Supporting Information for

A Tetranuclear Cobalt(II) Chain with Slow Magnetization Relaxation

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Figure S1. Left: Orientation of the {Co4} complexes in the crystal lattice of 1 (phen groups omitted for clarity). Right: A view of the unit cell along b shows the two relative orientation of phen groups (H omitted): one half co-planar to the the ab plane, the other half slightly tilted with respect to the ab plane (11.7°).
Figure S2. $M$ vs. $H/T$ data sets measured at indicated dc fields from 1.8-3.9 K. Note that the limitations of our model, in particular the approximation of the distorted five- and six-coordinate coordination environments by two tetragonally elongated ligand fields for the central and peripheral Co(II) centers, result in a significant deviation between calculated and experimental $M(H, T)$ data for low temperatures and high fields.

Figure S3. $\tau$ values derived from ac susceptibility in the absence of a static field (see Fig. 5) fitted to an Arrhenius law.
Figure S4. Temperature-dependent ac susceptibility data of 1 under a dc field 1000 Oe at the indicated frequencies.
**Figure S5.** Top: Frequency-dependent ac susceptibility data under a static external field of 0.1 Tesla at $T = 1.8-2.05$ K (solid black lines: fit to a Debye model with $\chi_0 = 0$, $\chi_s = 4.33-5.15$ cm$^3$ mol$^{-1}$, $\alpha = 0.0769(4)$). Bottom: $\tau$ values fitted to the Arrhenius law.
Figure S6. Zero-field cooled (ZFC) and field-cooled (FC) susceptibility of 1 measured under an external dc field of 10 Oe, indicating the absence of long-range ordering down to 1.8 K.