Supplementary Information

Comprehensively understanding the steric hindrance effect on coordination sphere of Pb^{2+} ion and photophysical natures of two luminescent Pb(II)-coordination polymers

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Contents

nm and the main emission peak at 410 nm of **1**.

Fig. S12: Emission decay curves at room temperature upon pulsed excitation at 370 nm and the main emission peak at 548 nm of **1**.

Fig. S13: Emission decay curves at room temperature upon pulsed excitation at 360 nm and the main emission peak at 430 nm of **2**.

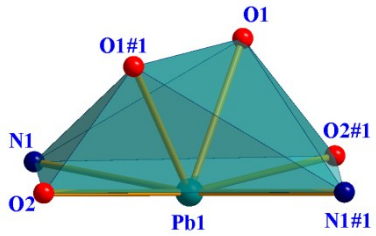
Fig. S14: Emission decay curves at room temperature upon pulsed excitation at 360 nm and the main emission peak at 460 nm of 2-aminonicotinic acid.

Fig. S15: Emission decay curves at room temperature upon pulsed excitation at 360 nm and the main emission peak at 430 nm of 3-quinolinecarboxylic acid.

Fig. S16: (a) Close-up view of several highest occupied band and the lowest unoccupied bands in energy band structure of **1** (b) Plots of DOS and PDOS of Pb, O, N and C atoms in **1**.

Fig. S17: (a) Close-up view of several highest occupied band and the lowest unoccupied bands in energy band structure of **2** (b) Plots of DOS and PDOS of Pb, O, N and C atoms in **2**.

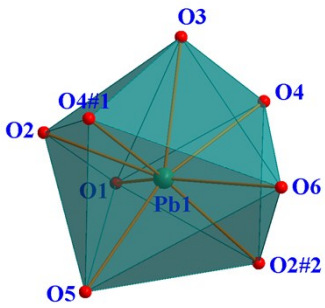
Table S1: Bond lengths (Å) and bond angles (°) in coordination polyhedra of **1**



Pb1-O1	2.515(3)	Pb1-O2	2.662(3)	Pb1-N1	2.716(3)
Pb1-O1#1	2.515(3)	Pb1-O2#1	2.662(3)	Pb1-N1#1	2.716(3)
O1-Pb1-O1#1	73.92(14)	O1-Pb1-O2#1	50.33(10)	O1#1-Pb1-O2#1	118.91(10)
O1-Pb1-O2	118.91(10)	O1#1-Pb1-O2	50.33(10)	O2#1-Pb1-O2	168.87(13)
O1-Pb1-N1	83.38(11)	O1#1-Pb1-N1	89.15(11)	O2#1-Pb1-N1	105.00(10)
O2-Pb1-N1	74.06(10)	O1-Pb1-N1#1	89.15(11)	O1#1-Pb1-N1#1	83.38(11)
O2#1-Pb1-N1#1	74.06(10)	O2-Pb1-N1#1	105.00(10)	N1-Pb1-N1#1	170.67(16)

Symmetry transformations used to generate equivalent atoms: #1 =-x+3/2,-y+1/2,z

Table S2: Bond lengths (Å) and bond angles (°) in coordination polyhedra of **2**



Pb1-O2	2.570(4)	Pb1-O(4)#1	2.596(4)	Pb1-O4	2.610(5)

Pb1-O1	2.611(4)	Pb1-O3	2.647(5)	Pb1-O2#2	2.649(4)
Pb1-O5	2.669(5)	Pb1-O6	2.716(6)	O2-Pb1-O1	50.20(13)
O2-Pb1-O4#1	71.04(14)	O2-Pb1-O4	105.32(18)	O4#1-Pb1-O4	118.03(17)
O4#1-Pb1-O1	121.23(14)	O4#1-Pb1-O2#2	160.12(17)	O2-Pb1-O2#2	126.52(17)
O1-Pb1-O3	91.21(19)	O4-Pb1-O3	49.2414	O4#1-Pb1-O3	71.53(16)
O4-Pb1-O1	80.94(16)	O2-Pb1-O3	75.88(17)	O1-Pb1-O2#2	77.09(15)
O4-Pb1-O2#2	69.60(14)	O3-Pb1-O2#2	118.83(13)	O2-Pb1-O5	84.11(17)
O4-Pb1-O6	74.24(19	O4#1-Pb1-O6	91.17(15)	O2-Pb1-O6	159.88(18)
O2#2-Pb1-O5	91.06(14)	O3-Pb1-O5	149.96(14)	O1-Pb1-O5	92.94(17)
O4-Pb1-O5	160.54(15)	O4#1-Pb1-O5	80.96(16)	O1-Pb1-O6	146.04(15)
O3-Pb1-O6	89.9(2)	O2#2-Pb1-O6	72.76(17)	O5-Pb1-O6	102.8(2)

Symmetry transformations used to generate equivalent atoms: #1 = x,-y+1/2,z-1/2; #2 = x,-y+1/2,z+1/2

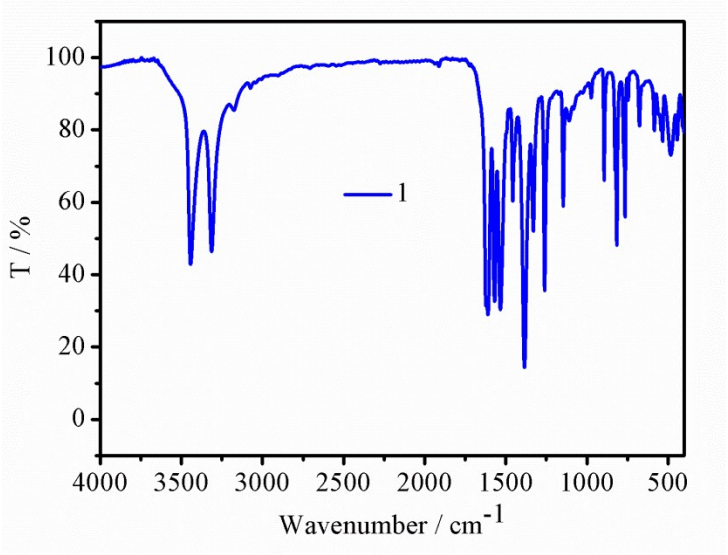


Fig. S1: IR spectrum of **1**: the sharp bands at 3443 and 3313 cm^{-1} are attributed to the $\nu_{asymmetric}$ and $\nu_{symmetric}$ stretching vibrations of N-H in -NH_2 groups, respectively. The

bands at 1610, 1569, 1534 and 1462 cm^{-1} correspond to the stretching vibrations of C=C and C=N bonds in pyridyl ring and the $\nu_{asymmetric}$ stretching vibrations of carboxylate groups. The intense band at 1385 cm^{-1} is attributed to the $\nu_{symmetric}$ stretching vibrations of carboxylate groups.

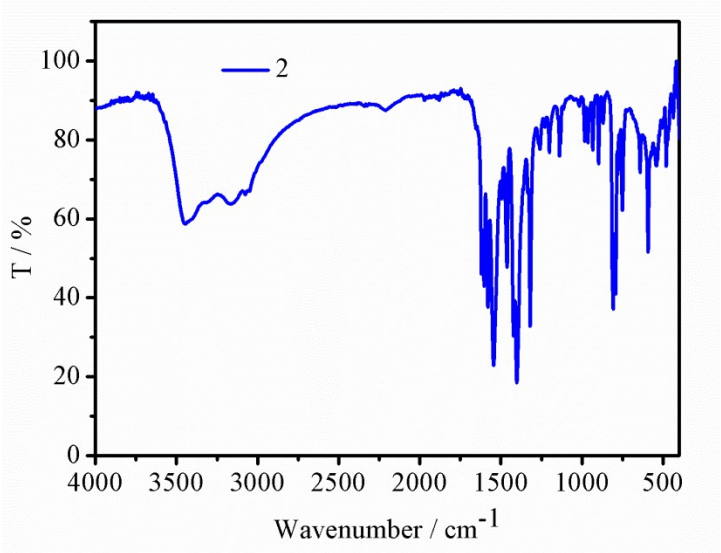


Fig. S2: IR spectrum of **2**: the broad bands at 3450 and 3168 cm^{-1} are caused by the O-H stretching vibrations in the coordinated H_2O and the hydroxyl groups forming the hydrogen bonds, respectively. The bands at 1603, 1580, 1545 and 1462 cm^{-1} correspond to the stretching vibrations of C=C and C=N bonds in quinoline ring and the $\nu_{asymmetric}$ stretching vibrations of carboxylate groups. The symmetric stretching vibrations of carboxylate groups appeared at 1402 cm^{-1}. These IR spectra are in good agreement with the results of X-ray single crystal structure analysis and the coordination modes of ligands.

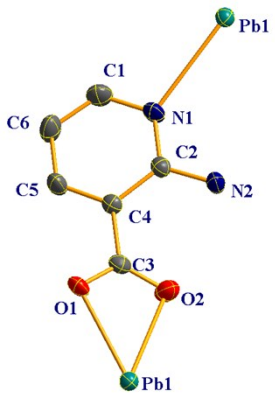


Fig. S3: Connection fashion of 2-anc ligands in **1**.

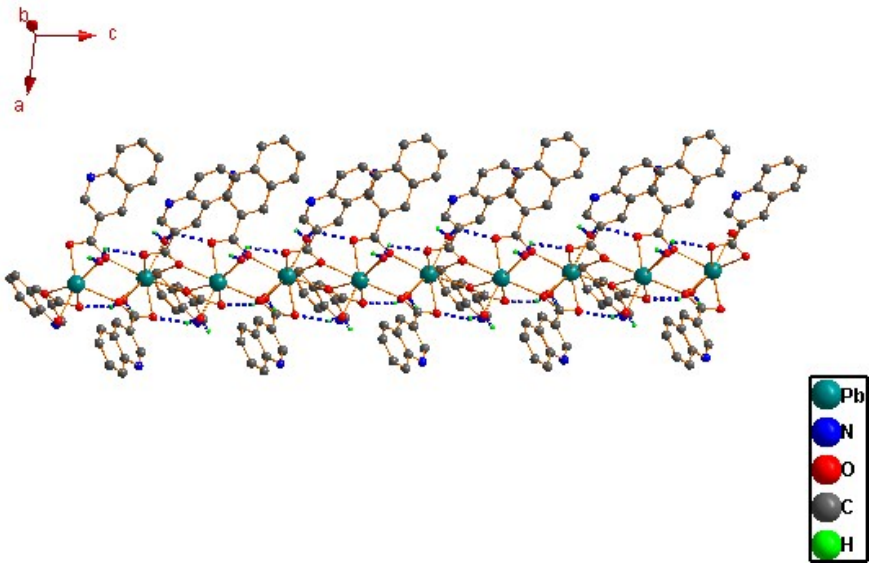


Fig. S4: Intramolecular hydrogen bonding interactions in **2**.

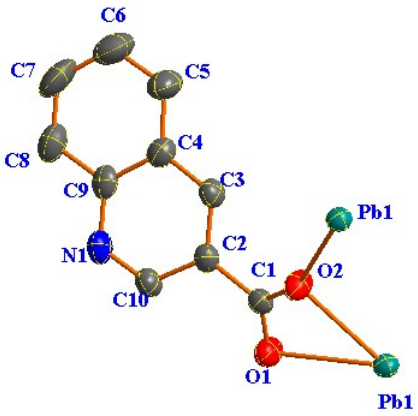


Fig. S5: Connection fashion of 3-qlc ligands in **2**.

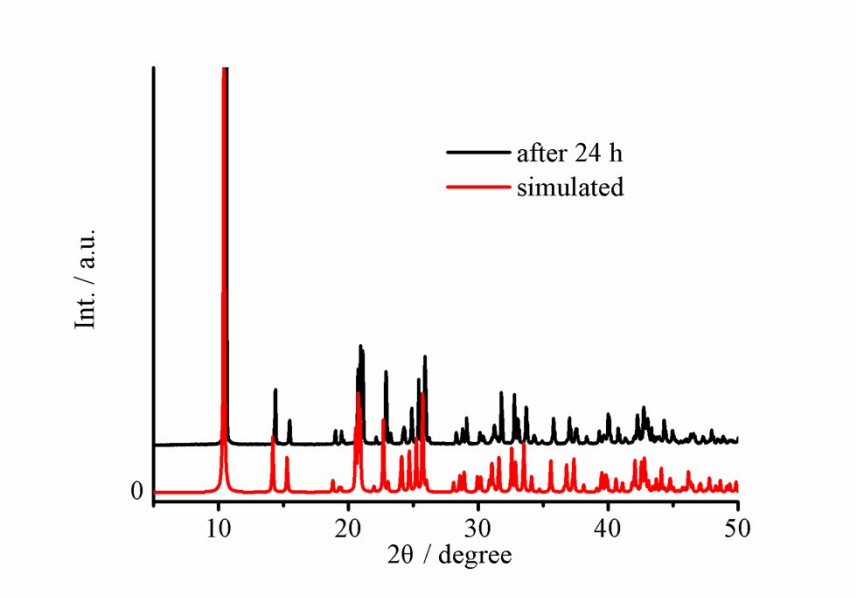


Fig. S6: PXRD patterns of **1** immersed in water for 24 hours.

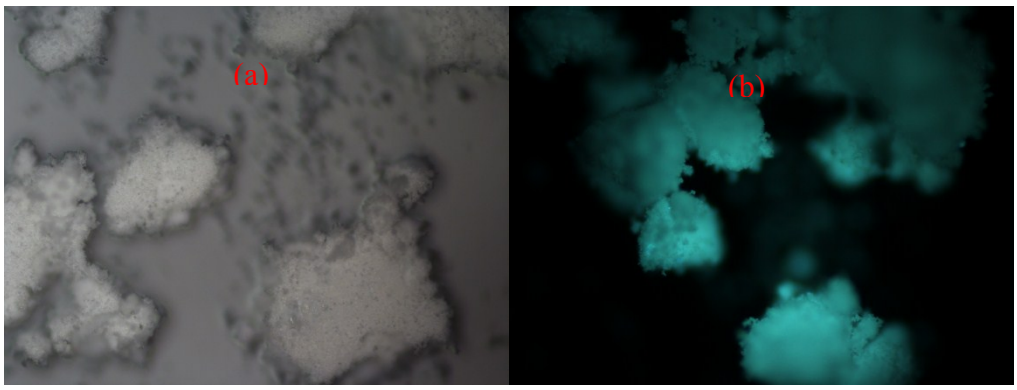


Fig. S7: Images of 2-aminonicotinic acid under (a) daylight and (b) UV light.

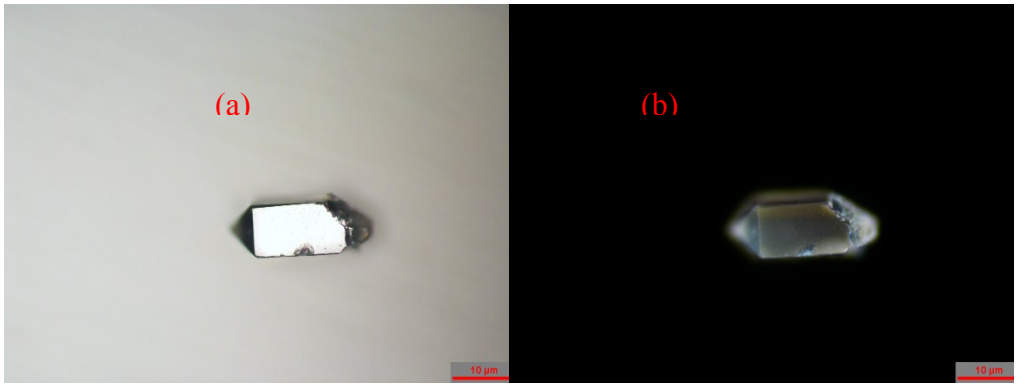


Fig. S8: Images of crystals of **1** under (a) daylight and (b) UV light.

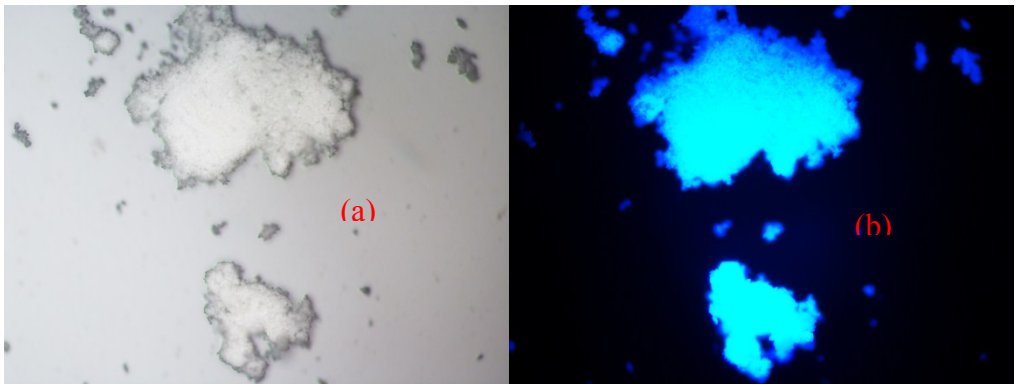


Fig. S9: Images of 3-quinolinecarboxylic acid under (a) daylight and (b) UV light.

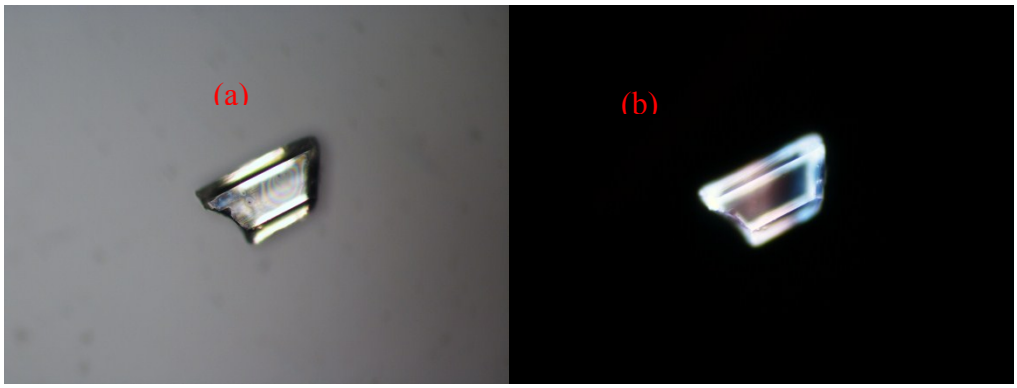


Fig. S10: Images of crystals of **2** under (a) daylight and (b) UV light.

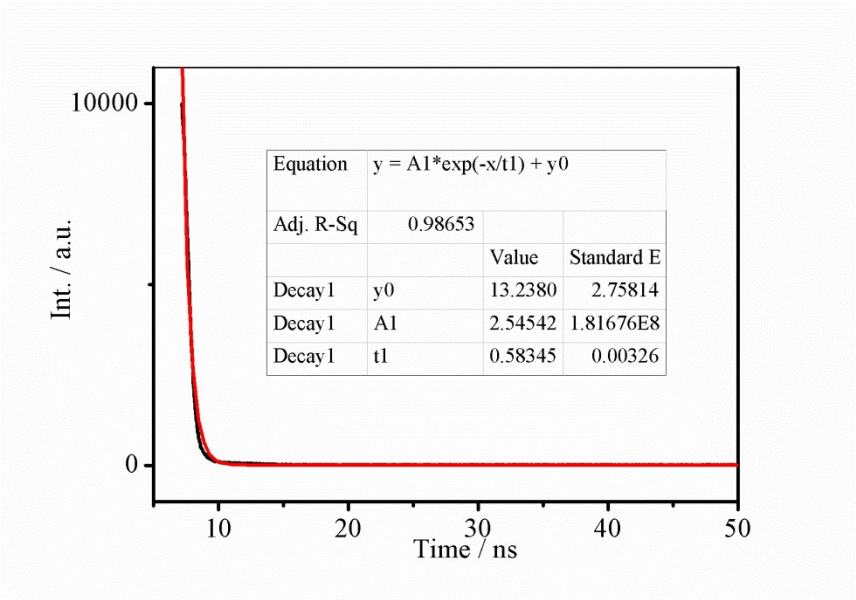


Fig. S11: Emission decay curves at room temperature upon pulsed excitation at 360 nm and the main emission peak at 410 nm of **1**.

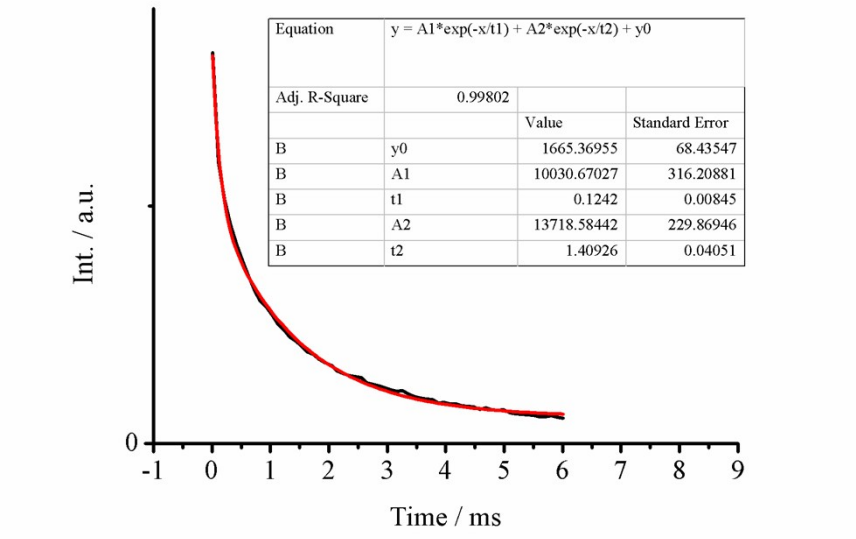


Fig. S12: Emission decay curves at room temperature upon pulsed excitation at 370 nm and the main emission peak at 548 nm of **1**.

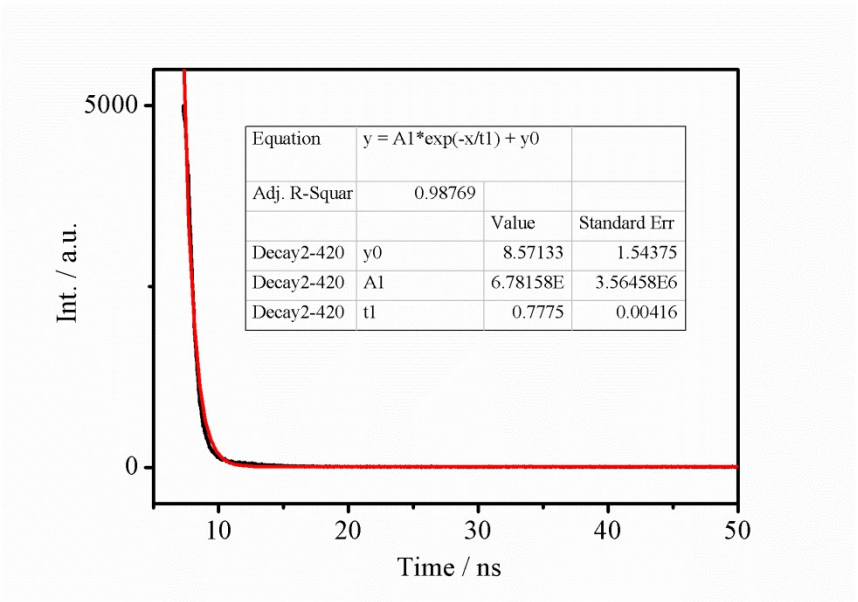


Fig. S13: Emission decay curves at room temperature upon pulsed excitation at 360 nm and the main emission peak at 430 nm of **2**.

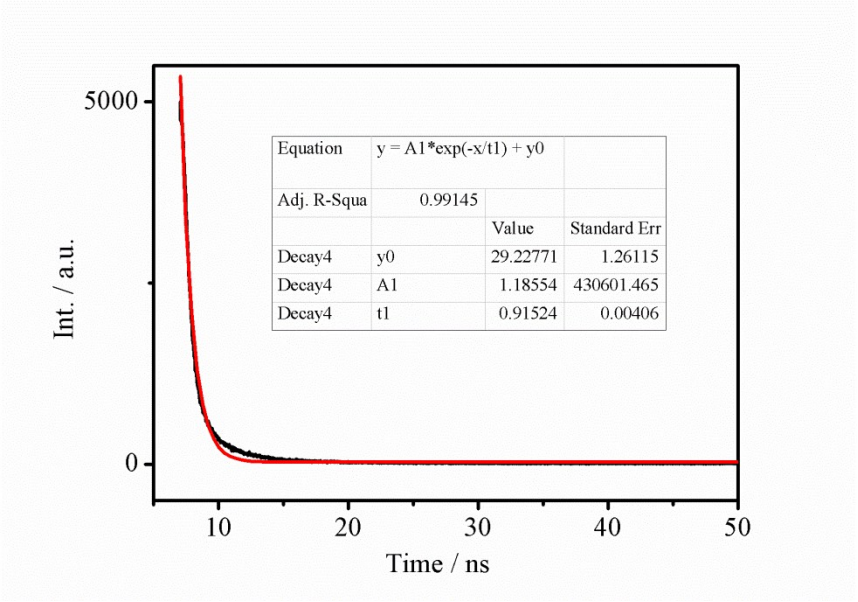


Fig. S14: Emission decay curves at room temperature upon pulsed excitation at 360 nm and the main emission peak at 460 nm of 2-aminonicotinic acid.

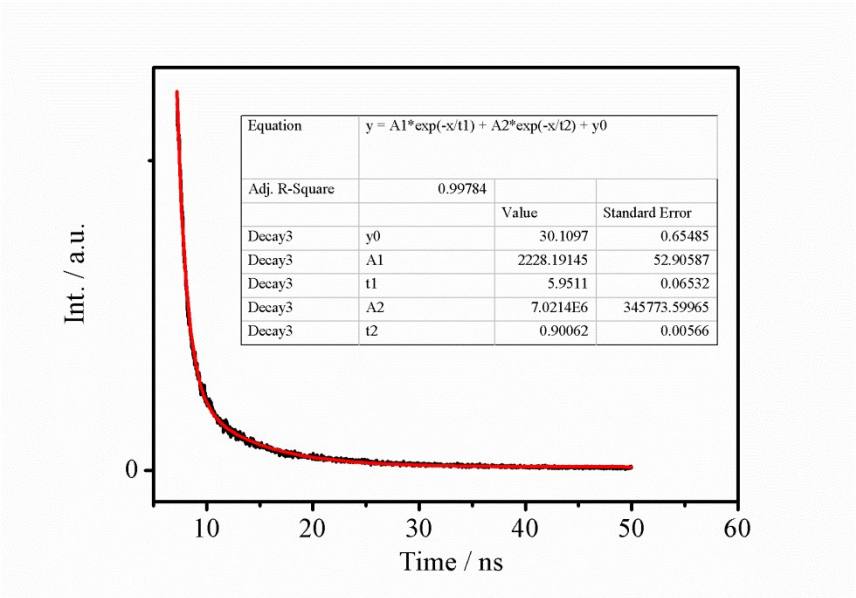


Fig. S15: Emission decay curves at room temperature upon pulsed excitation at 360 nm and the main emission peak at 430 nm of 3-quinolinecarboxylic acid.

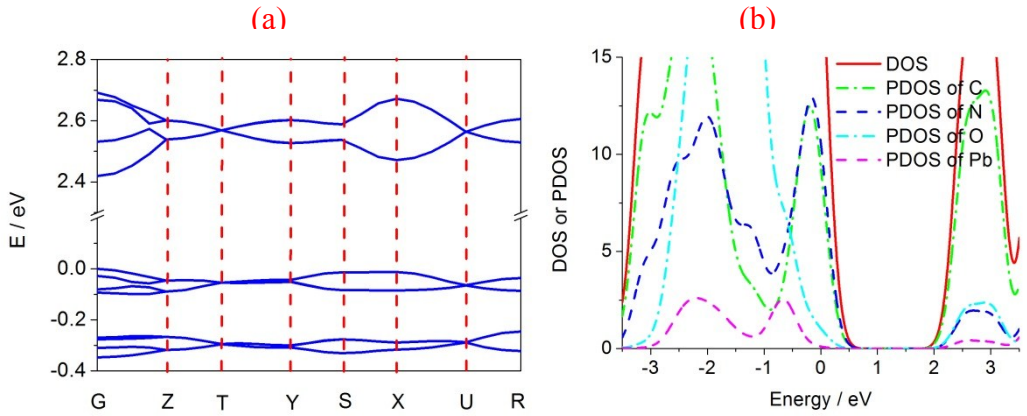


Fig. S16: (a) Close-up view of several highest occupied band and the lowest unoccupied bands in energy band structure of **1**. (b) Plots of DOS and PDOS of Pb, O, N and C atoms in **1**.

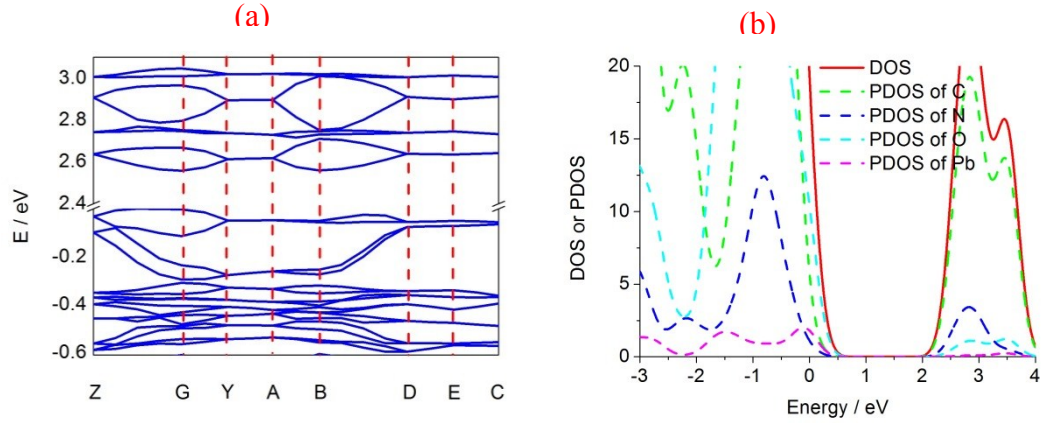


Fig. S17: (a) Close-up view of several highest occupied band and the lowest unoccupied bands in energy band structure of **2**. (b) Plots of DOS and PDOS of Pb, O, N and C atoms in **2**.