Electronic Supplementary Information **for**

Structural Analyses and Luminescent Properties of a Series of Lead(II) Metal-Organic Frameworks Based on 2-Sulfoterephthalate

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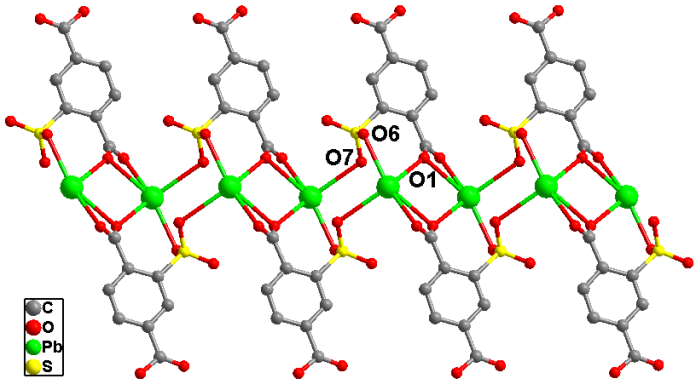


Fig. S1 1D chain-like structure in complex **1** along *a* axis.

(The *o*-phen molecules on the two sides of chain are deleted for clarity)

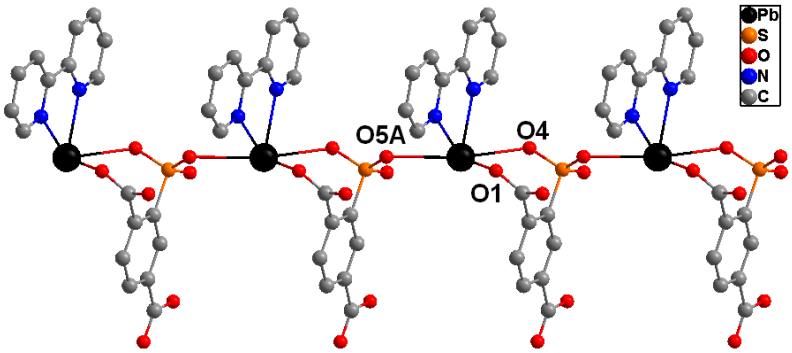


Fig. S2 1D chain-like structure along *a* axis in complex **2**

(symmetry code: (A) 1+*x*, *y*, *z*)

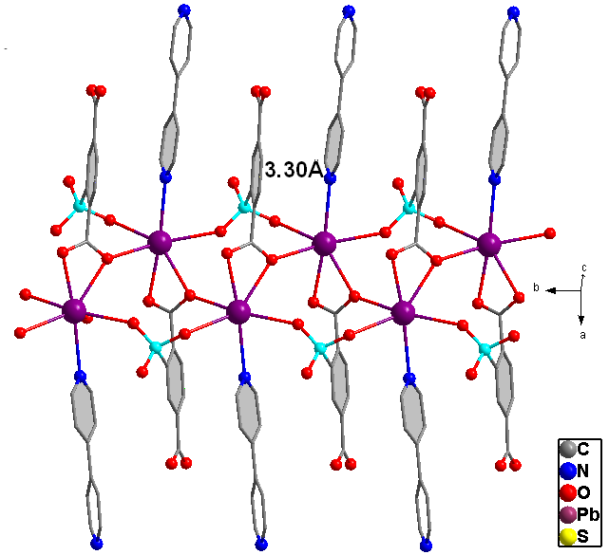


Fig. S3 1D bimetallic chain along *b* axis in complex **3**

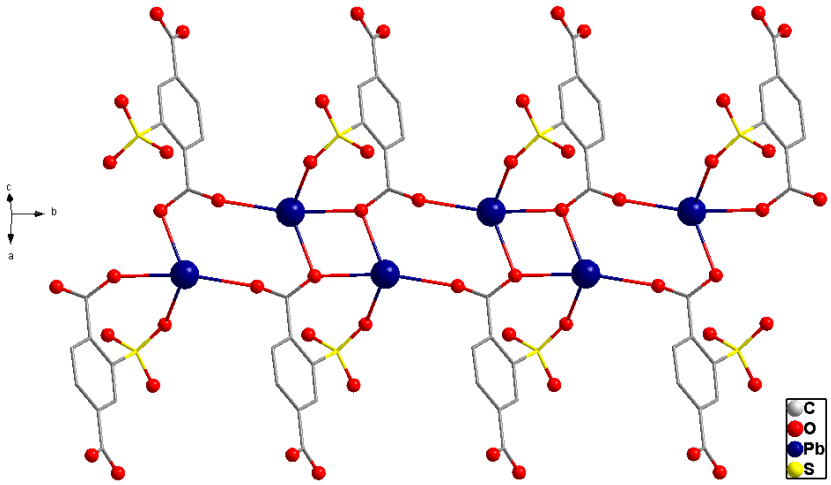


Fig. S4 1D bimetallic chain along *b* axis in complex **4**

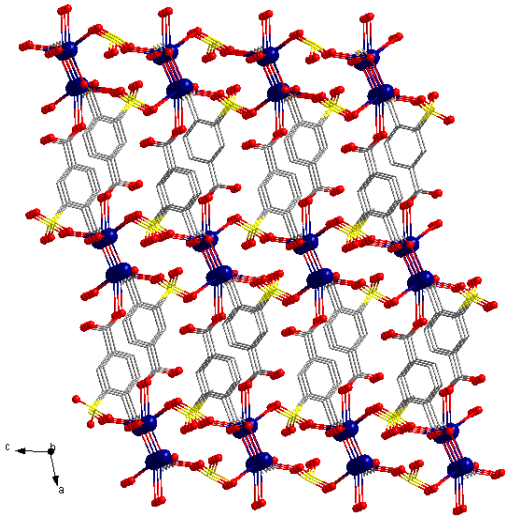


Fig. S5 3D structure in complex **4**

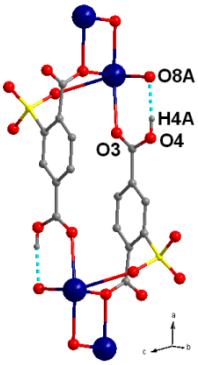


Fig. S6 The H-bonds existing in 2D layer of complex **4.**

(O4-H4A···O8A = 2.661 Å，∠O4-H4A···O8A = 172.45°，symmetry code: (A) 2−*x*, −*y*, 2−*z*)

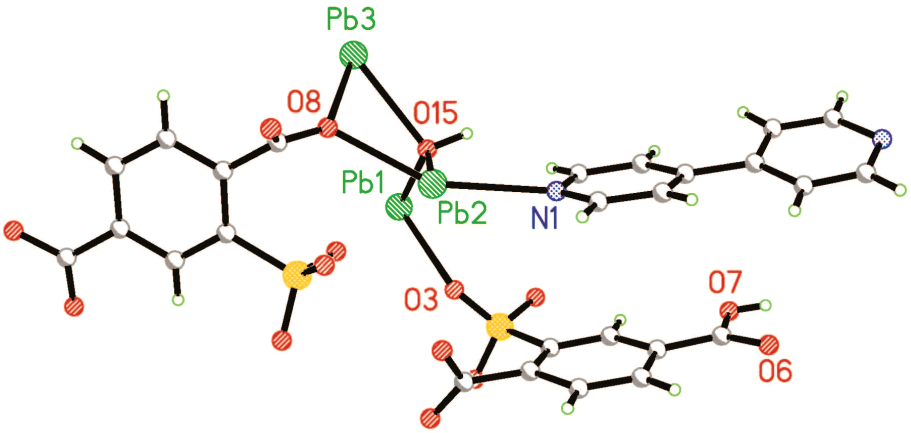


Fig. S7 The asymmetric unit of complex **5**

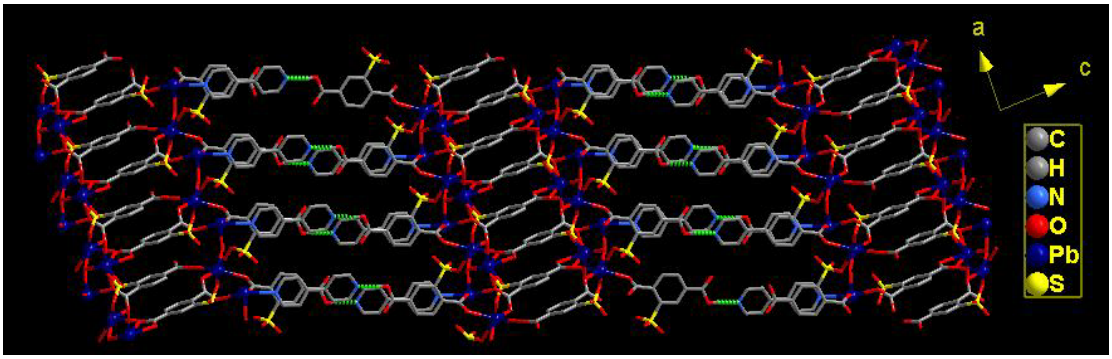
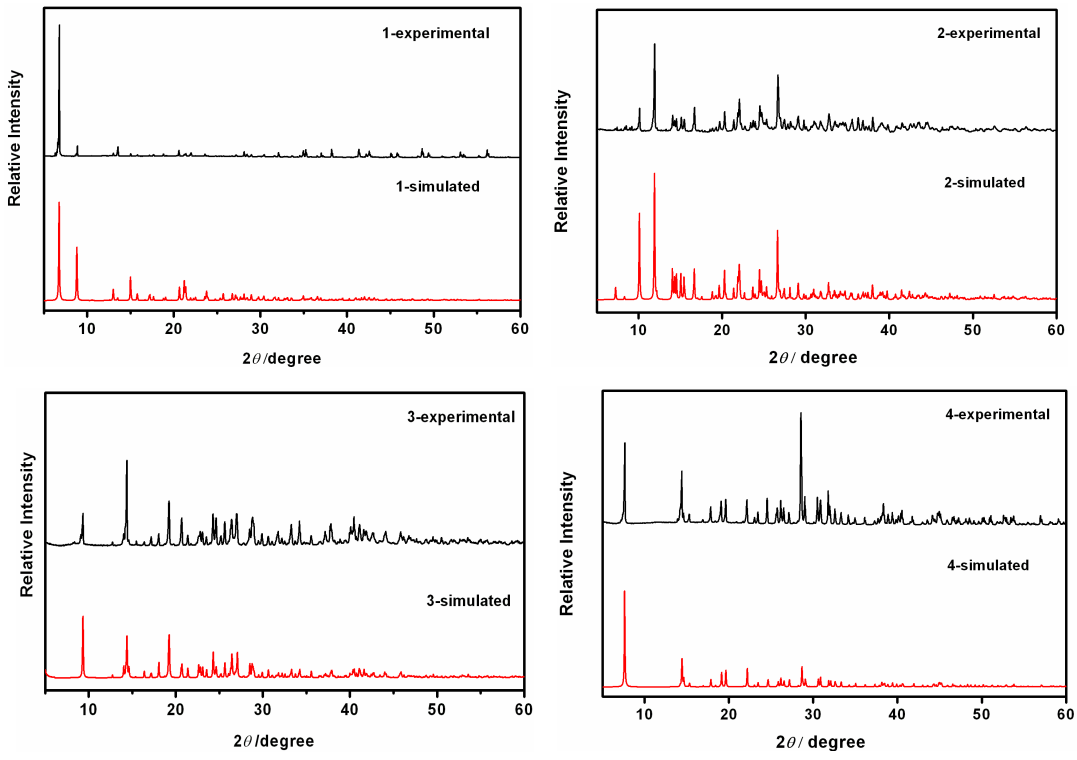


Fig. S8 The 3D supramolecular structure by H-bonds between O7A-H7A···N2 in complex **5**. (H-bonds in green dotted line : O7A-H7A···N2 = 2.626 Å， ∠ O7A-H7A···N2 = 172.84°, symmetry code: (A) −*x*, 1−*y*, 1−*z*)



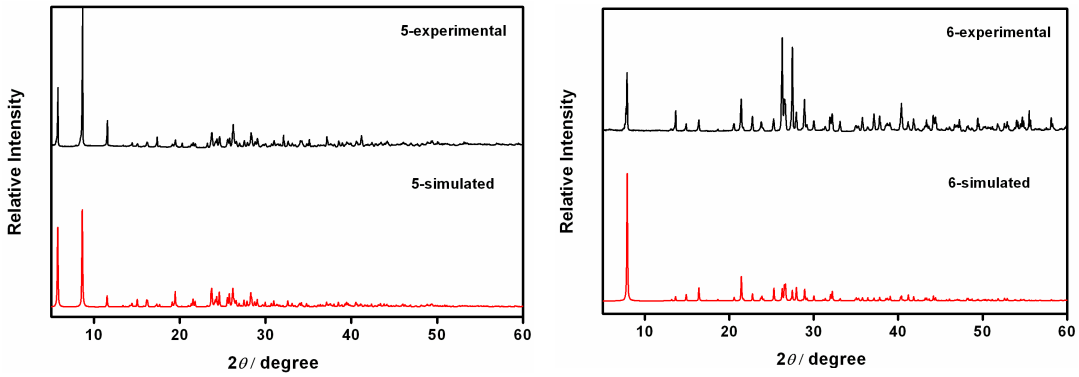


Fig. S9 The PXRD patterns for complexes **1-6**. Red line-simulated and black line-experimental.

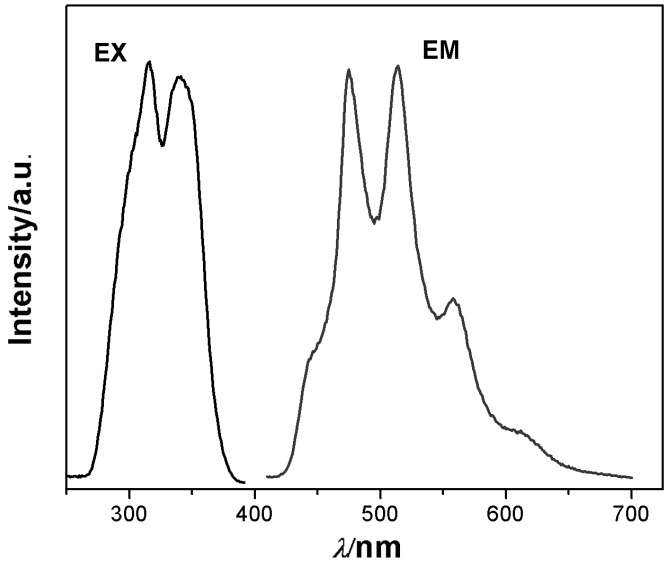


Fig. S10 The excited and emission curves of 2-NaH_2stp in solid state.

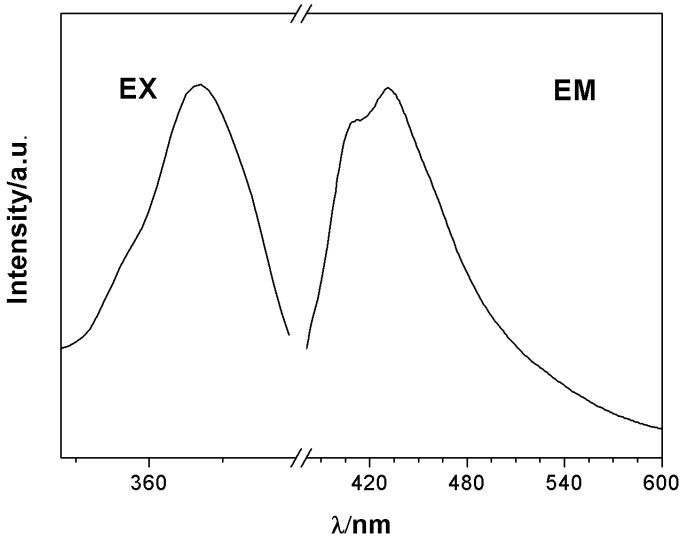


Fig. S11 The excited and emission curves of *o*-phen molecule in solid state.

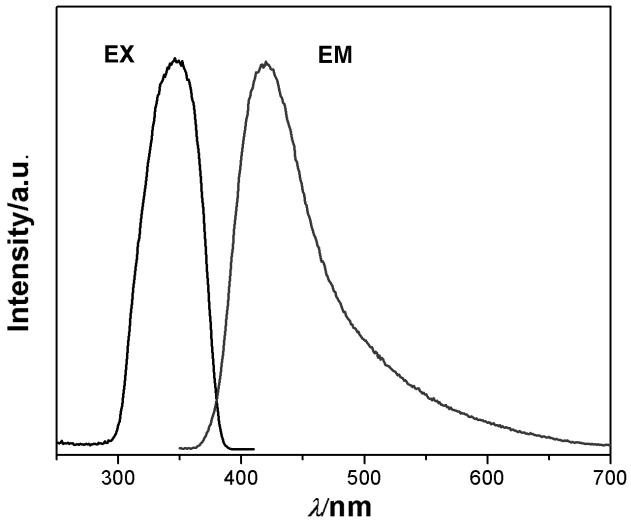


Fig. S12 The excited and emission curves of 2-$Na_3stp \cdot H_2O$ in solid state.

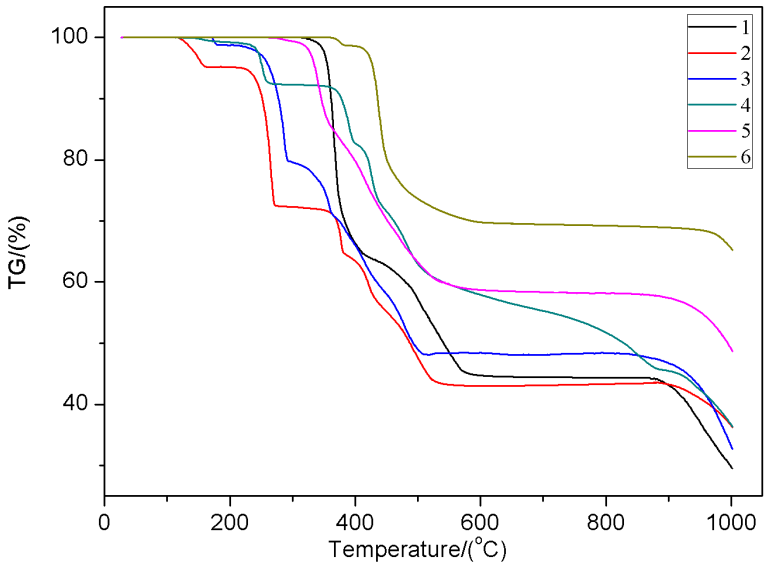


Fig. S13 TG curves of complexes **1-6**.

Table S1 Selected bond lengths (Å) and angles (°) for complex **1**

Pb(1)-O(1)	2.586(4)	Pb(1)-O(2)#1	2.563(4)
Pb (1)-O(6)	2.658(4)	Pb(1)-N(1)	2.509(5)
Pb(1)-O(1)#1	2.750(4)	Pb(1)-N(2)	2.528(5)
Pb (1)-O(7)#2	2.799(4)	N(1)-Pb(1)-N(2)	66.15(16)
N(1)-Pb(1)-O(2)#1	75.03(15)	N(1)-Pb(1)-O(6)	83.37(15)
N(2)-Pb(1)-O(2)#1	75.30(15)	N(2)-Pb(1)-O(6)	88.21(15)
N(1)-Pb(1)-O(1)	78.15(15)	O(2)#1-Pb(1)-O(6)	156.72(14)
N(2)-Pb(1)-O(1)	141.13(16)	O(1)-Pb(1)-O(6)	72.35(13)
O(2)#1-Pb(1)-O(1)	110.70(14)	N(1)-Pb(1)-O(1)#1	96.54(15)
N(2)-Pb(1)-O(1)#1	124.07(15)	O(2)#1-Pb(1)-O(1)#1	48.80(13)
O(1)-Pb(1)-O(1)#1	73.21(15)	O(6)-Pb(1)-O(1)#1	144.80(12)
O(1)-Pb (1)-O(7)#2	134.59(13)	O(2)#1-Pb (1)-O(7)#2	95.17(14)
O(6)-Pb (1)-O(7)#2	98.12(13)	N(1)-Pb (1)-O(7)#2	146.28(15)
O(1)#1-Pb (1)-O(7)#2	100.79(13)	N(2)-Pb (1)-O(7)#2	80.18(14)

Symmetry codes: #1: 1−*x*, 1−*y*, 1−*z*; #2: −*x*, 1−*y*, 1−*z*.

Table S2 Selected bond lengths (Å) and angles (°) for complex **2**

Pb(1)-O(1)	2.479(6)	Pb(1)-O(4)	2.598(5)
Pb(1)-N(2)	2.530(6)	Pb(1)-N(1)	2.549(6)
Pb(1)-O(5)#1	2.802(6)	Pb(1)-O(8)	2.807(6)
O(1)-Pb(1)-N(2)	100.6(2)	O(1)-Pb(1)-O(4)	74.4(2)
O(1)-Pb(1)-N(1)	72.64(19)	N(2)-Pb(1)-O(4)	70.89(18)
N(2)-Pb(1)-N(1)	64.4(2)	N(1)-Pb(1)-O(4)	116.8(2)
O(1)-Pb(1)-O(5)#1	136.02(5)	O(1)-Pb(1)-O(8)	150.67(6)
O(4)-Pb(1)-O(5)#1	149.61(5)	O(4)-Pb(1)-O(8)	77.05(4)
O(8)-Pb(1)-O(5)#1	72.74(4)	N(1)-Pb(1)-O(8)	127.68(5)
N(1)-Pb(1)-O(5)#1	80.47(4)	N(2)-Pb(1)-O(8)	75.81(5)
N(2)-Pb(1)-O(5)#1	98.16(6)		

Symmetry codes: #1: 1+*x*, *y*, *z*.

Table S3 Selected bond lengths (Å) and angles (°) for complex **3**

Pb(1)-O(1)	2.596(5)	Pb(1)-O(2)#1	2.564(4)
Pb (1)-O(6)	2.739(5)	Pb(1)-O(7)#2	2.634(4)
Pb(1)-O(8)	2.497(6)	Pb(1)-O(1) #1	2.706(4)
Pb(1)-N(1)	2.802(4)	O(2)-Pb(1)-O(1)#1	49.68(14)
O(8)-Pb(1)-O(2)#1	108.77(17)	O(7)#2-Pb(1)-O(1)#1	74.44(14)
O(8)-Pb(1)-O(1)	70.92(16)	O(8)-Pb(1)-O(6)	125.35(15)
O(2)-Pb(1)-O(1)	71.65(15)	O(2)#1-Pb(1)-O(6)	95.21(14)

O(8)-Pb(1)-O(7)#2	90.32(16)	O(1)-Pb(1)-O(6)	71.55(15)
O(2)-Pb(1)-O(7)#2	108.87(14)	O(7)#2-Pb(1)-O(6)	127.68(15)
O(1)-Pb(1)-O(7)#2	159.70(16)	O(1)#1-Pb(1)-O(6)	144.87(14)
O(8)-Pb(1)-O(1)#1	74.32(17)	O(1)-Pb(1)-O(1)#1	92.52(7)
O(1)-Pb(1)-N(1)	104.92(17)	O(1) #1-Pb(1)-N(1)	135.88(17)
O(6)-Pb(1)-N(1)	79.19(17)	O(7)#2-Pb(1)-N(1)	75.99(17)
O(8)-Pb(1)-N(1)	73.82(19)	O(2)#1-Pb(1)-N(1)	174.22(15)

Symmetry codes: #1: 1−*x*, 1+*y*, 0.5−*z*; #2: *x*, 1+*y*, *z*.

Table S4 Selected bond lengths (Å) and angles (°) for complex **4**

Pb(1)-O(1)	2.557(4)	Pb(1)-O(3)#3	2.606(5)
Pb (1)-O(5)	2.672(4)	Pb(1)-O(2) #2	2.656(4)
Pb(1)-O(1)#1	2.520(4)	Pb(1)-O(6) #4	2.708(4)
Pb(1)-O(8)	2.789(4)	O(5)-Pb(1)-O(6)#4	137.63(14)
O(1)#1-Pb(1)-O(1)	69.35(17)	O(1)-Pb(1)-O(5)	67.66(14)
O(1)#1-Pb(1)-O(3)#3	143.16(16)	O(3)#3-Pb(1)-O(5)	78.05(15)
O(1)-Pb(1)-O(3)#3	81.82(15)	O(2)#2-Pb(1)-O(5)	92.90(13)
O(1)#1-Pb(1)-O(2)#2	116.19(15)	O(1)#1-Pb(1)-O(6)#4	112.68(14)
O(1)-Pb(1)-O(2)#2	160.11(15)	O(1)-Pb(1)-O(6)#4	127.52(15)
O(3)#3-Pb(1)-O(2)#2	98.77(15)	O(3)#3-Pb(1)-O(6)#4	67.56(14)
O(1)#1-Pb(1)-O(5)	109.67(15)	O(2)#2-Pb(1)-O(6)#4	69.66(14)
O(1)-Pb(1)-O(8)	65.86(14)	O(3)#3-Pb(1)-O(8)	73.79(15)
O(5)-Pb(1)-O(8)	128.08(15)	O(2)#2-Pb(1)-O(8)	133.58(14)
O(1)#1-Pb(1)-O(8)	73.74(15)	O(6) #4-Pb(1)-O(8)	65.17(13)

Symmetry codes: #1: 1−*x*, −*y*, 2+*z*; #2: *x*, −1+*y*, *z*; #3: 2−*x*, −*y*, 2−*z*; #4 : *x*, −0.5−*y*, 0.5+*z*.

Table S5 Selected bond lengths (Å) and angles (°) for complex **5**

Pb(1) -O(3)	2.697(10)	Pb(3)-O(13)#1	2.427(11)
Pb(1) -O(15)	2.323(8)	Pb(3)-O(14)#1	2.515(9)
Pb(1)-O(5)#2	2.581(10)	Pb(3)-O(15)	2.643(10)
Pb(1)-O(10)#3	2.740(9)	Pb(3)-O(12)#4	2.672(10)
Pb(1)-O(14) #1	2.764(9)	Pb(3)-O(9)#3	2.749(9)
Pb(1)-O(9) #2	2.784(9)	Pb(3)-O(8)	2.533(9)
Pb(2)-O(15)	2.271(9)	Pb(2) -N(1)	2.678(13)
Pb(2) -O(8)	2.526(10)	Pb(2)-O(4)	2.480(9)
O(15)-Pb(1)-O(5)#2	80.8(3)	O(15)-Pb(2)-O(4)	74.2(3)
O(15)-Pb(1)-O(3)	79.2(4)	O(15)-Pb(2)-O(8)	75.0(3)
O(5)#2-Pb(1)-O(3)	88.0(4)	O(4)-Pb(2)-O(8)	70.6(3)
O(15)-Pb(1)-O(10)#3	79.0(3)	O(15)-Pb(2)-N(1)	86.3(4)
O(5)#2-Pb(1)-O(10)#3	69.1(3)	O(4)-Pb(2)-N(1)	85.4(4)
O(3)-Pb(1)-O(10)#3	150.5(4)	O(8)-Pb(2)-N(1)	152.7(4)

O(14)#1-Pb(3)-O(8)	77.5(3)	O(13)#1-Pb(3)-O(14)#1	52.6(3)
O(13)#1-Pb(3)-O(15)	123.2(3)	O(13)#1-Pb(3)-O(8)	85.4(3)
O(14)#1-Pb(3)-O(15)	72.3(3)	O(8)-Pb(3)-O(15)	68.9(3)
O(14)#1-Pb(3)-O(12)#4	122.1(3)	O(13)#1-Pb(3)-O(12)#4	77.4(3)
O(8)-Pb(3)-O(12)#4	70.4(3)	O(14)#1-Pb(3)-O(9)#2	98.1(3)
O(15)-Pb(3)-O(12)#4	131.7(3)	O(8)-Pb(3)-O(9)#2	165.3(3)
O(13)#1-Pb(3)-O(9)#2	80.9(3)	O(15)-Pb(3)-O(9)#2	123.6(3)
O(12)#4-Pb(3)-O(9)#2	101.1(3)	O(9) #2-Pb(1)-O(14) #1	93.57(3)
O(3)-Pb(1)-O(14) #1	126.88(3)	O(3)-Pb(1)-O(9) #2	82.93(4)
O(15)-Pb(1)-O(14) #1	72.99(3)	O(15)-Pb(1)-O(9) #2	143.54(3)
O(5)#2-Pb(1)-O(14) #1	129.23(3)	O(5)#2-Pb(1)-O(9) #2	130.16(3)
O(10)#3-Pb(1)-O(14) #1	67.77(3)	O(10)#3-Pb(1)-O(9) #2	125.90(3)

Symmetry codes: #1:1−*x*, 2−*y*, −*z* ; #2 :1+*x*, *y*, *z*; #3: 1+*x*, 1+*y*, *z* ; #4: *x*, 1+*y*, *z*.

Table S6 Selected bond lengths (Å) and angles (°) for complex 6

Pb(1)-O(2)#1	2.722(8)	Pb(2)-O(1)	2.419(9)
Pb (1)-O(4)	2.813(8)	Pb(2)-O(2)	2.569(9)
Pb(1)-O(6)#3	2.480(8)	Pb(2)-O(4)#3	2.611(9)
Pb(1)-O(8)#1	2.322(8)	Pb(2)-O(6)#3	2.474(10)
Pb(1)-O(8)	2.367(8)	Pb(2)-O(8)	2.576(8)
O(8)#1-Pb(1)-O(8)	71.3(3)	O(6)#3-Pb(2)-O(2)	73.3(3)
O(8)#1-Pb(1)-O(6)#3	83.7(3)	O(1)-Pb(2)-O(8)	128.1(3)
O(8)-Pb(1)-O(6)#3	69.7(3)	O(6)#3-Pb(2)-O(8)	66.6(3)
O(8)#1-Pb(1)-O(2)#1	77.9(3)	O(2)-Pb(2)-O(8)	76.5(3)
O(8)-Pb(1)-O(2)#1	97.5(3)	O(1)-Pb(2)-O(4)#3	81.3(3)
O(6)#3-Pb(1)-O(2)#1	160.3(3)	O(6)#3-Pb(2)-O(4)#3	67.9(3)
O(1)-Pb(2)-O(6)#3	95.0(3)	O(2)-Pb(2)-O(4)#3	114.3(3)
O(1)-Pb(2)-O(2)	51.6(3)	O(8)-Pb(2)-O(4)#3	126.8(3)

Symmetry codes:#1:1−*x*, 2−*y*, 1−*z* ; #2: *x*, 1.5−*y*, −0.5+*z*; #3: *x*, 3−*y*, 0.5 + *z* .