Naphthalimide-containing coordination polymer with mechanoresponsive luminescence and excellent metal ion sensing properties

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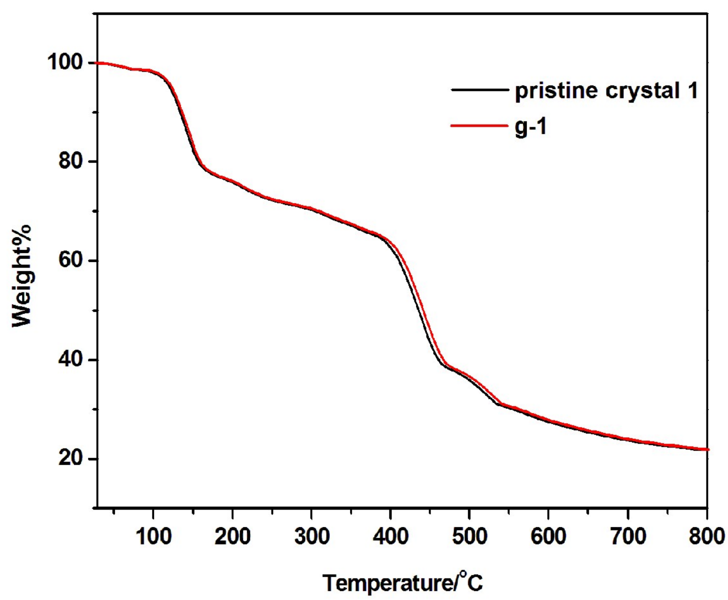

Fig. S1. TGA curves of pristine crystal 1 and its ground sample g-1.

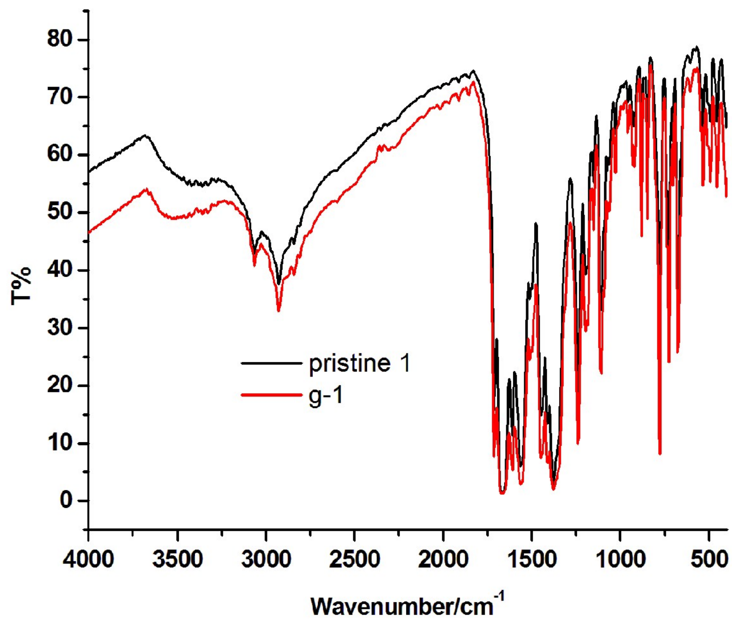

Fig. S2. FT-IR (ATR) spectra of pristine 1 and g-1.

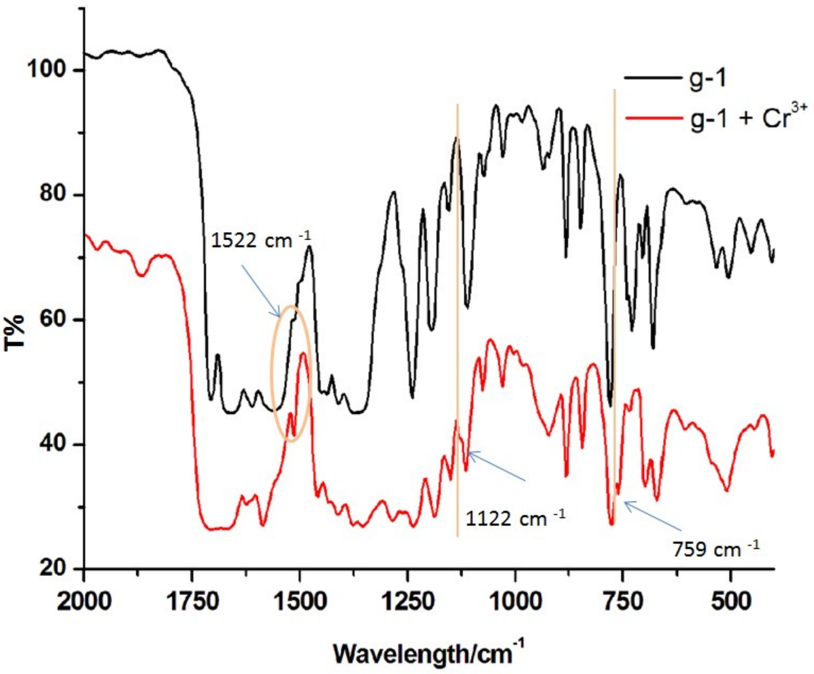

Fig. S3. FT-IR spectra of g-1 and g-1+Cr^{3+}

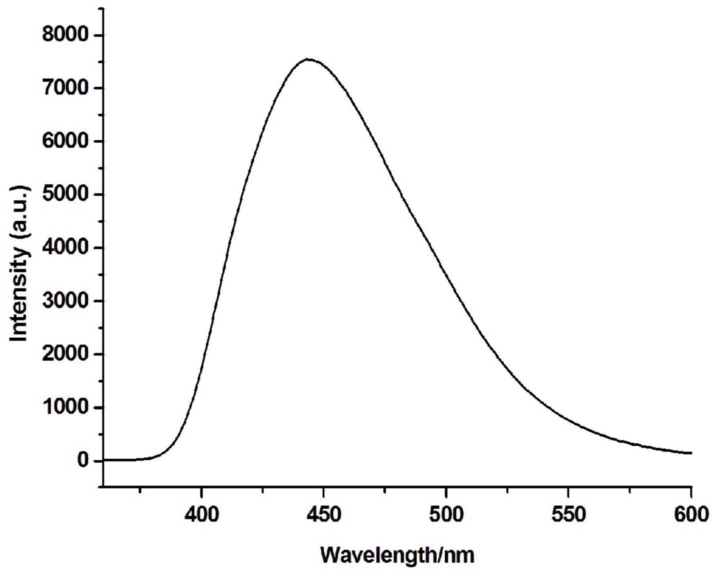

Fig. S4. Emission spectra of solid state H_2INI (λ_{ex} = 320 nm).

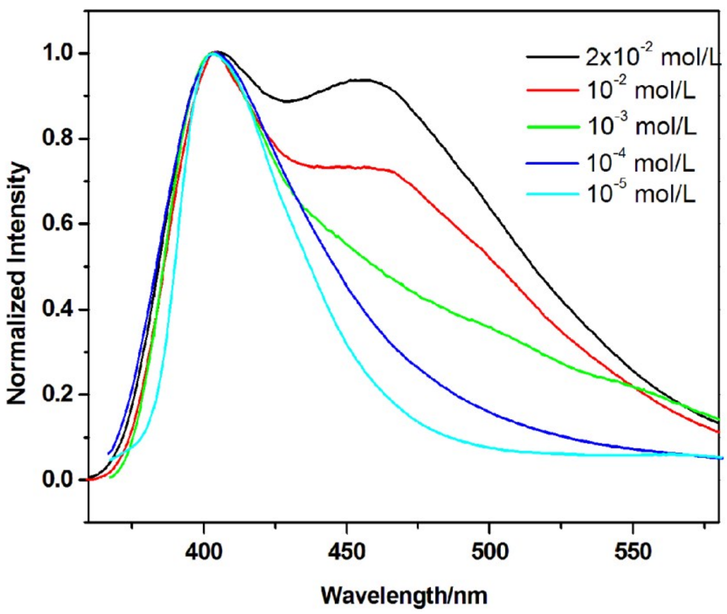

Fig. S5. Emission spectra of the H_2INI in DMF solution (λ_{ex} = 320 nm).

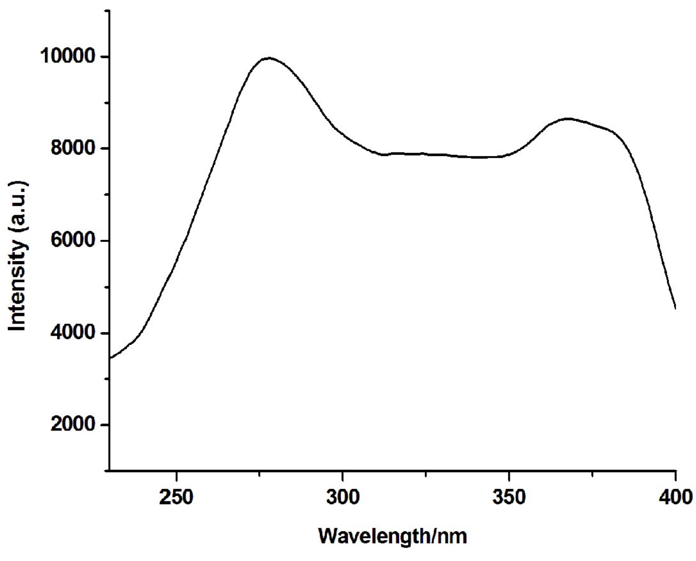

Fig. S6. Excitation spectra of the H_2INI (λ_{em} = 443 nm).

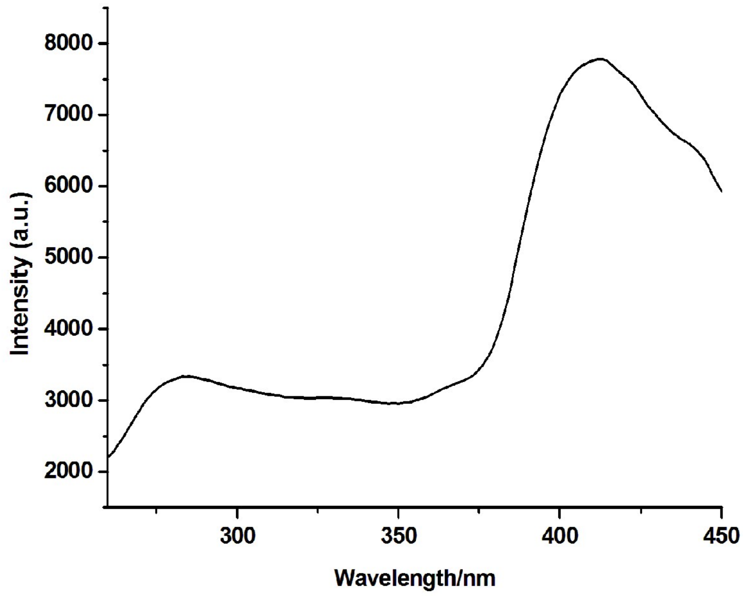

Fig. S7. Excitation spectra of the pristine crystal **1** (λ_{em} = 501 nm).

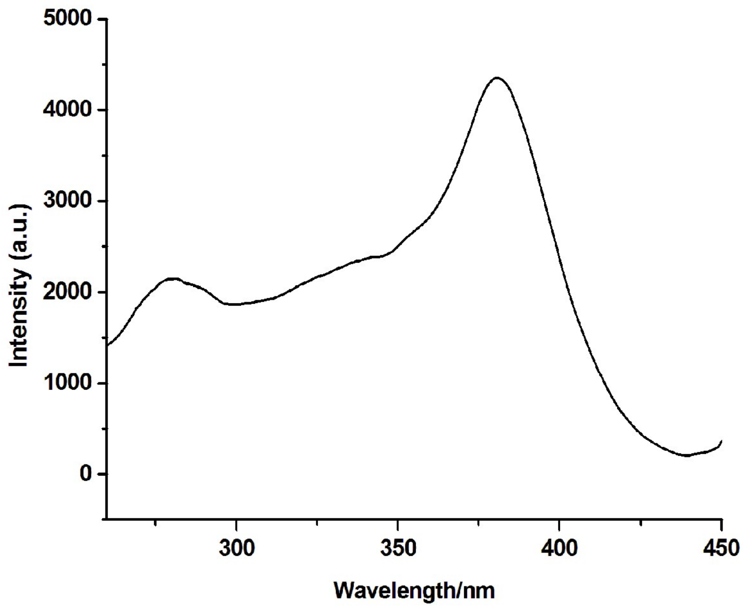

Fig. S8. Excitation spectra of the **g-1** (λ_{em} = 458 nm).

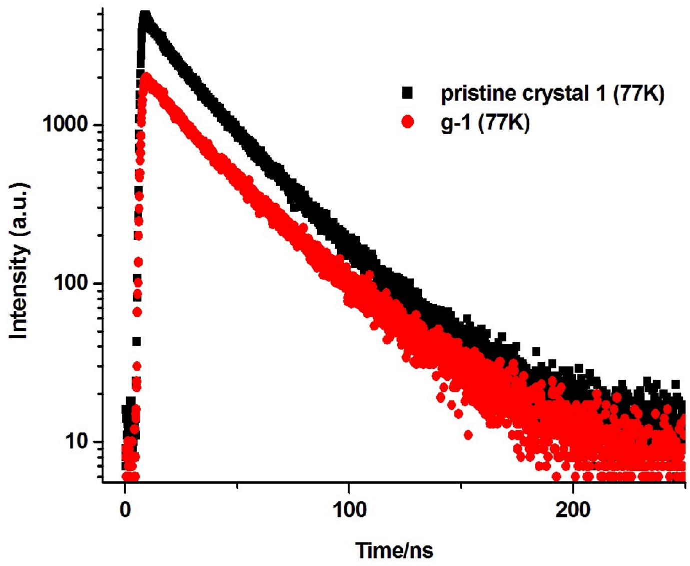

Fig. S9. Fuorescence decay curves of the pristine crystal **1** and **g-1** at 77 K.

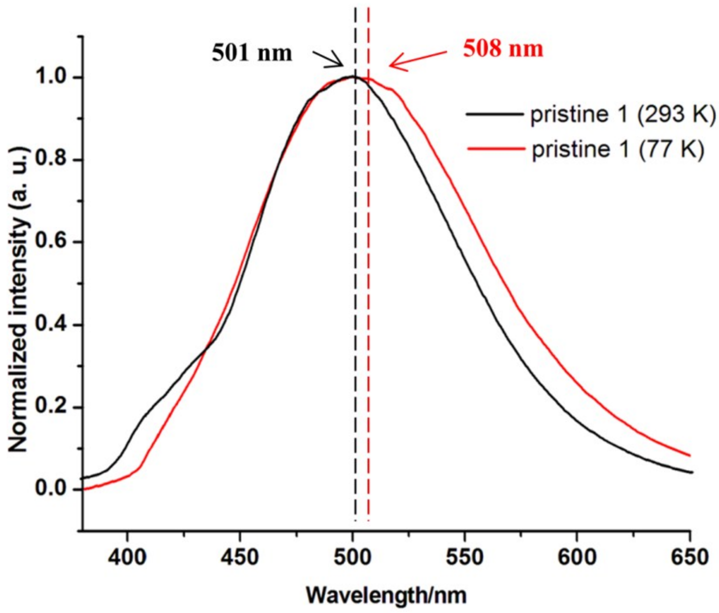

Fig. S10. Emission spectra of pristine crystal **1** at 293 K and 77 K (λ_{ex} = 320 nm)

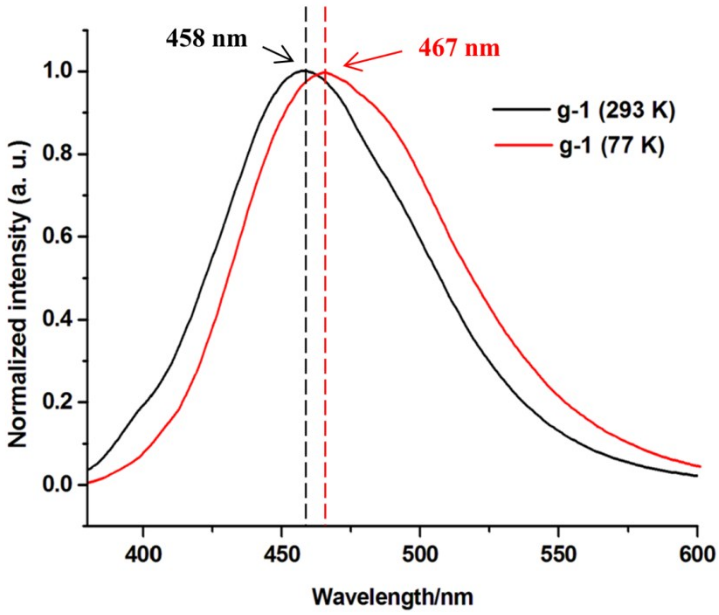

Fig. S11. Emission spectra of the **g-1** at 293 K and 77 K (λ_{ex} = 320 nm)

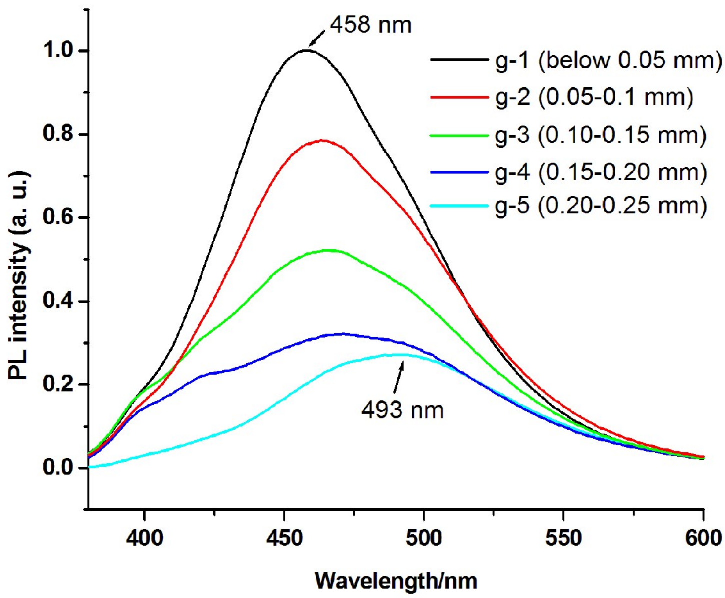

Fig. S12. Emission spectra of different-sized ground samples (λ_{ex} = 320 nm).

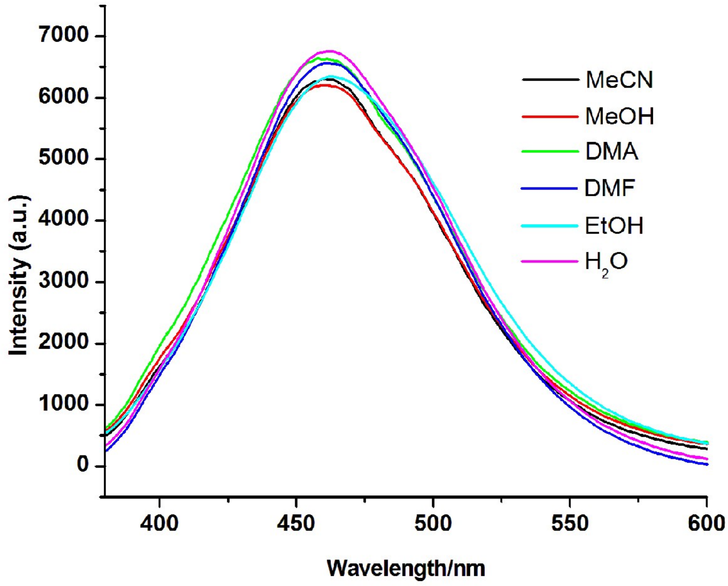

Fig. S13. Emission spectra of g-1 dispersed in various pure solvents (λ_{ex} = 320 nm).

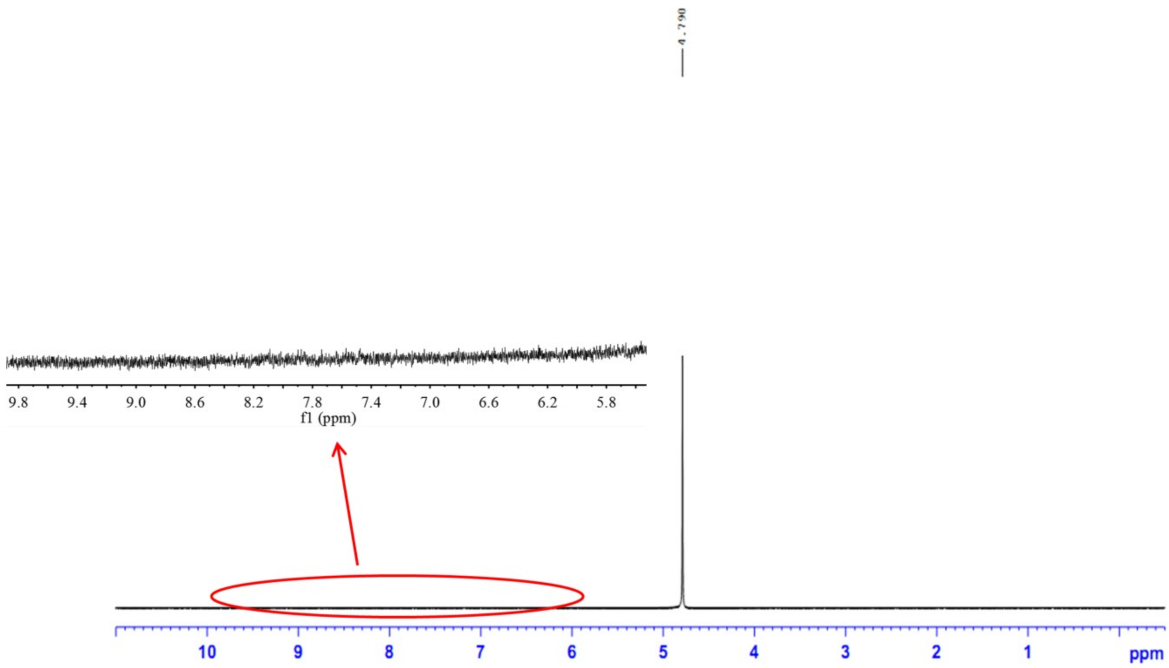

Fig. S14 ^1H NMR spectra of the deuterated water extract of g-1.

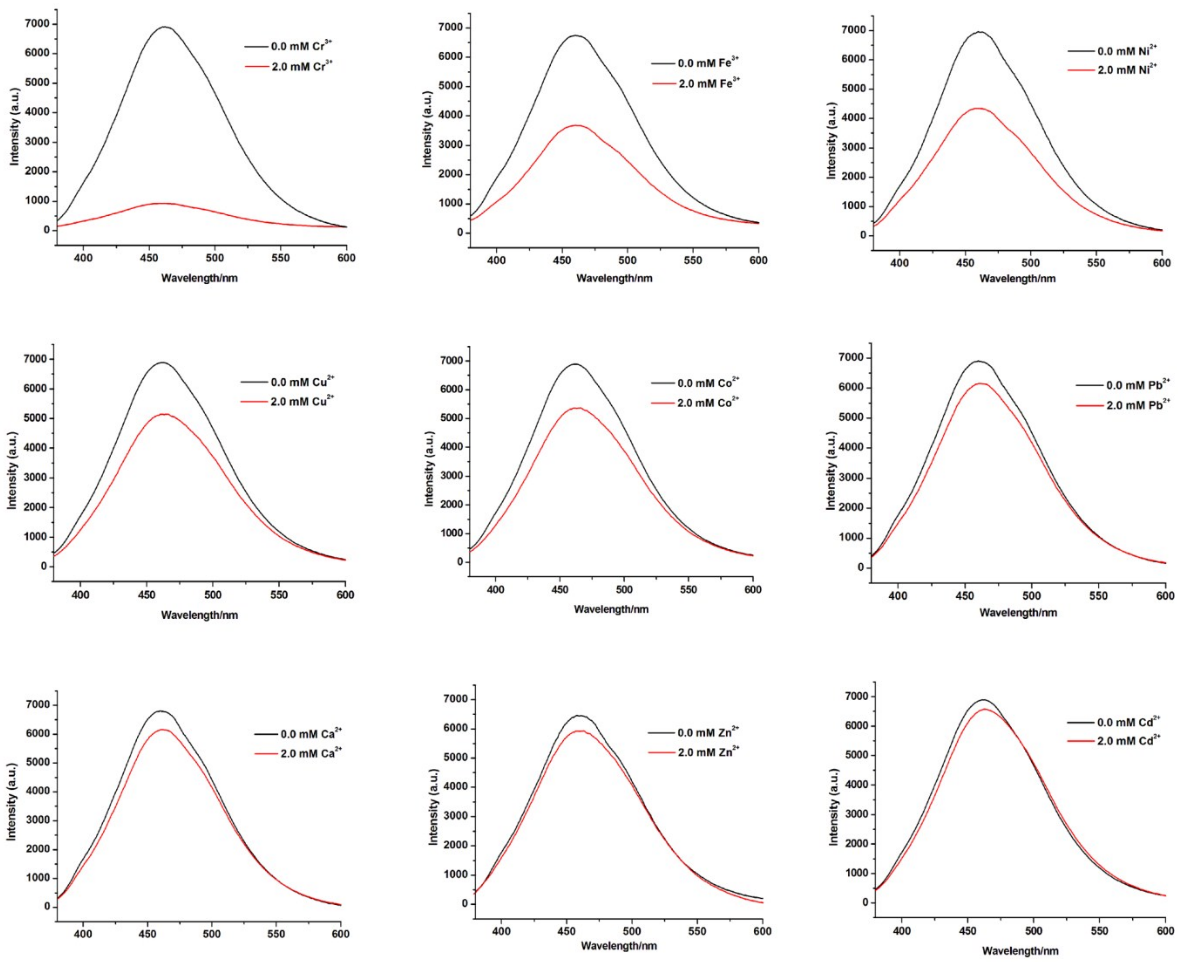

Fig. S15. Families of various Emission spectra of g-1 in aqueous solution upon the addition of 2.0 mM of different selected metal ions (λ_{ex} = 320 nm).

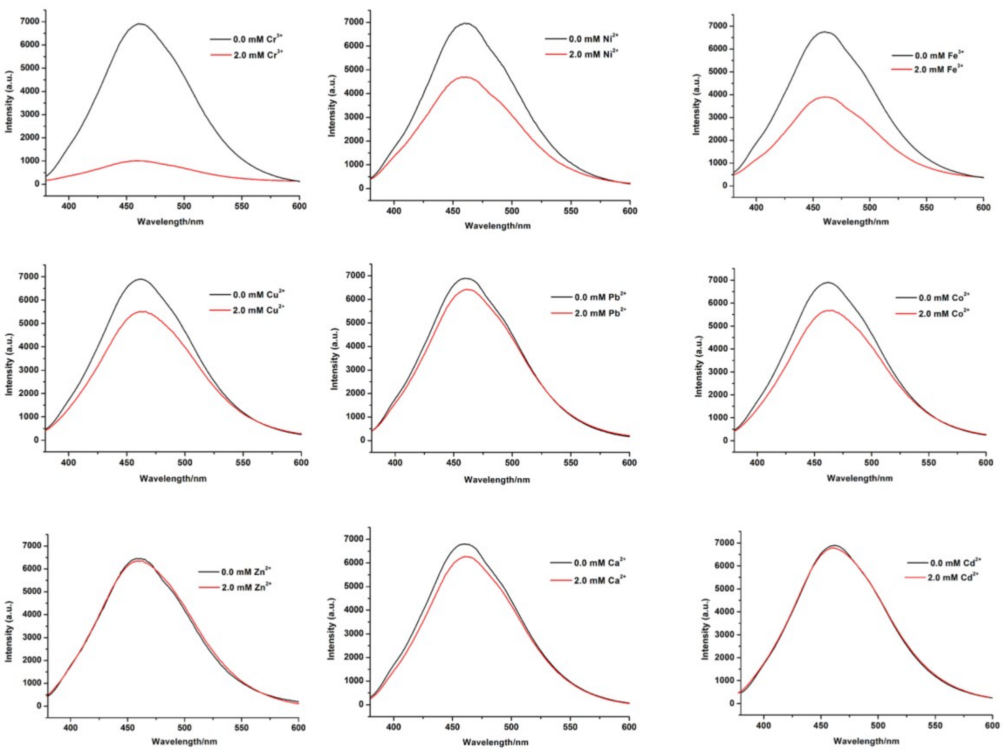

Fig. S16. Families of various Emission spectra of g-1 in aqueous solution upon the addition of 2.0 mM of different selected metal ions (λ_{ex} = 340 nm).

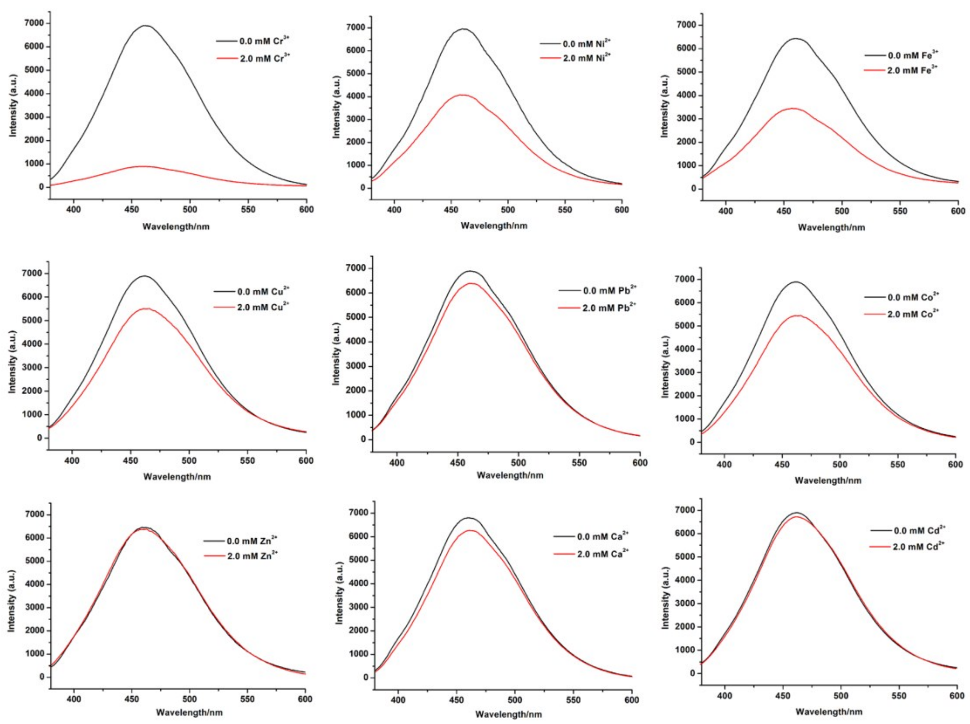

Fig. S17. Families of various Emission spectra of g-1 in aqueous solution upon the addition of 2.0 mM of different selected metal ions (λ_{ex} = 360 nm).

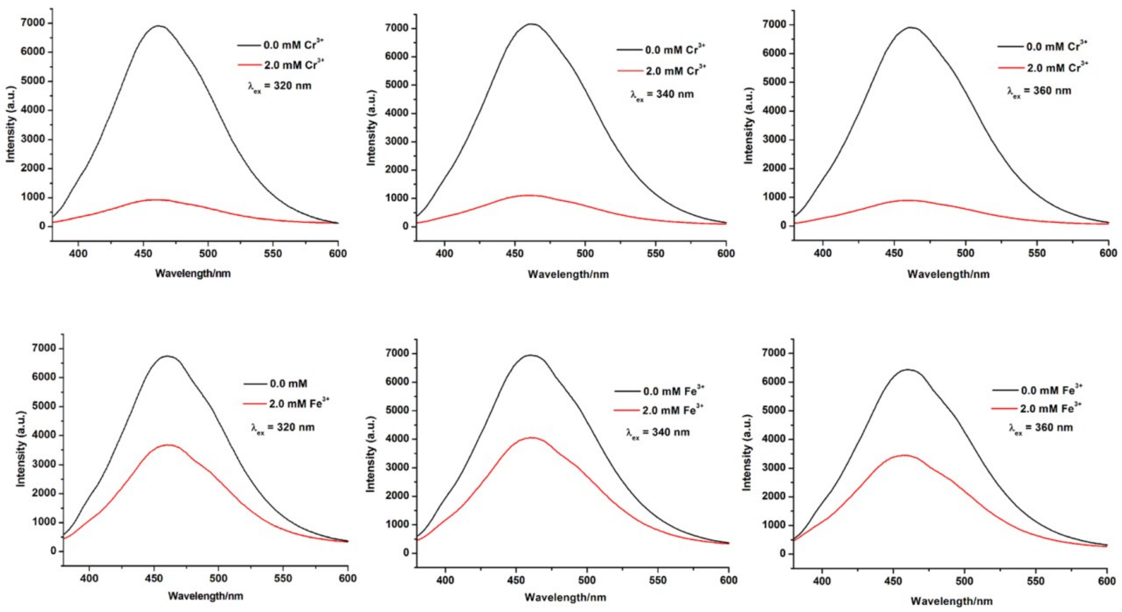

Fig. S18. Emission spectra of **g-1** in Fe^{3+} and Cr^{3+} aqueous solution under different excitation wavelengths.

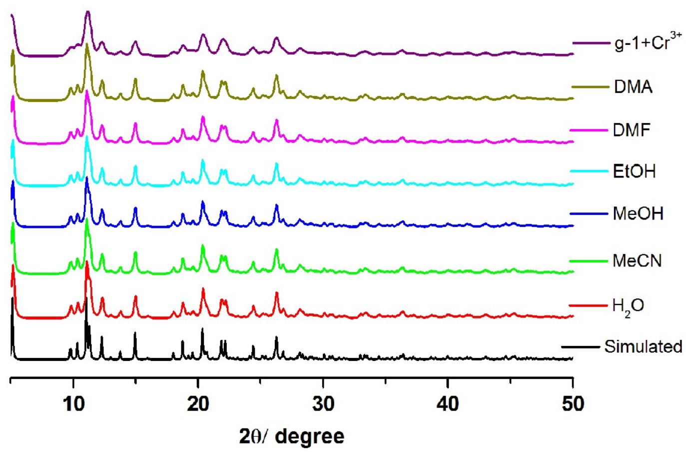

Fig. S19. PXRD patterns of g-1 after soaking in Cr^{3+} ion and various common solvents.

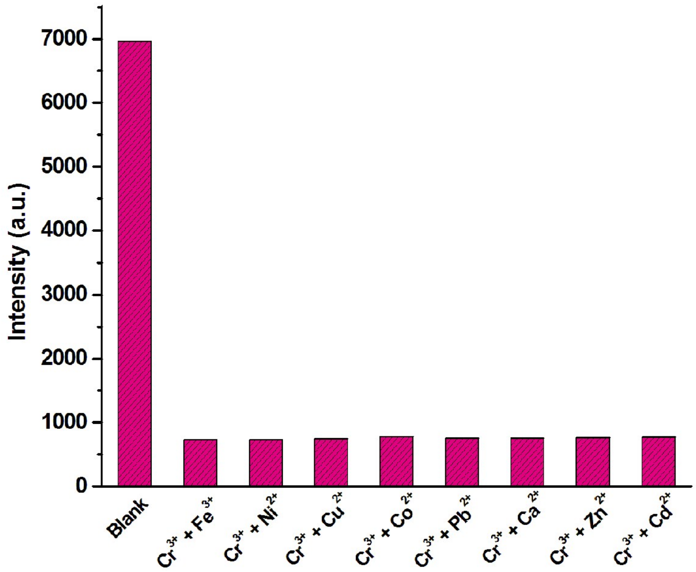

Fig. S20. Comparison of the luminescence intensity of Cr^{3+} in the presence of mixed metal ions for g-1.

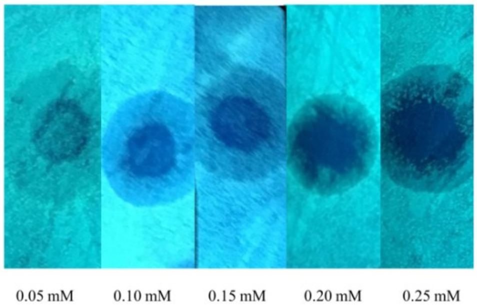

Fig. S21. Photographs of the g-1 test paper after treated with different concentrations of Cr^{3+} ions (under a 365 nm UV lamp).

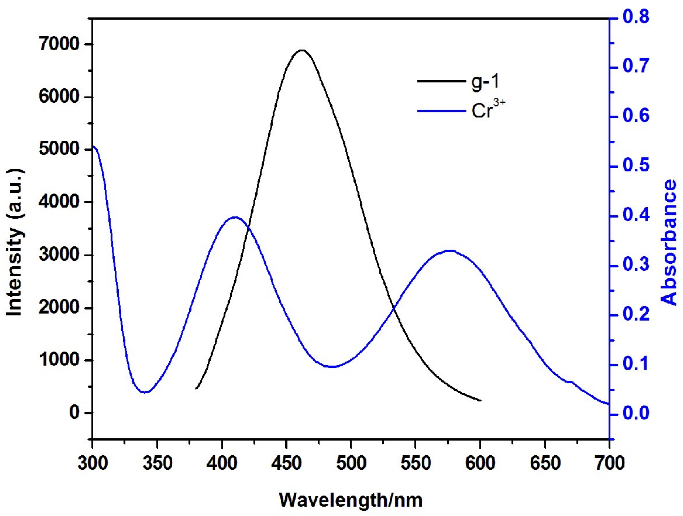

Fig. S22. The UV-vis absorption spectrum of Cr^{3+} and the emission spectrum of g-1.

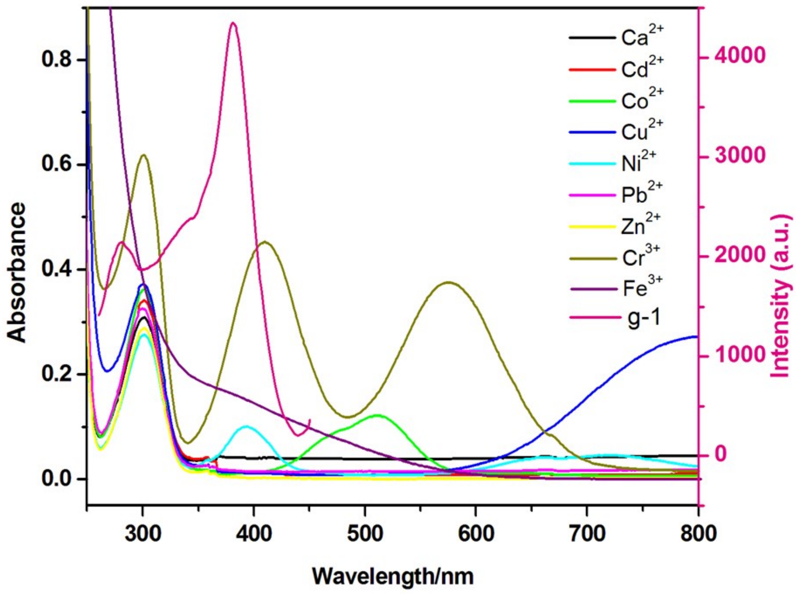

Fig. S23. The UV-vis absorption spectra of metal ions and the excitation spectrum of g-1.

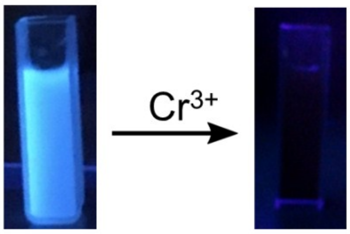

Fig. S24. Photographs show the luminescence change of g-1 in presence of Cr^{3+} (3.5 mM).

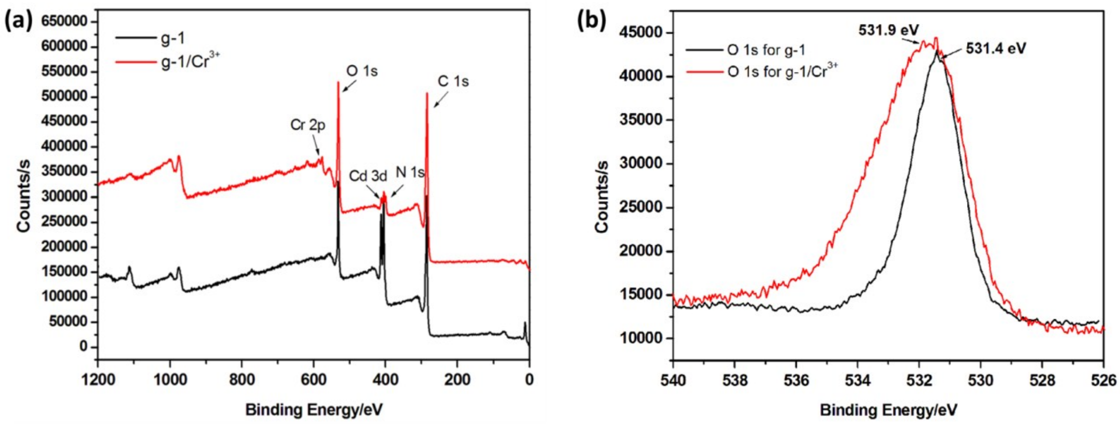

Fig. S25. (a) XPS for g-1 and g-1/Cr^{3+}; (b) O 1s XPS for g-1 and g-1/Cr^{3+}.

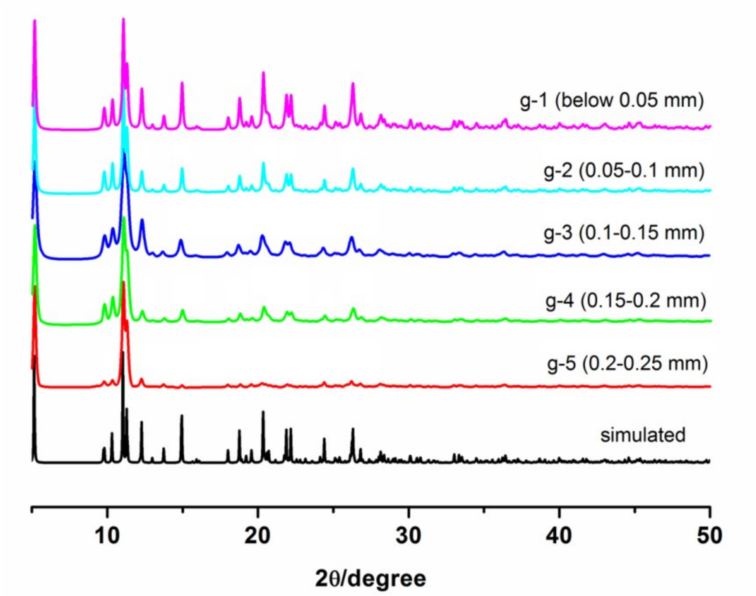

Fig. S26. PXRD patterns for the several ground samples with different grinding degree.

Table S1. Bond lengths [Å] and angles [°] for complex 1.

Cd1—O1	2.2638 (12)	Cd1—O3^{ii}	2.3383 (12)
Cd1—O2^{i}	2.2708 (12)	Cd1—O4^{ii}	2.3832 (12)
Cd1—O8	2.3068 (13)	Cd1—C8^{ii}	2.6894 (17)
Cd1—O7	2.3253 (14)		
O1—Cd1—O2^{i}	127.12 (4)	O2^{i}—Cd1—O4^{ii}	85.35 (4)
O1—Cd1—O8	89.60 (5)	O8—Cd1—O4^{ii}	106.12 (5)
O2^{i}—Cd1—O8	93.49 (5)	O7—Cd1—O4^{ii}	81.86 (5)
O1—Cd1—O7	84.42 (5)	O3^{ii}—Cd1—O4^{ii}	55.79 (4)
O2^{i}—Cd1—O7	85.84 (5)	O1—Cd1—C8^{ii}	118.50 (5)
O8—Cd1—O7	171.92 (5)	O2^{i}—Cd1—C8^{ii}	112.91 (5)
O1—Cd1—O3^{ii}	92.50 (5)	O8—Cd1—C8^{ii}	99.67 (5)
O2^{i}—Cd1—O3^{ii}	140.21 (4)	O7—Cd1—C8^{ii}	87.97 (5)
O8—Cd1—O3^{ii}	89.95 (5)	O3^{ii}—Cd1—C8^{ii}	27.99 (5)
O7—Cd1—O3^{ii}	95.72 (5)	O4^{ii}—Cd1—C8^{ii}	27.82 (5)
O1—Cd1—O4^{ii}	143.56 (5)		

Symmetry codes: (i) −x+1, −y+2, −z+1; (ii) −x+1, −y+1, −z+1.