Supporting Information for

The Embedding of Fluorescent N-methyl-9-acridone into a Topological New Layered Aluminophophate SYSU-2 by One-Pot Synthesis

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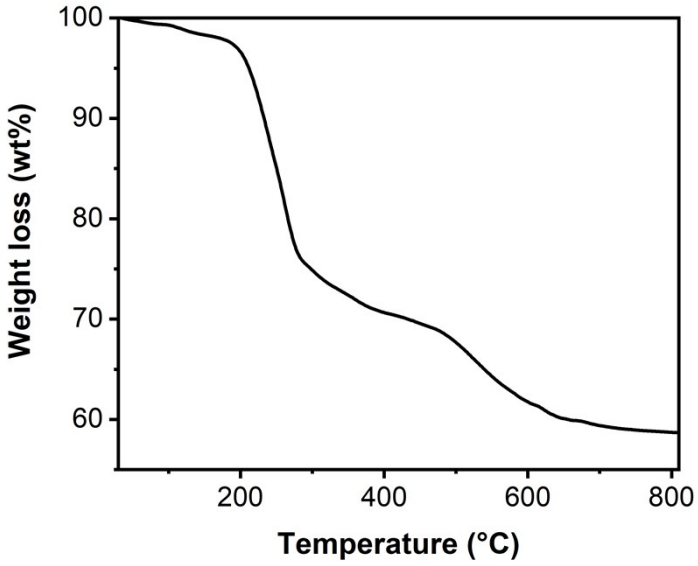

Figure S1. Thermogravimetric analysis (TGA) curve of SYSU-2.

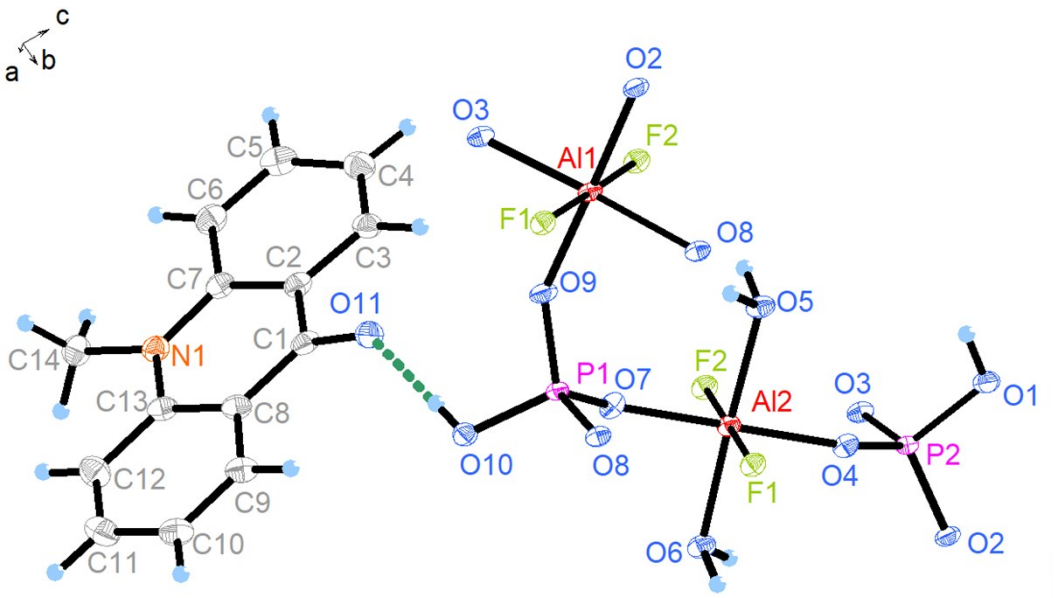

Figure S2. Thermal ellipsoids (50% probability) of a section of the structure of SYSU-2. The hydrogen bond is displayed as green dashed lines.

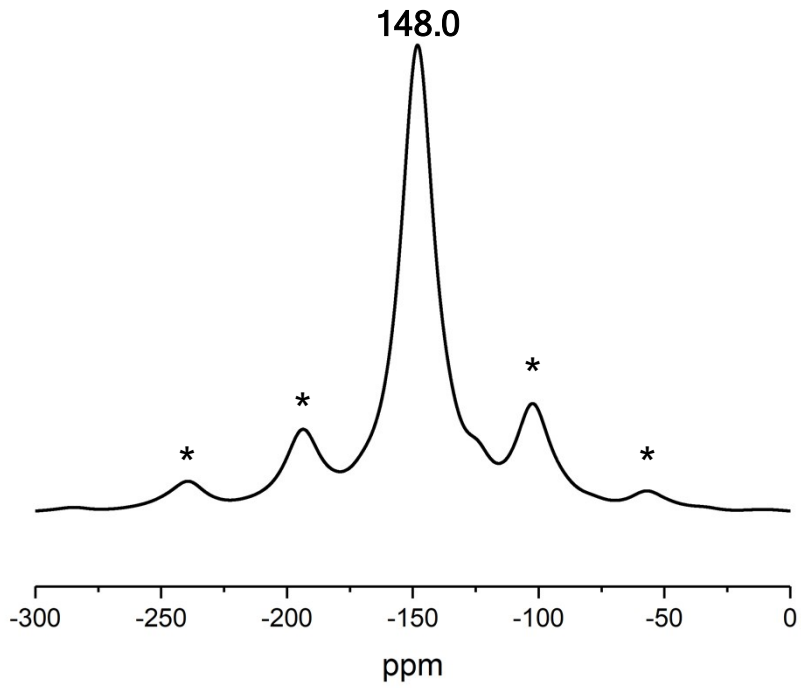

Figure S3. 19F MAS NMR spectrum of SYSU-2. (*) indicates spinning sidebands.

Figure S4. Fluorescence of NMA in DMSO solution of different concentrations under 365 nm UV irradiation. The concentration from left to right: saturated, 10^-3 M, 10^-4 M, 10^-5 M, 10^-6M.

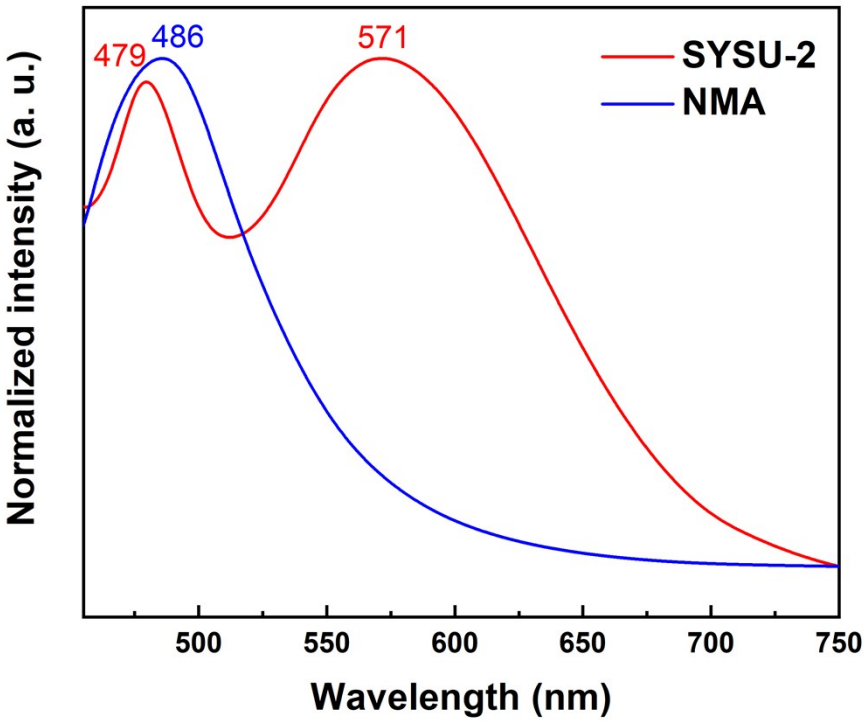

Figure S5. The emission spectra of SYSU-2 and NMA under 365 nm irradiation.

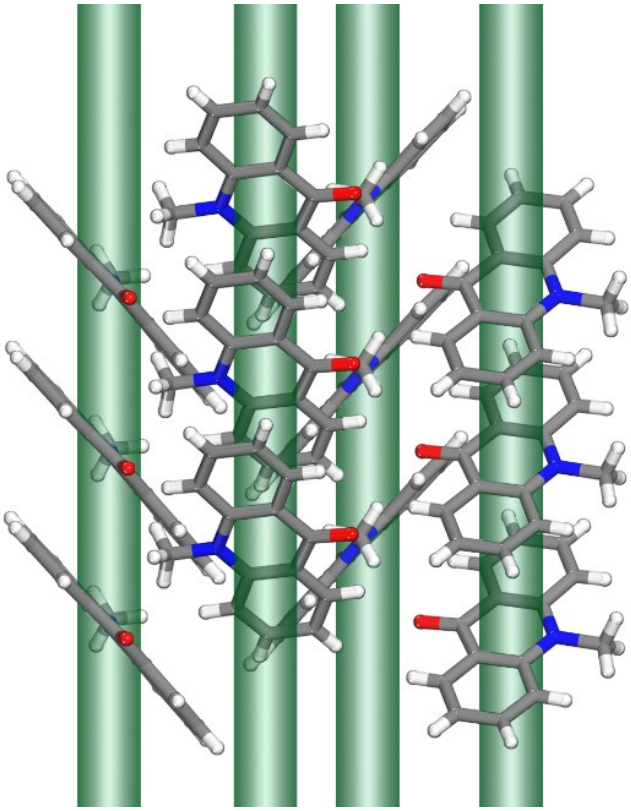

Figure S6. The view of NMA crystal structure**.** With π-π interaction between neighboring NMA molecules, four independent NMA molecule rows in the structure are formed.

Table S1. Crystal data and structure refinement for SYSU-2**.**

Empirical Formula	$C_{28}H_{34}N_2Al_4P_2F_4O_{22}$	**ρ_{calc}g/cm^3**	2.008
Formula weight	1058.37	**μ/mm^{-1}**	0.44
Temperature/K	150(2)	**F(000)**	540.0
Crystal system	triclinic	**Crystal size/mm^3**	0.1 × 0.05 × 0.03
Space group	P-1	**Radiation MoK$_\alpha$**	λ=0.71073
a/Å	6.9778(3)	**Index ranges**	-10≤h≤10, -12≤k≤12, -17≤l≤17
b/Å	9.7904(4)	**2θ range for data collection/°**	2.809 to 56.974
c/Å	13.7290(5)	**Reflections collected**	15059
α/°	91.559(2)	**Independent reflections**	3537[R_{int}=0.0579, R_{sigma}=0.0645]
β/°	93.484(2)	**Data/restraints/parameters**	3537/1/294
γ/°	110.598(2)	**Goodness-of-fit on F^2**	1.059
Volume/ Å^3	875.14(6)	**Final R indexes [I > 2σ (I)]**	R_1=0.0456, wR_2=0.1203
Z	1	**Final R indexes [all data]**	R_1=0.0666, wR_2=0.1302

Table S2. Fractional Atomic Coordinates (×105) of Al, P, O, C, N, F, and Equivalent Isotropic Displacement Parameter (Å2×103) for SYSU-2. U_{eq} is defined as 1/3 of the trace of the orthogonalized U_{IJ} tensor.

Atom	x	y	z	U_{eq}	Atom	x	y	z	U_{eq}
P1	8682.0(10)	5163.7(7)	3691.5(5)	10.3(2)	O11	5036(3)	3180(2)	1841.9(14)	18.7(5)
P2	6187.9(10)	9676.5(7)	6236.5(5)	10.5(2)	N1	1278(3)	2131(2)	-706.5(17)	17.5(5)
Al1	7497.9(10)	2500.5(7)	5113.0(6)	10.7(2)	C1	3886(4)	2930(3)	1049(2)	17.0(6)
Al2	7499.5(10)	7502.0(7)	4893.2(6)	11.3(2)	C2	1695(4)	2330(3)	1067(2)	16.5(6)
F1	10177(2)	7859.6(15)	5214.6(11)	13.3(3)	C3	773(4)	2195(3)	1964(2)	18.7(6)
F2	4832(2)	7145.9(15)	4566.1(11)	13.9(4)	C4	-1294(4)	1542(3)	2004(2)	21.9(7)
O1	6033(3)	9427.5(19)	7348.9(13)	15.4(4)	C5	-2517(5)	944(3)	1135(2)	23.4(7)
O2	7224(3)	11310.5(18)	6164.7(13)	13.4(4)	C6	-1691(4)	1105(3)	246(2)	21.4(7)
O3	4017(3)	9113.3(18)	5735.6(13)	12.8(4)	C7	433(4)	1858(3)	184(2)	17.5(6)
O4	7544(3)	8882.7(18)	5846.3(13)	13.4(4)	C8	4696(4)	3191(3)	109(2)	17.0(6)
O5	6807(3)	6010.9(18)	5858.5(5)	15(4)	C9	6829(4)	3853(3)	35(2)	21.1(7)
O6	8228(3)	9039.9(19)	3965.5(13)	15.3(4)	C10	7637(4)	4099(3)	-858(2)	23.1(7)
O7	7445(3)	6119.8(19)	3940.9(14)	15.1(4)	C11	6318(5)	3645(3)	-1706(2)	25.1(7)
O8	10931(3)	5857.4(18)	4069.8(13)	12.4(4)	C12	4253(5)	3002(3)	-1665(2)	23.2(7)
O9	7660(3)	3651.4(19)	4059.6(14)	14.9(4)	C13	3374(4)	2776(3)	-754(2)	17.6(6)
O10	8661(3)	5008.4(19)	2558(13)	15.1(4)	C14	-47(4)	1669(3)	-1618(2)	21.4(7)

Table S3. Selected Bond Lengths and Angles for SYSU-2.

Bond	Length/ Å	Bond	Length/ Å	Bond	Length/ Å
P1-O8	1.5251(19)	Al1-F1[1]	1.8549(15)	Al2-O4	1.8465(19)
P1-O10	1.5581(19)	Al1-F2[2]	1.8522(15)	Al2-O6	1.9473(18)
P1-O7	1.5249(18)	Al1-O8[1]	1.8861(19)	Al2-O7	1.8448(19)
P1-O9	1.5160(18)	Al1-O3[2]	1.8830(19)	Al2-O5	1.9513(18)
P2-O3	1.5289(19)	Al1-O2[3]	1.8567(18)	O11-C1	1.276(3)
P2-O4	1.5308(18)	Al1-O9	1.8419(18)	N1-C13	1.380(3)
P2-O2	1.5149(18)	Al2-F1	1.7998(16)	N1-C7	1.382(3)
P2-O1	1.5574(19)	Al2-F2	1.7950(16)	N1-C14	1.470(4)

Atom	Angle/°	Atom	Angle/°	Atom	Angle/°
O8-P1-O10	106.31(10)	F2[2]-Al1-O2[3]	89.19(7)	F1-Al2-O5	89.06(7)
O7-P1-O8	112.15(10)	O3[2]-Al1-O8[1]	178.16(8)	F2-Al2-F1	179.71(7)
O7-P1-O10	108.26(10)	O2[3]-Al1-O8[1]	90.26(8)	F2-Al2-O4	90.87(8)
O9-P1-O8	112.61(10)	O2[3]-Al1-O3[2]	91.22(8)	F2-Al2-O6	89.58(7)
O9-P1-O10	107.86(10)	O9-Al1-F1[1]	90.79(8)	F2-Al2-O7	88.95(8)
O9-P1-O7	109.44(10)	O9-Al1-F2[2]	89.09(8)	F2-Al2-O5	91.16(7)
O3-P2-O4	112.62(10)	O9-Al1-O8[1]	91.12(8)	P2-O2-Al1[4]	131.70(12)
O3-P2-O1	108.32(10)	O9-Al1-O3[2]	87.43(8)	P1-O9-Al1	144.67(13)
O4-P2-O1	108.13(10)	O9-Al1-O23	177.76(8)	P1-O8-Al1[1]	135.75(11)
O2-P2-O3	111.98(10)	O6-Al2-O5	178.08(8)	P2-O3-Al1[2]	134.77(11)
O2-P2-O4	109.94(10)	O7-Al2-O4	179.80(8)	P2-O4-Al2	140.79(12)
O2-P2-O1	105.50(10)	O7-Al2-O6	91.37(8)	P1-O7-Al2	138.34(12)
F1[1]-Al1-O8[1]	92.04(8)	O7-Al2-O5	90.42(8)	C13-N1-C7	120.7(2)
F1[1]-Al1-O3[2]	86.84(8)	O4-Al2-O6	88.70(8)	C13-N1-C14	119.2(2)
F1[1]-Al1-O2[3]	90.92(7)	O4-Al2-O5	89.51(8)	Al2-F1-Al1[1]	145.68(10)
F2[2]-Al1-F1[1]	179.68(8)	F1-Al2-O4	89.33(8)	Al2-F2-Al1[2]	145.76(10)
F2[2]-Al1-O8[1]	88.25(8)	F1-Al2-O6	90.21(7)		
F2[2]-Al1-O3[2]	92.86(8)	F1-Al2-O7	90.85(8)		

[1]2-X,1-Y,1-Z; [2]1-X,1-Y,1-Z; [3]+X,-1+Y,+Z; [4]+X,1+Y,+Z

Table S4. Hydrogen Bonds for SYSU-2.

D-H···A	*d*(D-H)/Å	*d*(H…A)/Å	*d*(D…A)/Å	∠(DHA)/°
O1-H1···O11	0.839	1.897	2.687	163.68
O10-H6···O11	0.840	1.806	2.643	173.77
O6-H5···O4	0.884	2.053	2.926	172.33
O6-H4···O3	0.884	1.930	2.814	179.49
O5-H3···O8	0.874	1.953	2.805	175.19
O5-H2···O7	0.872	2.169	3.001	164.97

Table S5. Coordination Sequence of the Layers.

Name	Coordination Sequence									
UiO-15-as	3	9	15	18	26	26	37	35	46	46
2.1.1.2.001	5	9	15	19	24	29	33	39	43	48
UiO-15-125	3	9	15	18	26	26	37	35	46	46
2.1.1.14.001	5	9	15	19	24	29	33	39	43	48
UiO-18-as	3	9	15	18	26	26	37	35	46	46
2.1.1.62.002	5	9	15	19	24	29	33	39	43	48
UiO-18-100	3	9	15	18	26	26	37	35	46	46
2.1.1.14.003	5	9	15	19	24	29	33	39	43	48
AlF(HPO_4)	3	9	15	18	26	26	37	35	46	46
2.1.1.14.005	5	9	15	19	24	29	33	39	43	48
2.1.1.14.006	3	9	15	18	26	26	37	35	46	46
	5	9	15	19	24	29	33	39	43	48
AlPO-CJ9	3	9	15	18	26	26	37	35	46	46
2.1.1.14.007	5	9	15	19	24	29	33	39	43	48
AlMepO-zeta	3	9	15	18	26	26	37	35	46	46
2.1.1.14.008	5	9	15	19	24	29	33	39	43	48
2.1.1.29.001	3	9	15	18	26	26	37	35	46	46
	5	9	15	19	24	29	33	39	43	48
APDAP150	3	9	15	18	26	26	37	35	46	46
2.1.1.62.001	5	9	15	19	24	29	33	39	43	48
$APDAP_{12}$-150	3	9	15	18	26	26	37	35	46	46
2.1.1.29.002	5	9	15	19	24	29	33	39	43	48
SYSU-2	6	8	18	16	30	24	42	32	54	40
	4	10	14	22	22	34	30	46	38	58
	3	10	14	22	22	34	30	46	38	58

Table S6. Crystal data and structure refinement for NMA**.**

Empirical Formula	$C_{14}H_{11}NO$	**ρ_{calc}g/cm^3**	1.409
Formula weight	209.24	**μ/mm^{-1}**	0.707
Temperature/K	150(10)	**F(000)**	440.0
Crystal system	orthorhombic	**Crystal size/mm^3**	0.45×0.2×0.11
Space group	$P2_12_12_1$	**Radiation CuK$_\alpha$**	λ=1.54184
a/Å	5.05224(5)	**Index ranges**	-5≤h≤6, -15≤k≤17, -18≤l≤18
b/Å	13.52734(14)	**2θ range for data collection/°**	8.962 to 152.416
c/Å	14.42744(14)	**Reflections collected**	21847
α/°	90	**Independent reflections**	2052[R_{int}=0.0375, R_{sigma}=0.0129]
β/°	90	**Data/restraints/parameters**	2052/0/147
γ/°	10	**Goodness-of-fit on F^2**	1.074
Volume/ Å^3	986.021(17)	**Final R indexes [I > 2σ (I)]**	R_1=0.0292, wR_2=0.0829
Z	4	**Final R indexes [all data]**	R_1=0.0294, wR_2=0.0831