Supporting Information
for

Spin-crossover iron(II) long-chain complex with slow spin equilibrium at low temperature

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Table S1. Crystal data and structural refinements for complex **1**.

[$Fe(H_2Bpz_2)_2(C_9bpy)$]	
T / K	293
Formula	$C_{80}H_{120}B_4N_{20}Fe_2$
MW	1516.88
Crystal system	Monoclinic
Space group	$P2_1/n$
a / Å	10.5280(10)
b / Å	22.6959(19)
c / Å	35.720(3)
α / deg	90
β / deg	92.677(7)
γ / deg	90
V / Å^3	8525.6(12)
Z	8
D_{calc} g/cm^3	1.1786
μ / mm^{-1}	0.394
Goodness-of-fit on F^2	1.0515
F(000)	3235
R_1 [$I \geq 2\sigma(I)$]	0.0787
wR_2 [all data]	0.2067
CCDC no.	2040605

Table S2. Selected bond lengths for complex **1** at 293 K.

Complex **1**	
Fe1–N1	2.205(4)
Fe1–N4	2.147(4)
Fe1–N5	2.194(4)
Fe1–N8	2.162(4)
Fe1–N9	2.205(4)
Fe1–N10	2.215(4)
Fe2–N11	2.145(4)
Fe2–N14	2.206(4)
Fe2–N15	2.156(4)
Fe2–N18	2.190(4)
Fe2–N19	2.189(4)
Fe2–N20	2.221(4)

Table S3. Rate Constants $k_{HL}(T)$ of annealing test at different temperatures.

T / K	$k_{HL}(T)$
50	8.795E-7
55	2.749E-5
60	3.939E-5
65	6.300E-4

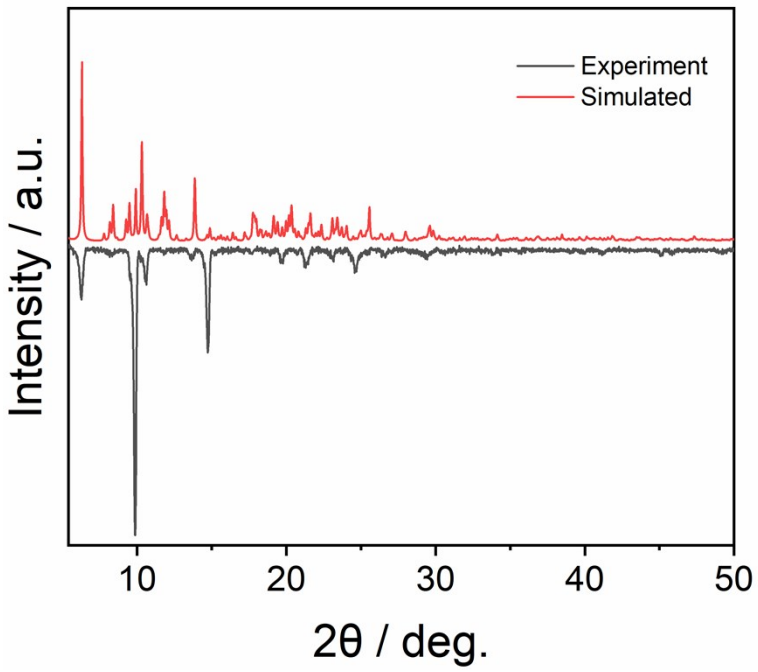

Figure S1. Comparison of the PXRD patterns of **1** measured from polycrystalline sample and simulated based on single-crystal structure.

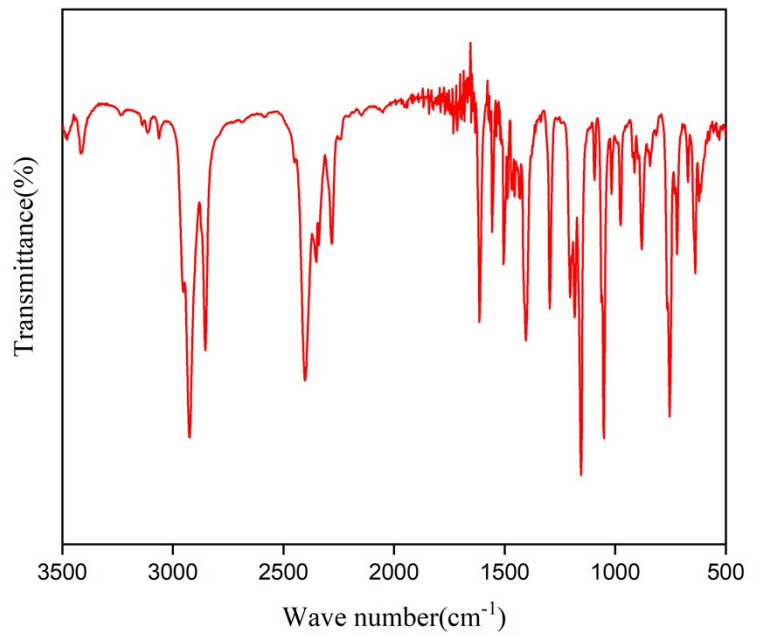

Figure S2. IR spectra of complex **1**. In the FIT-IR spectrum, the characteristic peaks of $H_2Bpz_2^-$ group is around 2400 cm^{-1} and 1153 cm^{-1}. The peaks at 2926 cm^{-1} denotes the vibration of -CH groups.

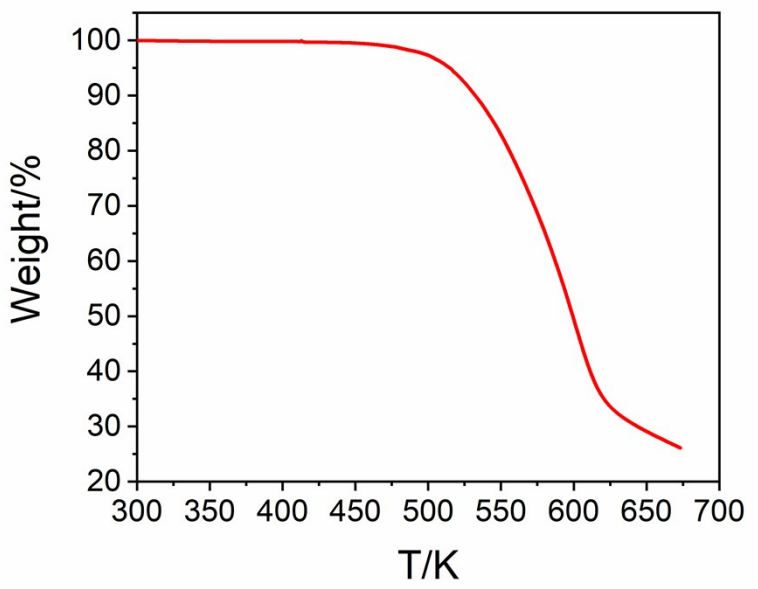

Figure S3. Thermogravimetric data of complex **1**. The thermogravimetric data shows that there is no mass loss at the beginning of heating compound **1**, which confirms that the compound **1** does not contain solvent molecules, and compound **1** will not decompose until heated at 463 K.

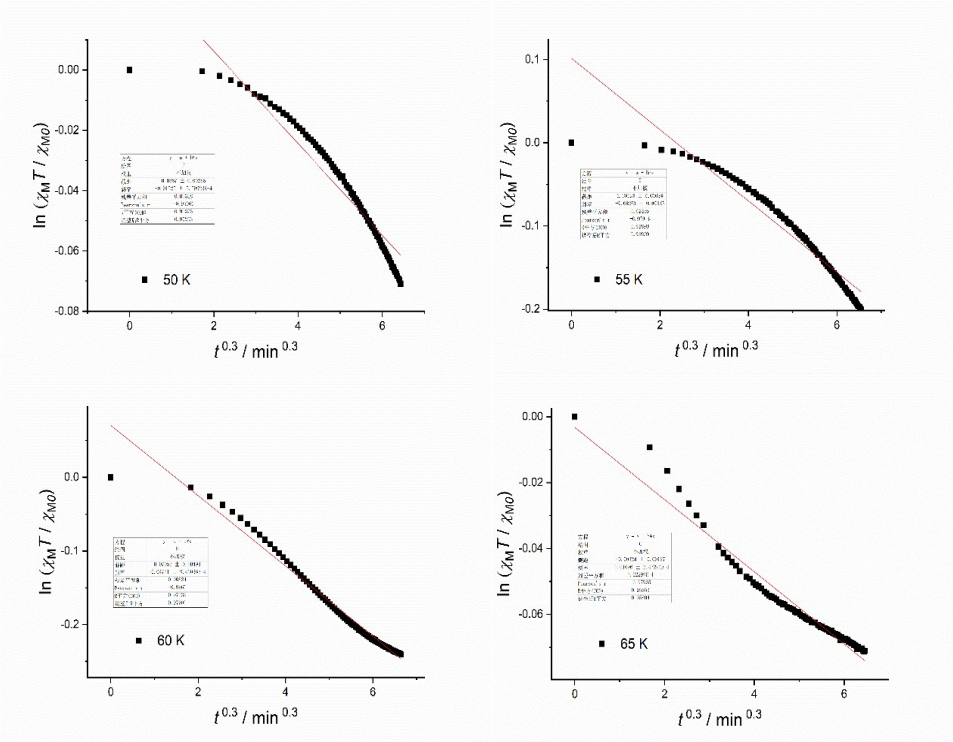

Figure S4. Fitting data of rate constants $k_{HL}(T)$ at different temperatures.