Supporting Information for

Spin dynamics in a Heisenberg weak antiferromagnetic chain of an iodide-bridged Cu(II) complex

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Methods

Materials. CuI, dehydrated ethanol (EtOH), and 2-propanol (2-PrOH) were purchased from Fujifilm Wako Pure Chemical Corp. 1*R*,2*R*-diaminocyclohexane (chxn) was purchased from Sigma-Aldrich.

Synthesis of [Cu^{II}(chxn)₂I]I. Refluxing CuI (300 mg, 1.6 mmol), chxn (580 mg, 5.1 mmol), and I (200 mg, 1.6 mmol) in EtOH (60 mL) for 1 h afforded a blue-purple solution. Following hot filtration, blue-purple needle-like crystals appeared after leaving the capped solution to stand for 3 days. The compound was obtained in a 65% yield by filtration and rapidly washing with EtOH (3×5 mL) and 2-PrOH (3×5 mL) and drying *in vacuo* overnight at room temperature. Elemental analysis calcd (%) for C₁₂H₂₈N₄CuI₂ ([Cu^{II}(chxn)₂I]I): C 26.41, H 5.17, N 10.27; found: C 26.13, H 5.42, N 10.16.

Measurements. The elemental analysis was performed using a J-Science Lab Co. Ltd. JM11 at the Research and Analytical Center for Giant Molecules (Tohoku Univ.). PXRD measurements were carried out with Cu-K α radiation using a Rigaku Ultima IV diffractometer at room temperature. Magnetic measurements were performed using a magnetic property measurement system (MPMS-XL, Quantum Design) in both DC mode and AC mode. The sample was placed into a gelatin capsule (Matsuya) which was fixed in a plastic straw. ESR spectrum was recorded on a JEOL JES-X330 at X-band at room temperature.

Collection of crystallographic data and structure refinements. A suitable single crystal of $[Cu^{II}(chxn)_2I]I$ was selected and mounted onto a MicroMount (MiTeGen) in an XtaLAB AFC10 diffractometer with a HyPix-6000HE hybrid pixel array detector. The crystal was kept at 120 K during data collection using a N₂ flow-type temperature controller. Using Olex2,^{S1} the structure was solved with the SHELXT^{S2} structure solution program, using intrinsic phasing, and refined with the SHELXL^{S3} refinement package using least-squares minimization. The X-ray crystallographic

coordinates have been deposited at the Cambridge Crystallographic Data Centre (CCDC-2243196).

Quantum chemical calculations

DFT calculations of the singlet and the triplet states of a dimer model, $[Cu^{II}_2(chxn)_4I_3]^+$, were performed at an unrestricted UB3LYP/SDD level of theory. All calculations were performed using the Gaussian 16W package.^{33,34} The atomic coordinates used were those of the crystal structure without alteration (Table S2). Calculation of the coupling constant was performed using the Heisenberg model and size-consistent spin projection (Table S3).^{S4}

Formula	$C_{12}H_{28}CuI_2N_4$
Formula weight	545.72
Crystal size (mm ³)	$0.20 \times 0.05 \times 0.05$
Crystal system	Trigonal
Space group	P3 ₂ 21
<i>a</i> (Å)	9.3636(2)
b (Å)	9.3636(2)
<i>c</i> (Å)	18.1008(3)
α (°)	90
β(°)	90
γ(°)	120
<i>V</i> (ų)	1374.40(6)
Т (К)	120
Ζ	3
D _{calc} (g cm⁻³)	1.978
F (000)	789.0
λ (Mo K $lpha$) (Å)	0.71073
<i>u</i> (mm ⁻¹)	4.556
Reflections collected	24499
Data/restraints/parameters	2940/0/89
GOF on <i>F</i> ²	1.060
R _{int}	0.0349
R_1^a	0.0132
wR_{2^b} (all data)	0.0320

^a $R_1 = \Sigma ||F_0| - |F_c||/\Sigma |F_0|$. ^b $wR_2 = \{[\Sigma w(F_0^2 - F_c^2)^2]/[\Sigma w(F_0^2)^2]\}^{1/2}$.



Figure S1. PXRD of [Cu^{II}(chxn)₂I]I together with that of a simulation.



Figure S2. (a) Bond lengths (Å) and (b–d) angles (°) around the Cu(II) center in [Cu^{II}(chxn)₂I]I.



Figure S3. (a) The log-scale $\chi_m T - T$ plot of $[Cu^{II}(chxn)_2 I]I$ with a fitting curve (blue line).

Number	Number Atom x (<i>y</i> (Å)	<i>z</i> (Å)
1	53	-0.000002	1.338592	-0.000007
2	29	-3.061092	0.096401	0.177803
3	7	-2.524748	-0.322339	2.058441
4	1	-1.735963	0.088594	2.250674
5	1	-3.155866	-0.008276	2.633995
6	7	-2.614156	-1.833584	-0.1828
7	1	-3.378648	-2.321771	-0.254998
8	1	-2.1531	-1.905354	-0.964079
9	6	-1.511124	-2.170698	3.417835
10	1	-1.911966	-1.818443	4.252039
11	1	-0.610828	-1.771442	3.316416
12	6	-2.378596	-1.782553	2.23071
13	1	-3.287837	-2.177929	2.361583
14	6	-1.7906	-2.34252	0.941708
15	1	-0.866699	-1.973835	0.838392
16	6	-0.843737	-4.28639	2.219354
17	1	-0.843479	-5.274029	2.288856
18	1	0.091311	-3.988381	2.089178
19	6	-1.685524	-3.861785	1.014166
20	1	-1.270421	-4.204522	0.182803
21	1	-2.591773	-4.252934	1.088504
22	6	-1.391939	-3.687649	3.507544
23	1	-0.792438	-3.924562	4.259219
24	1	-2.283425	-4.075168	3.695001
25	7	-3.881749	1.865935	0.619484
26	1	-4.731088	1.7427	0.92187
27	1	-3.401796	2.270067	1.278672
28	7	-3.229776	0.704393	-1.7344
29	1	-2.417779	0.966881	-2.05023
30	1	-3.531711	0.020167	-2.25285
31	6	-4.924356	3.851993	-0.503174
32	1	-4.720394	4.435132	0.270778
33	1	-5.828377	3.470436	-0.371324
34	6	-3.902161	2.728751	-0.579846
35	1	-2.99513	3.134627	-0.692667
36	6	-4.184985	1.838826	-1.783537
37	1	-5.108529	1.468441	-1.683144
38	6	-5.137468	3.809395	-3.015281
39	1	-5.046358	4.362937	-3.831095
40	1	-6.059614	3.450086	-2.990493
41	6	-4.140959	2.649694	-3.07389
42	1	-4.360381	2.062736	-3.840883
43	1	-3.22707	3.004543	-3.210635
44	6	-4.89749	4.675047	-1.785848
45	1	-5.594779	5.376558	-1.738775
46	1	-4.018886	5.123766	-1.868089
47	53	-6.152933	-0.999691	0.60679
48	29	3.061081	0.096393	-0.177714
49	7	2.52475	-0.322308	-2.058446
50	1	1.735963	0.088559	-2.250677

Table S2. Cartesian coordinates of [Cu^{II}(chxn)₂I]I

Total Social $A(Y)$ $Y(Y)$ $Z(Y)$ 5113.155864 -0.008204 2.633979 5272.614167 -1.833622 0.182763 5313.378656 -2.321709 0.255001 5412.153104 -1.905348 0.964097 556 1.511124 -2.17068 -3.417776 561 1.911975 -1.813387 -4.252063 571 0.610831 -1.77148 -3.316386 586 2.378611 -1.77256 -2.230779 591 3.287846 -2.177925 -2.361595 606 1.79061 -2.342537 -0.941718 611 0.866707 -1.973828 -0.838397 626 0.843746 -4.286389 -2.219306 631 0.845501 -5.274022 -2.288866 641 -0.0913 -3.988355 -2.089153 656 1.885536 -3.861732 -1.08853 671 2.591791 -4.252915 -1.08853 686 1.391959 -3.687538 -3.507602 691 0.792449 -3.924578 -4.259151 701 2.283438 -4.075131 -3.664997 717 3.881739 1.865978 -0.619453 721 4.731078 1.742803 -0.92184 731 2.417778 0.966906 2.050212 761 <td< th=""><th>Number</th><th>Δtom</th><th>γ(Å)</th><th>ν (Å)</th><th>z (Å)</th></td<>	Number	Δtom	γ(Å)	ν (Å)	z (Å)
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626 0.843746 -4.286389 -2.219306 63 1 0.843501 -5.274022 -2.288886 64 1 -0.0913 -3.988355 -2.089153 65 6 1.885536 -3.861732 -1.014151 66 1 1.270437 -4.204554 -0.182813 67 1 2.591791 -4.252915 -1.08853 68 6 1.391959 -3.687538 -3.507602 69 1 0.792449 -3.924578 -4.259191 70 1 2.283438 -4.075131 -3.694997 71 7 3.881739 1.865978 -0.619453 72 1 4.731078 1.742803 -0.921834 73 1 3.401789 2.270113 -1.278679 74 7 3.229773 0.704363 1.734399 75 1 2.417778 0.966906 2.050212 76 1 3.53171 0.020162 2.252861 77 6 4.92434 3.851961 0.503192 78 1 4.720374 4.435193 -0.270741 79 1 5.828361 3.470498 0.371352 80 6 3.902153 2.728836 0.579838 81 1 2.995112 3.13464 0.692731 82 6 4.184971 1.838833 1.783598 83 1 5.046335 4.362949 3.831155 86 1 6.059594 3.44999 <td>61</td> <td>1</td> <td>0.866707</td> <td>-1.973828</td> <td>-0.838397</td>	61	1	0.866707	-1.973828	-0.838397
631 0.843501 -5.274022 -2.28886 64 1 -0.0913 -3.988355 -2.089153 65 6 1.685536 -3.861732 -1.014151 66 1 1.270437 -4.204554 -0.182813 67 1 2.591791 -4.252915 -1.08853 68 6 1.391959 -3.687538 -3.507602 69 1 0.792449 -3.924578 -4.259191 70 1 2.283438 -4.075131 -3.694997 71 7 3.881739 1.865978 -0.619453 72 1 4.731078 1.742803 -0.921834 73 1 3.401789 2.270113 -1.278679 74 7 3.229773 0.704633 1.734399 75 1 2.417778 0.966906 2.050212 76 1 3.53171 0.020162 2.252861 77 6 4.92434 3.851961 0.503192 78 1 4.720374 4.435193 -0.270741 79 1 5.828361 3.470498 0.371352 80 6 3.902153 2.728366 0.579838 81 1 2.995112 3.13464 0.692731 82 6 4.184971 1.838833 1.783598 83 1 5.046335 4.362949 3.831155 86 1 6.059594 3.44999 2.990553 87 6 4.140951 2.649698 <	62	6	0.843746	-4.286389	-2.219306
641 -0.0913 -3.988355 -2.089153 65 61.685536 -3.861732 -1.014151 66 1 1.270437 -4.2425454 -0.182813 67 1 2.591791 -4.252915 -1.08853 68 6 1.391959 -3.687538 -3.507602 69 1 0.792449 -3.924578 -4.259191 70 1 2.283438 -4.075131 -3.694997 71 7 3.881739 1.865978 -0.619453 72 1 4.731078 1.74203 -0.921834 73 1 3.401789 2.270113 -1.278679 74 7 3.229773 0.704363 1.734399 75 1 2.417778 0.966906 2.050212 76 1 3.53171 0.020162 2.252861 77 6 4.92434 3.851961 0.503192 78 1 4.720374 4.435193 -0.270741 79 1 5.828361 3.470498 0.371352 80 6 3.902153 2.728836 0.579838 81 1 2.995112 3.13464 0.692731 82 6 4.184971 1.88833 1.783598 83 1 5.046335 4.362949 3.831155 86 1 6.059594 3.44999 2.990553 87 6 4.140951 2.649698 3.073879 88 1 4.360366 2.062718	63	1	0.843501	-5.274022	-2.288886
656 1.685536 -3.861732 -1.014151 66 1 1.270437 -4.204554 -0.182813 67 1 2.591791 -4.225915 -1.08853 68 6 1.391959 -3.687538 -3.507602 69 1 0.792449 -3.924578 -4.259191 70 1 2.283438 -4.075131 -3.694997 71 7 3.881739 1.865978 -0.619453 72 1 4.731078 1.742803 -0.921834 73 1 3.401789 2.270113 -1.278679 74 7 3.229773 0.704363 1.734399 75 1 2.417778 0.966906 2.050212 76 1 3.53171 0.020162 2.252861 77 6 4.92434 3.81961 0.503192 78 1 4.720374 4.435193 -0.270741 79 1 5.828361 3.470498 0.371352 80 6 3.902153 2.728836 0.579838 81 1 2.995112 3.13464 0.692731 82 6 4.184971 1.83833 1.783598 83 1 5.108519 1.468463 1.683177 84 6 5.137452 3.809346 3.015306 85 1 5.046335 4.362949 3.831155 86 1 6.059594 3.44999 2.990553 87 6 4.140951 2.649698	64	1	-0.0913	-3.988355	-2.089153
661 1.270437 -4.204554 -0.182813 67 1 2.591791 -4.252915 -1.08853 68 6 1.391959 -3.687538 -3.507602 69 1 0.792449 -3.924578 -4.259191 70 1 2.283438 -4.075131 -3.694997 71 7 3.881739 1.865978 -0.619453 72 1 4.731078 1.742803 -0.921834 73 1 3.401789 2.270113 -1.278679 74 7 3.229773 0.704363 1.734399 75 1 2.417778 0.966906 2.050212 76 1 3.53171 0.020162 2.252861 77 6 4.92434 3.851961 0.503192 78 1 4.720374 4.435193 -0.270741 79 1 5.828361 3.470498 0.371352 80 6 3.902153 2.728836 0.579838 81 1 2.995112 3.13464 0.692731 82 6 4.184971 1.838833 1.783598 83 1 5.046335 4.362949 3.831155 86 1 6.059594 3.44999 2.90553 87 6 4.140951 2.649698 3.073879 88 1 4.360366 2.062718 3.840949 89 1 3.227054 3.004558 3.210678 90 6 4.897478 4.675013 1	65	6	1.685536	-3.861732	-1.014151
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	66	1	1.270437	-4.204554	-0.182813
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	67	1	2.591791	-4.252915	-1.08853
691 0.792449 -3.924578 -4.259191 701 2.283438 -4.075131 -3.694997 717 3.881739 1.865978 -0.619453 721 4.731078 1.742803 -0.921834 731 3.401789 2.270113 -1.278679 747 3.229773 0.704363 1.734399 751 2.417778 0.966906 2.050212 761 3.53171 0.020162 2.252861 776 4.92434 3.851961 0.503192 781 4.720374 4.435193 -0.2707411 791 5.828361 3.470498 0.371352 806 3.902153 2.728836 0.579838 811 2.995112 3.13464 0.692731 826 4.184971 1.838833 1.783598 831 5.108519 1.468463 1.683177 846 5.137452 3.809346 3.015306 851 5.046335 4.362949 3.831155 861 6.059594 3.44999 2.990553 876 4.140951 2.649698 3.073879 881 4.360366 2.062718 3.840949 891 3.227054 3.004558 3.210678 906 4.897478 4.675013 1.78843 911 5.594752 5.376523 1.738843 921	68	6	1.391959	-3.687538	-3.507602
7012.283438-4.075131-3.694997 71 73.8817391.865978-0.619453 72 14.7310781.742803-0.921834 73 13.4017892.270113-1.278679 74 73.2297730.7043631.734399 75 12.4177780.9669062.050212 76 13.531710.0201622.252861 77 64.924343.8519610.503192 78 14.7203744.435193-0.270741 79 15.8283613.4704980.371352 80 63.9021532.7288360.579838 81 12.9951123.134640.692731 82 64.1849711.8388331.783598 83 15.1085191.4684631.683177 84 65.1374523.8093463.015306 85 15.0463354.3629493.831155 86 16.0595943.449992.990553 87 64.1409512.6496983.073879 88 14.3603662.0627183.840949 89 13.2270543.0045583.210678 90 64.8974784.6750131.738843 92 14.0188635.1237681.868125 92 14.0128635.1237681.868125 92 14.0120626.0202766.020276	69	1	0.792449	-3.924578	-4.259191
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	70	1	2.283438	-4.075131	-3.694997
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	71	7	3.881739	1.865978	-0.619453
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	72	1	4.731078	1.742803	-0.921834
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	73	1	3.401789	2.270113	-1.278679
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	74	7	3.229773	0.704363	1.734399
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	75	1	2.417778	0.966906	2.050212
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	76	1	3.53171	0.020162	2.252861
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	77	6	4.92434	3.851961	0.503192
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	78	1	4.720374	4.435193	-0.270741
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	79	1	5.828361	3.470498	0.371352
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	80	6	3.902153	2.728836	0.579838
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	81	1	2.995112	3.13464	0.692731
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	82	6	4.184971	1.838833	1.783598
84 6 5.137452 3.809346 3.015306 85 1 5.046335 4.362949 3.831155 86 1 6.059594 3.44999 2.990553 87 6 4.140951 2.649698 3.073879 88 1 4.360366 2.062718 3.840949 89 1 3.227054 3.004558 3.210678 90 6 4.897478 4.675013 1.78581 91 1 5.594752 5.376523 1.738843 92 1 4.018863 5.123768 1.868125	83	1	5.108519	1.468463	1.683177
85 1 5.046335 4.362949 3.831155 86 1 6.059594 3.44999 2.990553 87 6 4.140951 2.649698 3.073879 88 1 4.360366 2.062718 3.840949 89 1 3.227054 3.004558 3.210678 90 6 4.897478 4.675013 1.78581 91 1 5.594752 5.376523 1.738843 92 1 4.018863 5.123768 1.868125	84	6	5.137452	3.809346	3.015306
86 1 6.059594 3.44999 2.990553 87 6 4.140951 2.649698 3.073879 88 1 4.360366 2.062718 3.840949 89 1 3.227054 3.004558 3.210678 90 6 4.897478 4.675013 1.78581 91 1 5.594752 5.376523 1.738843 92 1 4.018863 5.123768 1.868125	85	1	5.046335	4.362949	3.831155
87 6 4.140951 2.649698 3.073879 88 1 4.360366 2.062718 3.840949 89 1 3.227054 3.004558 3.210678 90 6 4.897478 4.675013 1.78581 91 1 5.594752 5.376523 1.738843 92 1 4.018863 5.123768 1.868125	86	1	6.059594	3,44999	2.990553
88 1 4.360366 2.062718 3.840949 89 1 3.227054 3.004558 3.210678 90 6 4.897478 4.675013 1.78581 91 1 5.594752 5.376523 1.738843 92 1 4.018863 5.123768 1.868125	87	6	4 140951	2 649698	3 073879
89 1 3.227054 3.004558 3.210678 90 6 4.897478 4.675013 1.78581 91 1 5.594752 5.376523 1.738843 92 1 4.018863 5.123768 1.868125	88	1	4,360366	2.062718	3.840949
90 6 4.897478 4.675013 1.78581 91 1 5.594752 5.376523 1.738843 92 1 4.018863 5.123768 1.868125	89	1	3.227054	3.004558	3.210678
91 1 5.594752 5.376523 1.738843 92 1 4.018863 5.123768 1.868125	90	6	4.897478	4.675013	1.78581
92 1 4.018863 5.123768 1.868125 92 50 6.15940 0.000070 0.000014	91	1	5 594752	5 376523	1 738843
		1	4 018863	5 123768	1 868125
93 53 6,152943 -0,999678 -0,606844	93	53	6,152943	-0.999678	-0.606844

 Table S2. Cartesian coordinates of [Cu^{II}(chxn)₂I]I (continue)

State	Open-shell triplet (HS)	Open-shell singlet (LS)
Electronic energy [Hartree]	-1814.63670644	-1814.63670723
<s<sup>2></s<sup>	2.0044	1.0044
$E^{\mathrm{LS}} - E^{\mathrm{HS}} [\mathrm{cm}^{-1}]$	-0.	17
J [cm ⁻¹]	-0.	17

Table S3. Summary of DFT calculation results

Calculations were performed using UB3LYP/SDD with the Heisenberg model and sizeconsistent spin projection.^{S4}



Figure S4. Magnetization-field curves normalized by the saturation magnetization (M_S) at 1.8 K of $[Cu^{II}(chxn)_2I]I$. The temperature dependence was measured at 1.8, 3.6, 5.4, and 7.2 K. Dotted curves show normalized simulation curves of the 8-ring model with $g_{iso} = 2.1$ and J = -0.15 cm⁻¹, using the program PHI.^{S5} Weak antiferromagnetism is confirmed like as the Eggert-Affleck-Takahashi mode (Figure 2).



Figure S5. (a) The real part (χ') and (b) the imaginary part (χ'') of AC susceptibility of [Cu^{II}(chxn)₂I]I, measured at 1.8 K under a static magnetic field of 0, 0.1, 0.2, 0.3, 0.4, 0.5, 0.6, 0.7, and 0.8 T. AC drive is 2.5 Oe. Each line for χ'' is a Debye relaxation fitting curve.

	-			• •		
<i>H</i> [Oe]	χ⊤-χs [emu/Oe]	τ [s]	α	σ χτ-χs [emu/Oe]	$\sigma \tau$ [s]	σα
0	_	_	_	_	_	_
1000	7.71E-07	0.008784	0.16722	1.67E-08	0.000328	0.0177
2000	2.23E-06	0.011007	0.14547	2.05E-08	0.000169	0.0076
3000	3.42E-06	0.015118	0.15364	2.74E-08	0.000201	0.00661
4000	4.31E-06	0.021319	0.19546	5.34E-08	4.59E-04	0.01
5000	4.87E-06	0.028833	0.22984	6.05E-08	6.50E-04	0.00973
6000	5.17E-06	0.03819	0.26124	1.12E-07	1.59E-03	0.016
7000	5.31E-06	0.04875	0.28695	5.88E-08	1.09E-03	0.00761
8000	5.48E-06	0.062693	0.32286	9.85E-08	0.00251	0.011

Table S4. AC susceptibility fitting data of the imaginary part of [Cu^{II}(chxn)₂I]I at 1.8 K



Figure S6. The real part (χ') of AC susceptibility of [Cu^{II}(chxn)₂I]I, measured at 1.8, 2.0, 2.2, 2.4, 2.6, 2.8, 3.0, 3.2, 3.5, 4.0, 4.5, 5.0, 5.5, 6.0, 6.5, and 7.0 K under a static magnetic field of 0.6 T. AC drive is 2.5 Oe.



Figure S7. Cole-Cole plots of AC susceptibility of [Cu^{II}(chxn)₂I]I, measured at (a) 1.8 K under 0.1, 0.2 0.3, 0.4, 0.5, 0.6, 0.7, and 0.8 T; and (b) at 1.8, 2.0, 2.2, 2.4, 2.6, 2.8, 3.0, 3.2, 3.5, 4.0, 4.5, 5.0, 5.5, 6.0, 6.5, and 7.0 K under 0.6 T.

<i>T</i> [K]	χτ-χs [emu/Oe]	τ[S]	α	σχ⊤-χs [emu/Oe]	$\sigma \tau [s]$	σα
1.8	5.25E-06	0.042743	0.2711	7.57E-08	0.00121	0.0104
2	5.08E-06	0.036096	0.30008	2.77E-07	0.00404	0.0389
2.2	4.66E-06	0.028777	0.27953	6.33E-08	0.000768	0.0102
2.4	4.21E-06	0.019849	0.26155	8.40E-08	0.000758	0.0155
2.6	3.67E-06	0.011736	0.21404	1.23E-07	0.000712	0.027
2.8	3.61E-06	0.0088516	0.18427	1.16E-07	0.000502	0.0261
3	3.20E-06	0.0058973	0.11845	8.73E-08	0.00026	0.0226
3.2	3.23E-06	0.0048614	0.14171	7.07E-08	0.000178	0.0179
3.5	3.11E-06	0.0032541	0.15057	8.99E-08	0.000159	0.0237
4	2.74E-06	0.0018165	0.085937	1.07E-07	0.000107	0.0327
4.5	2.63E-06	0.0010744	0.08542	7.66E-08	0.0000463	0.0247
5	2.24E-06	0.00078988	0.033971	2.57E-08	0.0000122	0.00982
5.5	2.15E-06	0.00047625	0	4.95E-08	0.0000202	-
6	2.01E-06	0.00038646	0	1.67E-08	0.00000608	-
6.5	1.78E-06	0.00027643	0	1.77E-08	0.00000546	-
7	1.78E-06	0.00020308	0	3.26E-08	0.00000742	_

Table S5. AC susceptibility fitting data of the imaginary part of $[Cu^{II}(chxn)_2I]I$

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