Electronic Supplementary Material (ESI) for Dalton Transactions

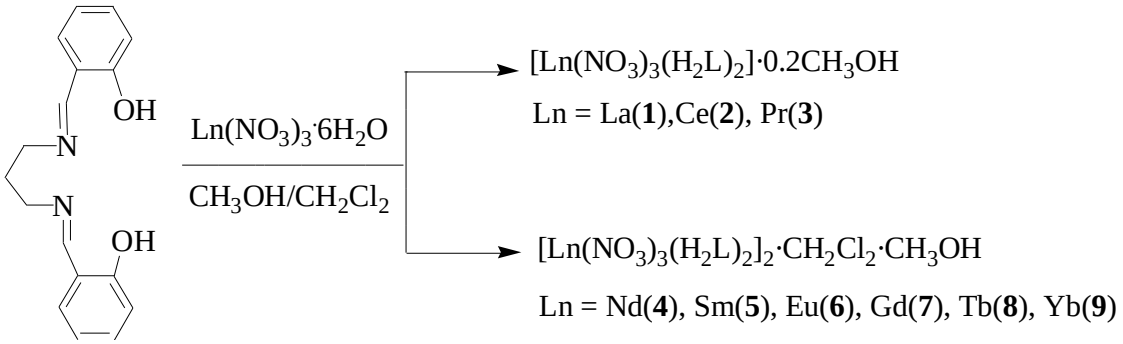
Supporting Information

Systematic study on the structures of salen type lanthanide complexes tuned by lanthanide contraction and corresponding luminescence

Xiaoyan Zou, Mingjie Li, Pengfei Yan, Juwen Zhang, Guangfeng Hou, Guangming Li**

Table S1 Selected bond lengths (Å) and angles (°) for complexes **1**–**9**.

Bonds	**1**	**3**	**4**	**5**	**6**	**7**	**9**
Ln(1)–O(1)	2.512(3)	2.514(4)	2.292(4)	2.303(7)	2.289(3)	2.279(4)	2.305(4)
Ln(1)–O(4)	2.433(11)	2.434(3)	2.319(4)	2.319(4)	2.319(4)	2.285(4)	2.577(4)
Ln(1)–O(3)	2.443(3)	2.444(3)	2.333(5)	2.297(4)	2.282(4)	2.295(4)	2.289(4)
Ln(1)–O(10)	2.681(3)	2.681(4)	2.493(6)	2.548(5)	2.535(3)	2.454(4)	2.548(4)
Ln(1)–O(7)	2.709(4)	2.710(4)	2.563(5)	2.471(5)	2.455(3)	2.495(5)	2.474(4)
Ln(1)–O(11)	2.763(4)	2.765(4)	2.579(5)	2.579(5)	2.509(4)	2.516(4)	2.526(4)
Ln(1)–O(8)	2.796(4)	2.796(4)	2.972(5)	2.970(8)	2.965(4)	2.926(5)	2.564(5)
Ln(1)–O(13)	2.596(5)	2.596(5)	2.958(6)	2.999(7)	2.934(4)	2.960(6)	2.594(4)
O(1)–Ln(1)–O(4)	91.10(4)	91.11(12)	86.96(19)	86.74(19)	86.96(19)	86.22(16)	84.22(16)
O(4)–Ln(1)–O(3)	77.34(3)	77.33(13)	83.29(18)	83.10(18)	83.29(18)	84.06(16)	81.06(16)
O(1)–Ln(1)–O(11)	78.80(3)	78.81(13)	89.79(18)	88.79(18)	119.79(18)	120.66(14)	144.66(15)



Scheme S1 Syntheses of complexes **1**–**9**.

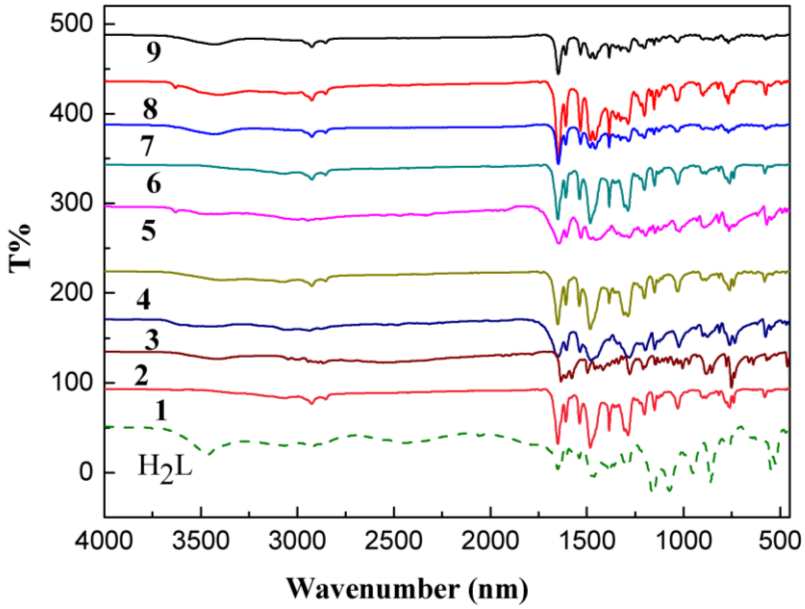


Fig. S1 Infrared spectra of complexes **1–9** and ligand.

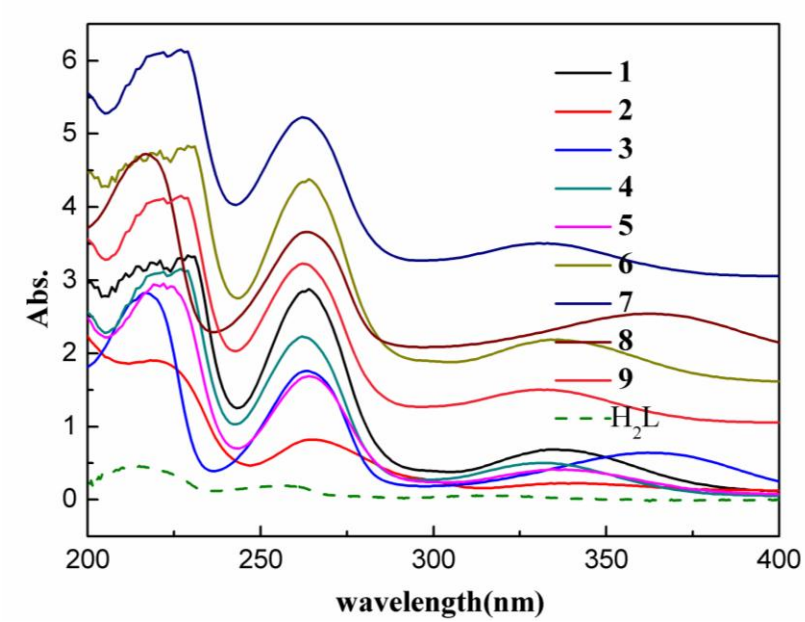


Fig. S2 UV-Vis spectra of complexes **1–9** and ligand H_2L.

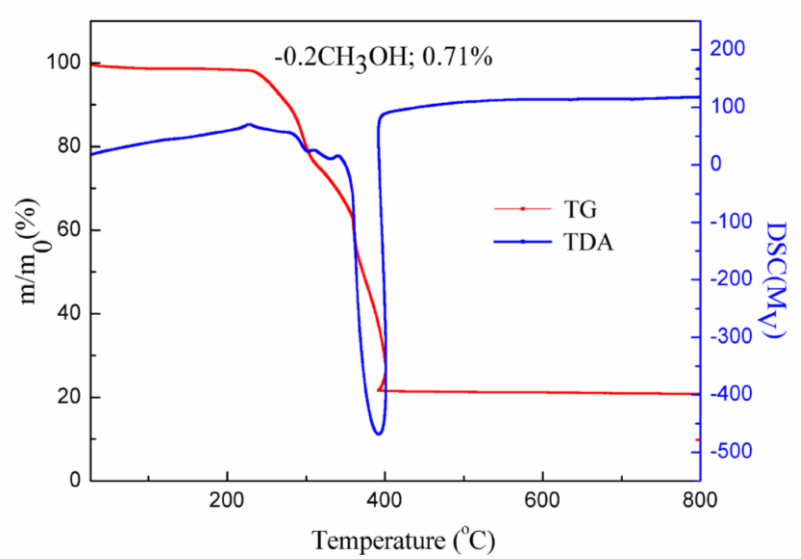


Fig. S3 TG–DTA curves of complex **1**

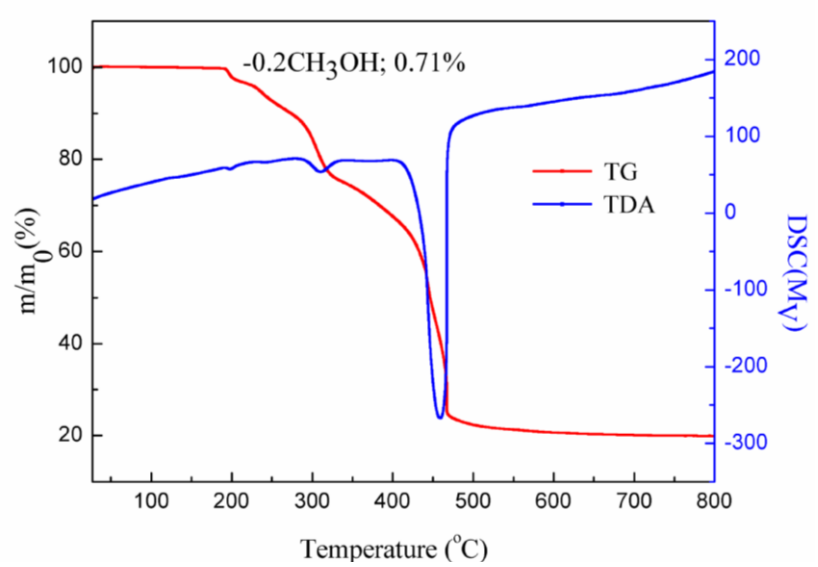


Fig. S4 TG–DTA curves of complex **2**

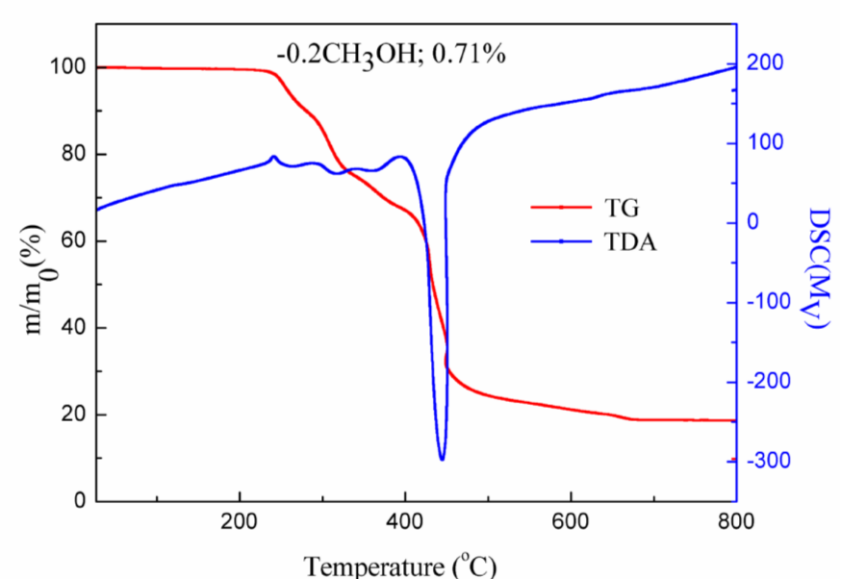


Fig. S5 TG–DTA curves of complex **3**

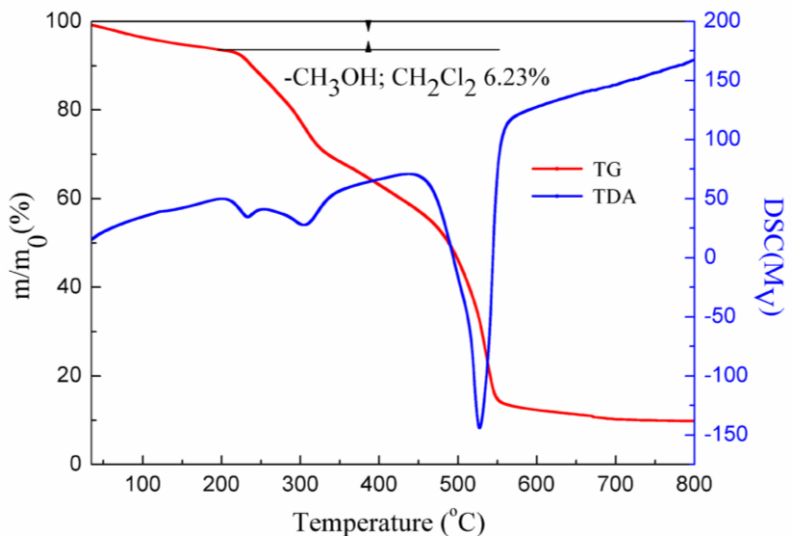


Fig. S6 TG–DTA curves of complex **4**

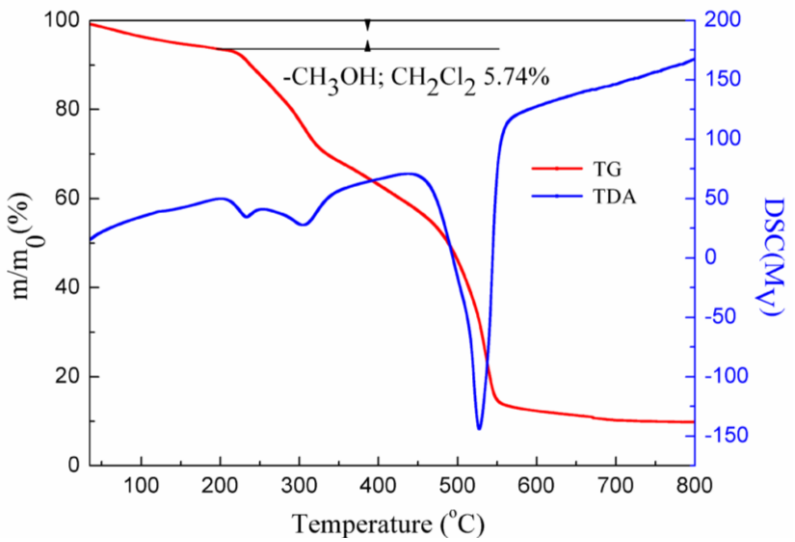


Fig. S7 TG–DTA curves of complex **5**

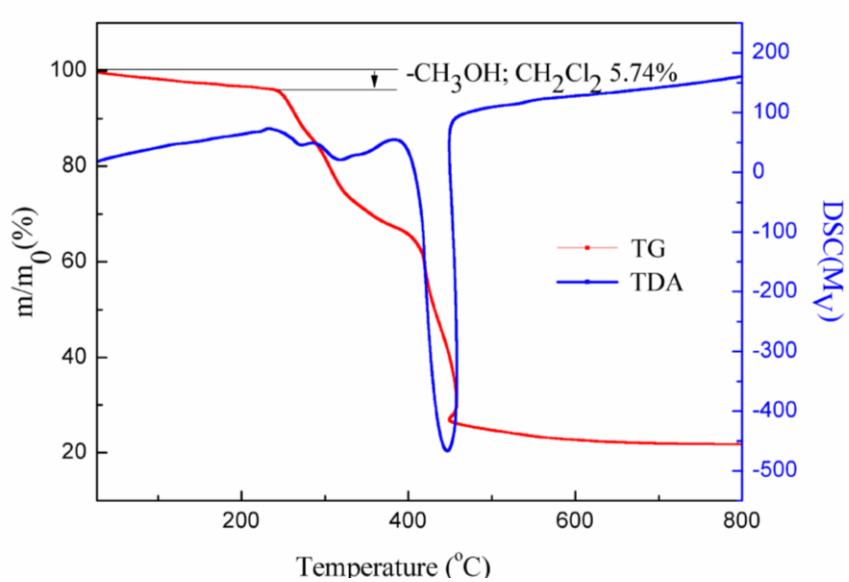


Fig. S8 TG–DTA curves of complex **6**

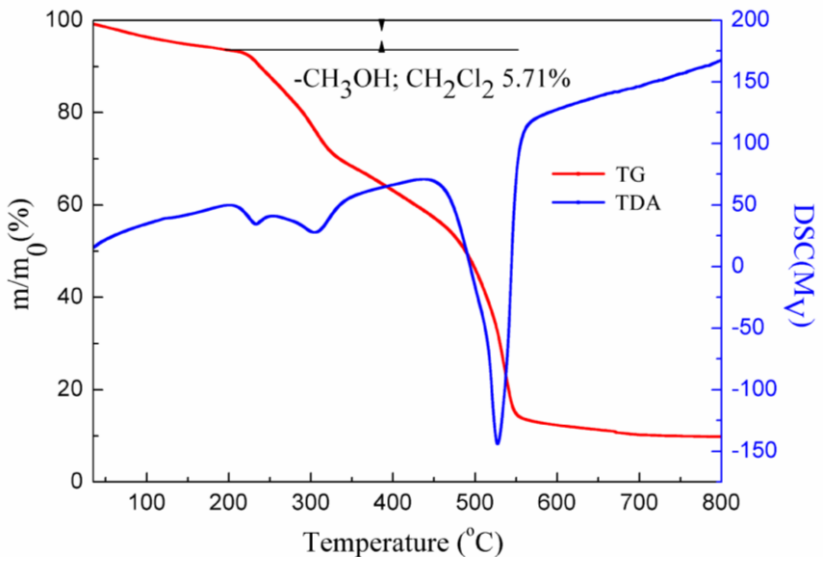


Fig. S9 TG–DTA curves of complex **7**

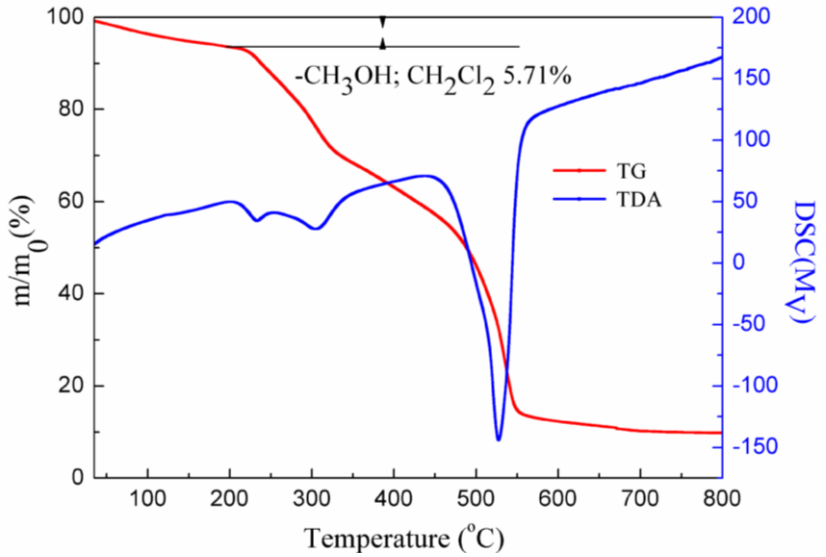


Fig. S10 TG–DTA curves of complex **8**

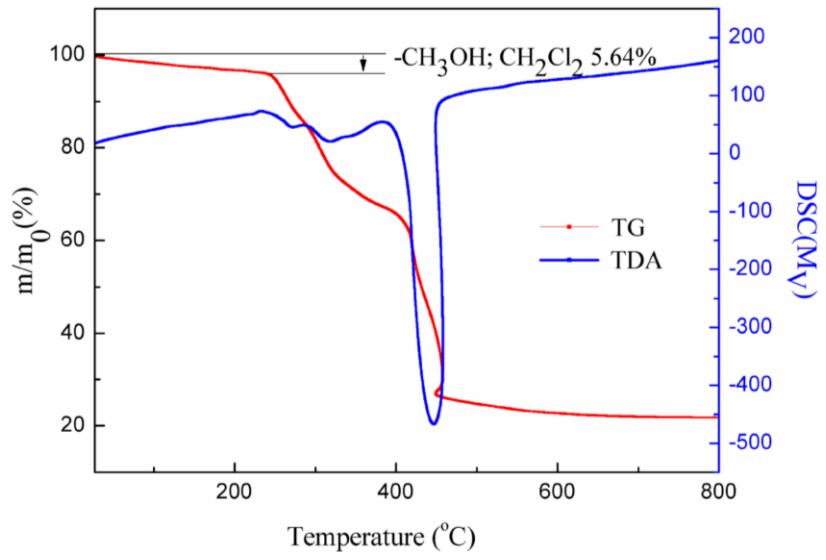


Fig. S11 TG–DTA curves of complex **9**

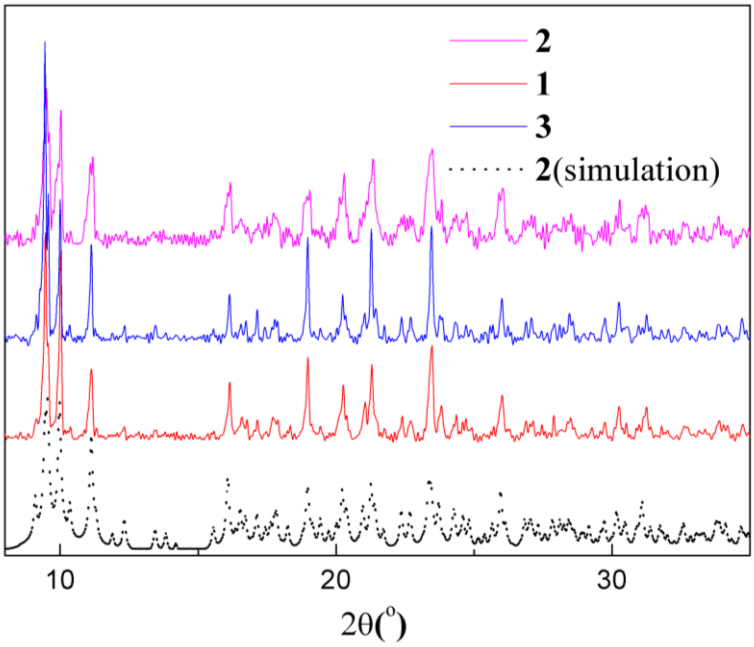


Fig. S12 Experimental X-ray powder patterns for microcrystalline samples **1**–**3** and simulated pattern for **1**.

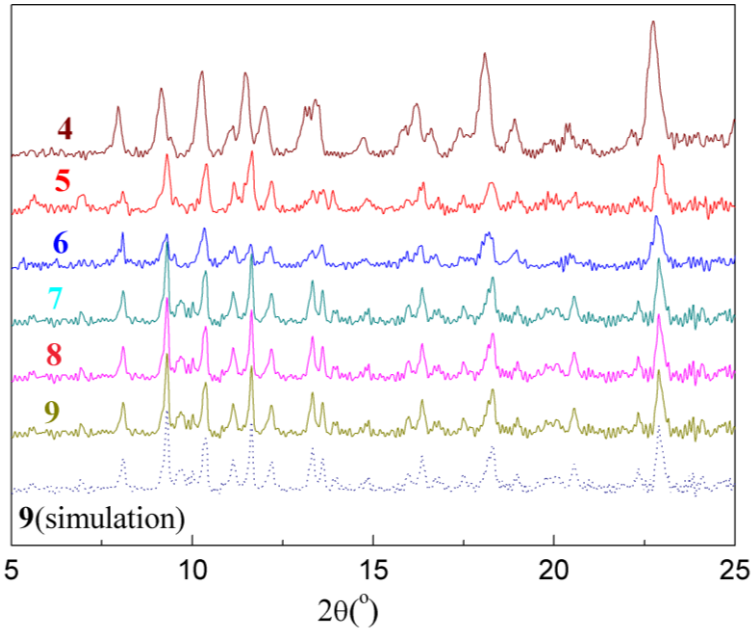


Fig. S13 Experimental X-ray powder patterns for microcrystalline samples **4**–**9** and simulated pattern for **9**.

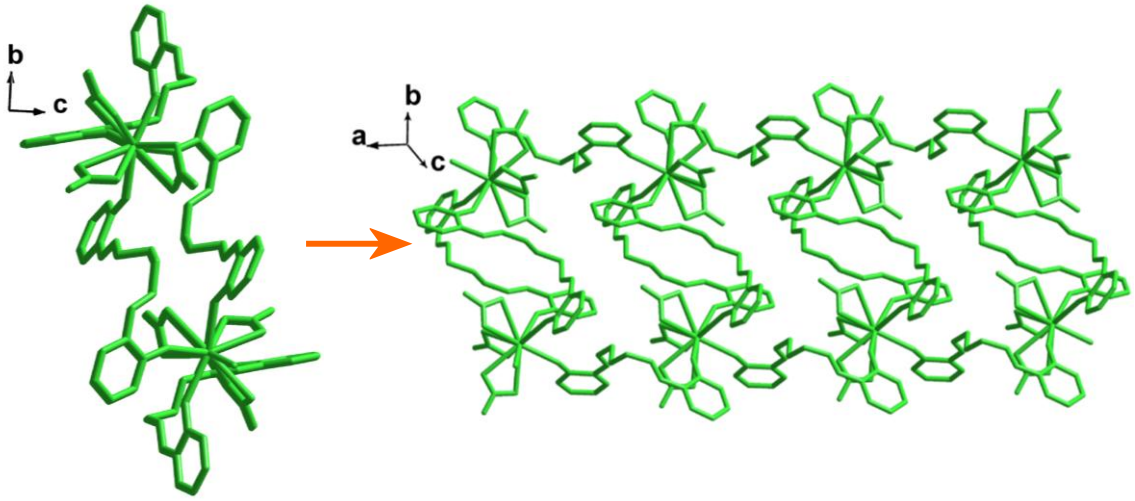


Fig. S14 View of 1D double-chains along different direction.

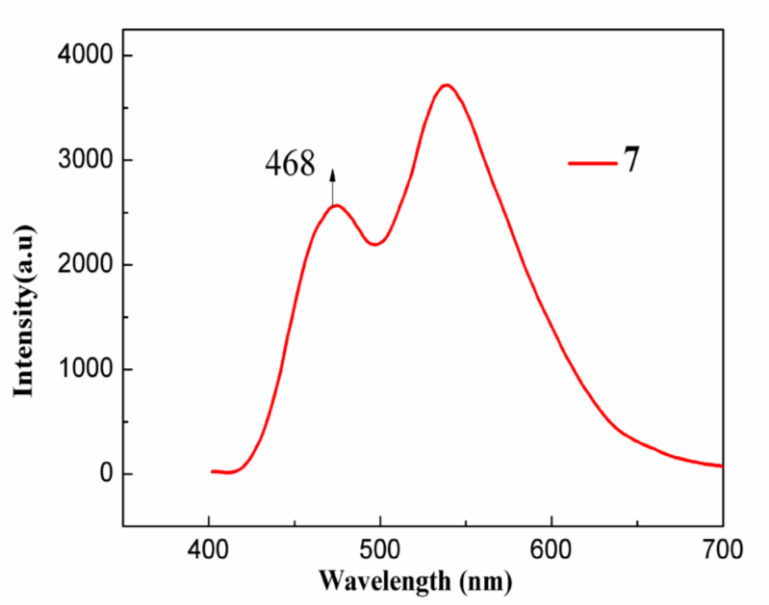


Fig. S15 Phosphorescence spectrum of **7** at 77K

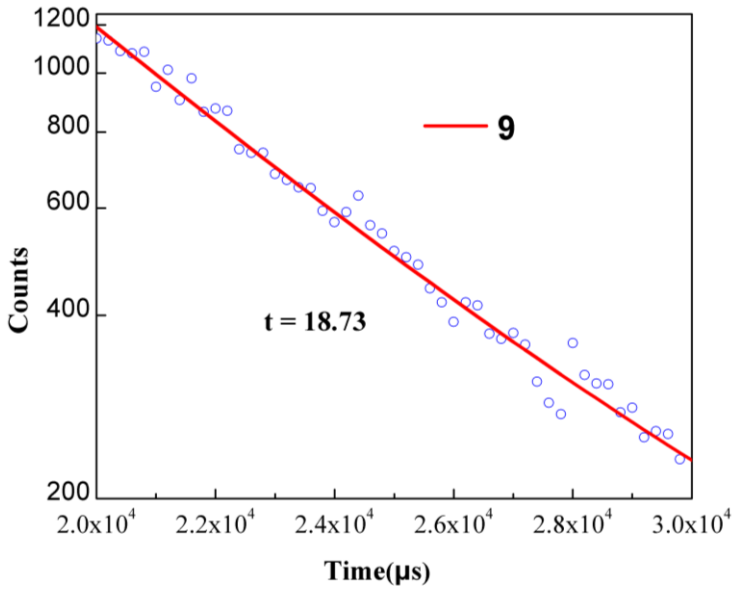


Fig. S16 Experimental luminescence decay profile of complex **9.**