Supporting Information

Slow magnetic relaxation of light lanthanide-based linear $LnZn_2$ trinuclear complexes

Chika Takehara,[a] Poh Ling Then,[a] Yumiko Kataoka,[a] Motohiro Nakano,[b] Tomoo Yamamura,[c] and Takashi Kajiwara*[a]

a Faculty of Science, Nara Women's University, Nara, Nara 630-8506, Japan. Tel: +81-742-20-3402; E-mail: kajiwara@cc.nara-wu.ac.jp
b Graduate School of Science, Osaka University, Toyonaka, Osaka 560-0043, Japan.
c Institute for Materials Research, Tohoku University, Aoba-ku, Sendai, Miyagi 980-8577, Japan.

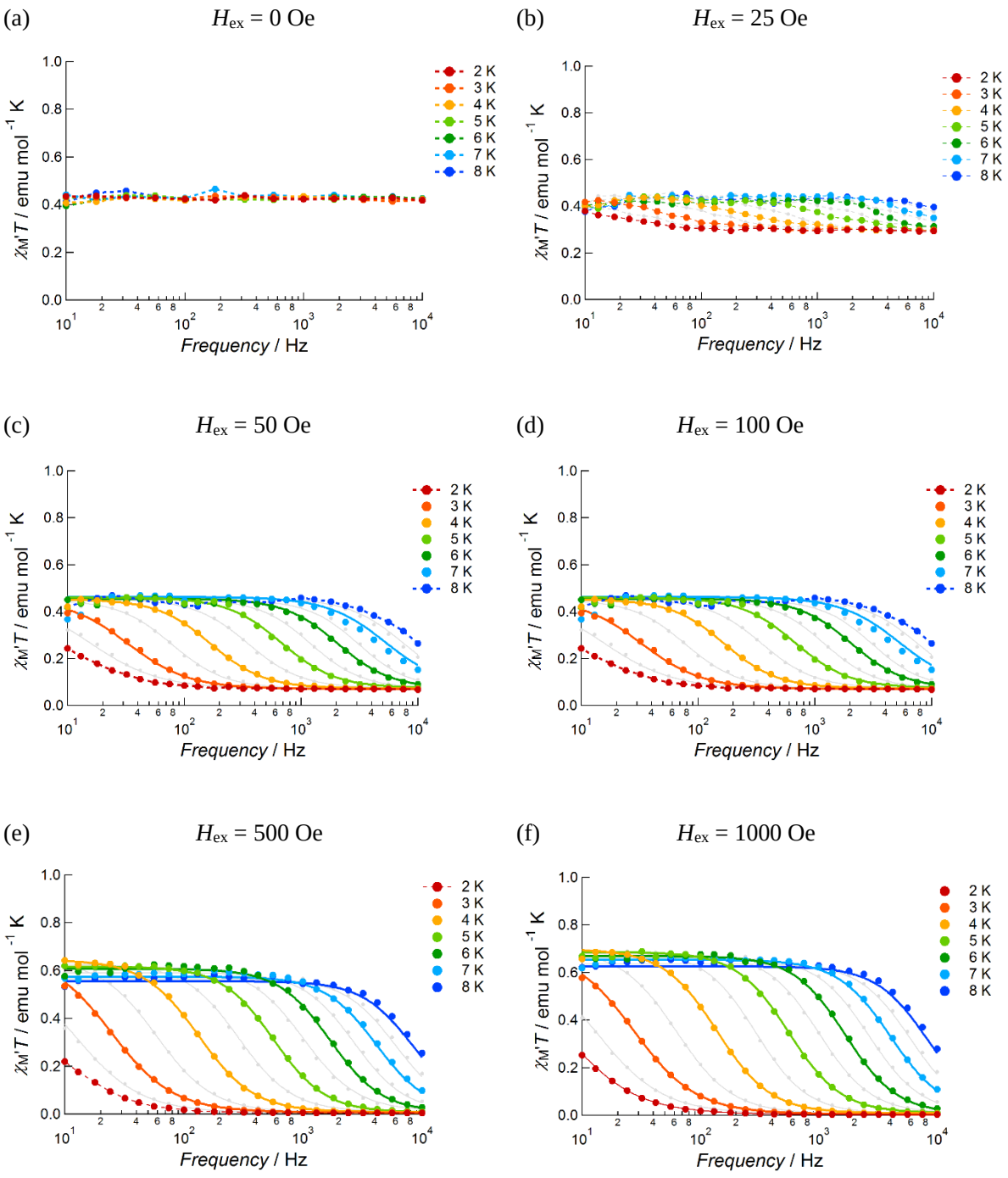


Figure S1 Frequency dependence of products of in-phase susceptibility χ_M' and temperature of **1**, $\chi_M'T$, measured under 0–1000 Oe external dc field H_{ex}. Solid curves represent the results of fits to a generalized Debye model, while the dotted curves are the visual guides.

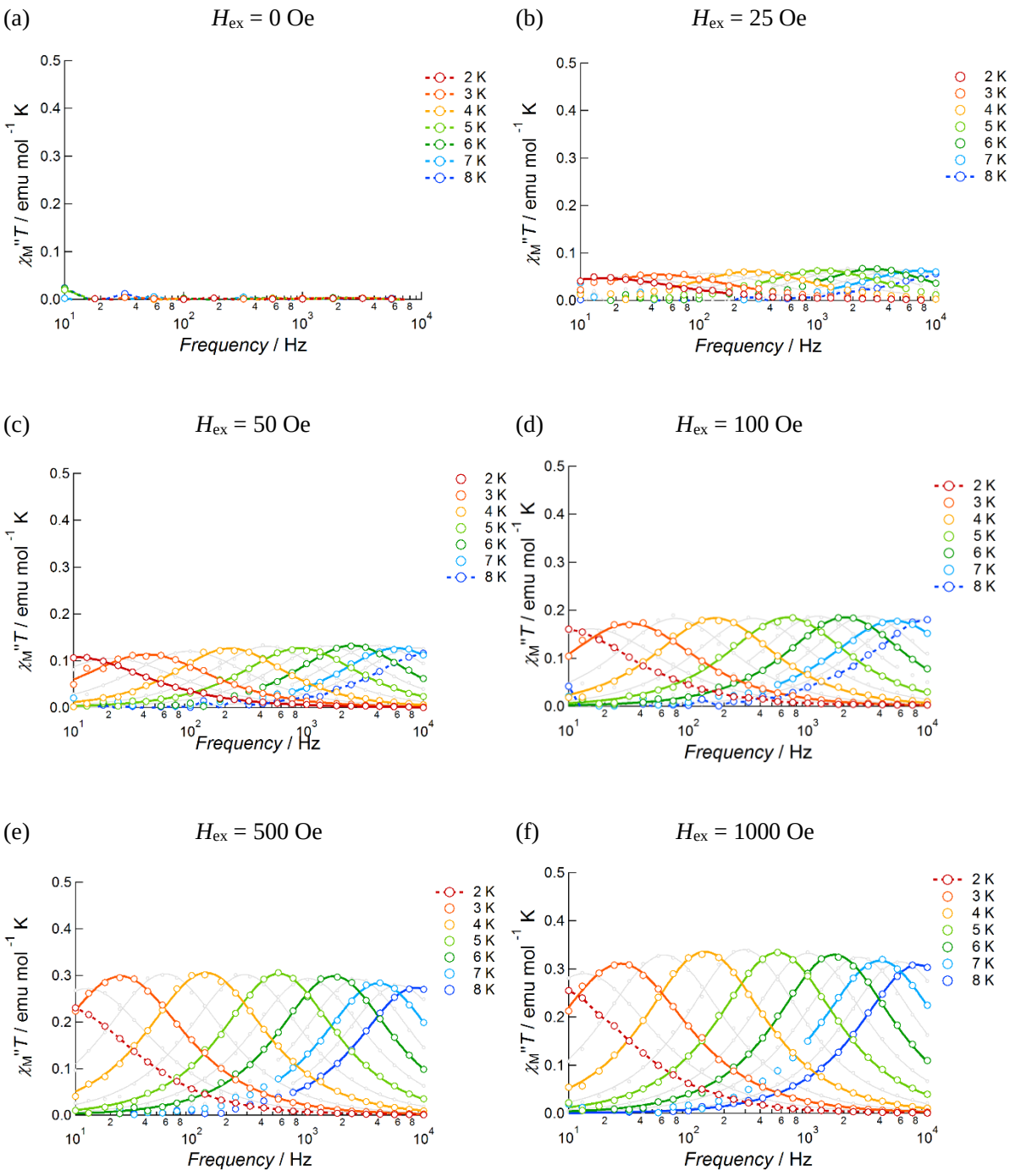


Figure S2 Frequency dependence of products of out-of-phase susceptibility $\chi_M''$and temperature of **1**, $\chi_M''T$, measured under 0–1000 Oe external dc field H_{ex}. Solid curves represent the results of fits to a generalized Debye model, while the dotted curves are the visual guides.

Table S1 Best fitted parameters of the extended Debye model for **1** measured under 1000 Oe dc field.

T/K	$\chi_T T$ / emu mol^{-1} K	χ_S / emu mol^{-1} K	τ / s	α
2.5	0.645(15)	0.0020(6)	0.0112(3)	0.101(6)
3.0	0.678(4)	0.0029(5)	0.00550(5)	0.065(3)
3.5	0.700(3)	0.0046(10)	0.00254(2)	0.035(4)
4.0	0.688(4)	0.007(3)	0.001129(16)	0.005(9)
4.5	0.6873(18)	0.0067(17)	0.000544(4)	0.009(5)
5.0	0.677(3)	0.010(4)	0.000282(4)	-0.006(9)
5.5	0.682(2)	0.007(5)	0.000161(2)	0.009(9)
6.0	0.668(2)	0*	0.0000917(11)	0.005(7)
6.5	0.666(2)	0*	0.0000585(6)	0.006(7)
7.0	0.655(3)	0*	0.0000383(7)	0.006(12)
7.5	0.646(2)	0*	0.0000259(3)	0.018(11)
8.0	0.642(2)	0*	0.0000183(3)	0.0128(14)

* fixed at 0 emu mol^{-1} K

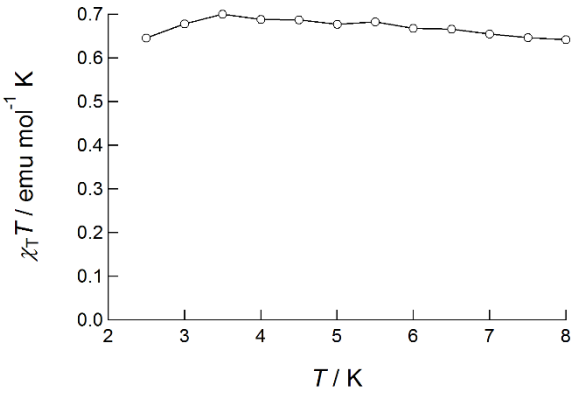


Figure S3 Temperature dependence of the product of the isothermal susceptibility χ_T and temperature *T* of **1** measured under 1000 dc field.

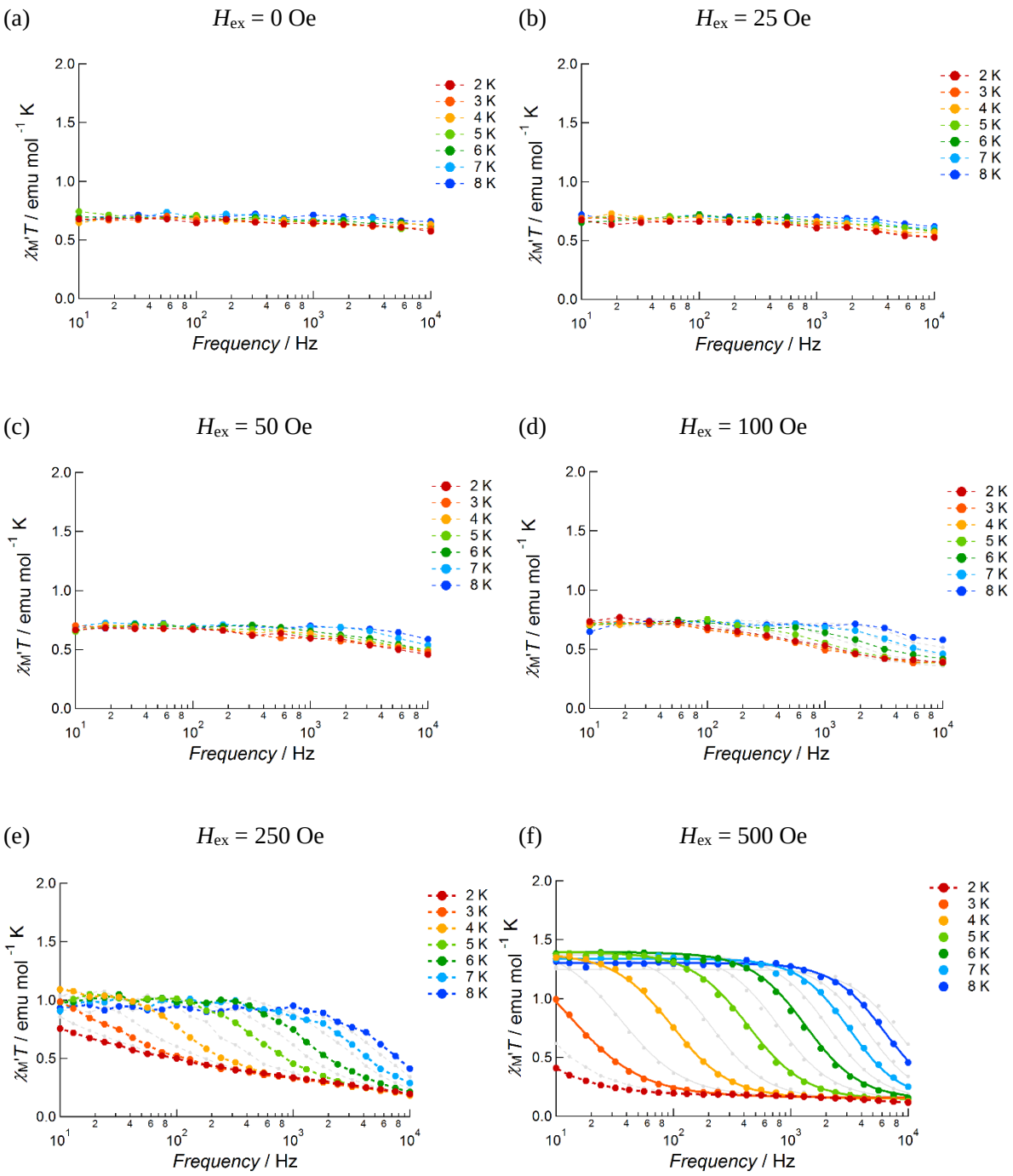


Figure S4 Frequency dependence of products $\chi_M'T$ of **3**, measured under 0–500 Oe dc field. Solid curves represent the results of fits to a generalized Debye model, while the dotted curves are visual guides.

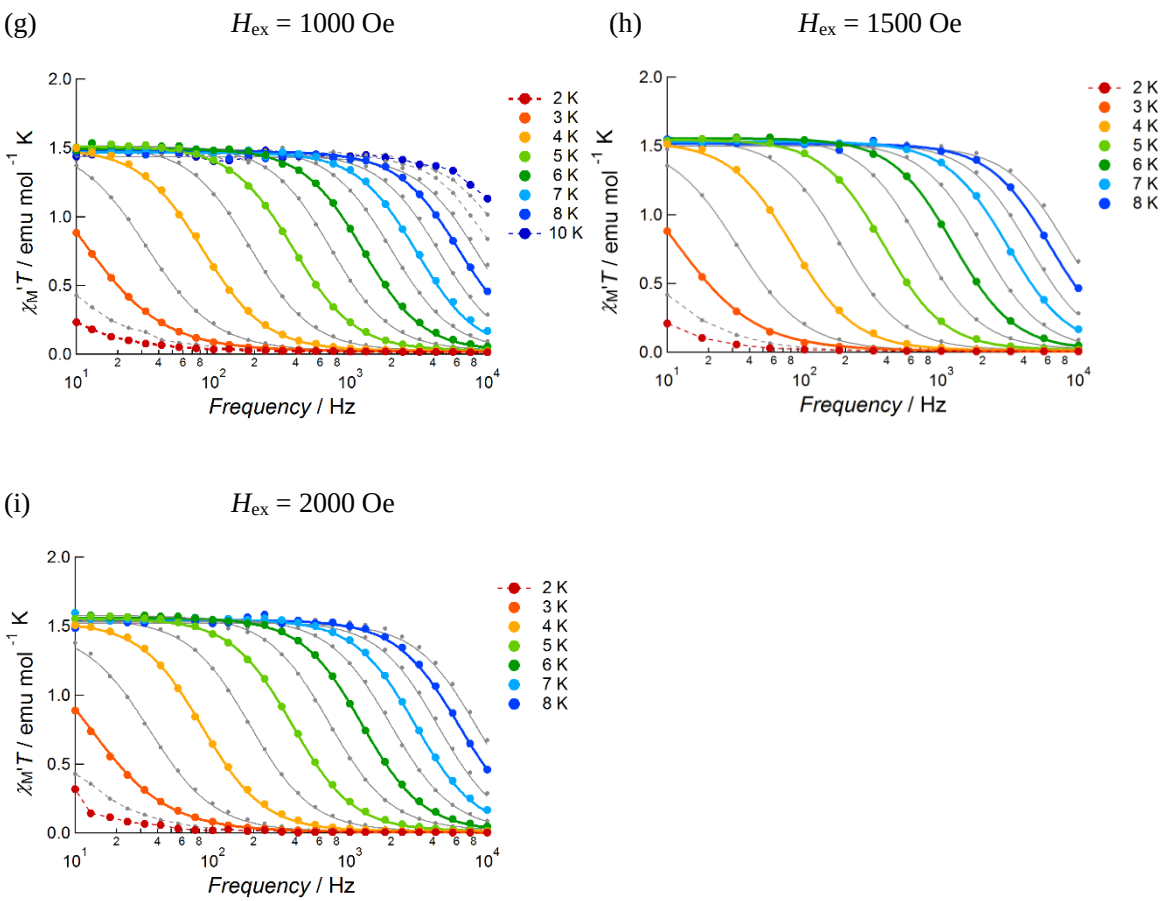


Figure S4 (continued) Frequency dependence of products $\chi_M'T$ of **3**, measured under 1000–2000 Oe dc field. Solid curves represent the results of fits to a generalized Debye model, while the dotted curves are visual guides.

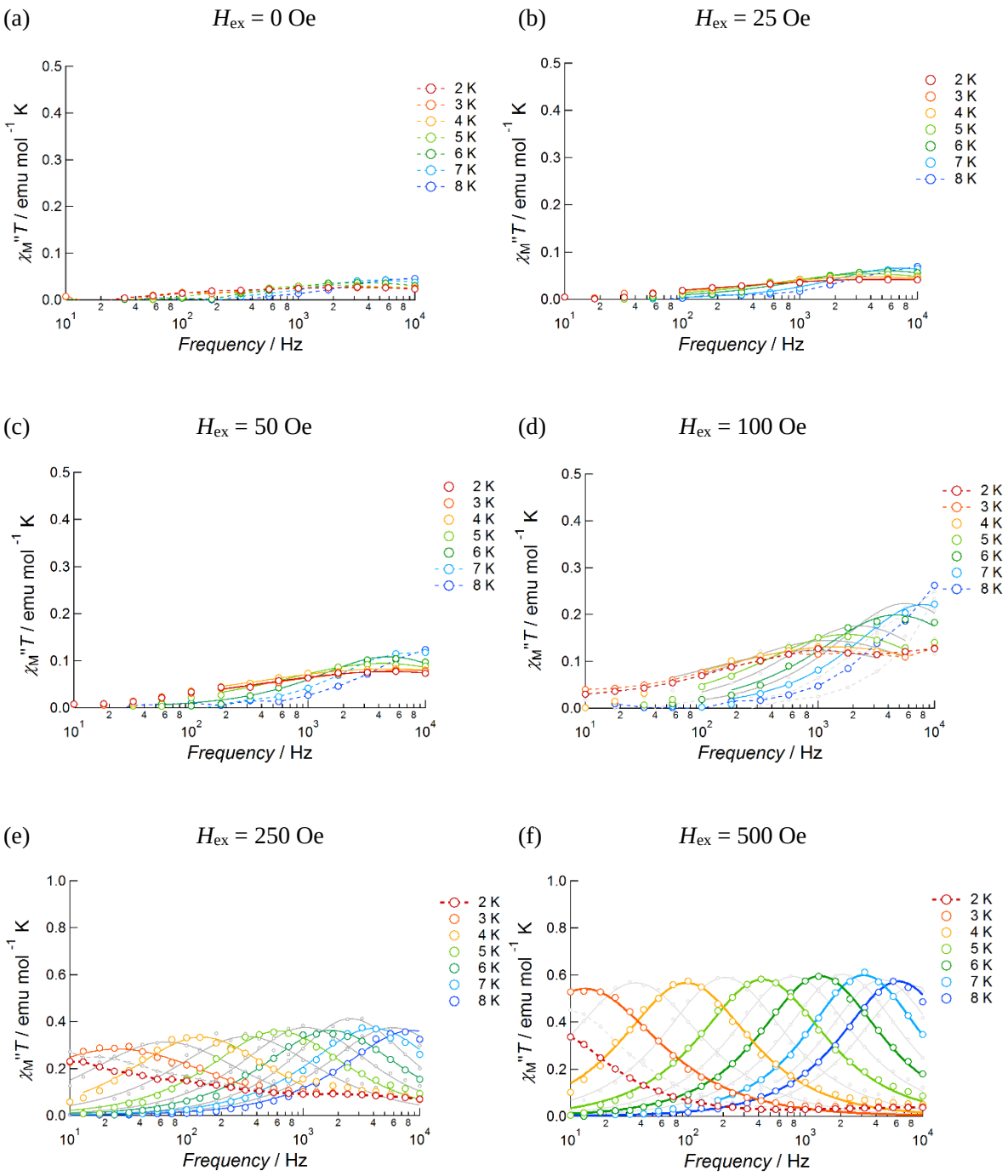
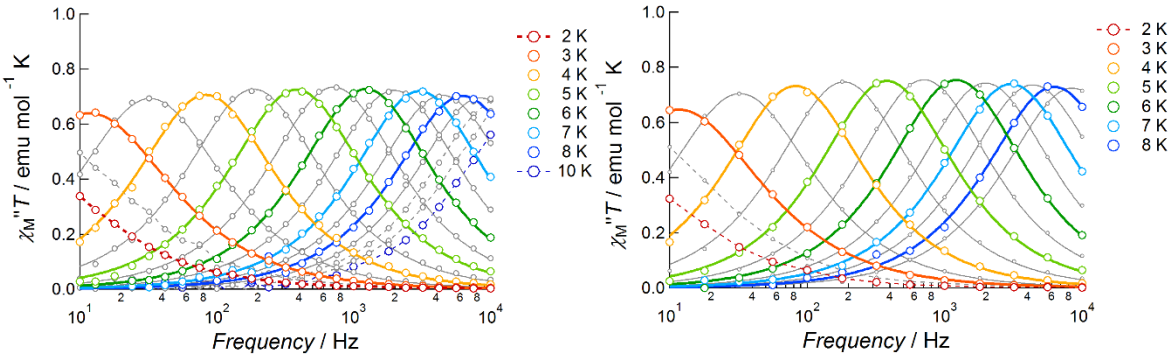


Figure S5 Frequency dependence of products $\chi_M''T$ of **3**, measured under 0–500 Oe dc field. Solid curves represent the results of fits to a generalized Debye model, while the dotted curves are visual guides.

(g) H_{ex} = 1000 Oe (h) H_{ex} = 1500 Oe



(i) H_{ex} = 2000 Oe

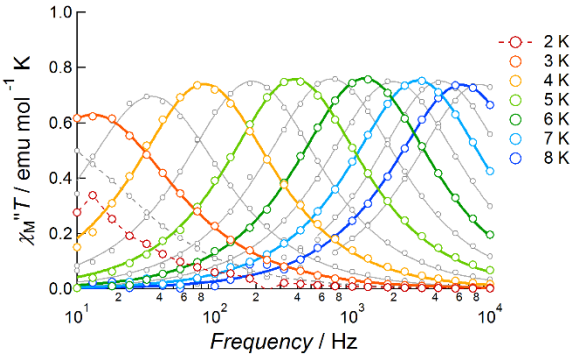


Figure S5 (continued) Frequency dependence of products $\chi_M''T$ of **3**, measured under 1000–2000 Oe dc field. Solid curves represent the results of fits to a generalized Debye model, while the dotted curves are visual guides.

Table S2 Best fitted parameters of the extended Debye model for **3** measured under 1000 Oe dc field.

T/K	$\chi_T T$ / emu mol^{-1} K	χ_S / emu mol^{-1} K	τ / s	α
3.0	1.53(2)	0.0170(7)	0.0131(3)	0.116(3)
3.5	1.563(5)	0.0188(8)	0.00497(3)	0.066(2)
4.0	1.531(6)	0.021(3)	0.001942(15)	0.036(5)
4.5	1.525(4)	0.025(3)	0.000855(5)	0.019(4)
5.0	1.521(4)	0.025(4)	0.000420(3)	0.020(5)
5.5	1.518(2)	0.027(4)	0.0002229(12)	0.014(4)
6.0	1.512(4)	0.023(9)	0.0001299(15)	0.020(7)
6.5	1.496(3)	0.044(11)	0.0000813(9)	0.003(7)
7.0	1.485(4)	0 *	0.0000510(5)	0.025(6)
7.5	1.479(6)	0 *	0.0000348(5)	0.0178(11)
8.0	1.464(5)	0 *	0.0000245(3)	0.019(11)
8.5	1.462(4)	0 *	0.0000181(3)	0.016(13)

* fixed at 0 emu mol^{-1} K

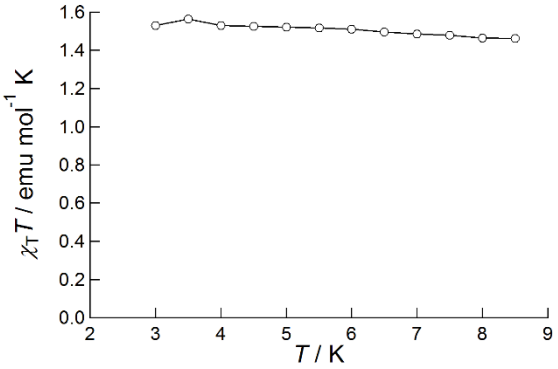


Figure S6 Temperature dependence of the product of the isothermal susceptibility χ_T and temperature *T* of **3** measured under 1000 dc field.