Electronic Supporting Information

Silver(I) Coordination Polymers Based on Halogenated Cyanoformamidine: Roles of Oxyanions and Halogen Atoms in the Structural Diversity

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Fig. S1. The PXRD patterns for **1**.

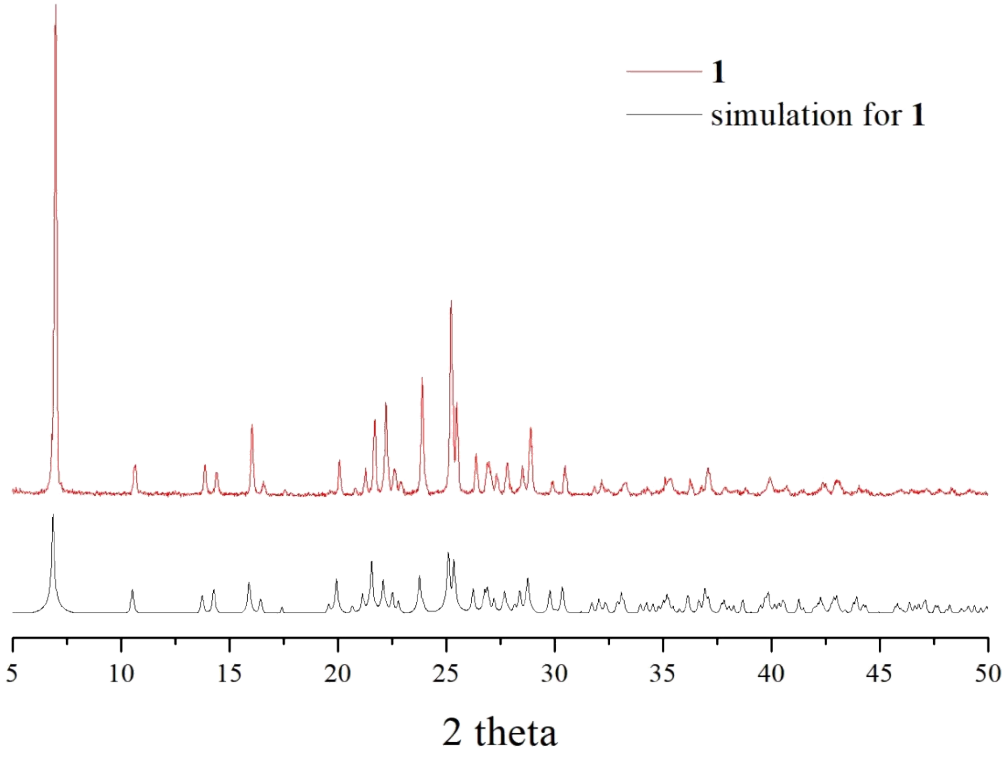


Fig. S2. The PXRD patterns for **2**.

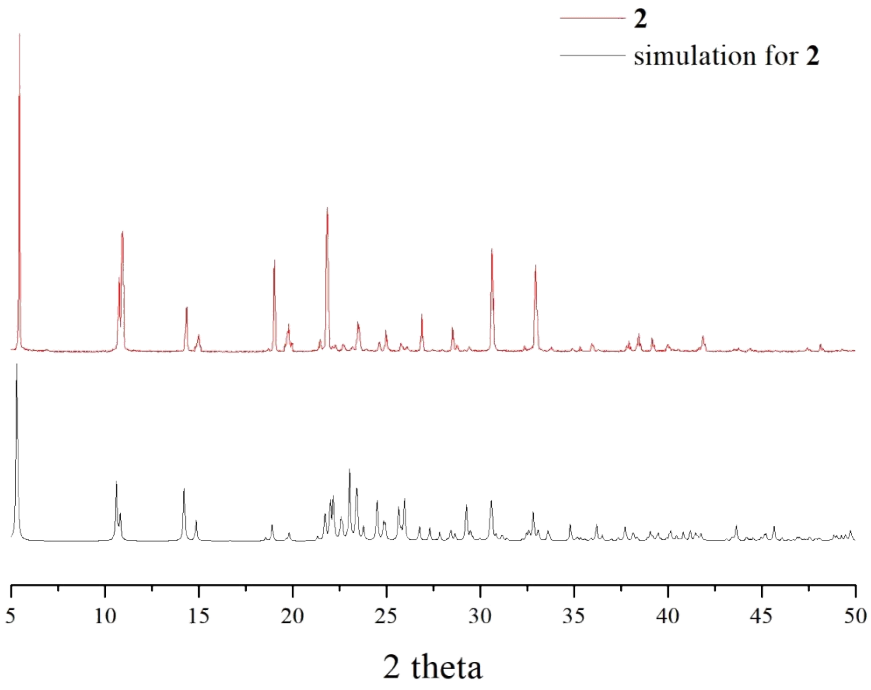


Fig. S3. The PXRD patterns for **3**.

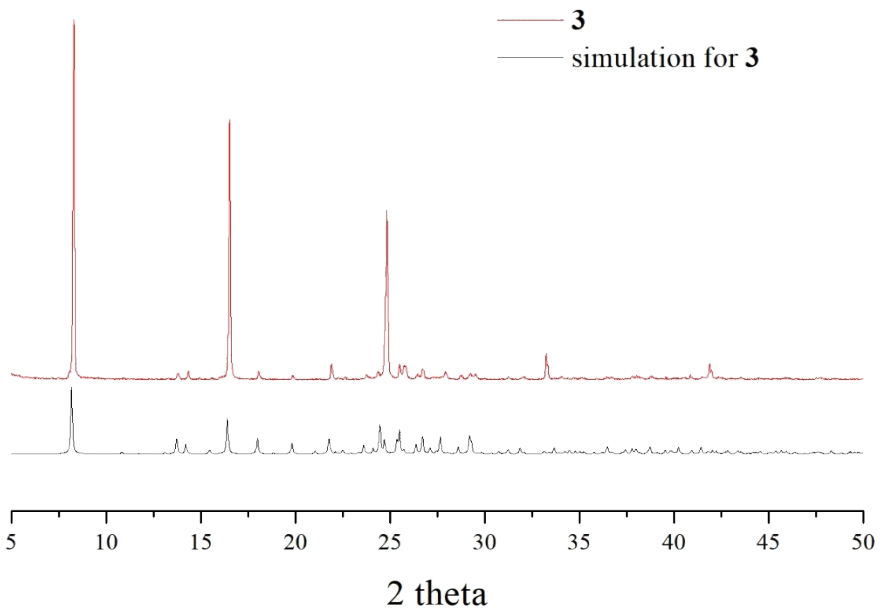


Fig. S4. The PXRD patterns for **4**.

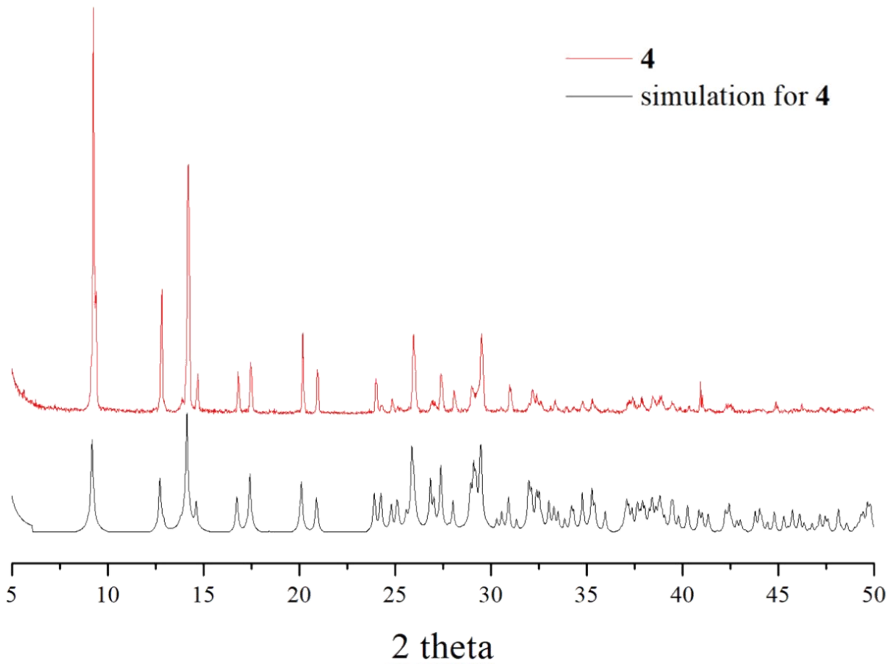


Fig. S5. The PXRD patterns for **5**.

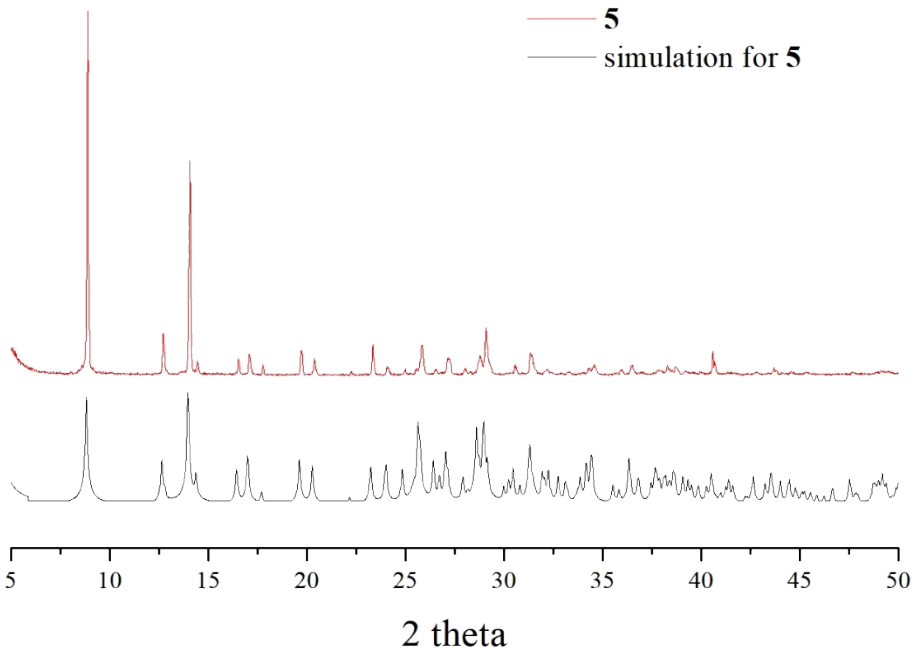


Fig. S6. The PXRD patterns for **6**.

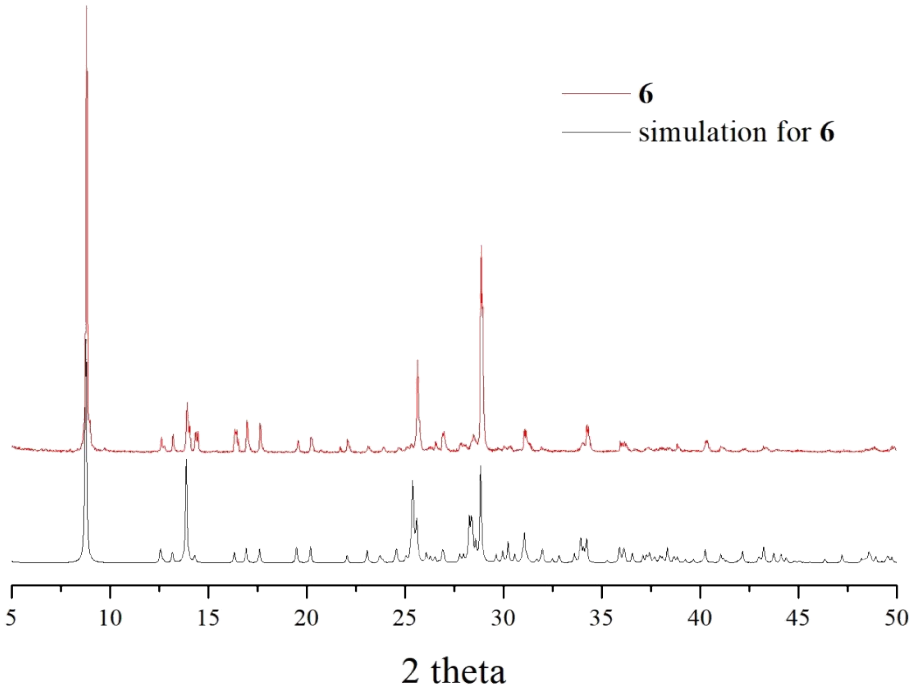
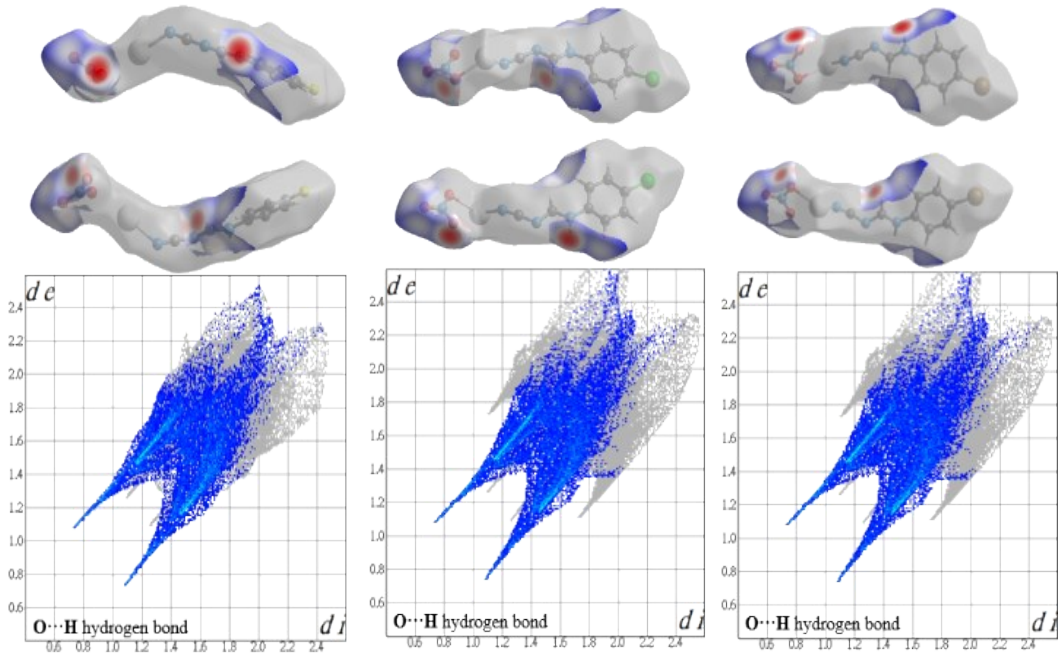
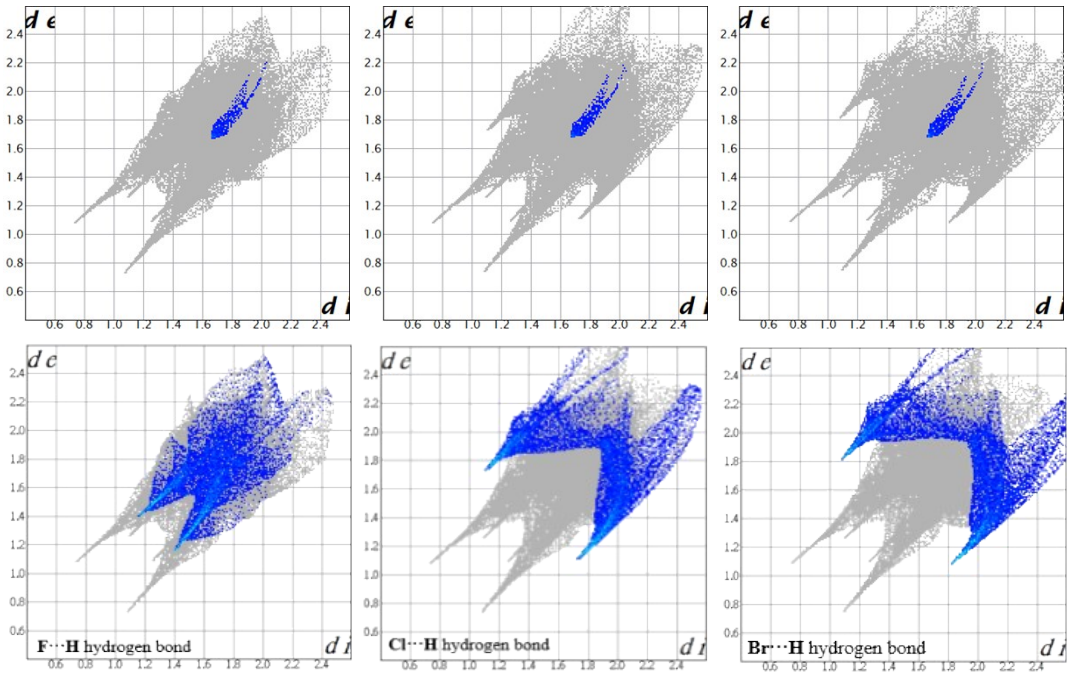


Fig. S7. Hirshfeld surfaces and fingerprint plots for O-H interaction (a) **4**, **(**b) **5** and (c) **6**.



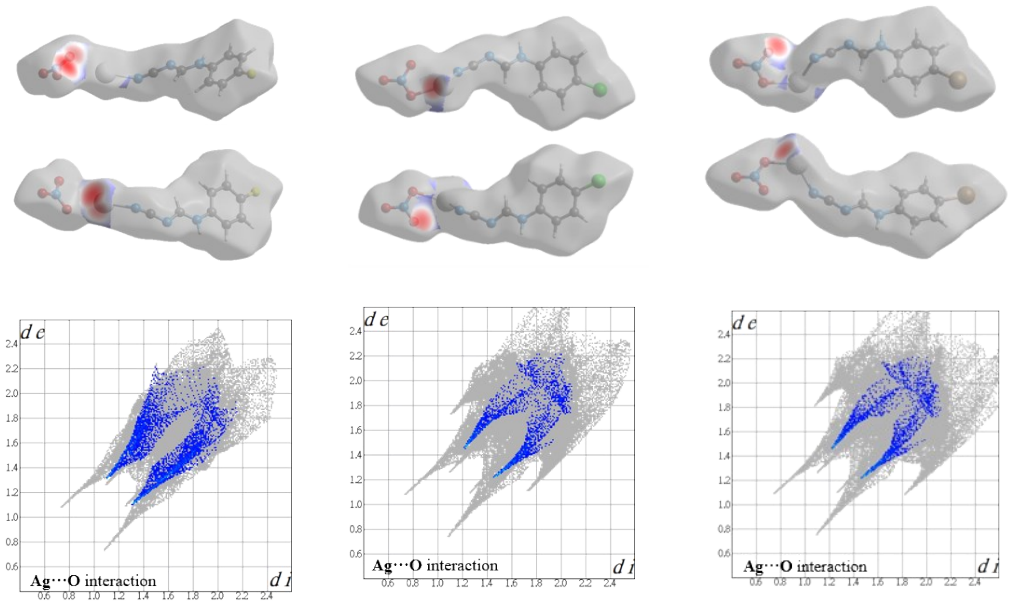
(a) (b) (c)

Fig. S8. Fingerprint plots for Ag-Ag interaction (above) and X-H interaction (below) (a) **4**, **(**b) **5** and (c) **6**.



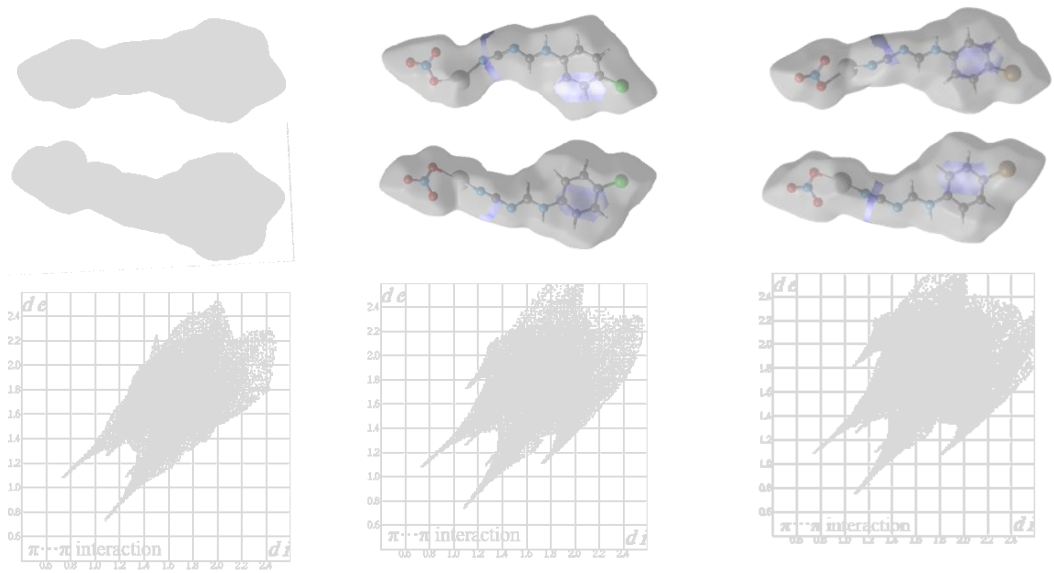
(a) **(b)** **(c)**

Fig. S9. Hirshfeld surfaces and fingerprint plots for Ag-O interaction (a) **4**, (b) **5** and (c) **6**.



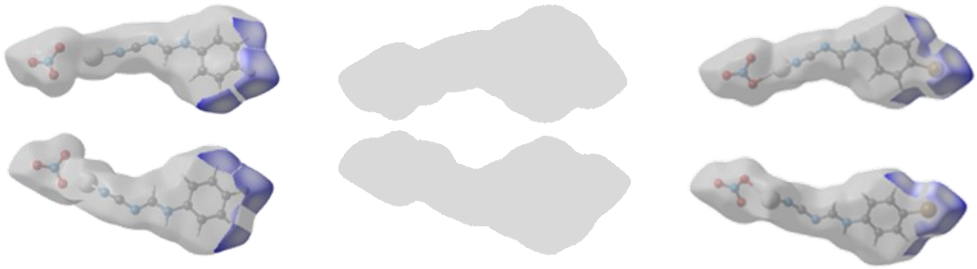
(a) **(b)** **(c)**

Fig. S10. Hirshfeld surfaces and fingerprint plots for π--π interaction (a) **4**, (b) **5** and (c) **6**.



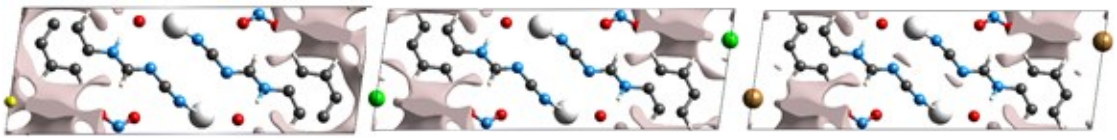
(a) **(b)** **(c)**

Fig. S11. Hirshfeld surfaces for X-H interaction (a) **4**, F-H **(**b) **5** Cl-H and (c) **6**. Br-H interaction.



(a) **(b)** **(c)**

Fig. S12. Crystal void (isovalue 0.002 e au^{-3}) along a-axis for (a) **4**, **(**b) **5** and (c) **6**.



(a) (b) (c)

Fig. S13. Hirshfeld surfaces for Ag-Ag interaction (a) **4**, **(**b) **5** and (c) **6**.

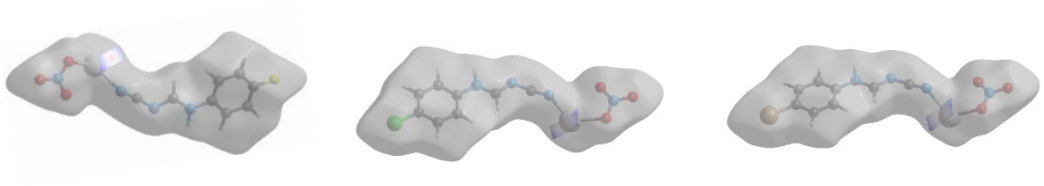


Fig. S14. Uv-Vis spectra of the free ligands in ethanol.

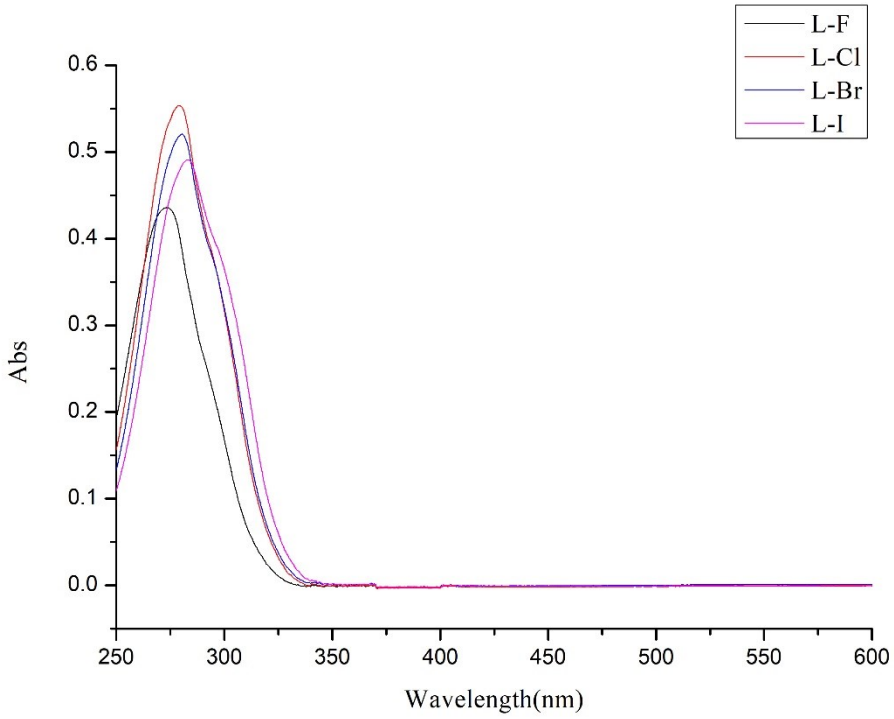
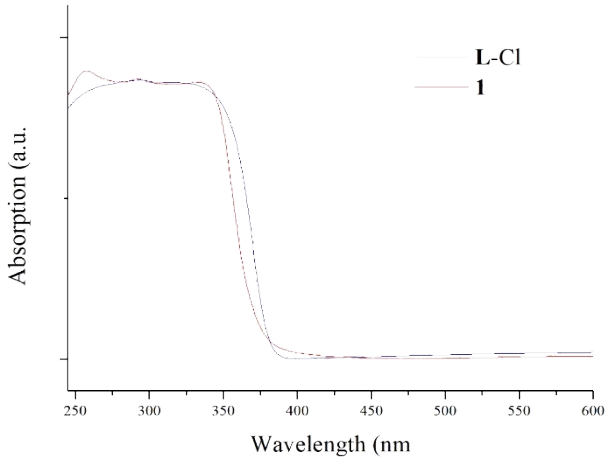
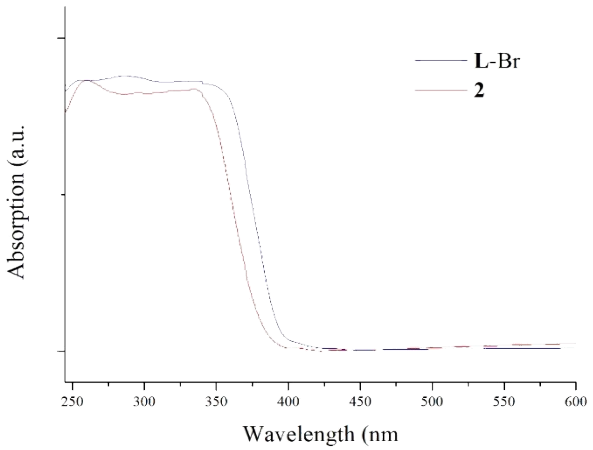


Fig. S15. Solid state UV-vis absorption spectra for ligands and complexes **1 – 3**.





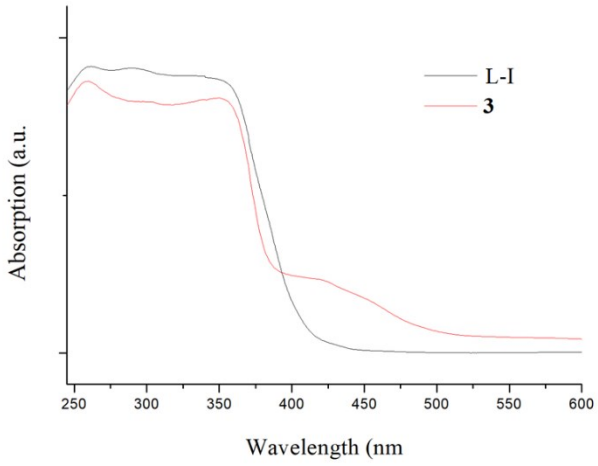
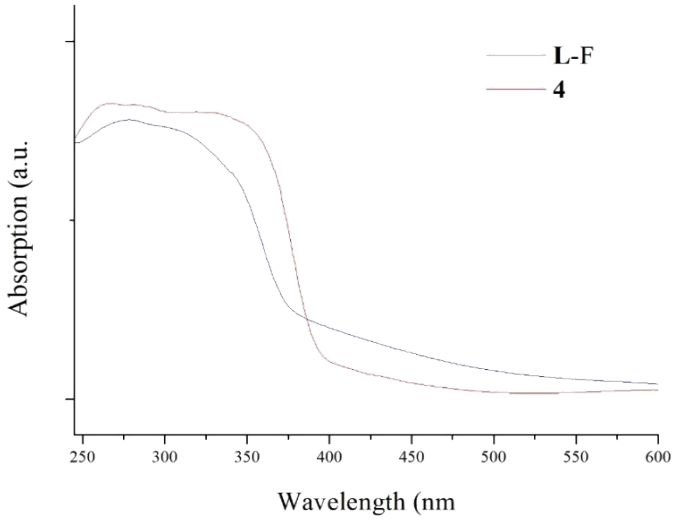
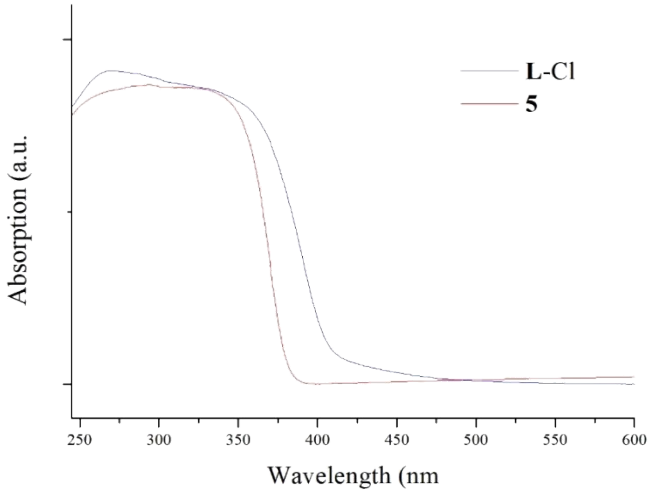


Fig. S16. Solid state UV-vis absorption spectra for ligands and complexes **4** – **6**.





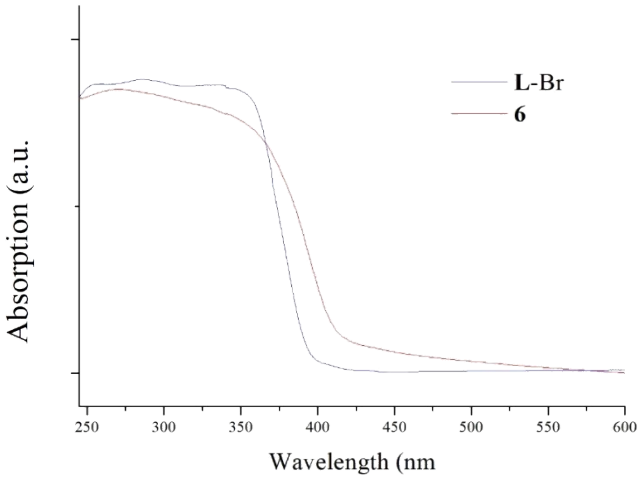


Table S1. Selected distances (Å) and angles (°) of the weak C-H---X hydrogen bonds in **4** – **6**.

		4	
C-H---F	H---F	∠C-H---F	C---F
C(7)^{i}-H(7A)^{i}---F	2.725	160.18	3.615(6)
C(5)^{ii}-H(5A)^{ii}---F	2.788	131.18	3.472(5)
C(5)^{iii}-H(5A)^{iii}---F	2.873	146.42	3.684(5)
		5	
C-H---Cl	H---Cl	∠C-H---Cl	C---Cl
C(5)^{i}-H(5A)^{i}---Cl	3.063	155.62	3.929(5)
C(7)^{ii}-H(7A)^{ii}---Cl	3.174	129.51	3.834(5)
C(7)^{iii}-H(7A)^{iii}---Cl	3.000	154.06	3.859(5)
		6	
C-H---Br	H---Br	∠C-H---Br	C---Br
C(5)^{i}-H(5A)^{i}---Br	3.142	155.33	4.008(7)
C(7)^{ii}-H(7A)^{ii}---Br	3.293	129.36	3.949(6)
C(7)^{iii}-H(7A)^{iii}---Br	3.068	154.94	3.930(7)

Symmetry code: (i) 1 – x, 1 – y, -z; (ii) 1 – x, -y, -z; (iii) 2-x, -y, -z, for **4** and **5**. (i) 1 – x, 2 – y, 2 - z; (ii) 1 – x, 3 - y, 2 - z; (iii) -x, 3 - y, 2 - z, for **6**.

Table S2. Selected bond lengths (Å) and angles (˚) for **1 - 3**.

	1	**2**	**3**
N(1)-C(1)	1.143(5)	1.141(6)	1.157(8)
N(2)-C(1)	1.332(5)	1.328(6)	1.308(8)
N(2)-C(2)	1.328(4)	1.325(5)	1.296(7)
N(3)-C(2)	1.295(4)	1.291(5)	1.305(7)
N(3)-C(3)	1.418(4)	1.416(5)	1.409(7)
N(4)-C(9)			1.137(8)
N(5)-C(9)			1.304(8)
N(5)-C(10)			1.288(8)
N(6)-C(10)			1.303(7)
N(6)-C(11)			1.422(8)

Table S3. Selected bond lengths (Å) and angles (˚) for **4 - 6**.

	4	**5**	**6**
N(1)-C(1)	1.155(4)	1.154(6)	1.143(7)
N(2)-C(1)	1.313(4)	1.315(6)	1.307(8)
N(2)-C(2)	1.321(4)	1.320(6)	1.312(9)
N(3)-C(2)	1.306(4)	1.308(6)	1.297(7)
N(3)-C(3)	1.418(4)	1.427(5)	1.420(8)