

Supporting Information

Multi-Functional Molecular Rotators with Dielectric, Magnetic and Optical Responses

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Table S1. Transition temperatures from ordered phase to disordered phase in the heating process of adamantane derivatives.

		T_{trs}	Molecular weight	Ref.
	adamantane	178	136.2	[1]
1	2-azaadamantane- <i>N</i> -oxyl	300	152.2	[2]
2	1-methyladamantane	212	150.3	[3]
3	2-adamantanone	205	150.2	[4]
4	1-chloroadamantane	243	170.7	[2]
5	1-bromoadamantane	311	215.1	[2]
6	2-chloroadamantane	237	170.7	[5]
7	2-bromoadamantane	277	215.1	[5]
8	1-hydroxyadamantane	357	152.2	[6]
9	2-hydroxyadamantane	389	151.2	[6]

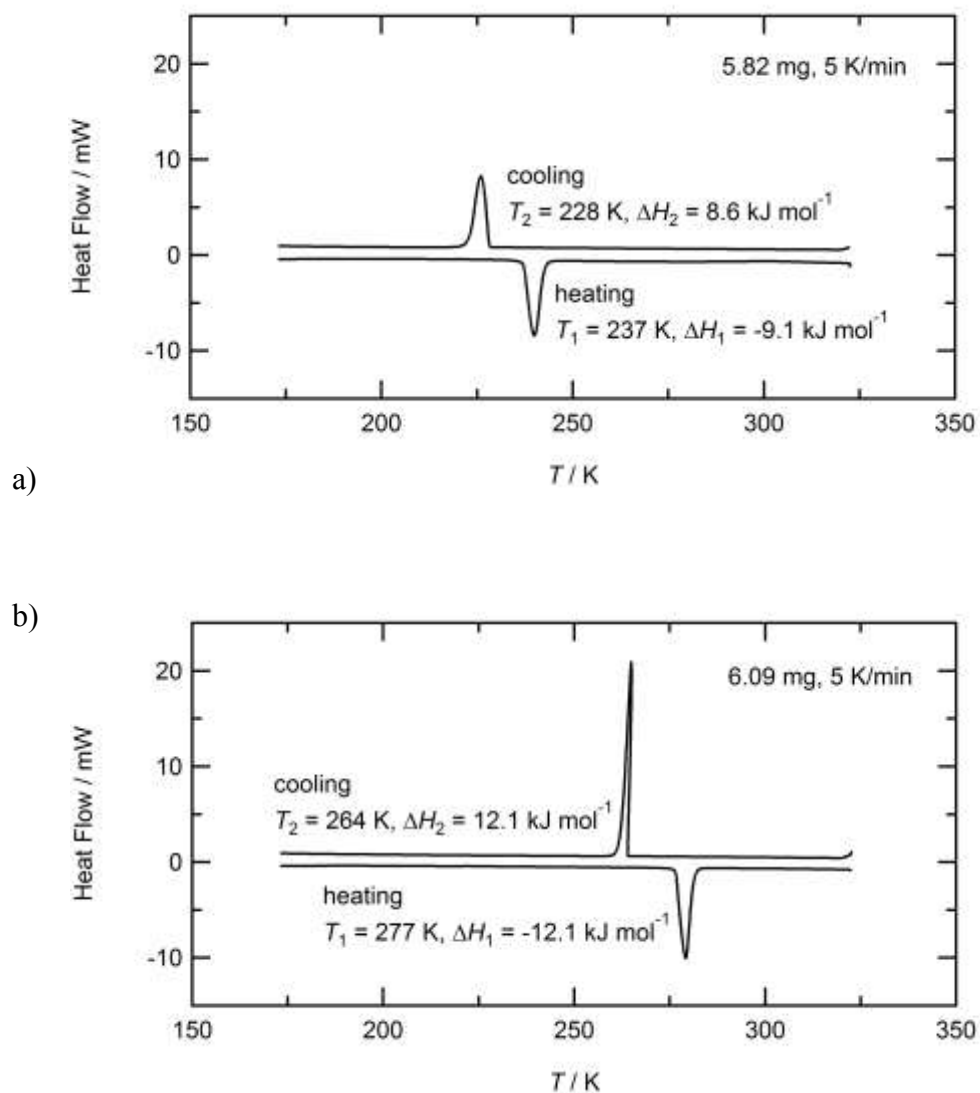


Figure S1. Difference scanning thermoanalyses of a) 2-chloroadamantane (**6**) and b) 2-bromoadamantane (**7**). The data were conducted using a Rigaku Thermo plus TG8120 differential scanning calorimeter at the rate of 5 K min^{-1} . The samples were used as received without further purification (Wako Chemical for **6** and TCI Chemical for **7**).

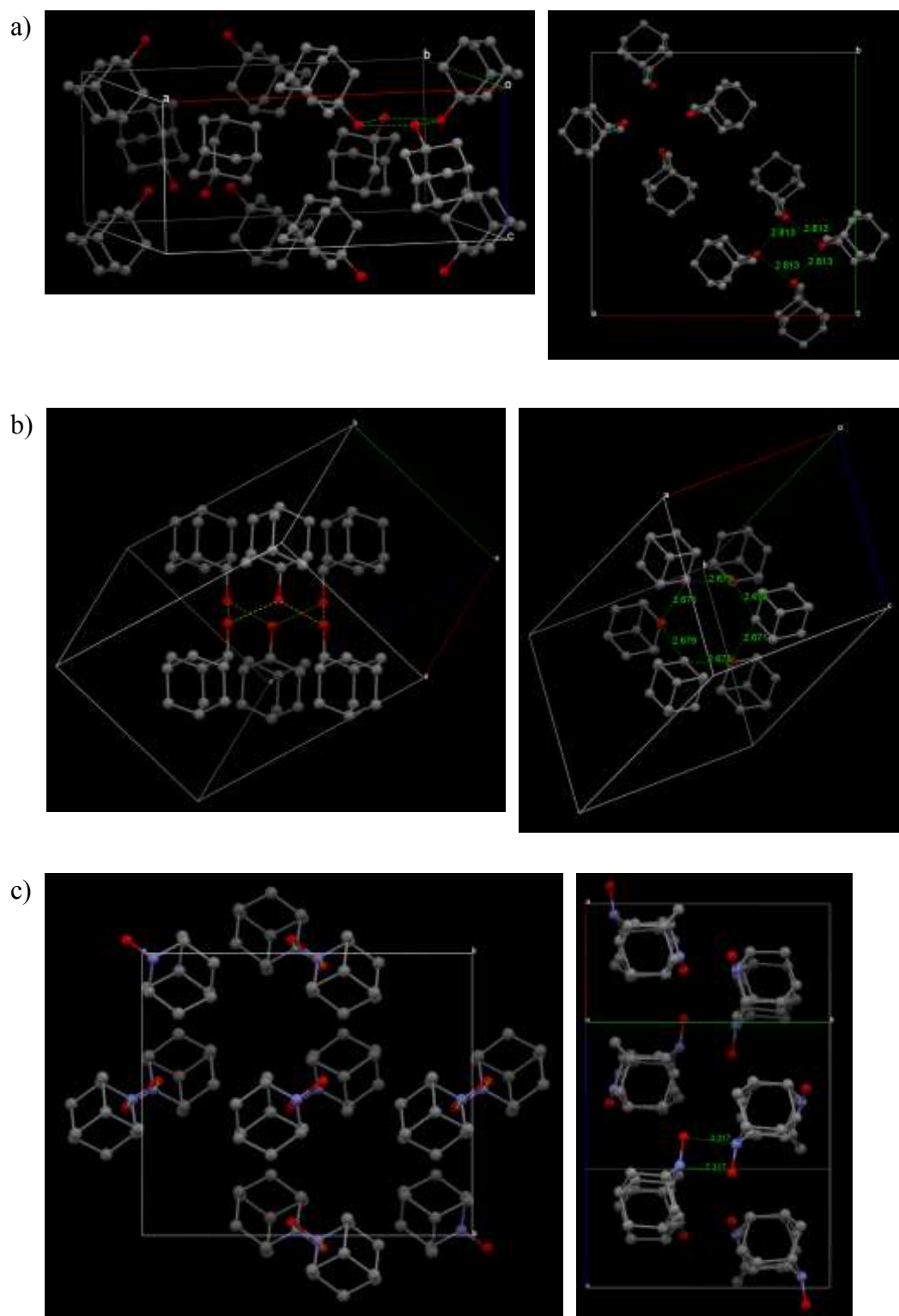


Figure S2. Hydrogen bonding structures of a) 1-hydroxyadamantane thermoanalyses of 1-hydroxyadamantane (**8**), b) 2-hydroxyadamantane (**9**) and c) 2-azaadamantane-*N*-oxyl (**1**). Atomic coordinates of **8** and **9** were obtained from ref. [7] and [8].

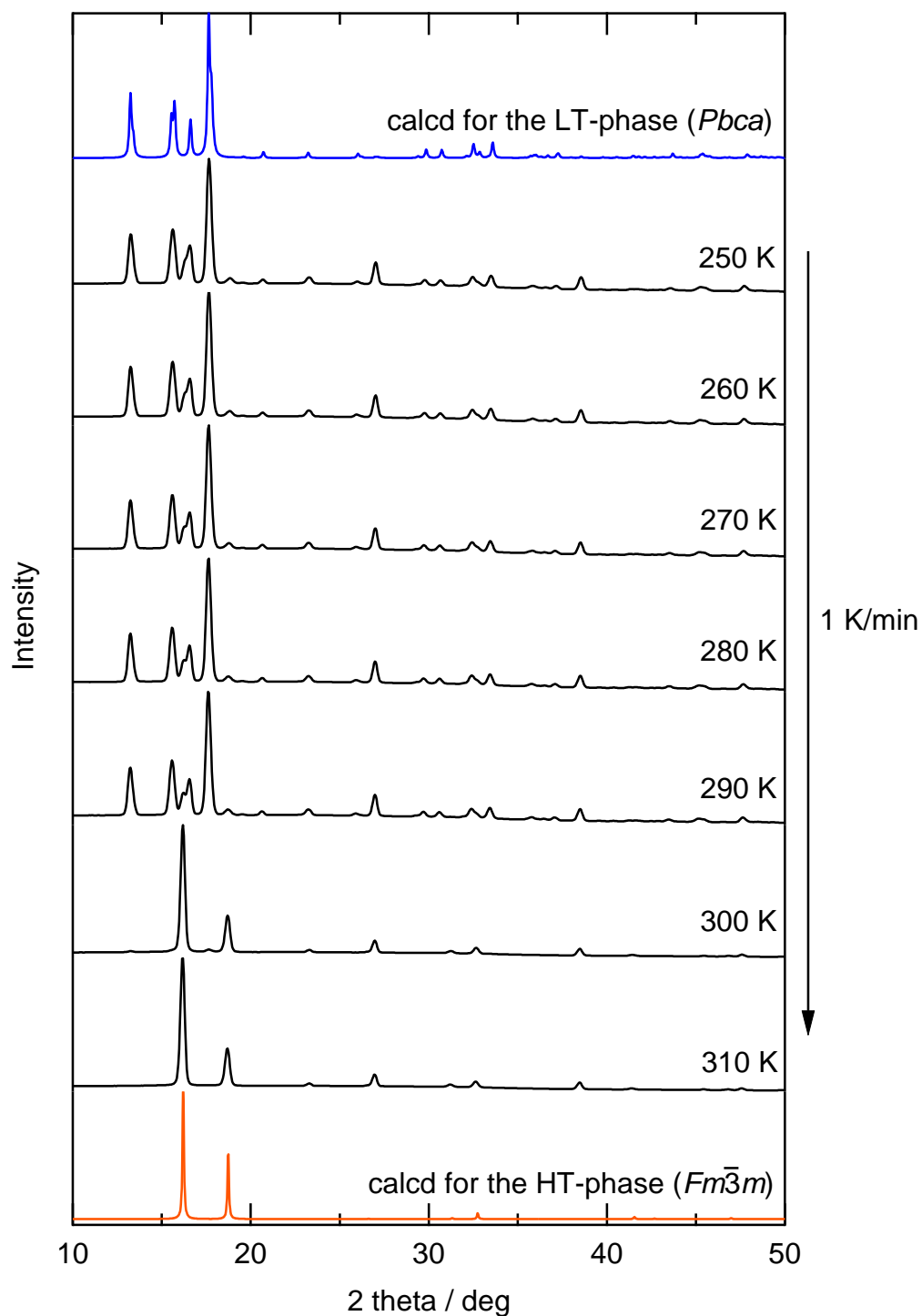


Figure S3. Powder X-ray diffractions of **1** in the heating process at the rate of 1 K min⁻¹. The powder sample was sealed in a Lindemann glass capillary ($\varphi = 0.2$ mm) and Debye-Scherrer rings were recorded using Rigaku RAPID-II imaging plate area detector with a Cu-K α radiation.

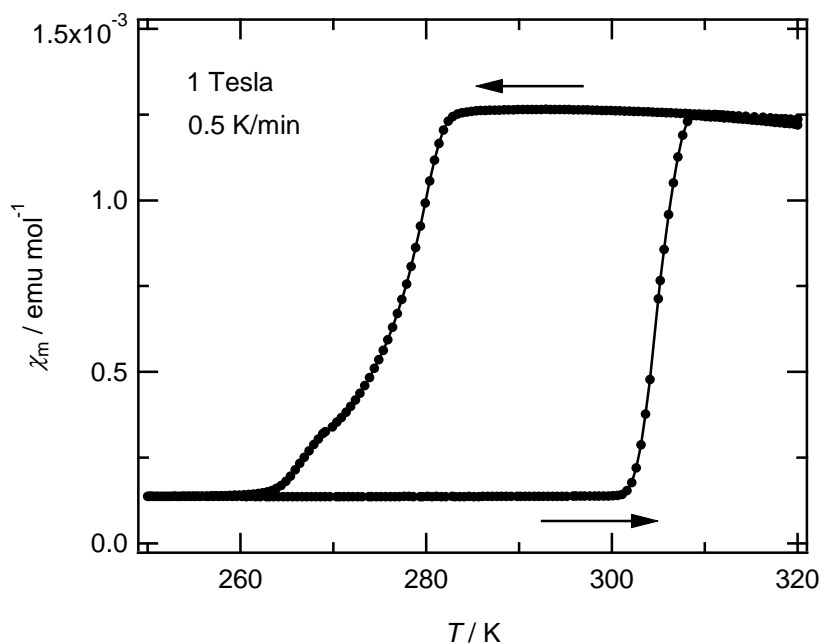


Figure S4. Temperature dependent magnetic susceptibilities of **1**. The data were conducted using a MPMS-XL7 magnetometer in the range of 250 ~ 320 K at the rate of 0.5 K min^{-1} .

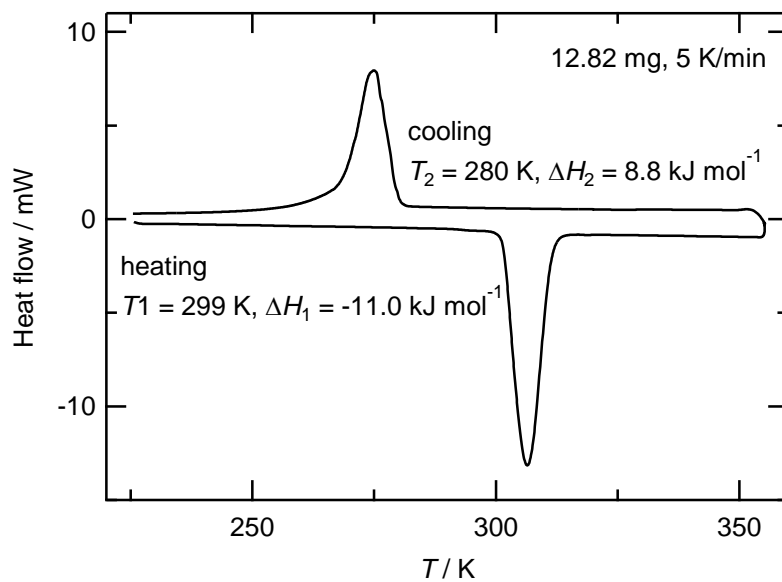


Figure S5. A difference scanning thermoanalysis of **1**. The data were conducted using a Rigaku Thermo plus TG8120 differential scanning calorimeter.

References

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