Electronic Supplementary Information

Spin Crossover and Photomagnetic Behaviors in One-Dimensional Looped Coordination Polymers

Xiao-Peng Sun,[a] Tao Liu,[b] Zi-Shuo Yao*[a] and Jun Tao*[a]

[a]*Key Laboratory of Cluster Science of Ministry of Education, School of Chemistry and Chemical Engineering, Beijing Institute of Technology, Beijing 100081, People's Republic of China.*
[b]*State Key Laboratory of Fine Chemicals, Dalian University of Technology, Dalian 116024, Liaoning Province, People's Republic of China.*

E-mail: taojun@bit.edu.cn (J. Tao), zishuoyao@bit.edu.cn (Z.-S. Yao).

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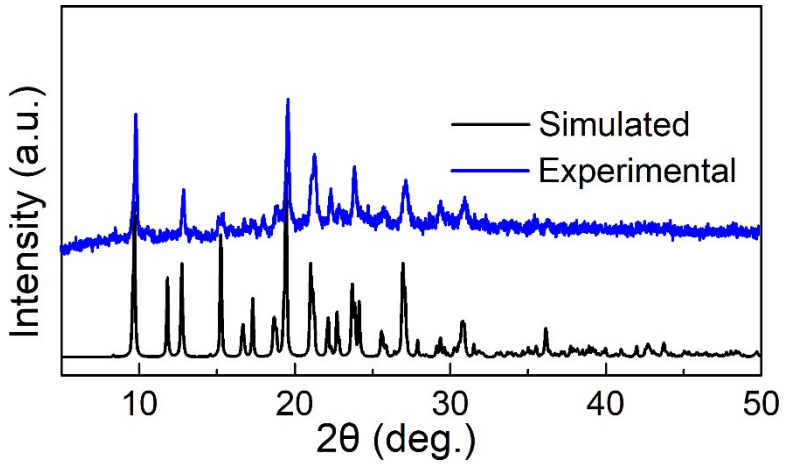


Fig. S1 Experimental and simulated PXRD patterns of compound **1**.

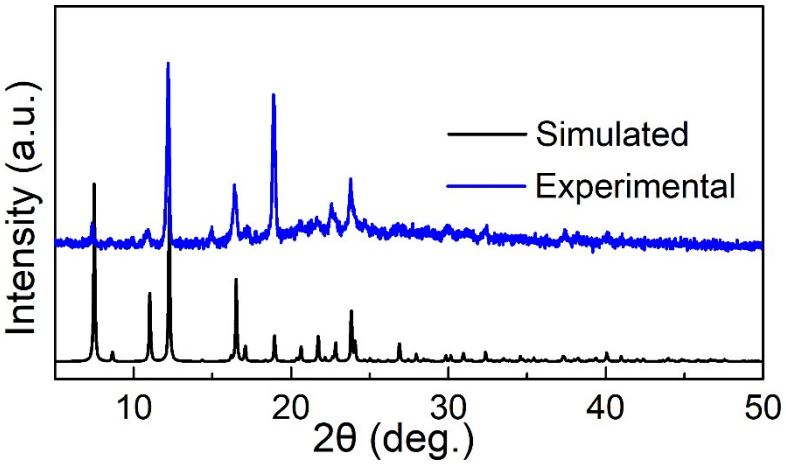
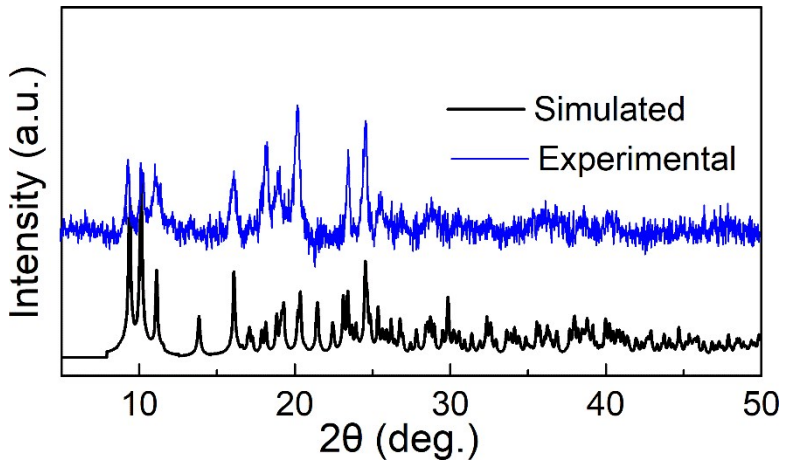


Fig. S2 Experimental and simulated PXRD patterns of compound **2**.



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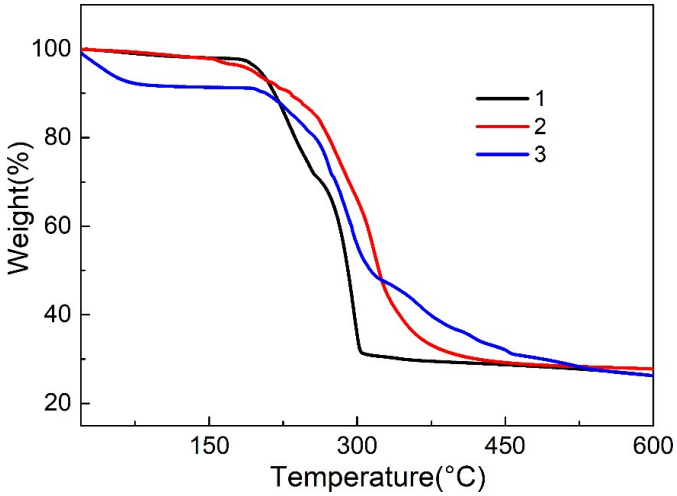

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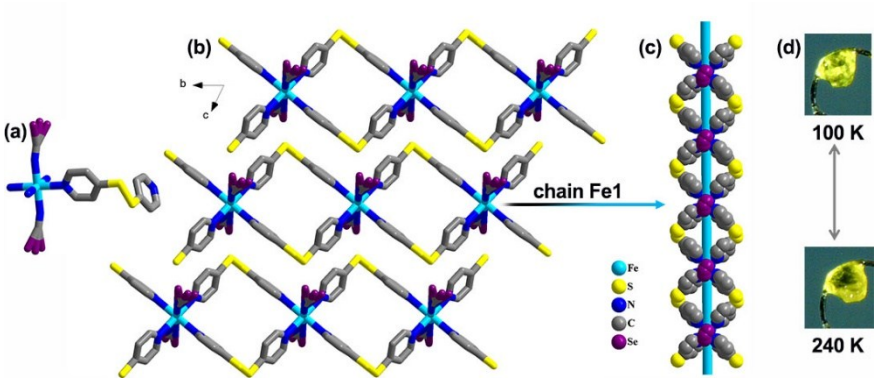

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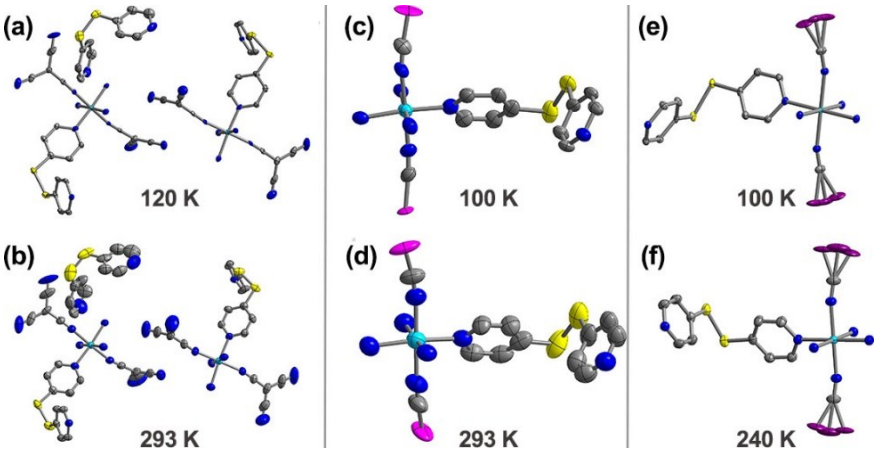


Fig. S6 ORTEP plot with 50% thermal ellipsoids of compounds **1** (a, b), **2** (c, d) and **3** (e, f). Color code, Fe: sky-blue, S: yellow, N: blue, C: grey, B: pink, Se: violet. Hydrogen atoms are omitted for clarity.

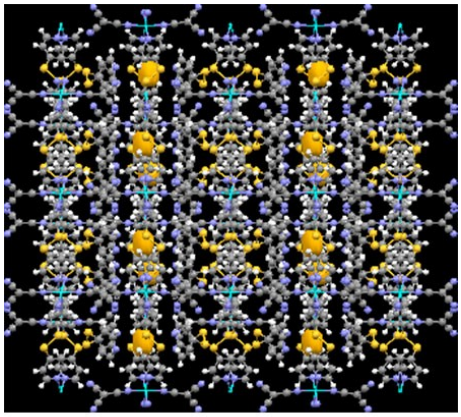
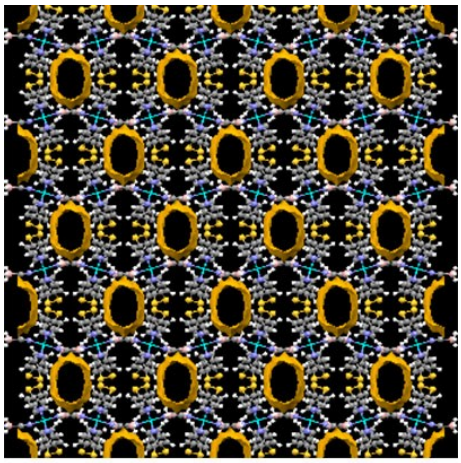


Fig. S7 View of the voids in the framework of compound **1**.



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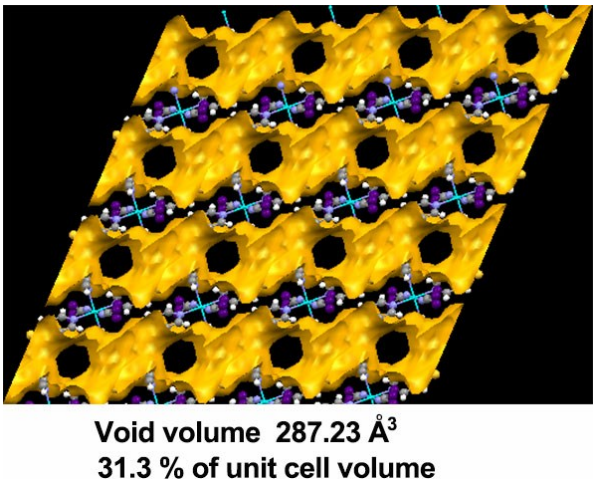

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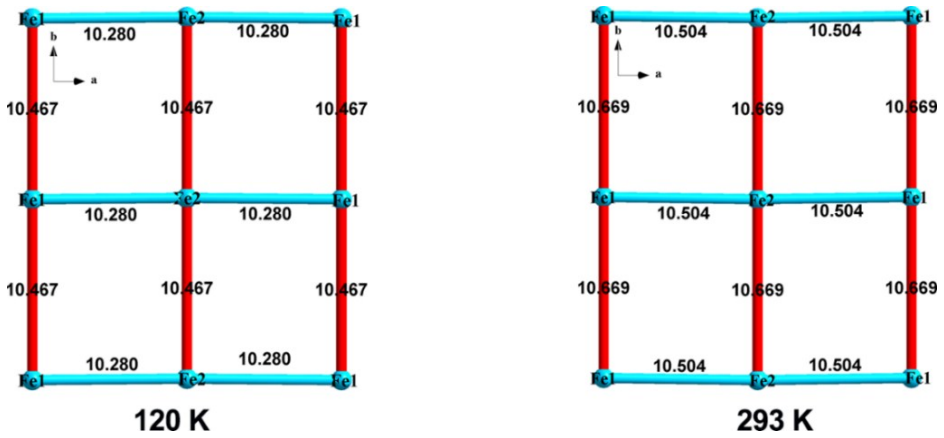

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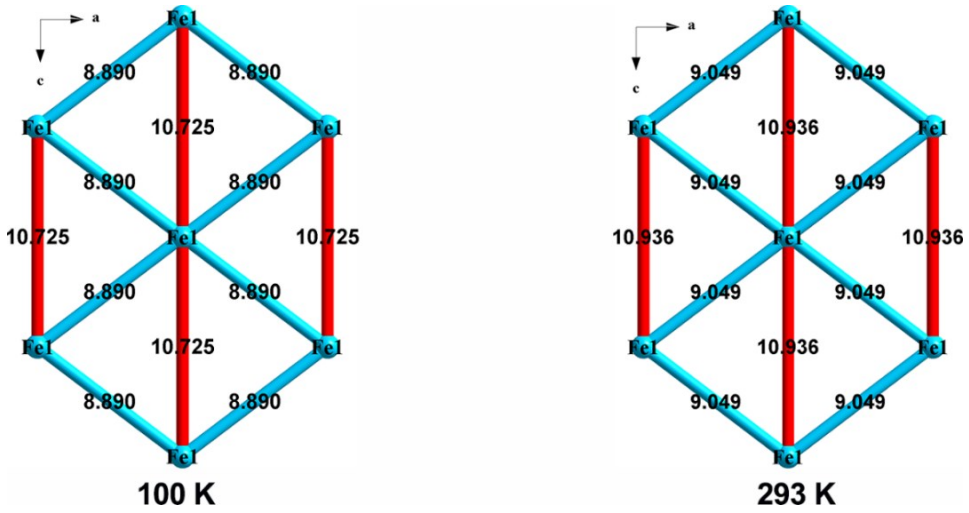

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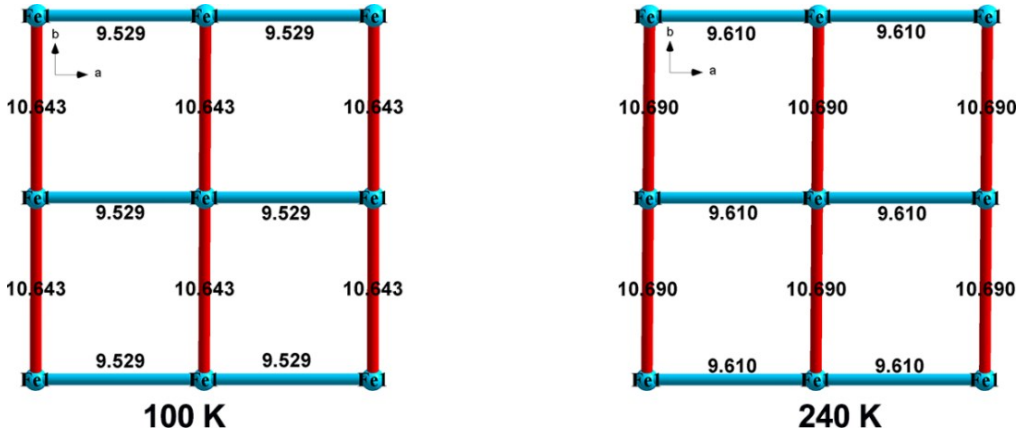

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Section4. Magnetic properties and DSC measurement

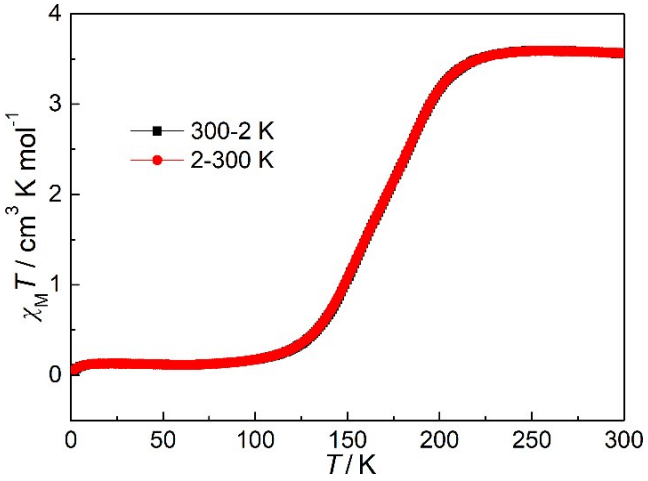
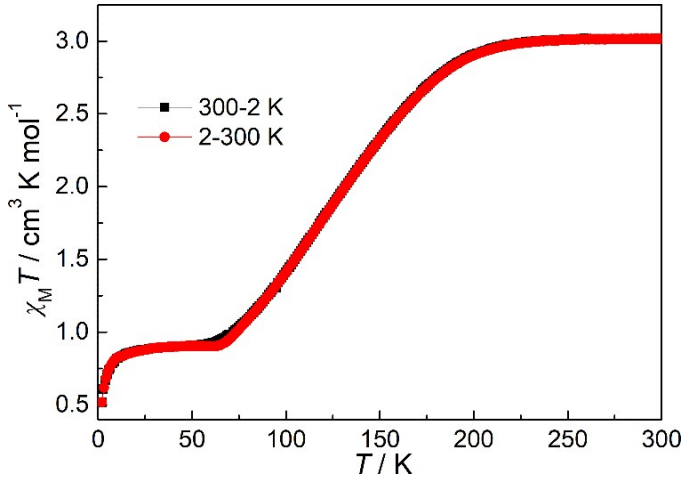


Fig. S13 The $\chi_M T$ versus T plots (per Fe unit) of compound **1** in the cooling and heating modes between 300 and 2.0 K.



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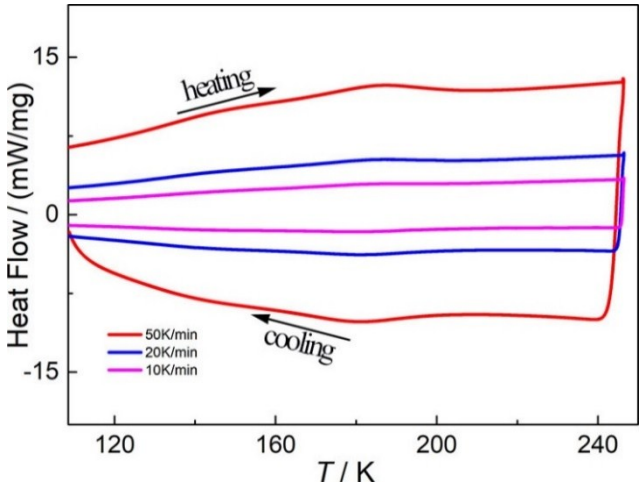

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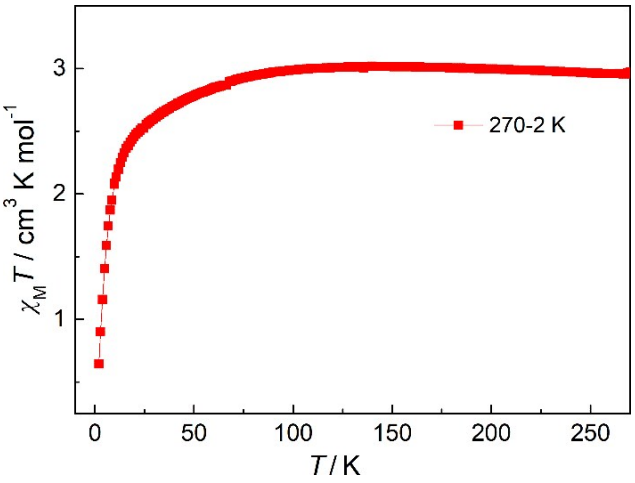

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Section5. IR spectra

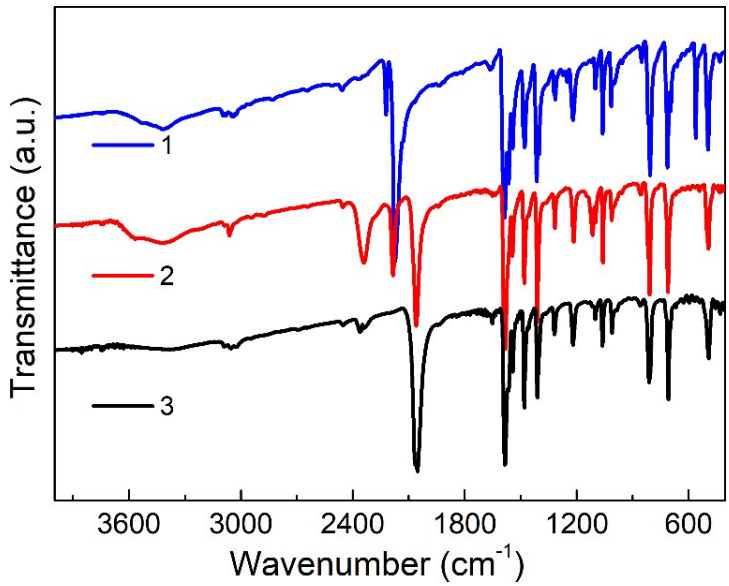


Fig. S17 IR spectra of compounds **1**, **2** and **3**.

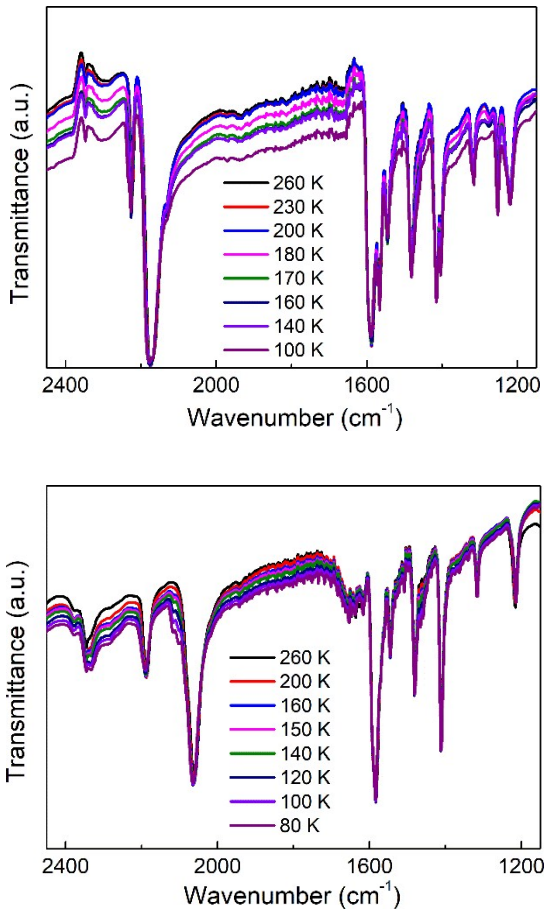
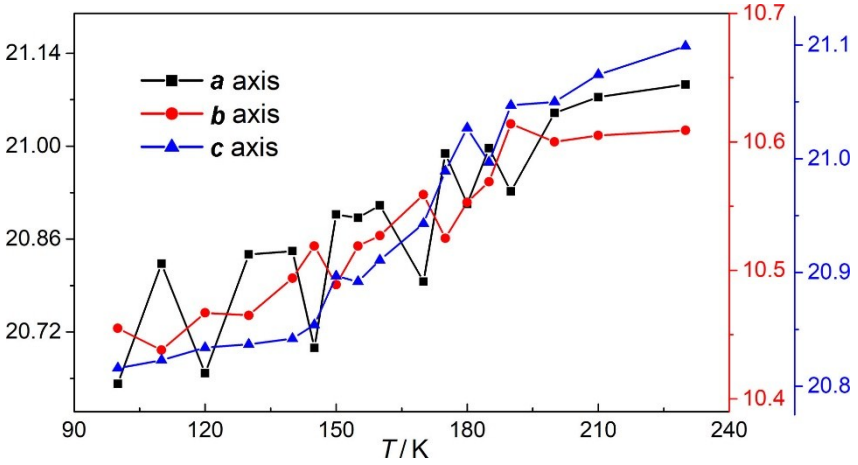


Fig.S18 Variable-temperature IR spectra of compounds **1** (a) and **2** (b).

Section6. Structural parameters



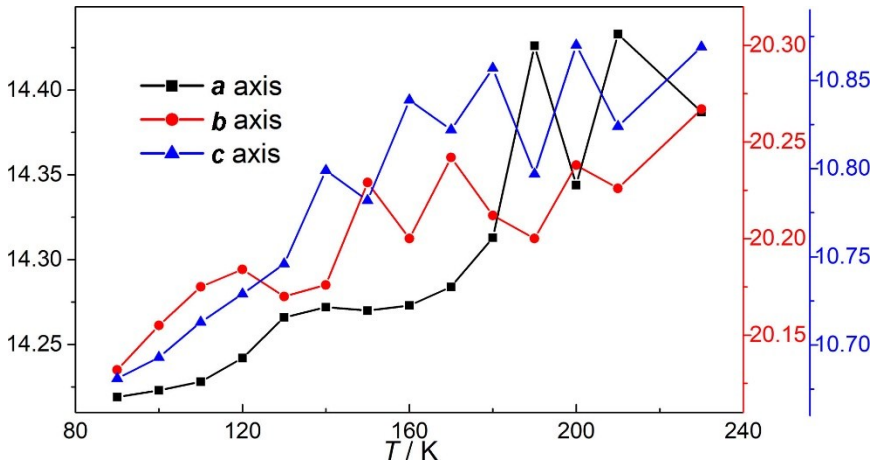


Fig.S19 Variable-temperature unit-cell parameters of compounds **1** (a) and **2** (b).

Table. S1 Structural Parameters of compounds **1**, **2** and **3**.

Compound **1**	120 K	293 K
$\langle d_{Fe1\text{-}N} \rangle$, Å[a]	1.977	2.178
$\langle d_{Fe2\text{-}N} \rangle$, Å[a]	2.004	2.182
Σ_{Fe1}, deg[b]	19.0	24.5
Σ_{Fe2}, deg[b]	33.2	36.9
Compound **2**	100 K	293 K
$\langle d_{Fe1\text{-}N} \rangle$, Å[a]	2.046	2.203
Σ_{Fe1}, deg[b]	24.5	30.0
Compound **3**	100 K	240 K
$\langle d_{Fe1\text{-}N} \rangle$, Å[a]	2.196	2.204
Σ_{Fe1}, deg[b]	10.80	12.50

[a]$\langle d_{Fe\text{-}N} \rangle$: the average Fe−N bond lengths. [b]Σ_{Fe}: the sum of the deviations of N−Fe−N angles from 90°.