Electronic Supporting Information for **"Irreversible transformation of chiral to achiral polymorph of $K[Co(HCOO)_3]$: synthesis, structures, and magnetic properties"** by Zhiming Duan *et al*.

Table S1. IR absorption bands (cm^{-1}) and their assignments for **1** and **2**.

Assignment	**1**	**2**
$2\nu_4$ or $\nu_2+\nu_4$	2985 (vw)	3020 (vw)
	2933 (vw)	2966 (vw, sh)
		2940 (vw)
ν_1, C–H stretch	2893 (w)	2852 (w)
$2\nu_5$	2750 (vw)	2759 (vw)
$\nu_2+\nu_5$		2741 (vw)
$2\nu_2$		2726 (vw)
ν_4, OCO stretch, asym	1581 (vs)	1597 (vs)
ν_5, OCO deformation, asym	1385 (s)	1389 (s)
ν_2, OCO stretch, sym	1373 (s)	1365 (s)
ν_3, OCO-deformation, sym	802 (m)	797 (m), 777 (m)

s, strong; m, medium; w, weak; vw, very weak; sh, shoulder; vs, very strong.

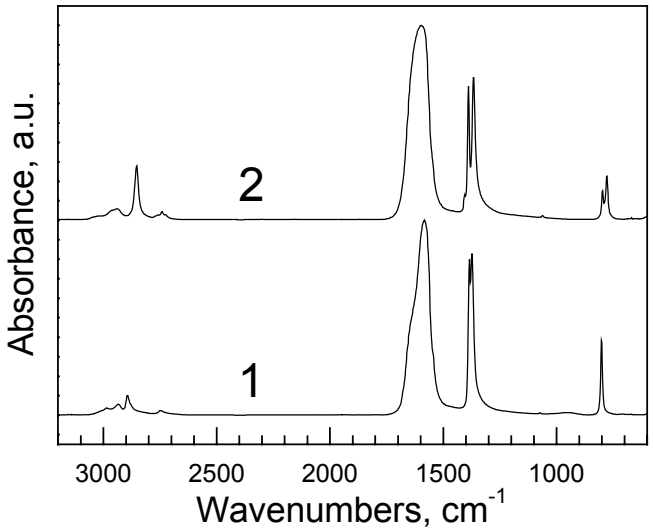


Fig. S1. Overlay of IR spectra of **1** and **2**.

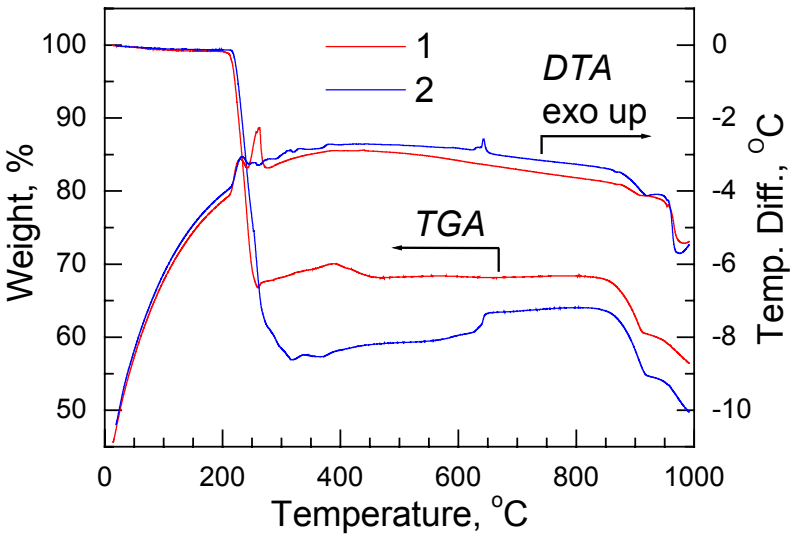
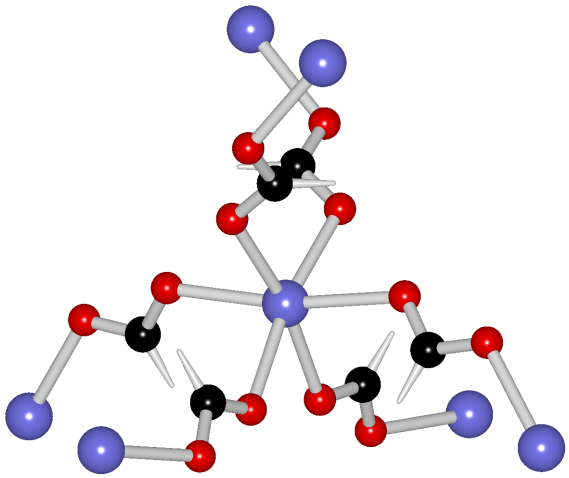
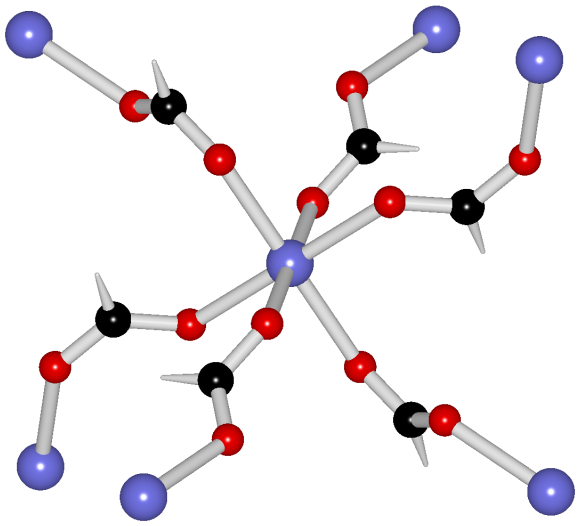


Fig. S2. TGA-DTA traces for **1** and **2**.



(a)



(b)

Fig. S3. The local coordination environments of the Co^{2+} ion with its six neighboring Co^{2+} ions through bridging $HCOO^{-}$ in **1** (a) and **2** (b).

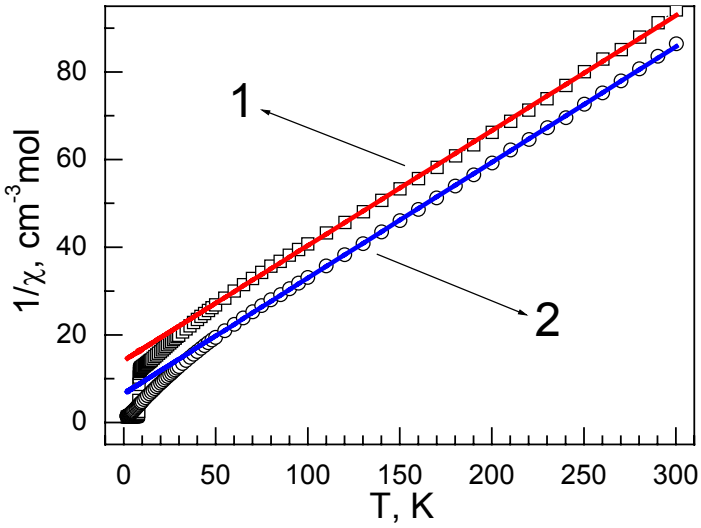


Fig. S4. The 1/χ *vs* T plots for **1** and **2**, with the Curie-Weiss fittings in red and blue lines.

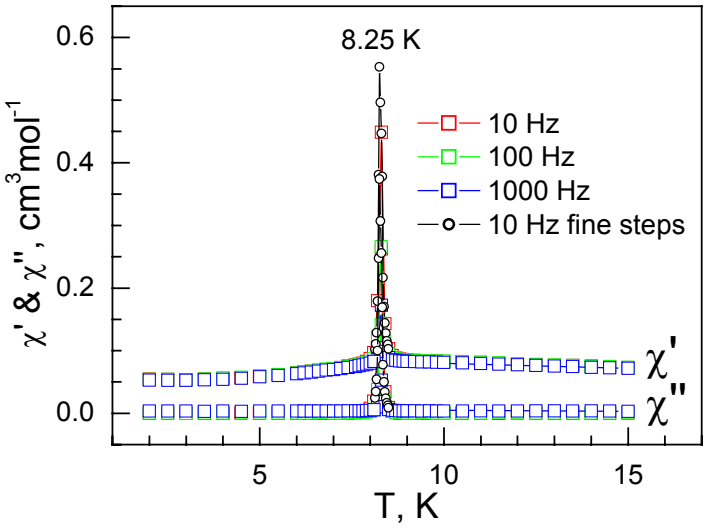


Fig. S5. Temperature dependence of ac (10, 100, 1000 Hz) susceptibilities of **1** under zero dc field. The fine-step measurement is highlighted in black circles.