Supporting Information

Coordination-based Vapochromic Behavior of a Luminescent Pt(II) Complex with Potassium Ions

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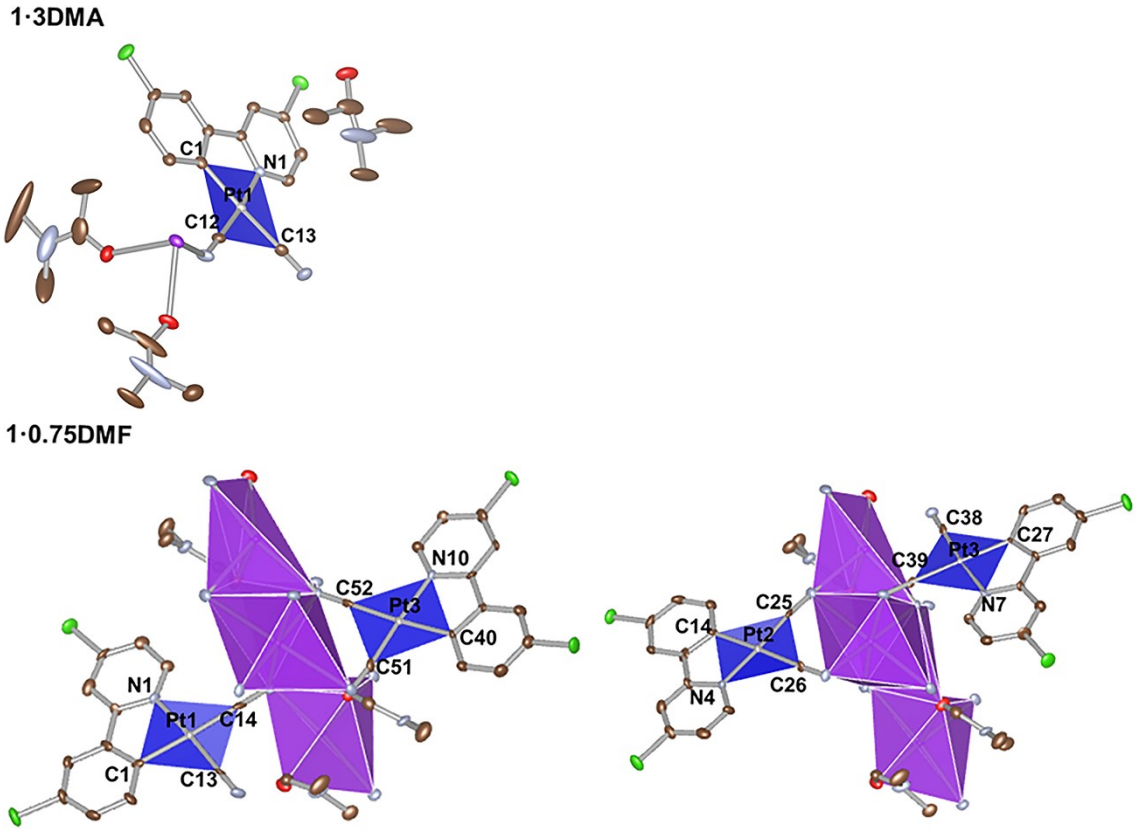

Figure S1. Crystal structures of **1·3DMA** (top) and **1·0.75DMF** (bottom) with atom labels around Pt(II) ions.

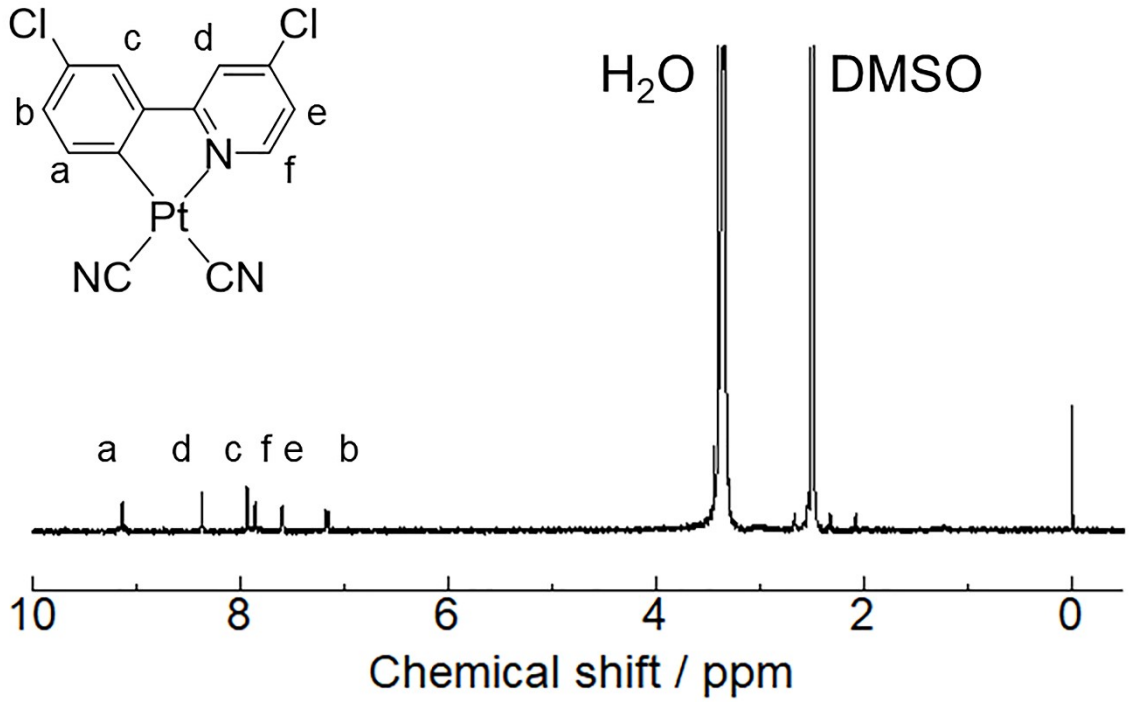

Figure S2. ^{1}H NMR spectrum of **1** (400 MHz, DMSO-d_6).

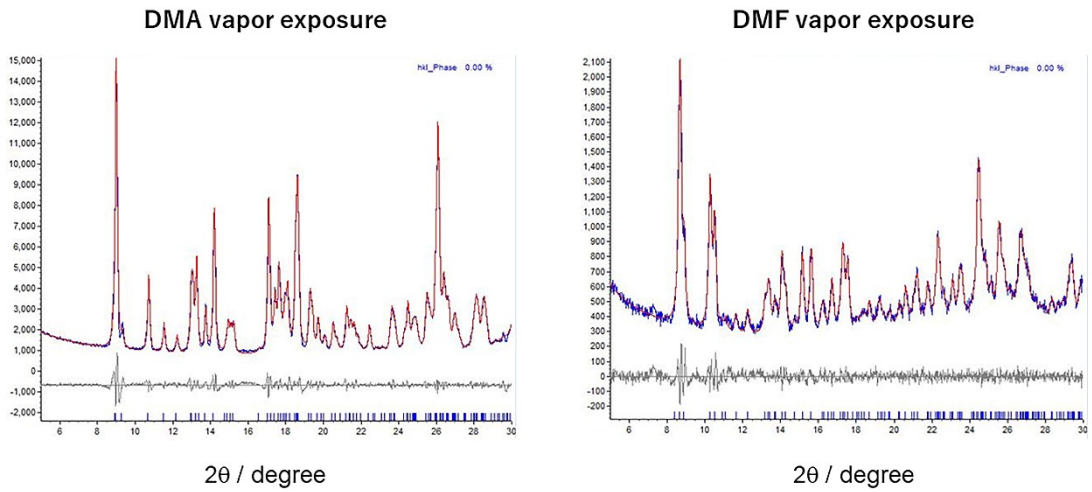

Figure S3. Lattice constant refinement fitting for **1** after DMA (left) and DMF (right) vapor exposure. Blue, red and gray lines show experimental, calculated and residual, respectively.

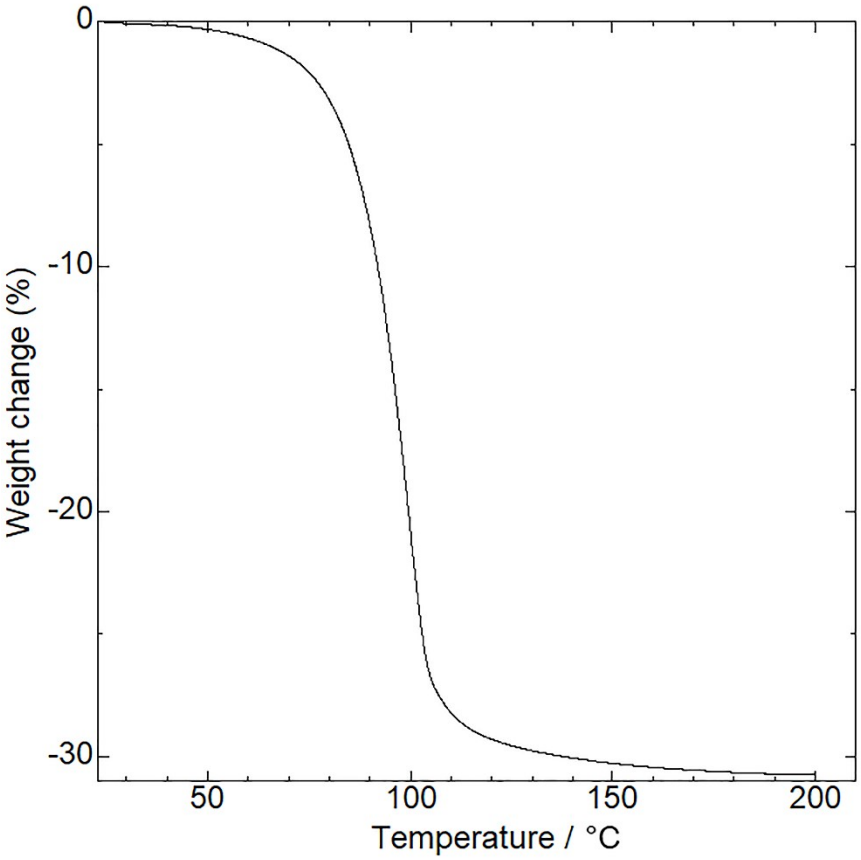

Figure S4. Thermogravimetric analysis of DMA-vapor exposed **1**.

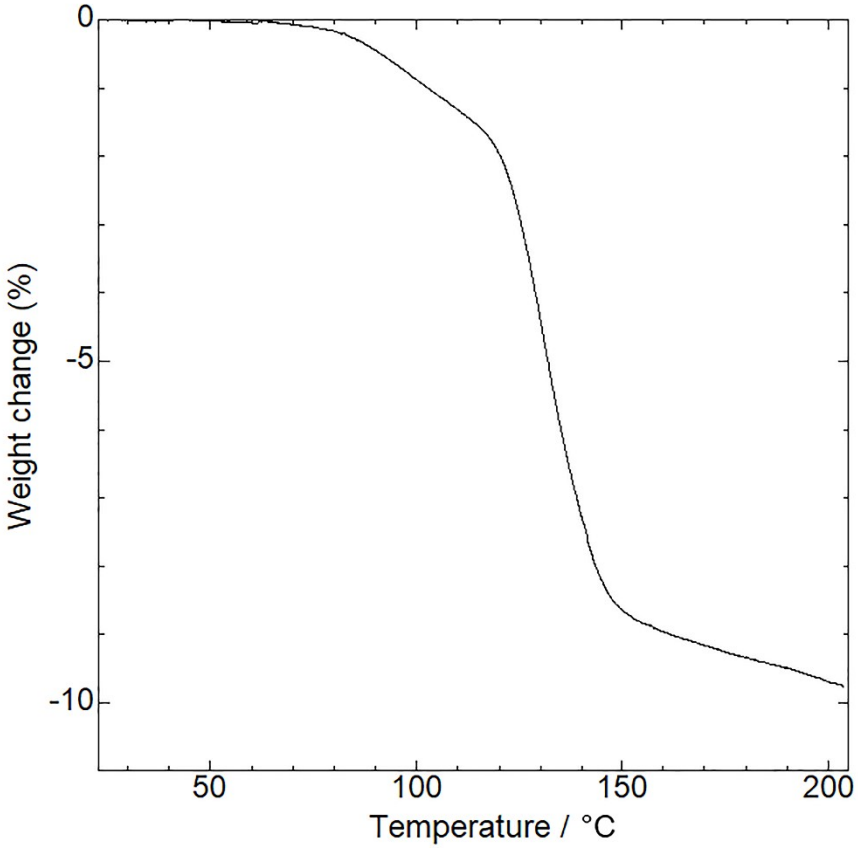

Figure S5. Thermogravimetric analysis of DMF-vapor exposed **1**.

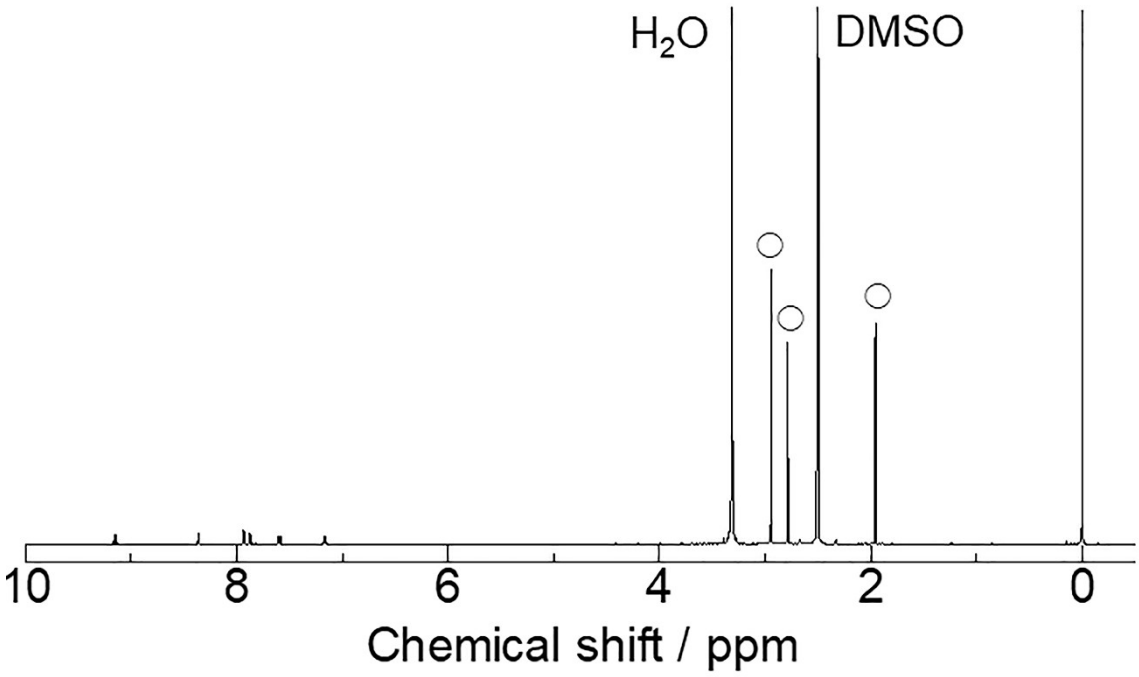

Figure S6. ^{1}H NMR spectrum of DMA vapor exposed **1** (400 MHz, DMSO-d_6). Circles indicate the signals from DMA.

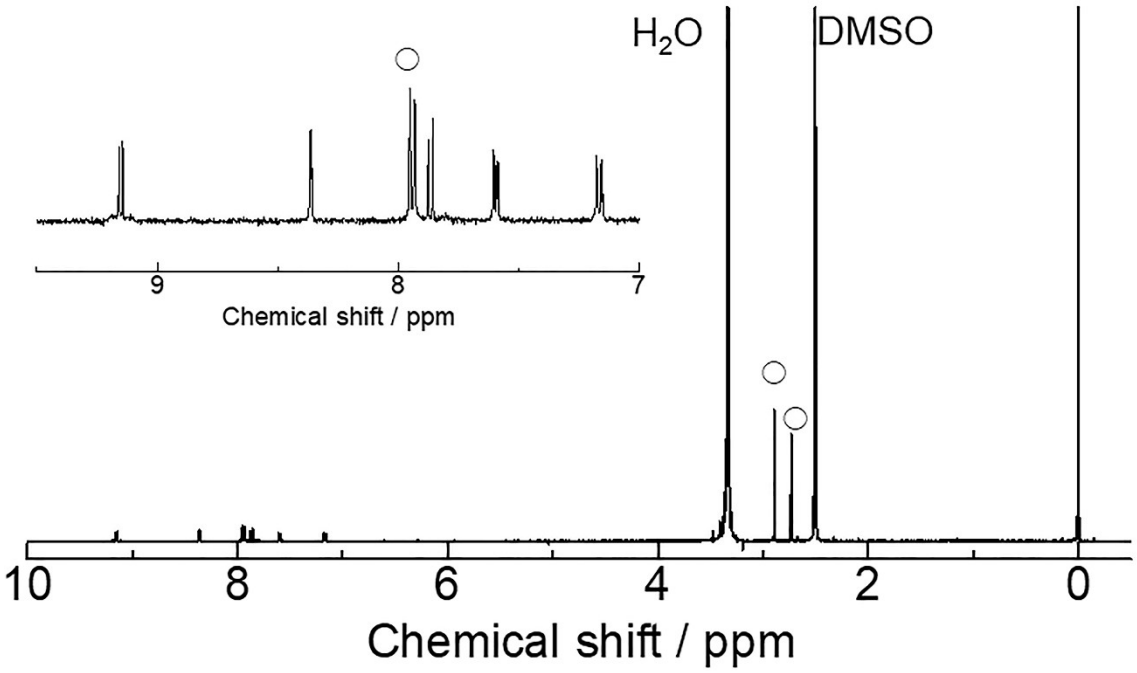

Figure S7. ^{1}H NMR spectrum of DMA vapor exposed **1** (400 MHz, DMSO-d_6). Circles indicate the signals from DMF.

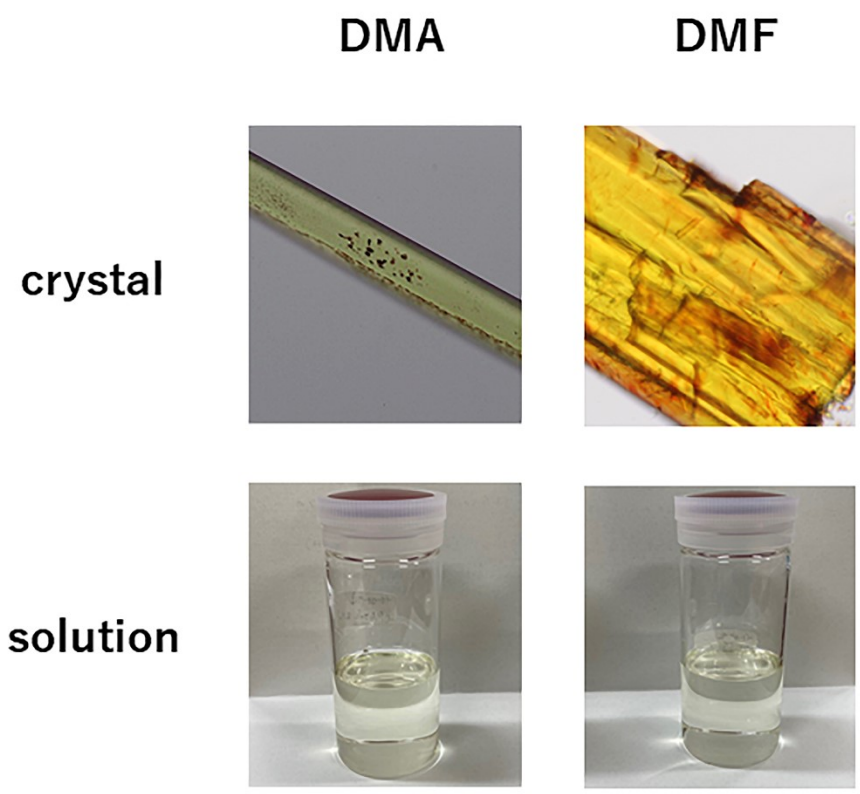

Figure S8. Photographs of **1·3DMA** and **1·0.75DMF** (top) compared with **1** in DMA and DMF solution (bottom).

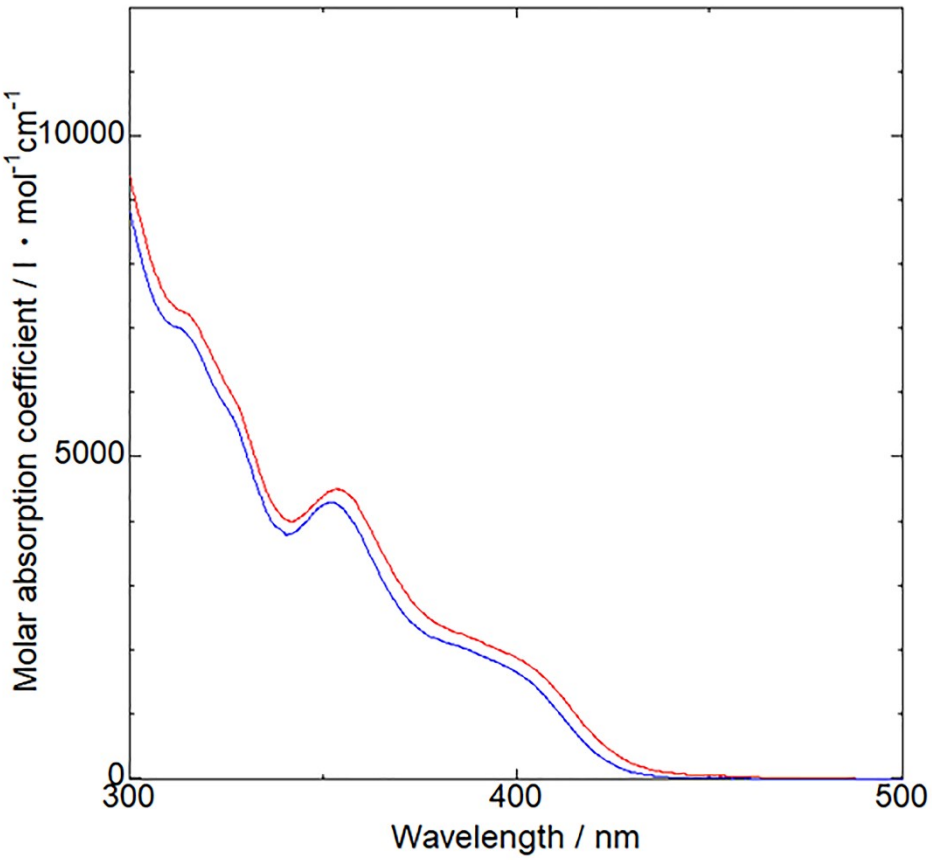

Figure S9. Absorption spectra of **1** in DMA (red, 1.85×10^{-5} M) and DMF (blue, 2.46×10^{-5} M) solution.

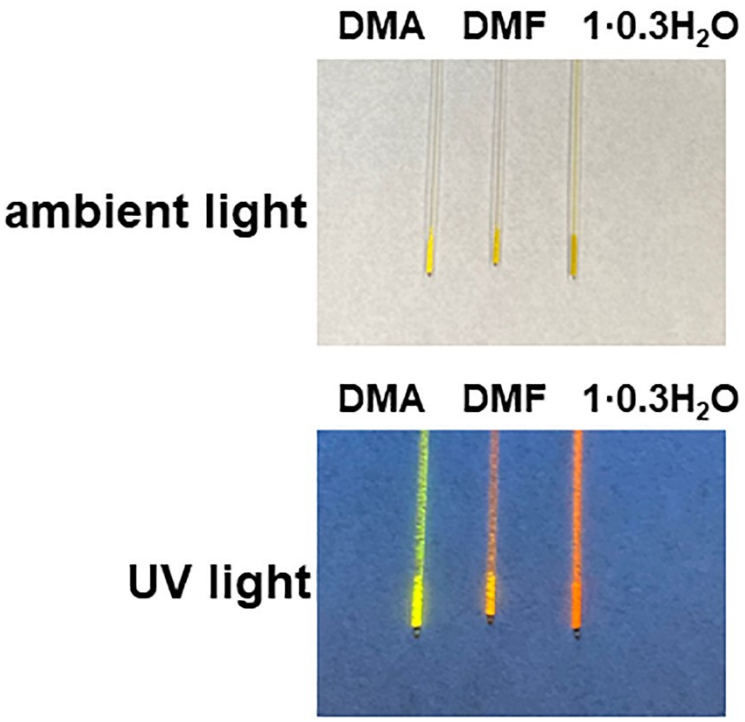

Figure S10. Photographs of **1·0.3H_2O** compared with DMF and DMA vapor exposure under ambient light (top) and UV light irradiation (bottom).

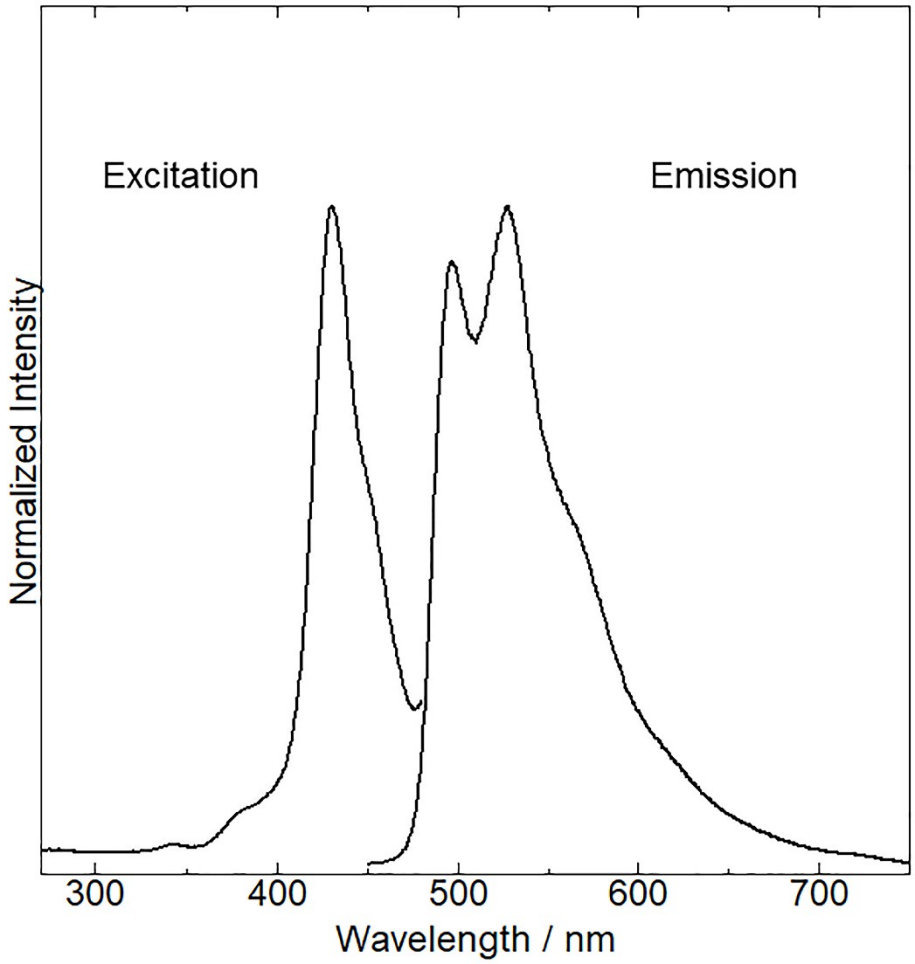

Figure S11. Emission (λ_{ex}=400 nm) and excitation (λ_{em}=527 nm) spectrum of **1** in DMA solution.

Table S1. Selected bond length and intermolecular Pt···Pt interactions of **1·3DMA** and **1·0.75DMF** at 90 K.

Complex	**1·3DMA**	**1·0.75DMF**
Pt1-N1	2.070(3) Å	2.08(1) Å
Pt1-C1	2.027(3) Å	2.01(1) Å
Pt1-C12	1.942(4) Å	1.97(1) Å
Pt1-C13	2.027(3) Å	2.01(2) Å
Pt2-N4	-	2.04(1) Å
Pt2-C14	-	2.05(1) Å
Pt2-C25	-	1.93(2) Å
Pt2-C26	-	2.03(1) Å
Pt1···Pt1	7.4967(3) Å	-
Pt1···Pt2	-	3.4765(6) Å, 6.7976(7) Å
Pt3-N7	-	2.05(1) Å
Pt3-C27	-	2.04(1) Å
Pt3-C38	-	1.96(1) Å
Pt3-C39	-	2.01(1) Å
Pt4-N10	-	2.05(1) Å
Pt4-C40	-	2.03(1) Å
Pt4-C51	-	1.95(2) Å
Pt4-C52	-	2.03(1) Å
Pt3···Pt4	-	3.3714(7) Å, 6.9444(7) Å

Table S2. Comparison for possible molecular composition and that found from elemental analysis.

composition	C (%)	H (%)	N (%)
$1 \cdot 0.1H_2O$	30.55	1.22	8.22
$1 \cdot 0.2H_2O$	30.44	1.26	8.19
$1 \cdot 0.3H_2O$	30.34	1.29	8.16
$1 \cdot 0.4H_2O$	30.23	1.33	8.14
$1 \cdot 0.5H_2O$	30.13	1.36	8.11
$1 \cdot 0.6H_2O$	30.02	1.40	8.08
$1 \cdot 0.7H_2O$	29.92	1.43	8.05
$1 \cdot 0.8H_2O$	29.81	1.46	8.02
$1 \cdot 0.9H_2O$	29.71	1.50	8.00
Found from Elemental analysis	30.19	1.45	8.09

Table S3. Lattice constant refinement result for **1** after DMA and DMF vapor exposure compared with the single crystals.

□	a / Å	b / Å	c / Å	α / °	β / °	γ / °
1·3DMA single crystal	7.4967(2)	10.2891(3)	20.1177(5)	79.821(1)	87.171(1)	74.152(1)
DMA vapor exposure	7.580(7)	10.47(1)	20.18(2)	79.75(5)	87.65(5)	73.57(4)
1·0.75DMF single crystal	41.7895(9)	8.5044(2)	21.2104(4)	90	107.837(1)	90
DMF vapor exposure	41.969(9)	8.616(2)	21.503(3)	90	108.42(2)	90