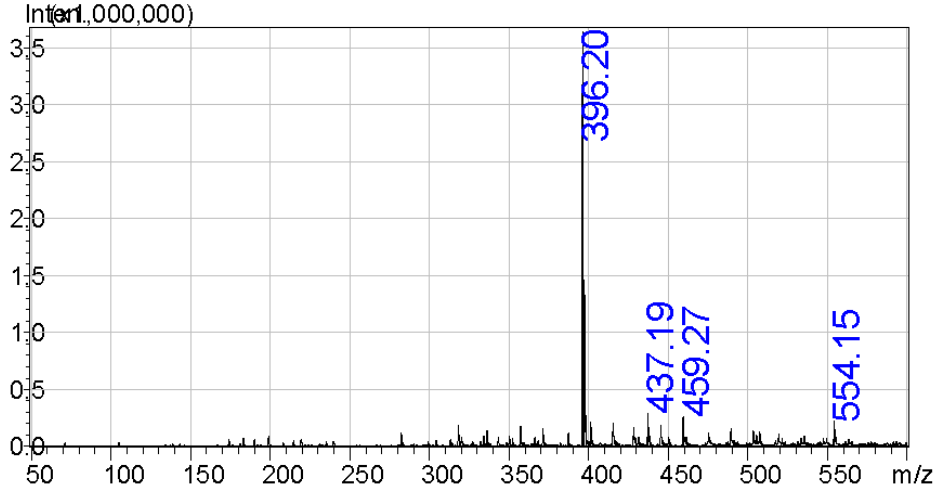


Figure S1. Electrospray mass spectrum of compound **3**.

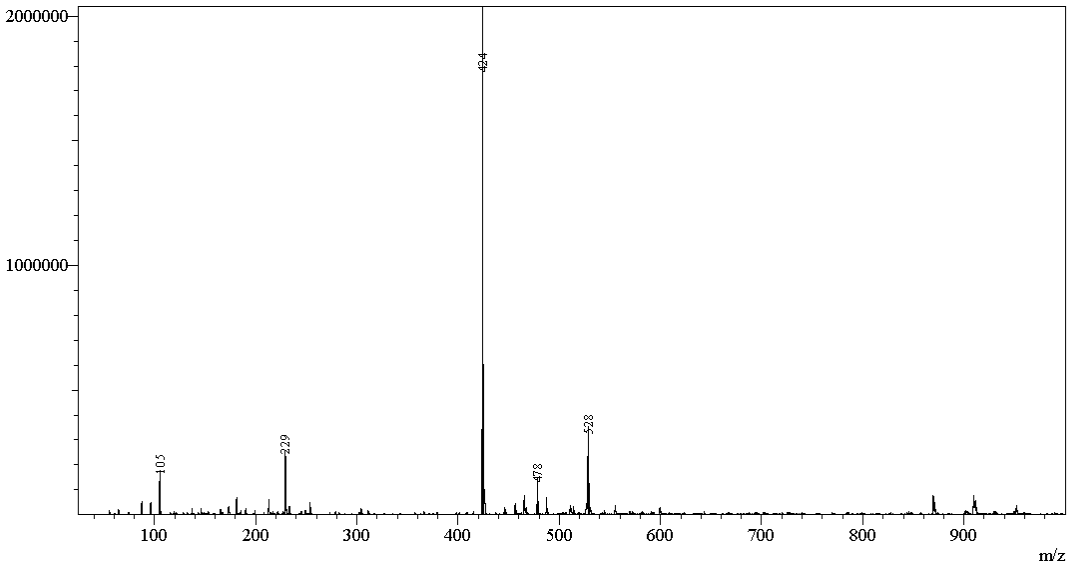


Figure S2. Electrospray mass spectrum of compound **4**.

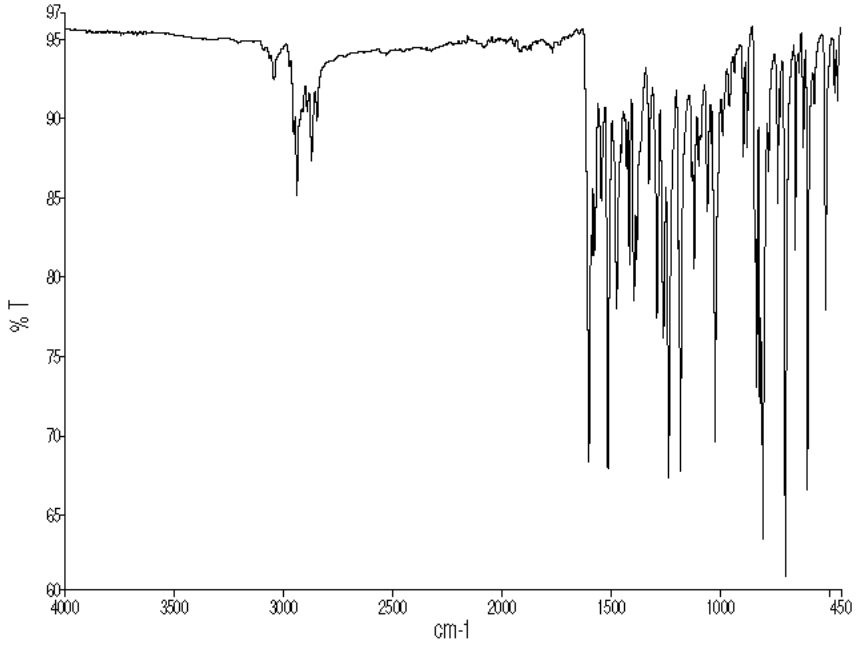


Figure S3. FT-IR spectrum of compound **3** (solid state).

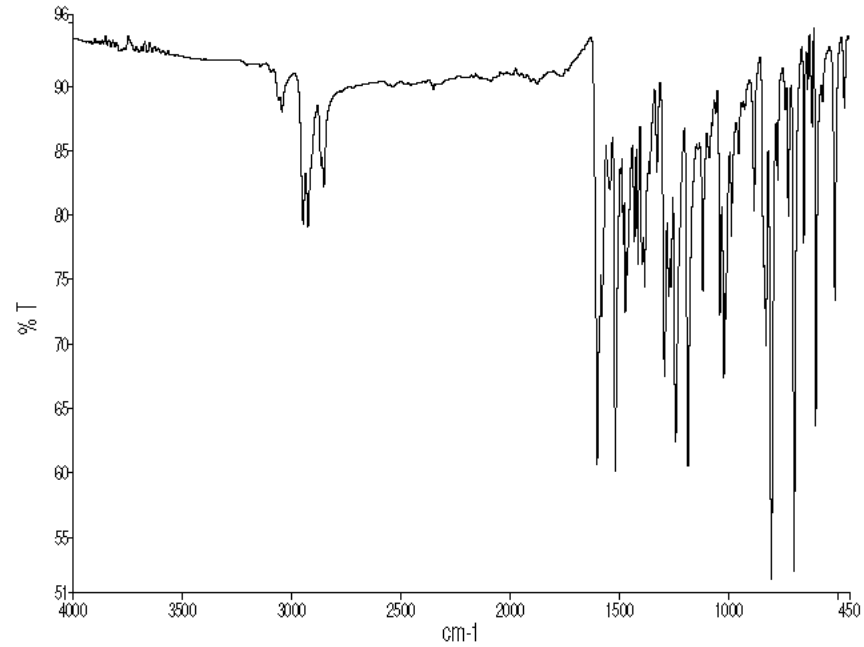


Figure S4. FT-IR spectrum of compound **4** (solid state).

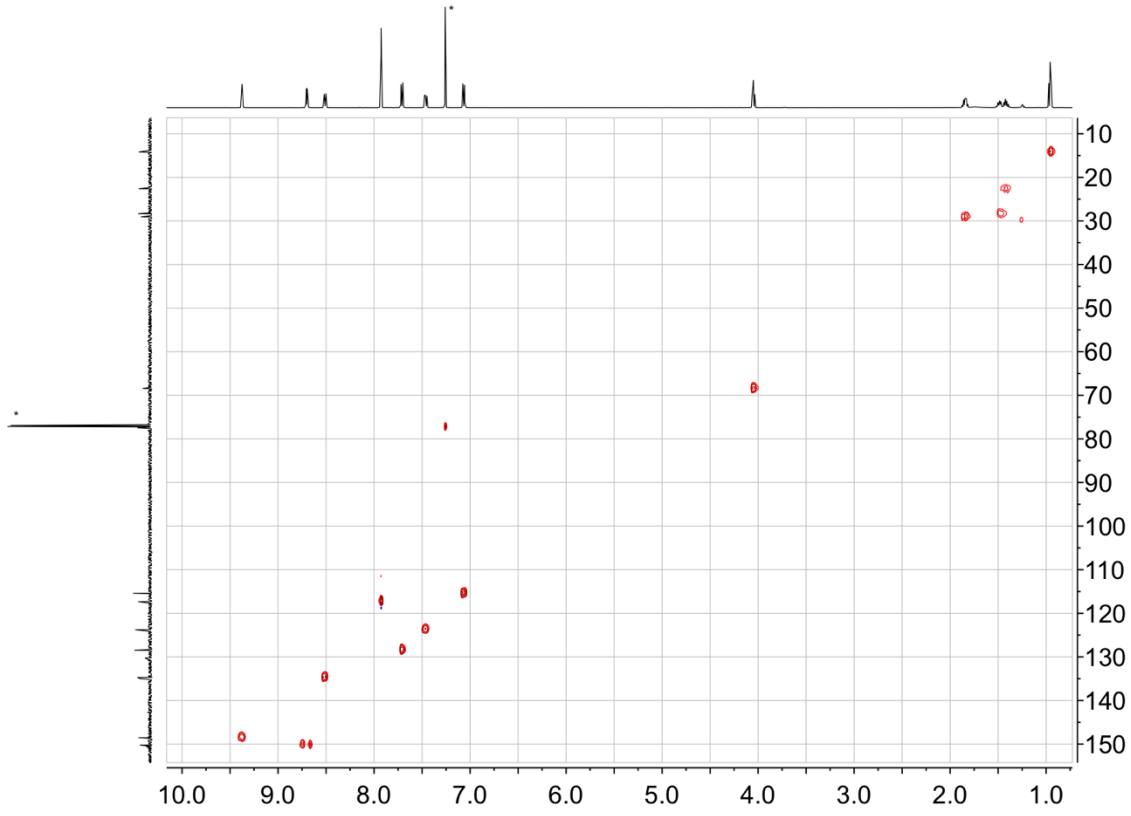


Figure S5. HMQC spectrum of **3** in $CDCl_3$ (500 MHz ^{1}H, 126 MHz $^{13}C\{^{1}H\}$, 298 K). * = $CHCl_3/CDCl_3$.

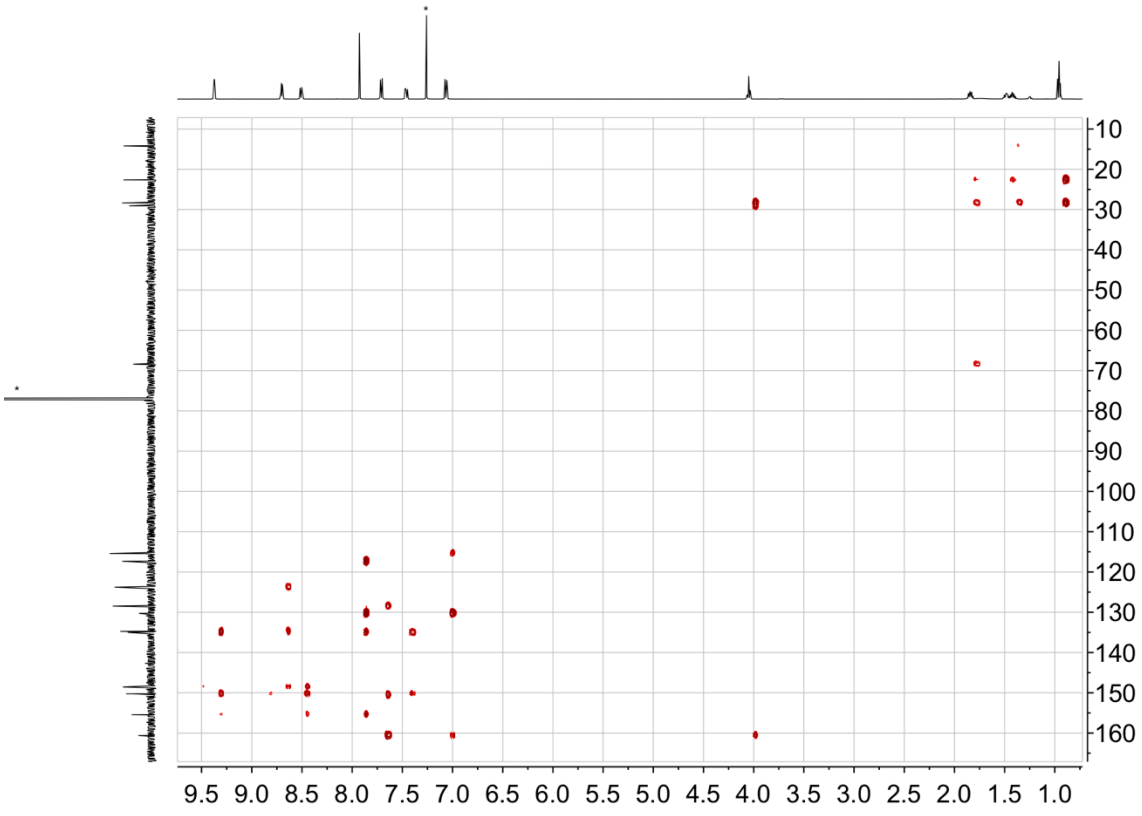


Figure S6. HMBC spectrum of **3** in $CDCl_3$ (500 MHz ^{1}H, 126 MHz $^{13}C\{^{1}H\}$, 298 K). * = $CHCl_3/CDCl_3$.

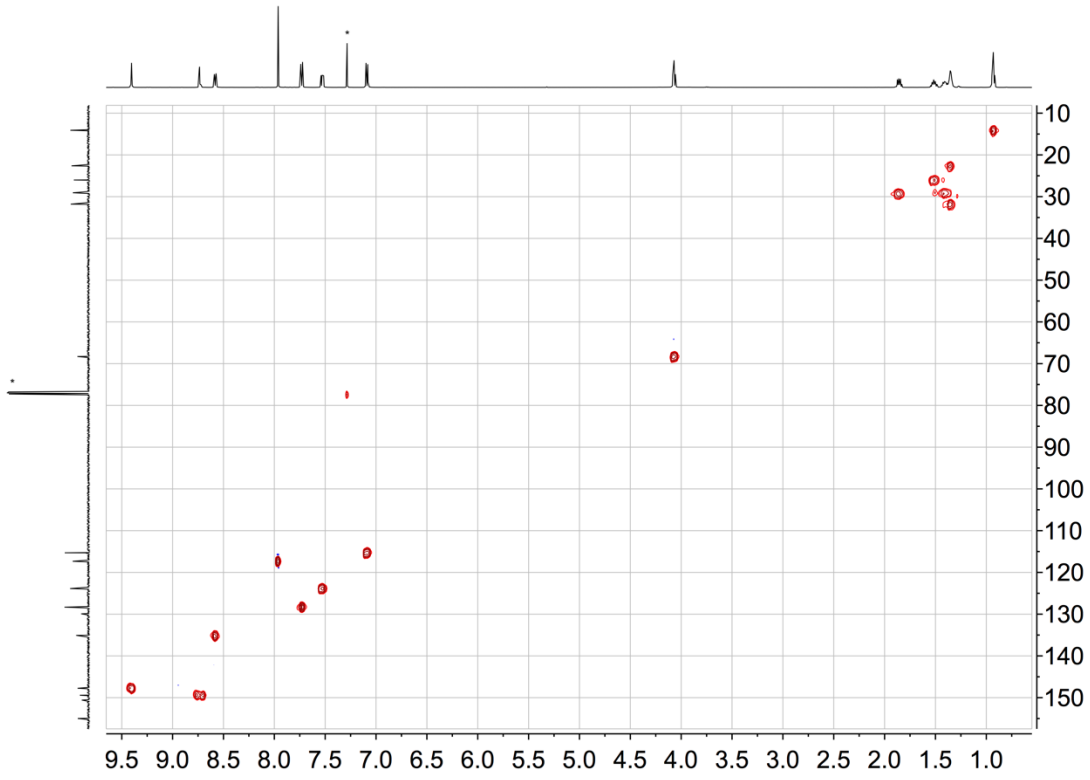


Figure S7. HMQC spectrum of **4** in $CDCl_3$ (500 MHz ^{1}H, 126 MHz $^{13}C\{^{1}H\}$, 298 K). * = $CHCl_3/CDCl_3$.

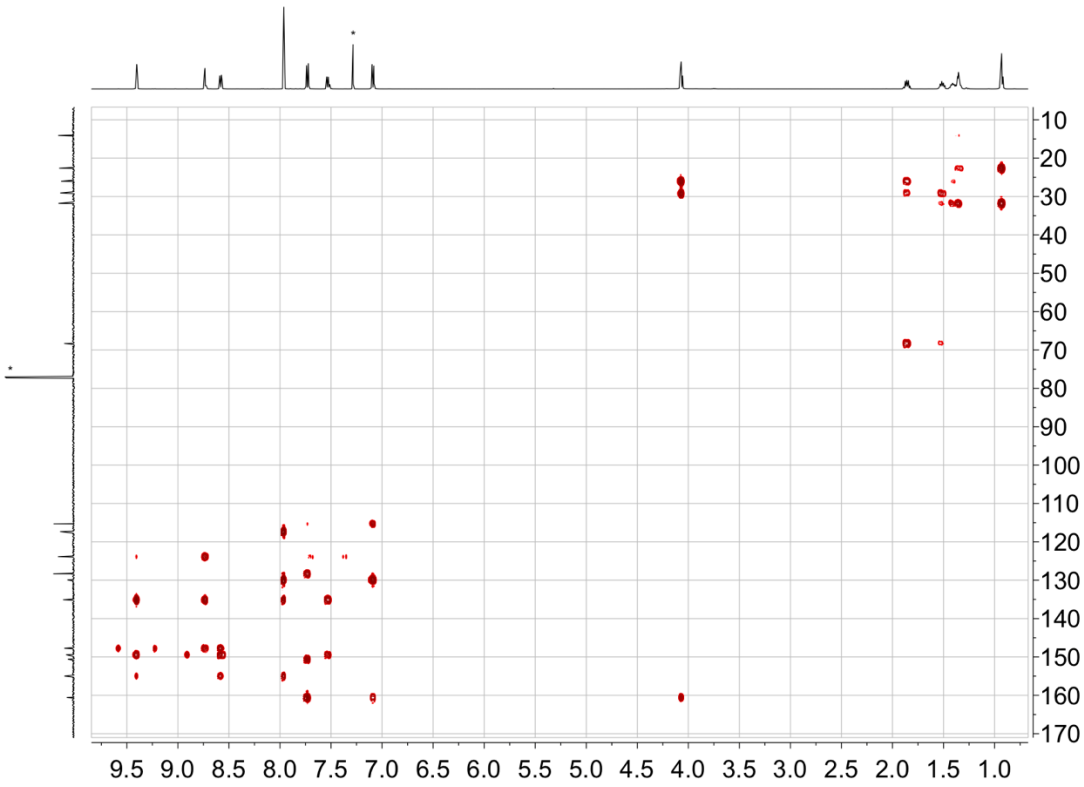
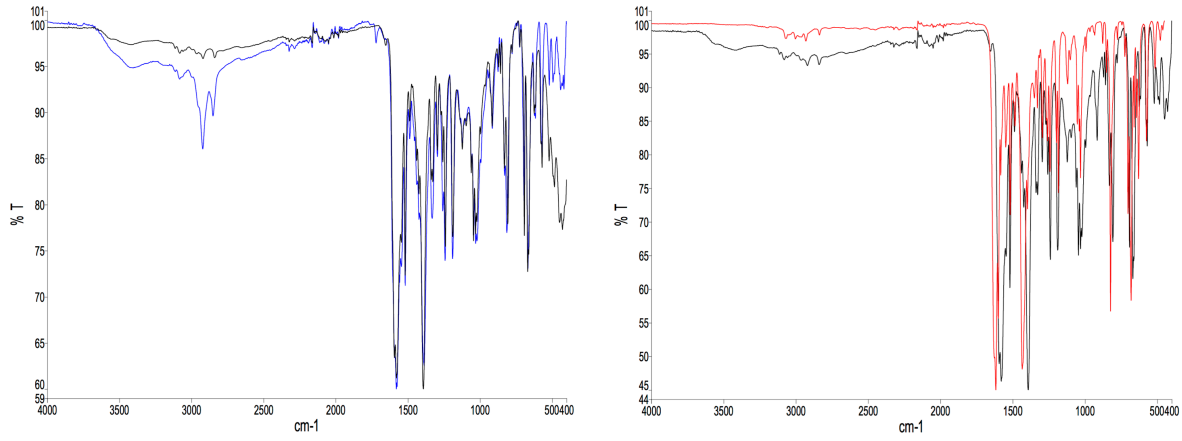


Figure S8. HMBC spectrum of **4** in $CDCl_3$ (500 MHz ^{1}H, 126 MHz $^{13}C\{^{1}H\}$, 298 K). * = $CHCl_3/CDCl_3$.



(a) (b)

Figure S9. Normalized FT-IR spectra (solid-state) of the bulk materials from (a) experiment 1 (black line) and experiment 2 (blue line), and (b) experiment 1 (black line, [{$Cu_4(\mu_3\text{-}OH)_2(\mu\text{-}OAc)_2(\mu_3\text{-}OAc)_2(AcO\text{-}\kappa O)_2(\mathbf{1})_2\}\cdot 2MeOH]_n$) and the preparative scale reaction (red line, $[Cu_2(\mu\text{-}OAc)_4(\mathbf{1})]_n$).

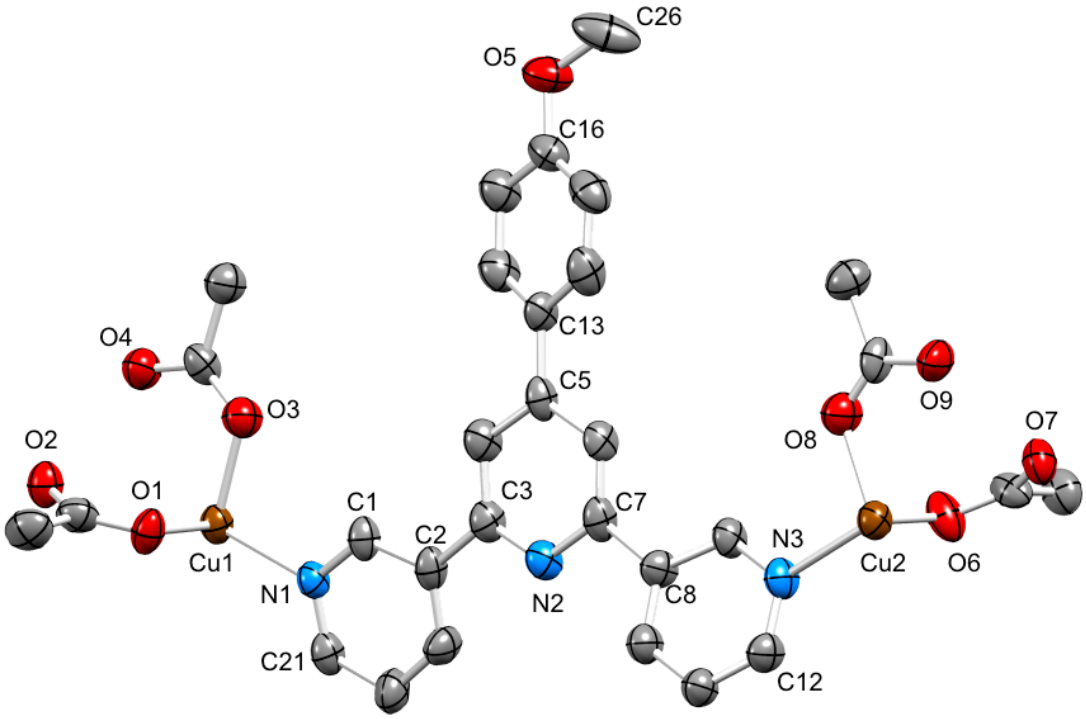


Figure S10. ORTEP-stype representation of the asymmetric unit in $[Cu_2(\mu\text{-}OAc)_4(\mathbf{1})]_n$ with ellipsoids plotted at 40% probability level and H atoms omitted.

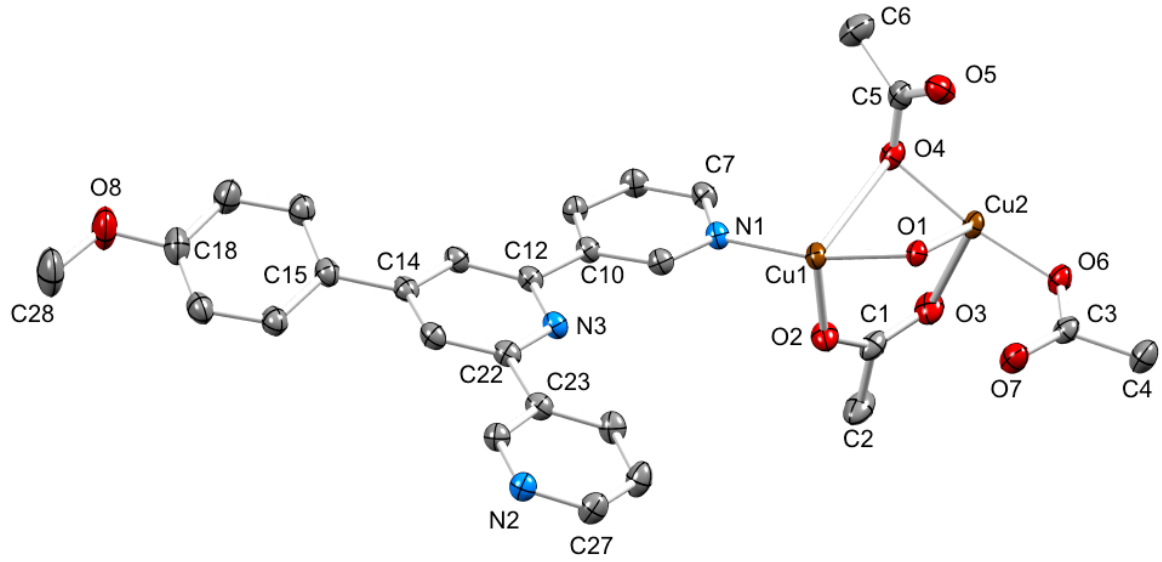


Figure S11. ORTEP-stype representation of the asymmetric unit in {[$Cu_4(\mu_3\text{-}OH)_2(\mu\text{-}OAc)_2(\mu_3\text{-}OAc)_2(AcO\text{-}\kappa O)_2(\mathbf{1})_2$]·2MeOH}$_n$ with ellipsoids plotted at 40% probability level and H atoms and solvent molecules omitted.

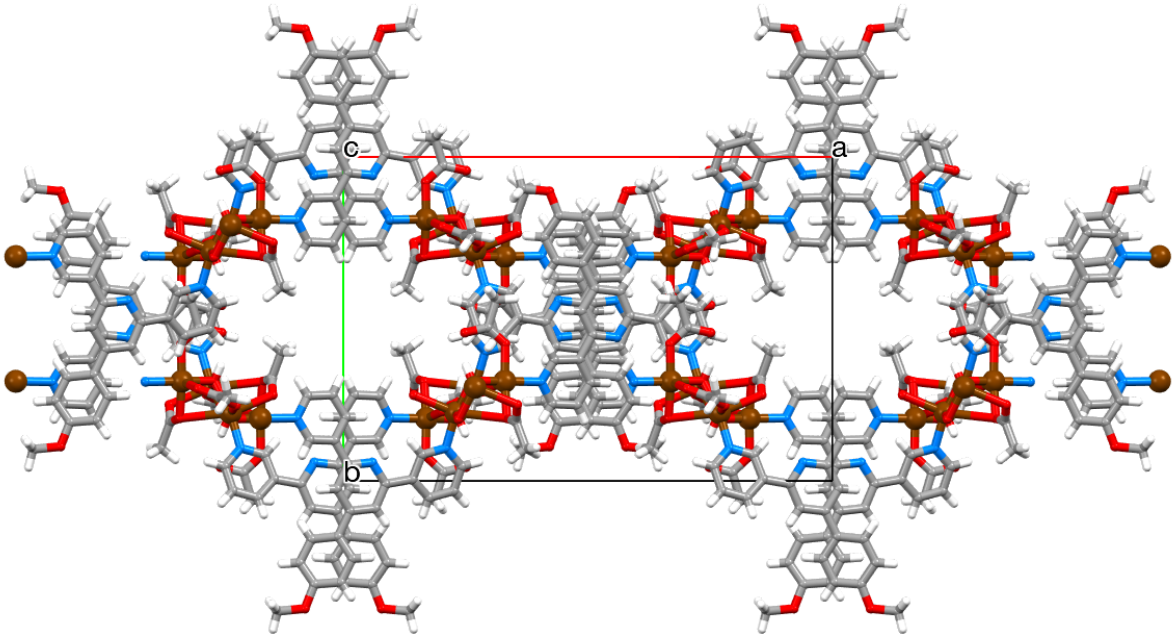


Figure S12 Packing of chains in {[$Cu_4(\mu_3\text{-}OH)_2(\mu\text{-}OAc)_2(\mu_3\text{-}OAc)_2(AcO\text{-}\kappa O)_2(\mathbf{1})_2$]·2MeOH}$_n$.

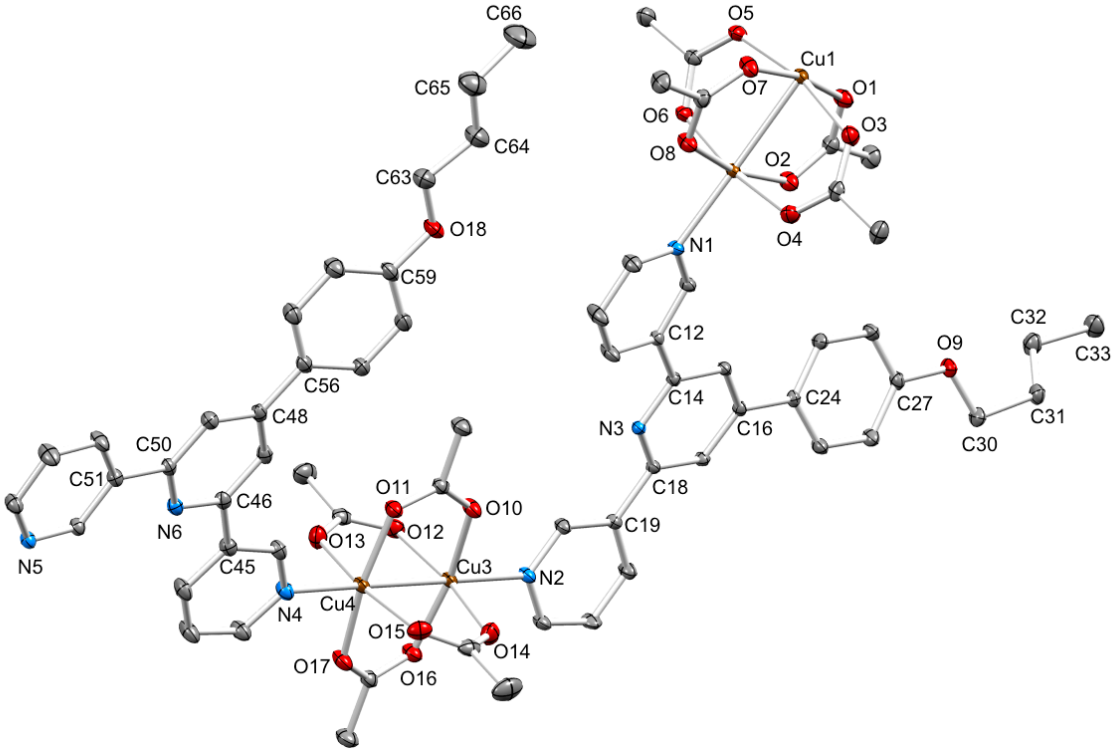


Figure S13. ORTEP-stype representation of the asymmetric unit in [2{Cu_2(μ-OAc)$_4$(**2**)}·1.25MeOH]$_n$ with ellipsoids plotted at 40% probability level and H atoms and solvent molecules omitted.

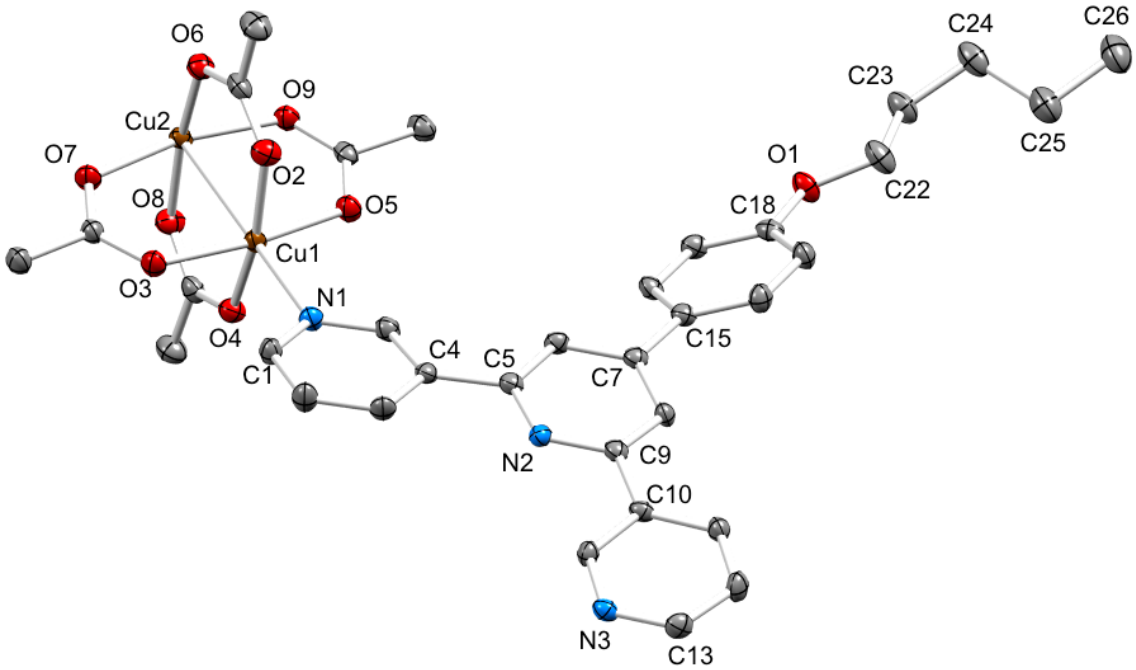


Figure S14. ORTEP-stype representation of the asymmetric unit in [Cu_2(μ-OAc)$_4$(**3**)]$_n$ with ellipsoids plotted at 40% probability level and H atoms omitted.

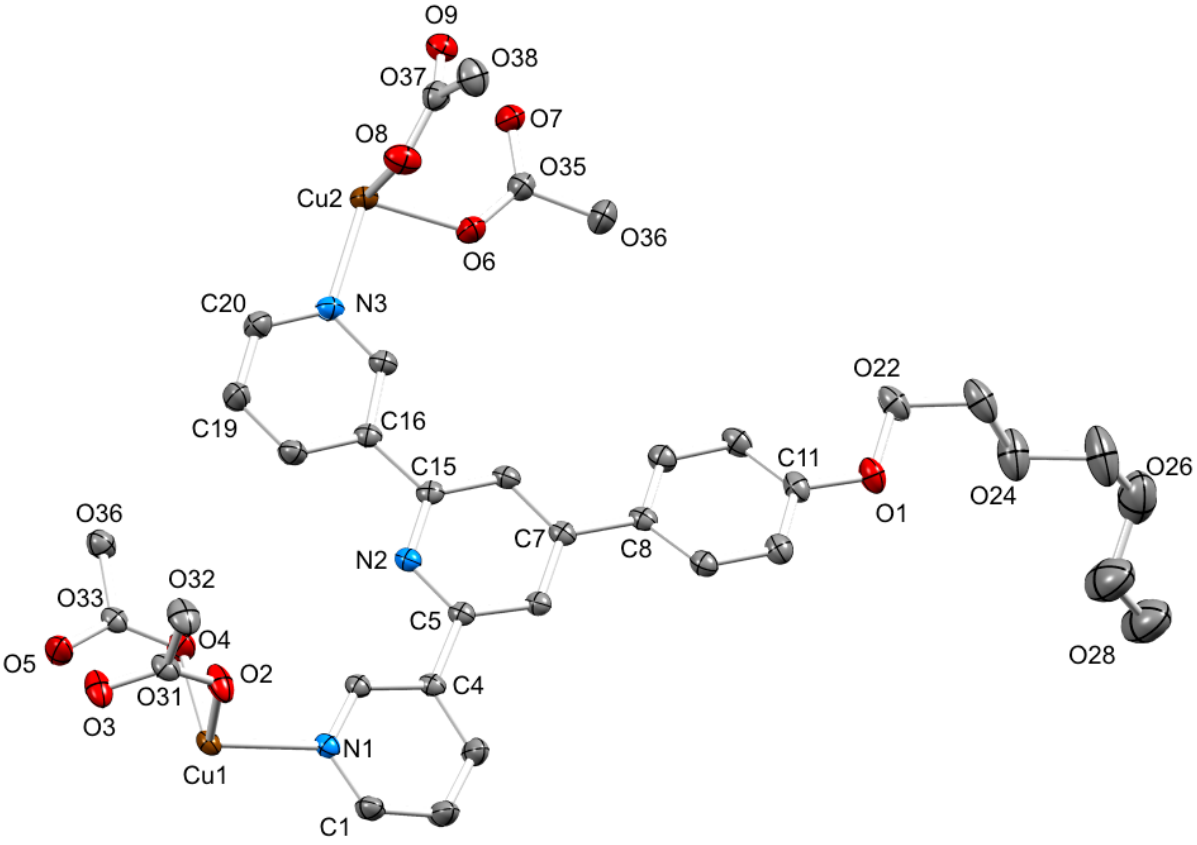


Figure S15. ORTEP-stype representation of the asymmetric unit in $[Cu_2(\mu\text{-}OAc)_4(\mathbf{4})\}\cdot 0.2CHCl_3]_n$ with ellipsoids plotted at 40% probability level and H atoms and solvent molecules omitted.

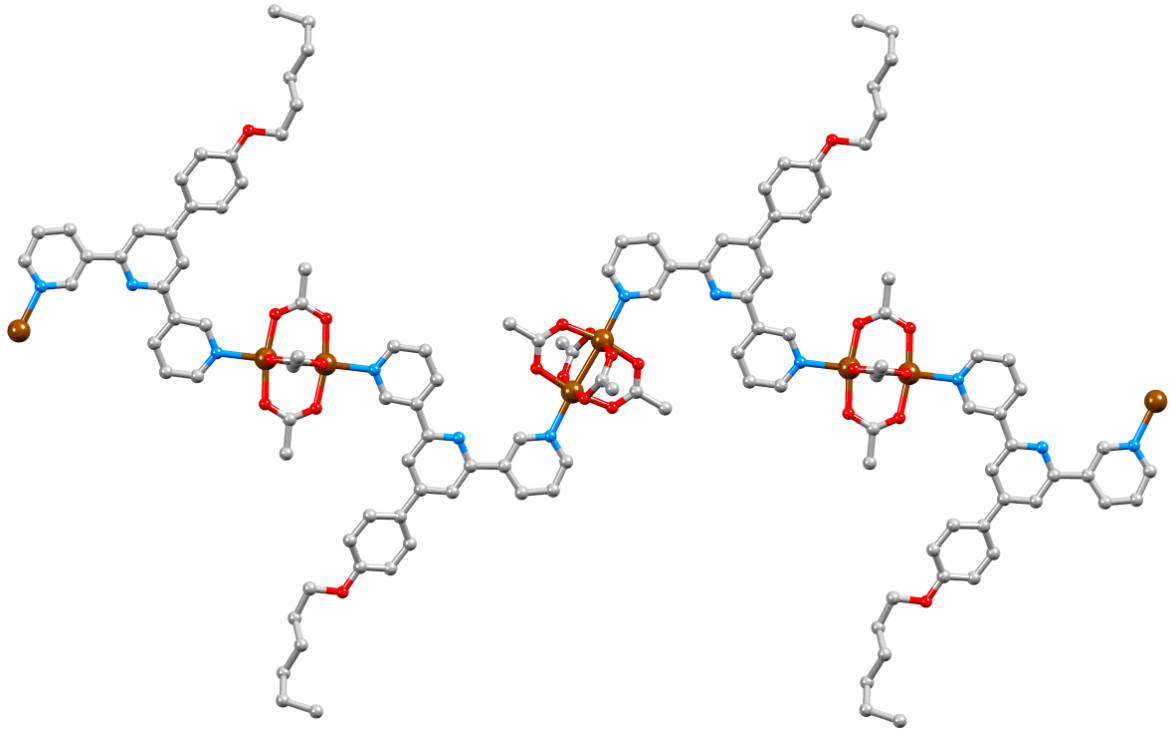


Figure S16. Part of one chain in $[Cu_2(\mu\text{-}OAc)_4(\mathbf{5})\}\cdot 0.2CHCl_3]_n$, drawn using data retrieved from the CSD, refcode SADBIL [1].

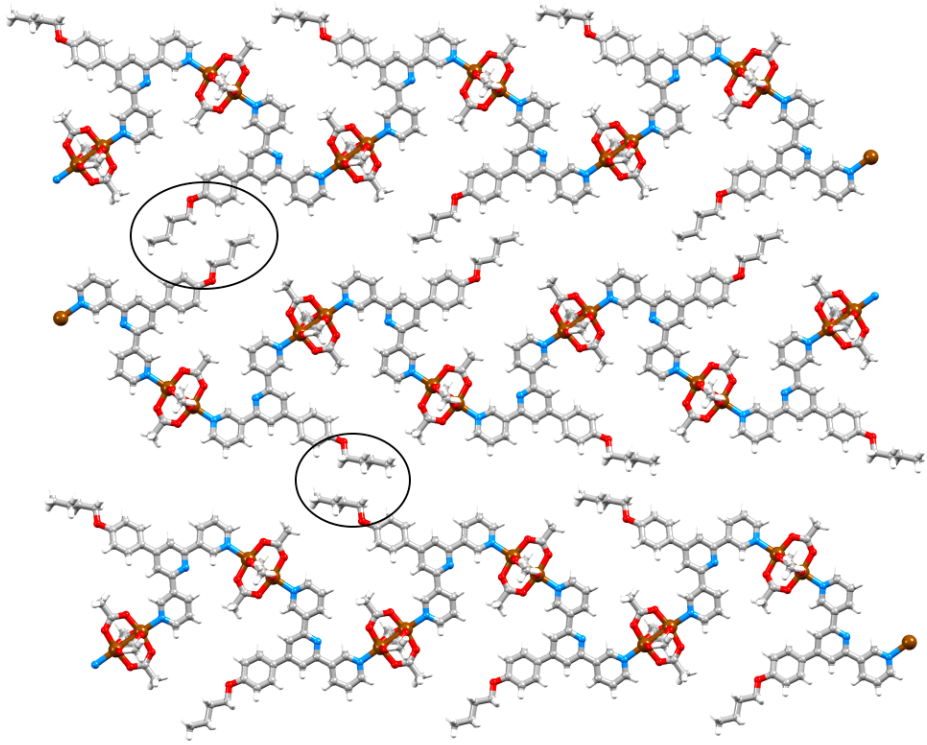


Figure S17. Packing of three adjacent chains (each runs left to right) shown in ball-and-stick representation in $[2\{Cu_2(\mu\text{-}OAc)_4(\mathbf{2})\}\cdot 1.25MeOH]_n$. The two independent alkyl...alkyl van der Waals packing interactions are highlighted.

References

1. Li, L.; Zhang, Y.Z.; Yang, C.; Liu, E.; Golen, J.A.; Zhang, G. One-dimensional copper(II) coordination polymers built on 4′-substituted 4,2′:6′,4″- and 3,2′:6′,3″-terpyridines: Syntheses, structures and catalytic properties. *Polyhedron* **2016**, *105*, 115–122. DOI: 10.1016/j.poly.2015.12.042