A multifunction photochromic metal-organic framework with Lewis acid sites for selective amines and anion sensing

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Table S1. Crystallographic data and structure refinement details for **1**.

Complex	**1**
Chemical formula	$C_{36}H_{30}ClEuN_4O_{12}$
formula weight	898.05
crystal system	Triclinic
space group	*P*-1
a (Å)	9.6088(7)
b (Å)	14.6537(11)
c (Å)	16.9619(14)
α (deg)	95.8520(10)
β (deg)	106.5110(10)
γ (deg)	107.9380(10)
V (Å^3)	2131.0(3)
Z	2
ρ_{calc}(g/cm^3)	1.400
μ (Mo Kα) (mm^{-1})	1.594
F(000)	900
collected reflns	12867
unique reflns/R_{int}	9270/ 0.0498
no. of observations	8142
GOF	1.047
R_1[a],wR_2[b] (I>2σ(I))	0.0393, 0.1088
R_1[a],wR_2[b](all data)	0.0456, 0.1129

[a] $R_1 = \Sigma||F_o| - |F_c||/\Sigma|F_o|$. [b] $wR_2 = [\Sigma w(F_o^2 - F_c^2)^2/\Sigma w(F_o^2)]^{1/2}$.

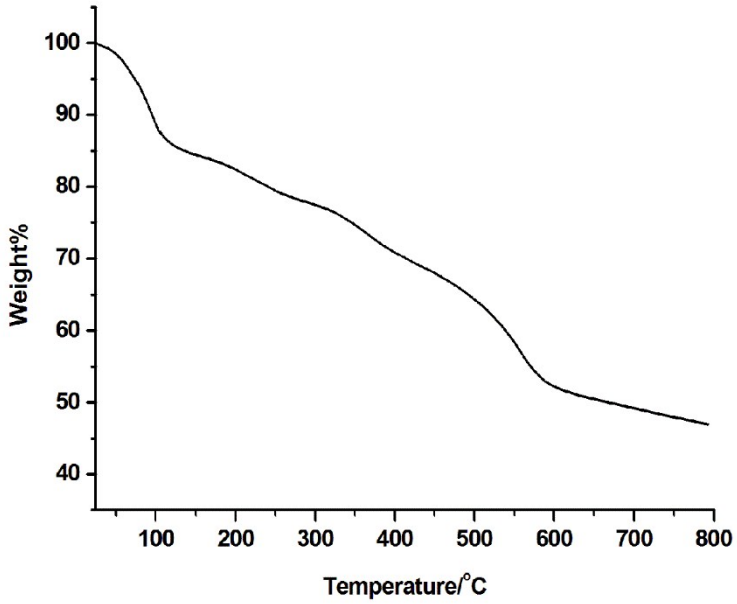

Fig. S1. TGA curve of complex **1**.

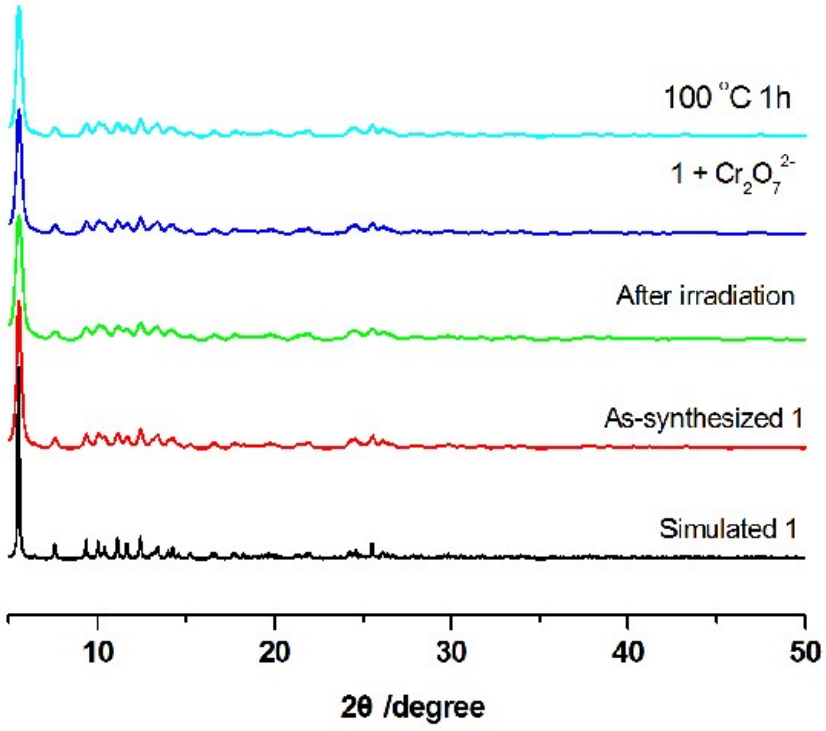

Fig. S2. PXRD patterns of complex **1** after irradiation and soaking in $Cr_2O_7^{2-}$ anion solution.

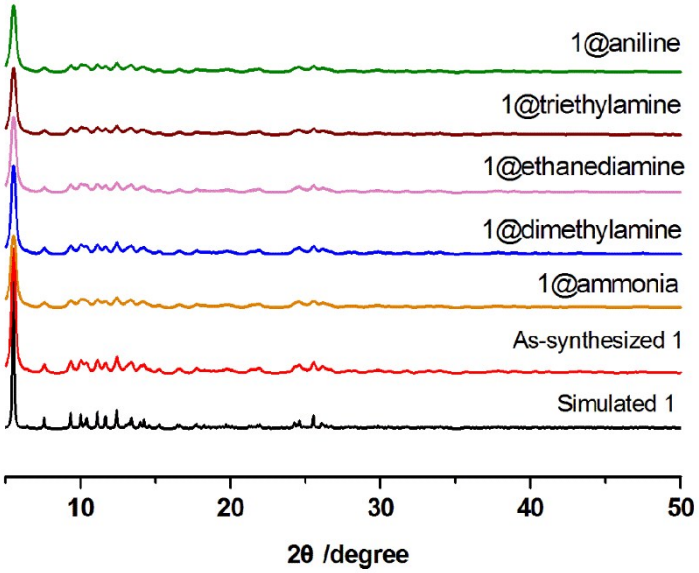

Fig. S3. PXRD patterns of complex 1 after soaking in various amines.

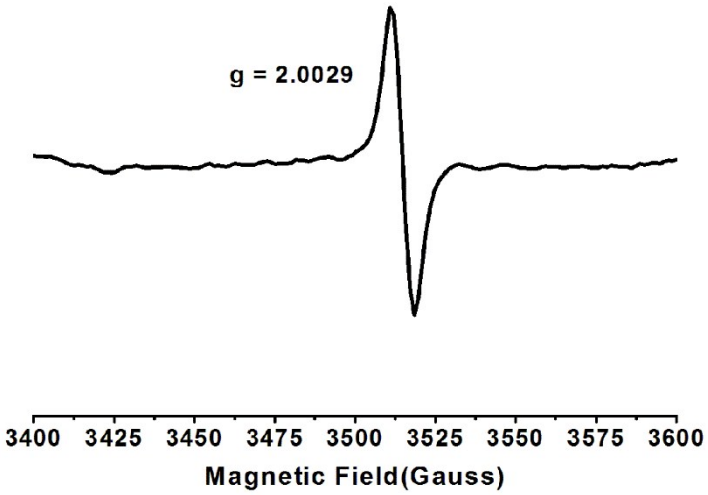

Fig. S4. ESR spectrum of **1**@dimethylamine in solid state.

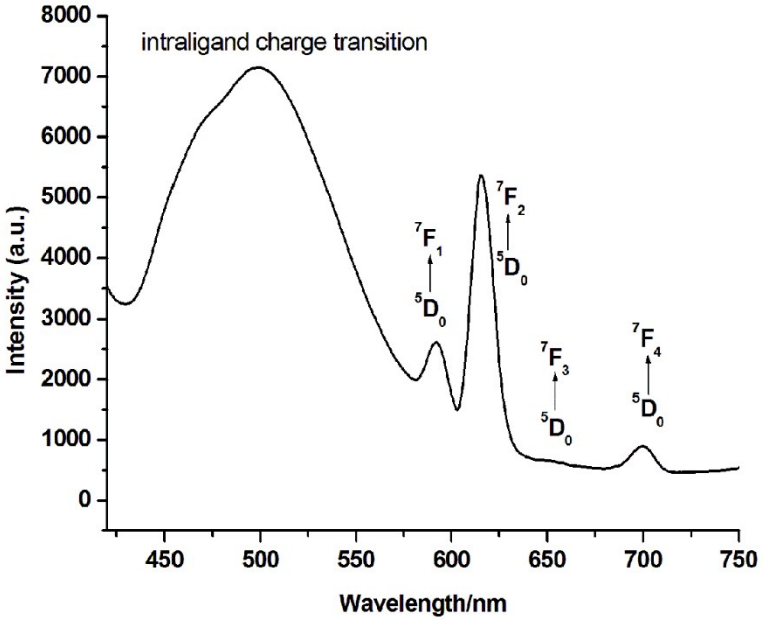

Fig. S5. Emission spectra of complex 1 in solid state at room temperature.

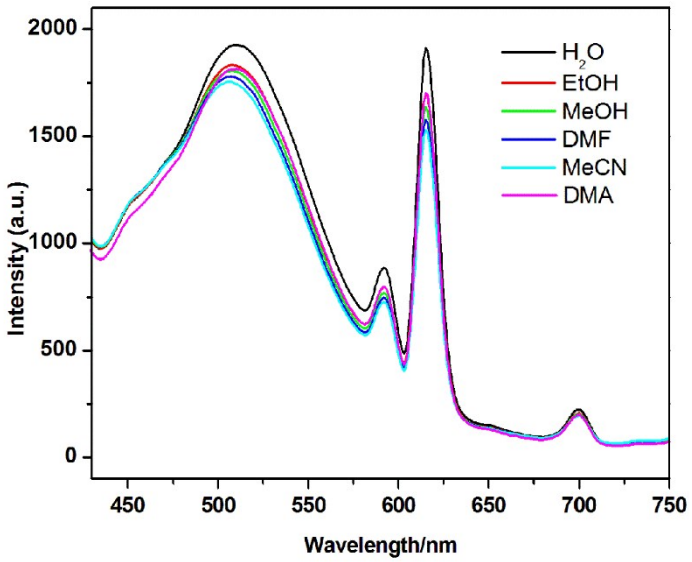

Fig. S6. Emission spectra of complex 1 dispersed in various pure solvents (λ_{ex} = 390 nm).

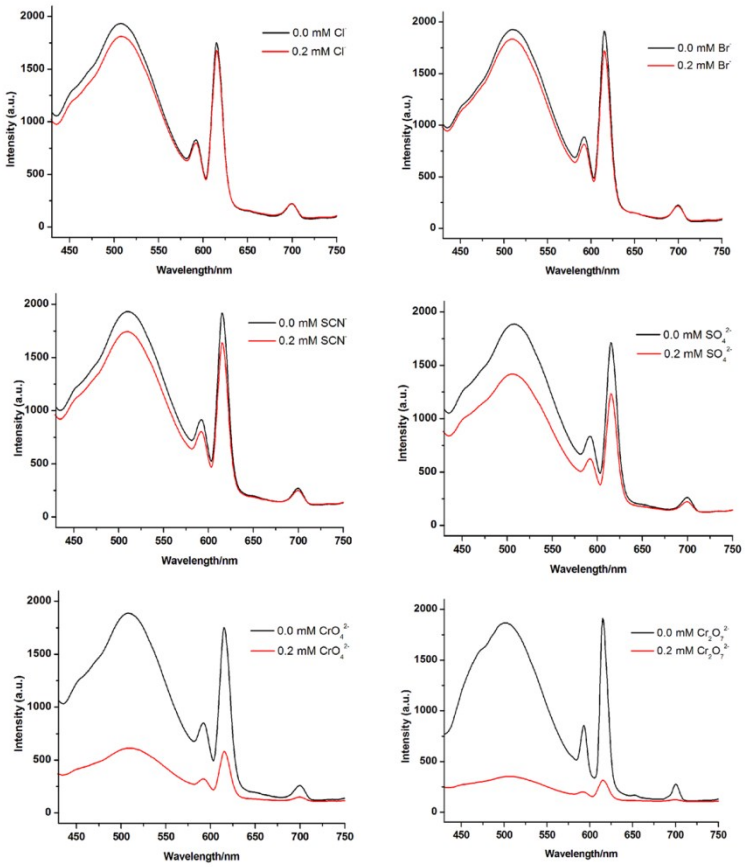

Fig. S7. Families of various emission spectra of complex 1 in aqueous solution upon the addition of 0.2 mM of different selected anions (λ_{ex} = 390 nm).

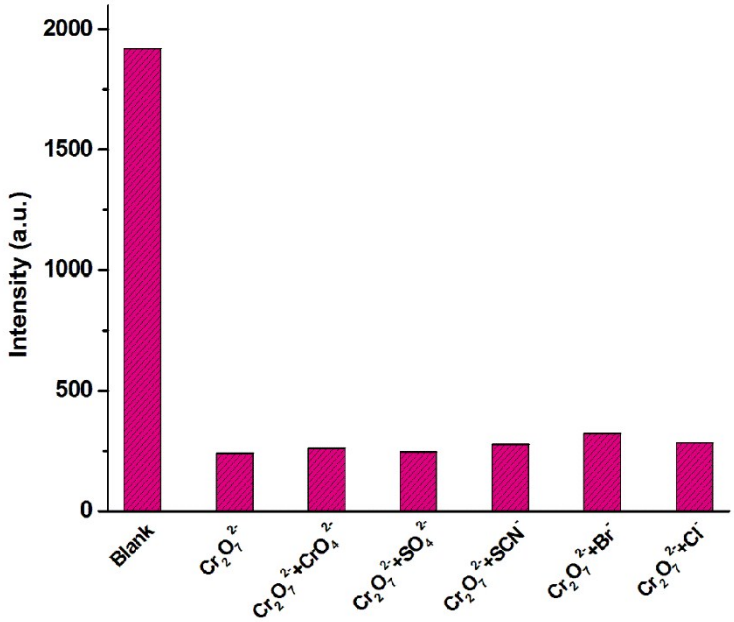

Fig. S8. Comparison of the luminescence intensity of $Cr_2O_7^{2-}$ in the presence of mixed anions for complex 1.

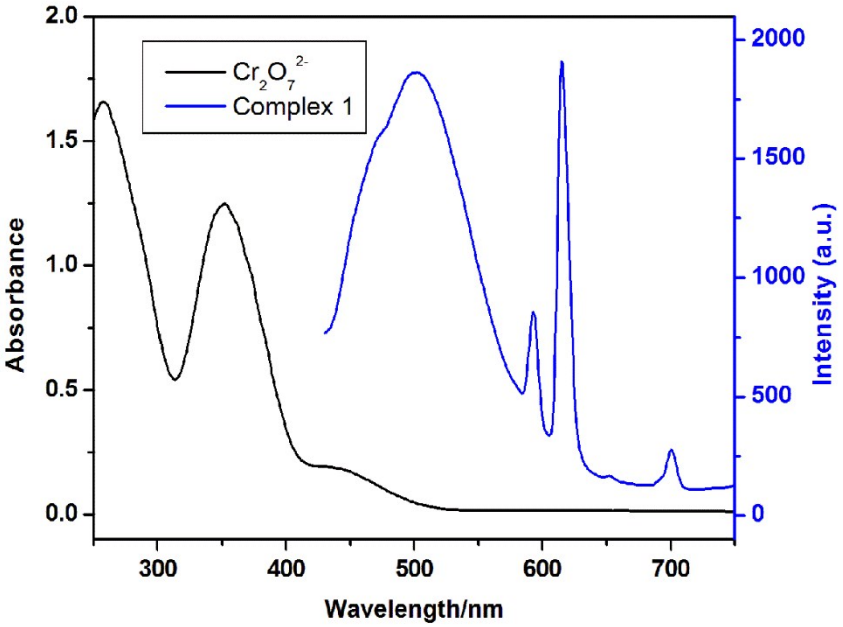

Fig. S9. The UV-vis absorption spectrum of $Cr_2O_7^{2-}$ and the emission spectrum of complex 1.

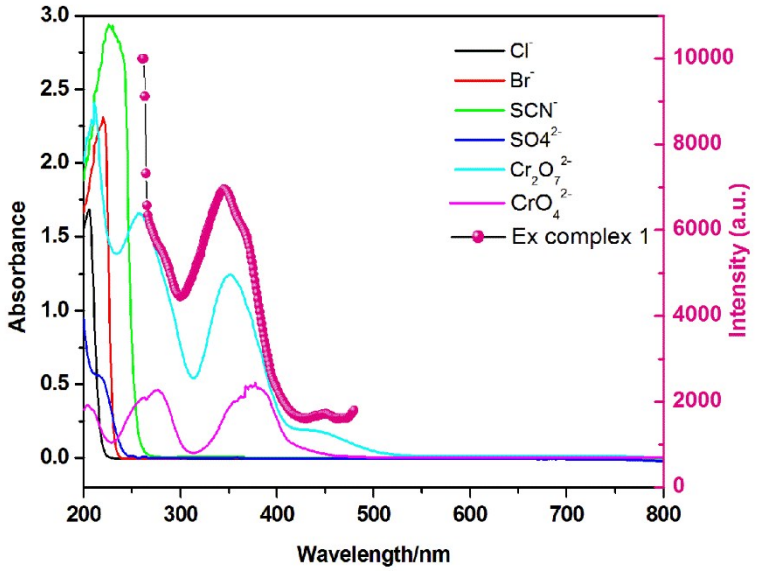

Fig. S10. The UV-vis absorption spectra of anions and the excitation spectrum of complex 1.

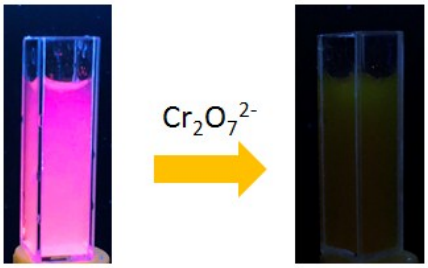

Fig. S11. Photographs show the luminescence change of complex 1 in presence of $Cr_2O_7^{2-}$ (0.3 mM).

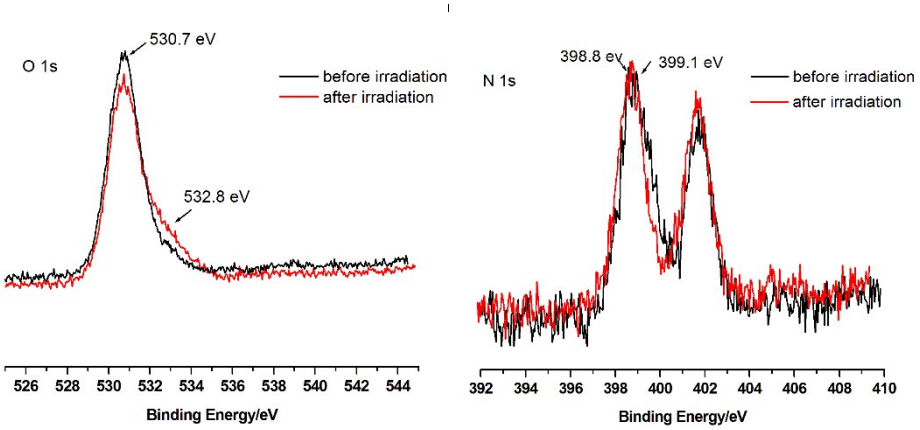

Fig. S12. XPS core level spectra of O and N atoms in complex 1.

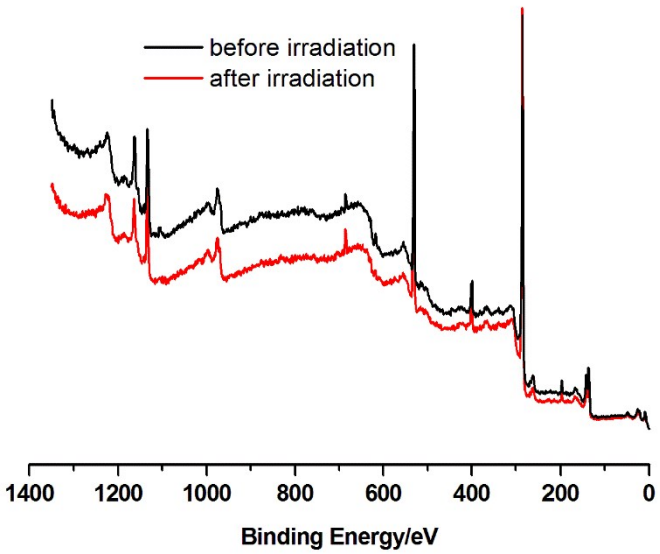

Fig. S13. XPS for complex 1.