Electronic Supplementary Material (ESI) for Polymer Chemistry

A New Polyfluorene Bearing Pyridine Moieties: Sensitive Fluorescent Chemosensor towards Metal Ions and Cyanide

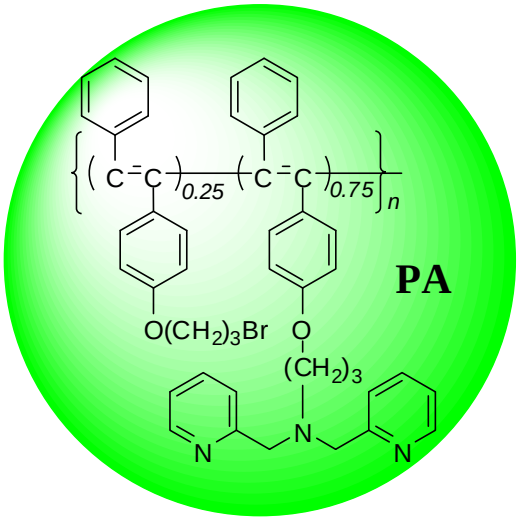
Xiaoding Lou, Yi Zhang , Shuang Li, Daxin Ou, Zhaoming Wan,

*Jingui Qin, and Zhen Li**

Department of Chemistry, Hubei Key Lab on Organic and Polymeric Opto-Electronic Materials,

Wuhan University, Wuhan 430072, China

Chart S1



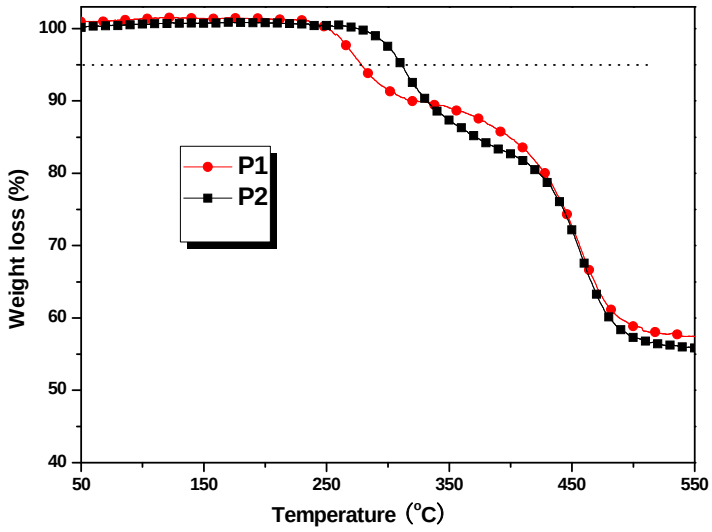


Figure S1. TGA curves of **P1** and **P2** at a heating rate of 10 ^{o}C/min under the atmosphere of N_2.

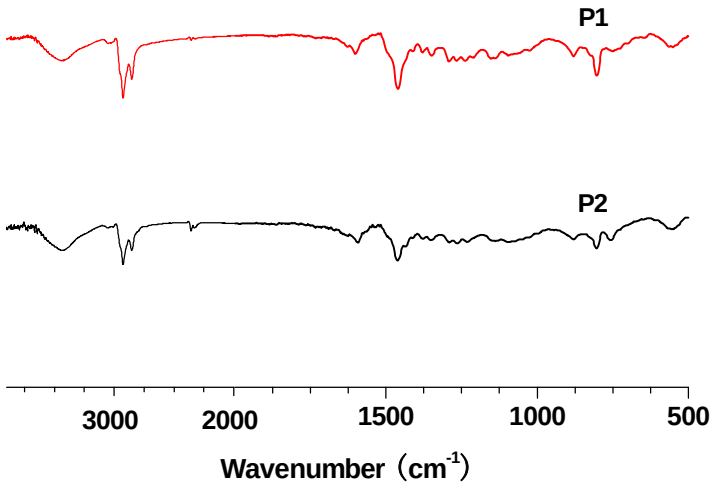


Figure S2. IR spectra of polymers **P1** and **P2**.

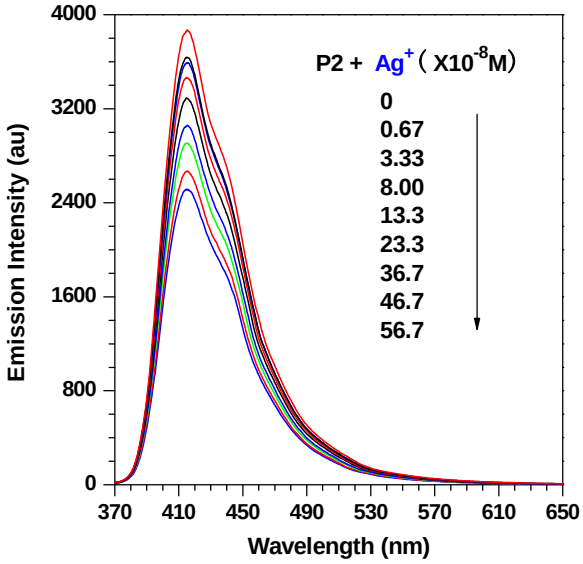


Figure S3. Fluorescence Emission spectra of **P2** (1 μM) in THF in the presence of different amounts of Ag^{+}. Excitation wavelength (nm): 355.

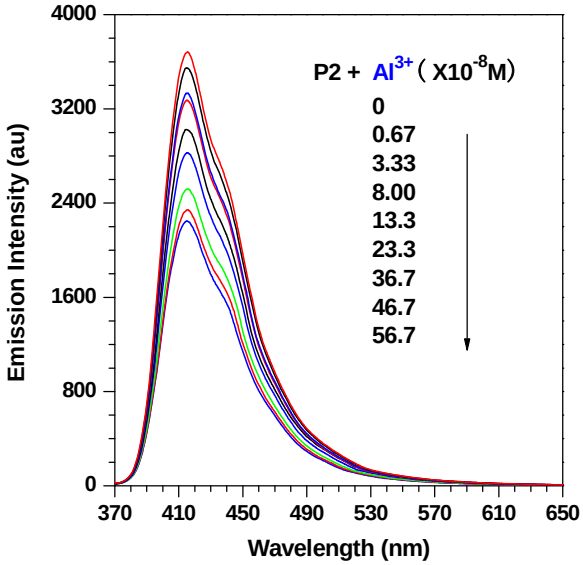


Figure S4. Fluorescence Emission spectra of **P2** (1 μM) in THF in the presence of different amounts of Al^{3+}. Excitation wavelength (nm): 355.

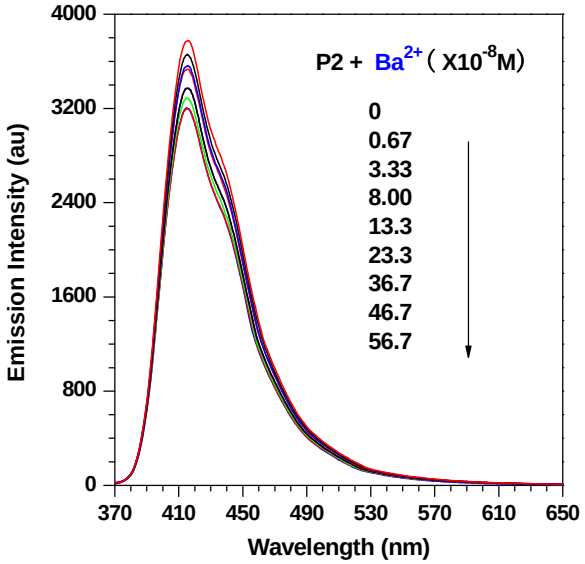


Figure S5. Fluorescence Emission spectra of **P2** (1 μM) in THF in the presence of different amounts of Ba^{2+}. Excitation wavelength (nm): 355.

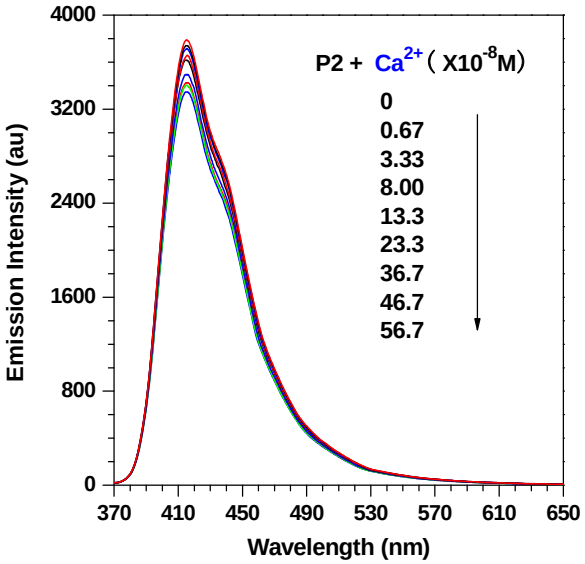


Figure S6. Fluorescence Emission spectra of **P2** (1 μM) in THF in the presence of different amounts of Ca^{2+}. Excitation wavelength (nm): 355.

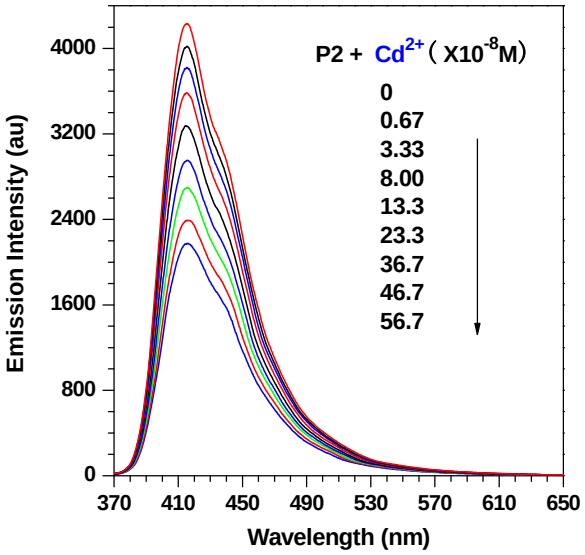


Figure S7. Fluorescence Emission spectra of **P2** (1 μM) in THF in the presence of different amounts of Cd^{2+}. Excitation wavelength (nm): 355.

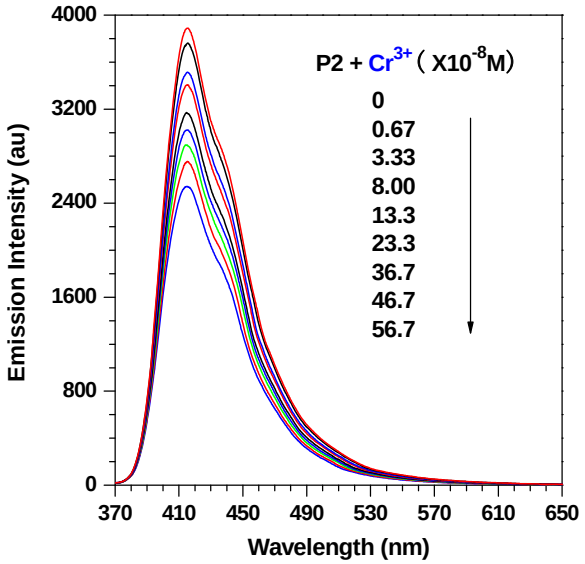


Figure S8. Fluorescence Emission spectra of **P2** (1 μM) in THF in the presence of different amounts of Cr^{3+}. Excitation wavelength (nm): 355.

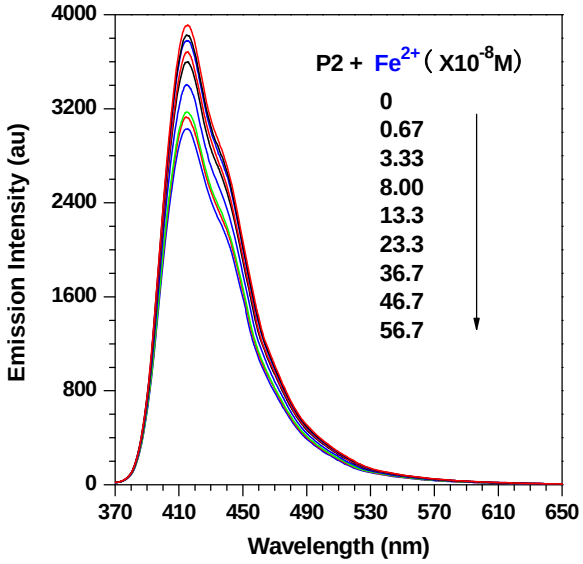


Figure S9. Fluorescence Emission spectra of **P2** (1 μM) in THF in the presence of different amounts of Fe^{2+}. Excitation wavelength (nm): 355.

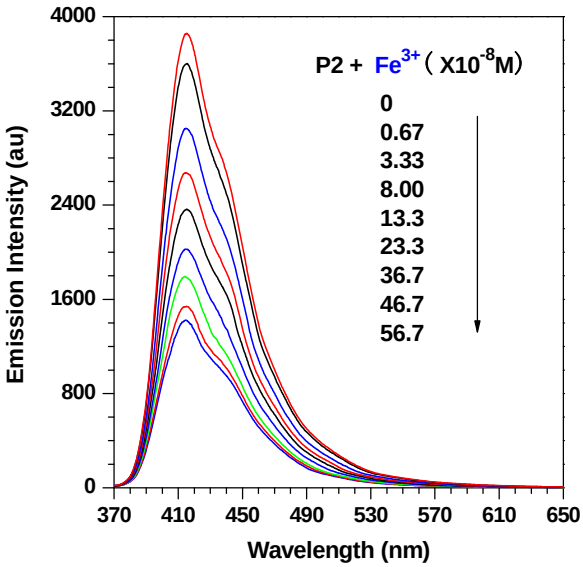


Figure S10. Fluorescence Emission spectra of **P2** (1 μM) in THF in the presence of different amounts of Fe^{3+}. Excitation wavelength (nm): 355.

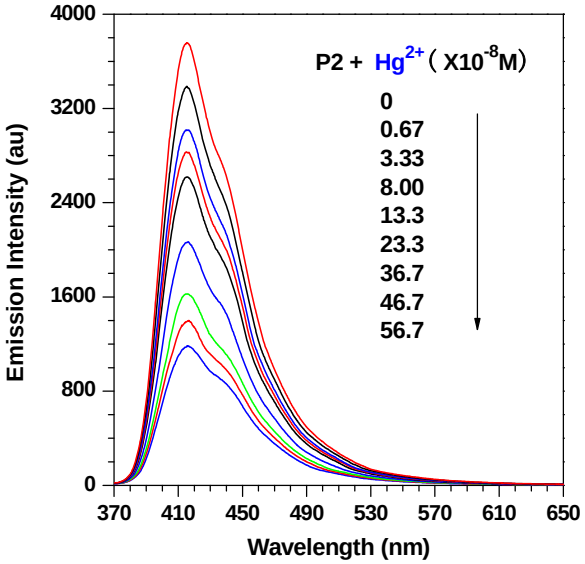


Figure S11. Fluorescence Emission spectra of **P2** (1 μM) in THF in the presence of different amounts of Hg^{2+}. Excitation wavelength (nm): 355.

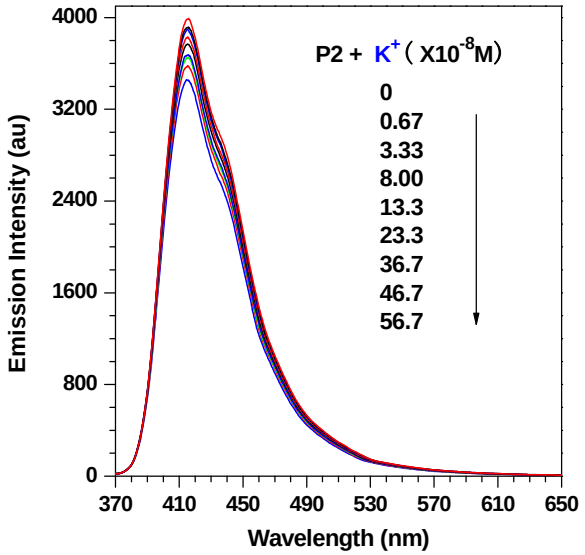


Figure S12. Fluorescence Emission spectra of **P2** (1 μM) in THF in the presence of different amounts of K^{+}. Excitation wavelength (nm): 355.

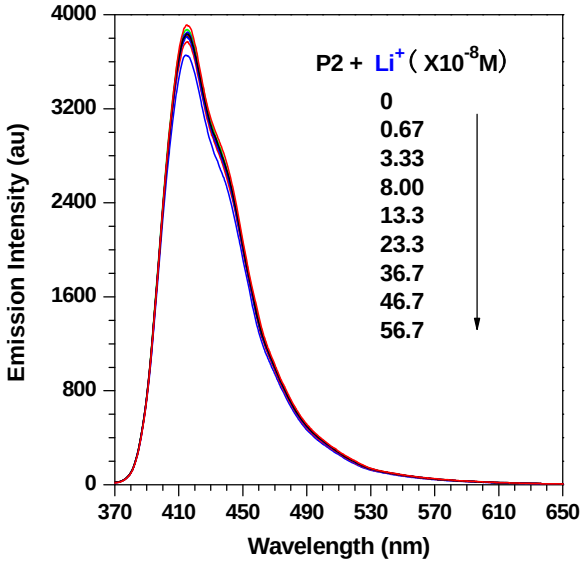


Figure S13. Fluorescence Emission spectra of **P2** (1 μM) in THF in the presence of different amounts of Li^+. Excitation wavelength (nm): 355.

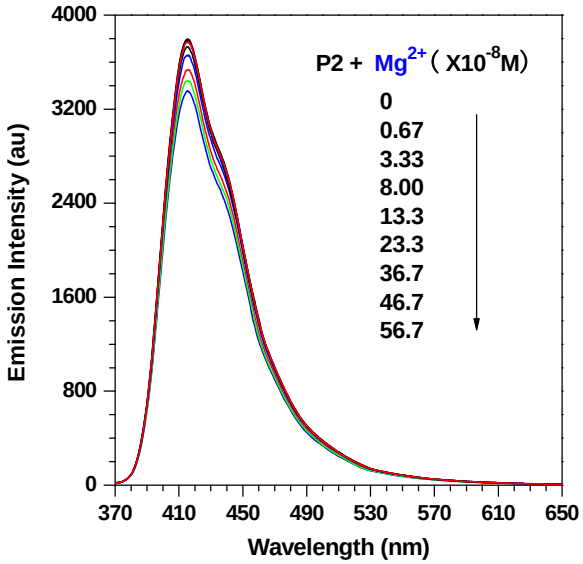


Figure S14. Fluorescence Emission spectra of **P2** (1 μM) in THF in the presence of different amounts of Mg^{2+}. Excitation wavelength (nm): 355.

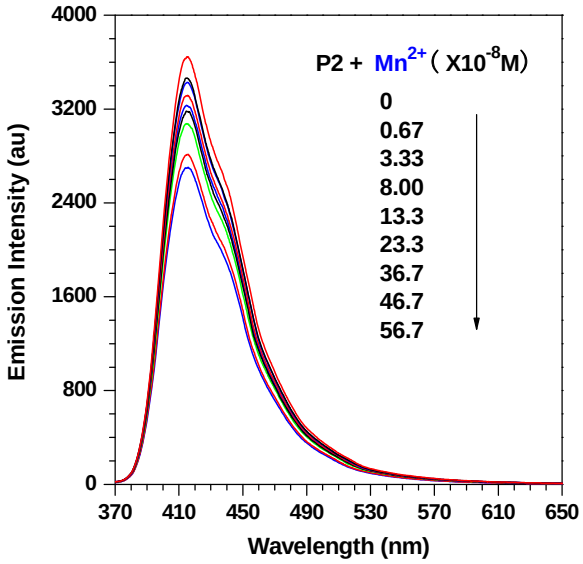


Figure S15. Fluorescence Emission spectra of **P2** (1 μM) in THF in the presence of different amounts of Mn^{2+}. Excitation wavelength (nm): 355.

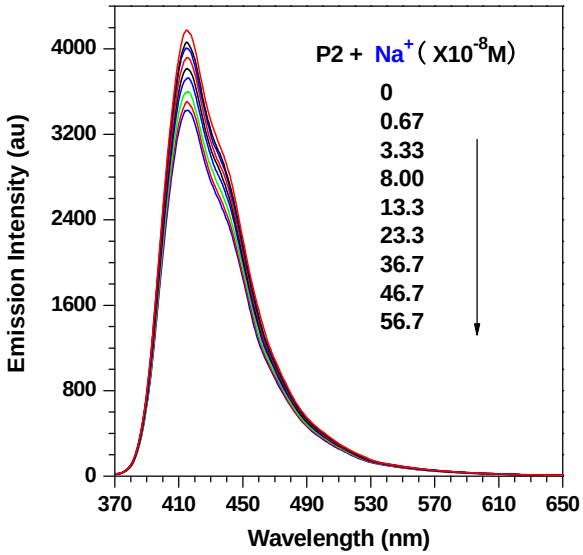


Figure S16. Fluorescence Emission spectra of **P2** (1 μM) in THF in the presence of different amounts of Na^{+}. Excitation wavelength (nm): 355.

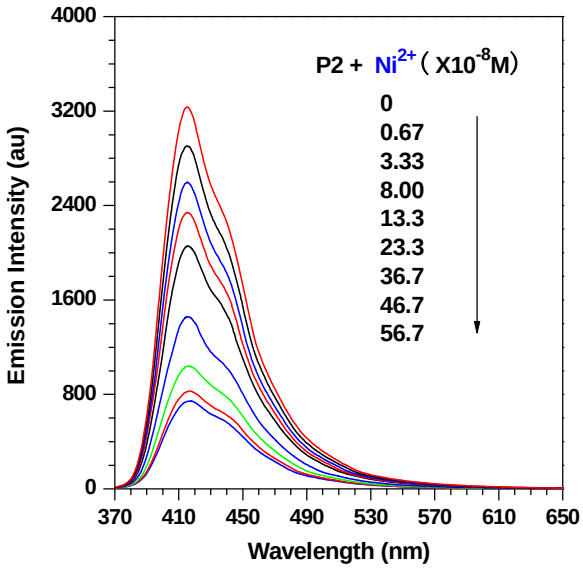


Figure S17. Fluorescence Emission spectra of **P2** (1 μM) in THF in the presence of different amounts of Ni^{2+}. Excitation wavelength (nm): 355.

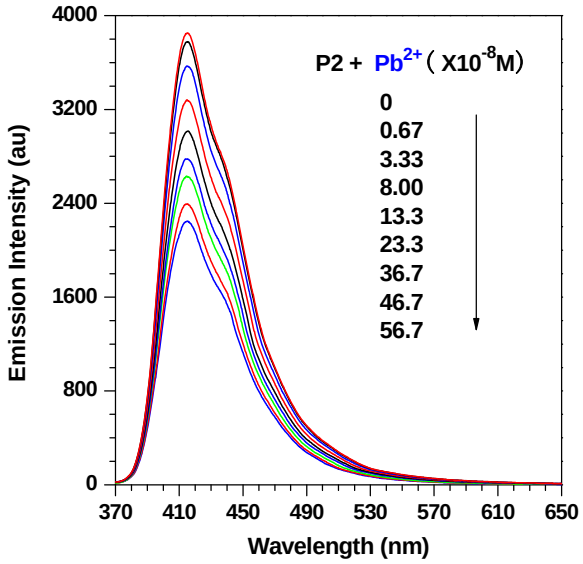


Figure S18. Fluorescence Emission spectra of **P2** (1 μM) in THF in the presence of different amounts of Pb^{2+}. Excitation wavelength (nm): 355.

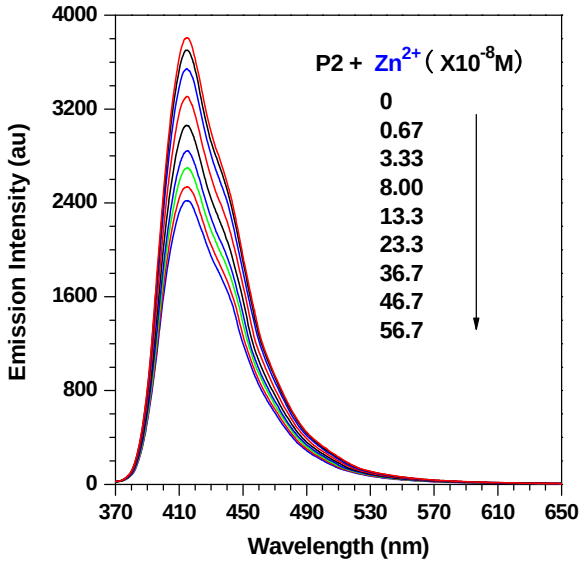


Figure S19. Fluorescence Emission spectra of **P2** (1 μM) in THF in the presence of different amounts of Zn^{2+}. Excitation wavelength (nm): 355.

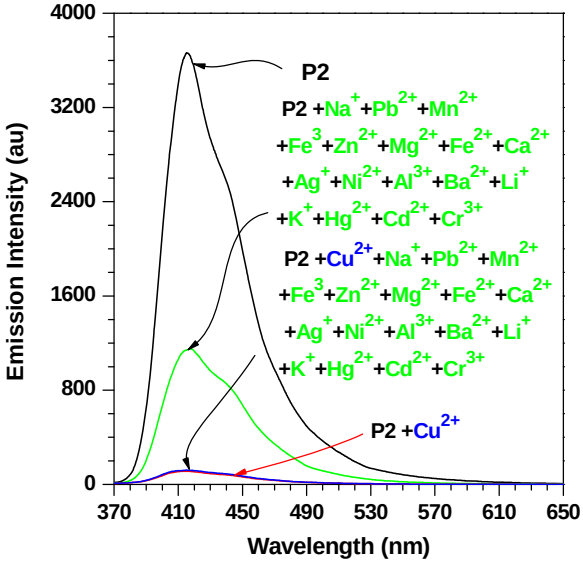


Figure S20. Fluorescence Emission spectra of **P2** (1 μM) in THF in the presence of different metal ions (5.67×10^{-7} mol/L). Excitation wavelength (nm): 355.

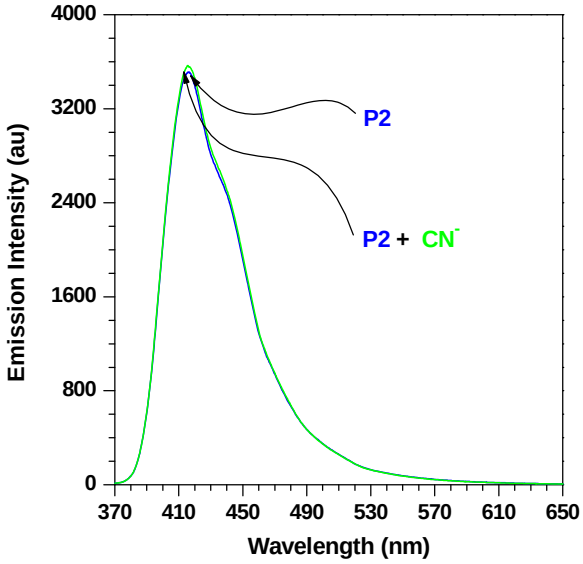


Figure S21. Fluorescence Emission spectra of **P2** (1 μM) in THF in the presence of CN^- (3.50×10^{-5} mol/L). Excitation wavelength (nm): 355.

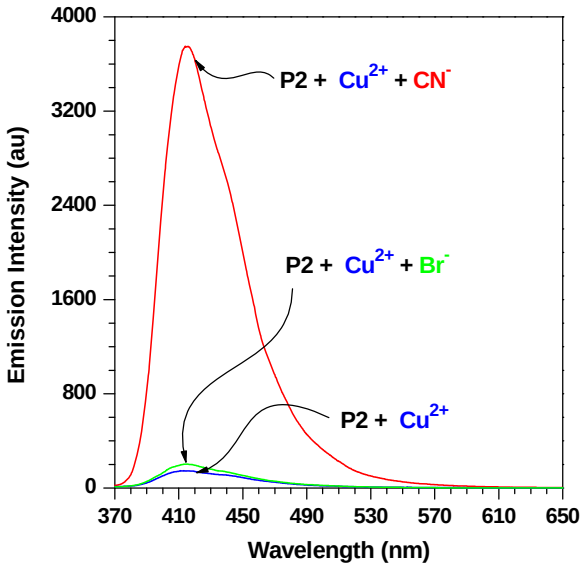


Figure S22. Fluorescence Emission spectra of **P2** (1 μM) and Cu^{2+} (5.67×10^{-7} mol/L) in THF in the presence of Br^- (3.5×10^{-5} mol/L). Excitation wavelength (nm): 355.

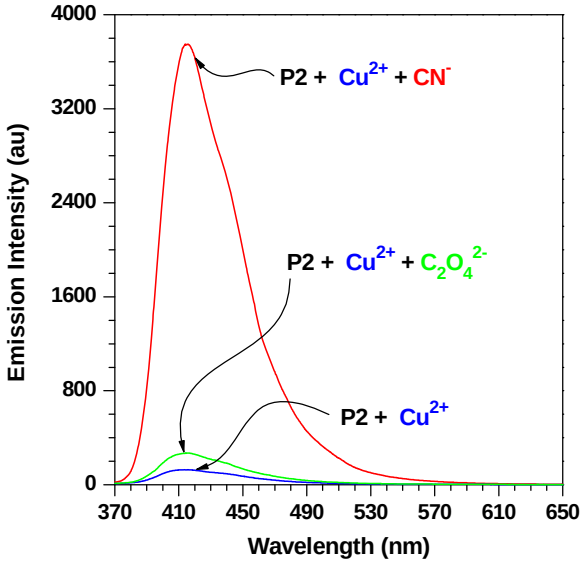


Figure S23. Fluorescence Emission spectra of **P2** (1 μM) and Cu^{2+} (5.67×10^{-7} mol/L) in THF in the presence of $C_2O_4^{2-}$ (3.5×10^{-5} mol/L). Excitation wavelength (nm): 355.

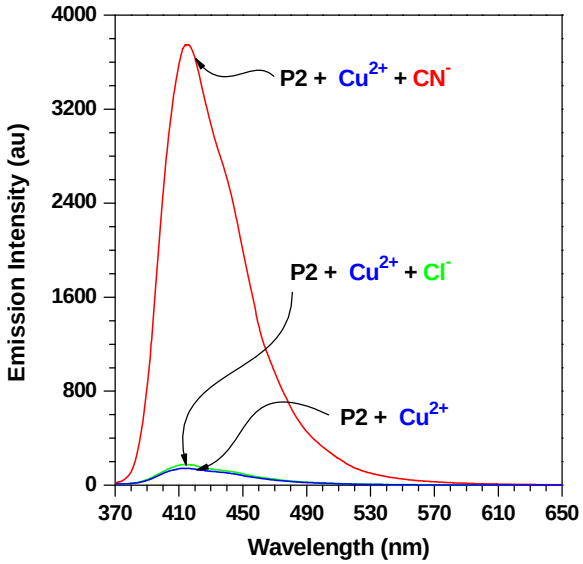


Figure S24. Fluorescence Emission spectra of **P2** (1 μM) and Cu^{2+} (5.67×10^{-7} mol/L) in THF in the presence of Cl^- (3.5×10^{-5} mol/L). Excitation wavelength (nm): 355.

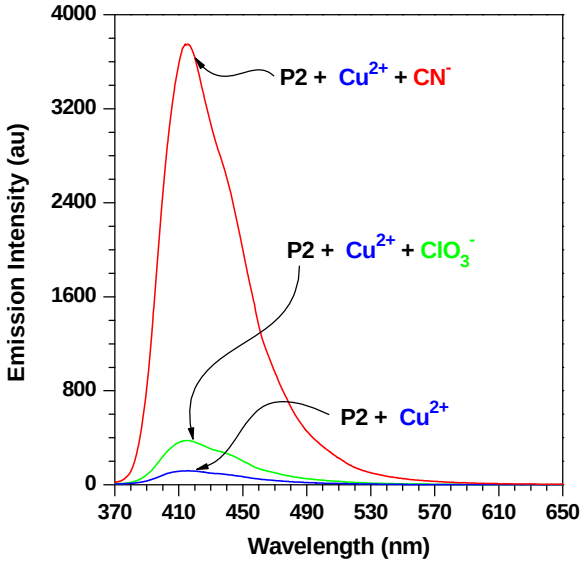


Figure S25. Fluorescence Emission spectra of **P2** (1 μM) and Cu^{2+} (5.67×10^{-7} mol/L) in THF in the presence of ClO_3^- (3.5×10^{-5} mol/L). Excitation wavelength (nm): 355.

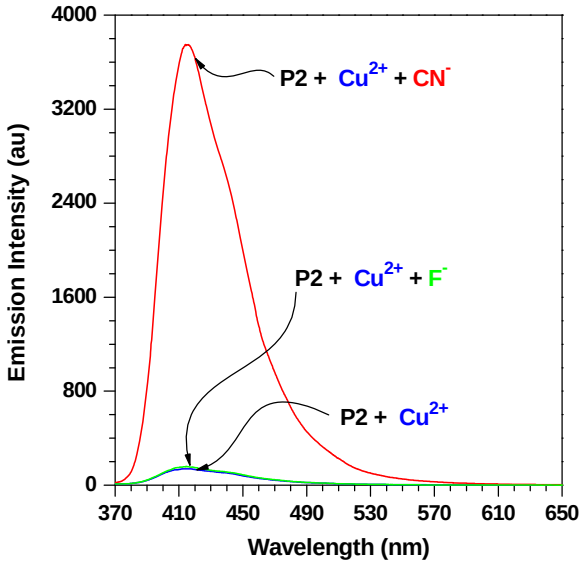


Figure S26. Fluorescence Emission spectra of **P2** (1 μM) and Cu^{2+} (5.67×10^{-7} mol/L) in THF in the presence of F^- (3.5×10^{-5} mol/L). Excitation wavelength (nm): 355.

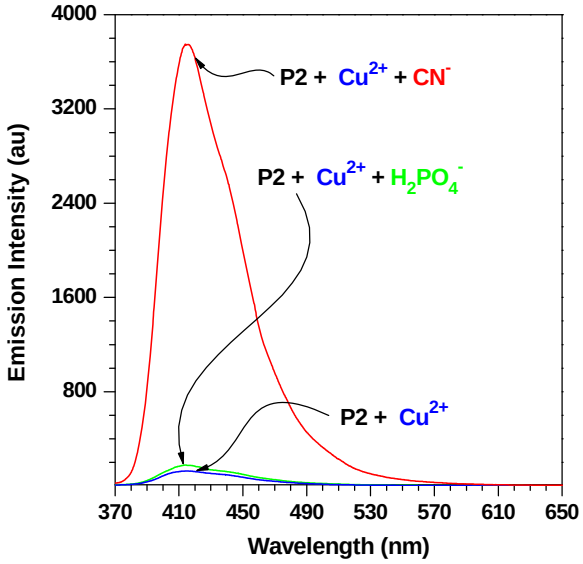


Figure S27. Fluorescence Emission spectra of **P2** (1 μM) and Cu^{2+} (5.67×10^{-7} mol/L) in THF in the presence of $H_2PO_4^-$ (3.5×10^{-5} mol/L). Excitation wavelength (nm): 355.

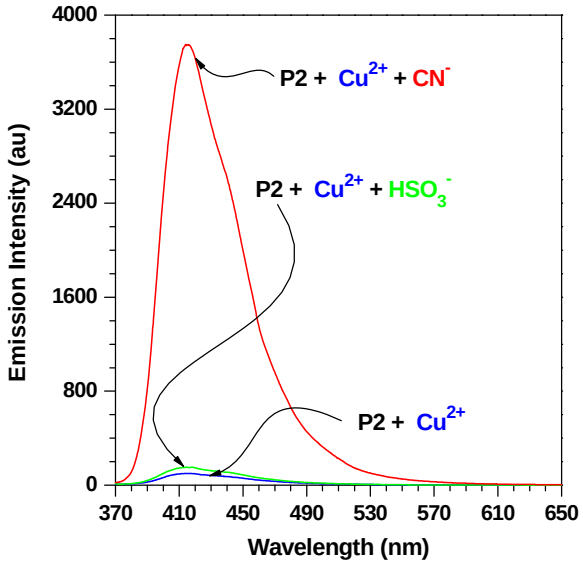


Figure S28. Fluorescence Emission spectra of **P2** (1 μM) and Cu^{2+} (5.67×10^{-7} mol/L) in THF in the presence of HSO_3^- (3.5×10^{-5} mol/L). Excitation wavelength (nm): 355.

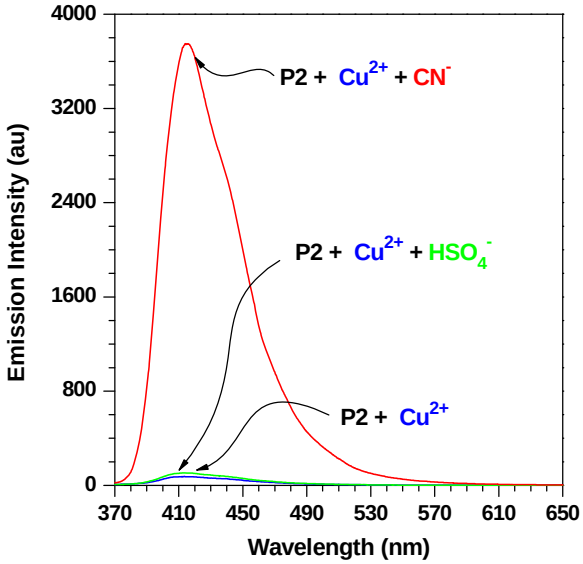


Figure S29. Fluorescence Emission spectra of **P2** (1 μM) and Cu^{2+} (5.67×10^{-7} mol/L) in THF in the presence of HSO_4^- (3.5×10^{-5} mol/L). Excitation wavelength (nm): 355.

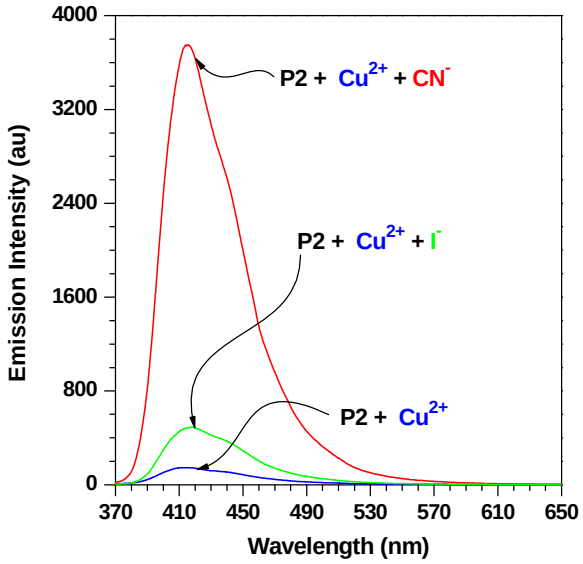


Figure S30. Fluorescence Emission spectra of **P2** (1 μM) and Cu^{2+} (5.67×10^{-7} mol/L) in THF in the presence of I^- (3.5×10^{-5} mol/L). Excitation wavelength (nm): 355.

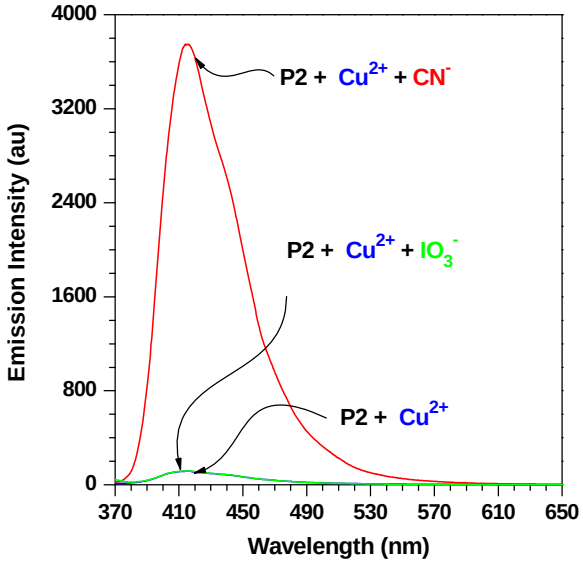


Figure S31. Fluorescence Emission spectra of **P2** (1 μM) and Cu^{2+} (5.67×10^{-7} mol/L) in THF in the presence of IO_3^- (3.5×10^{-5} mol/L). Excitation wavelength (nm): 355.

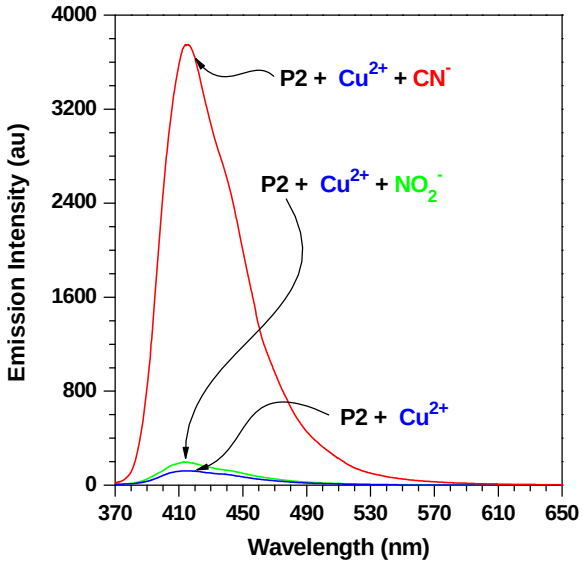


Figure S32. Fluorescence Emission spectra of **P2** (1 μM) and Cu^{2+} (5.67×10^{-7} mol/L) in THF in the presence of NO_2^- (3.5×10^{-5} mol/L). Excitation wavelength (nm): 355.

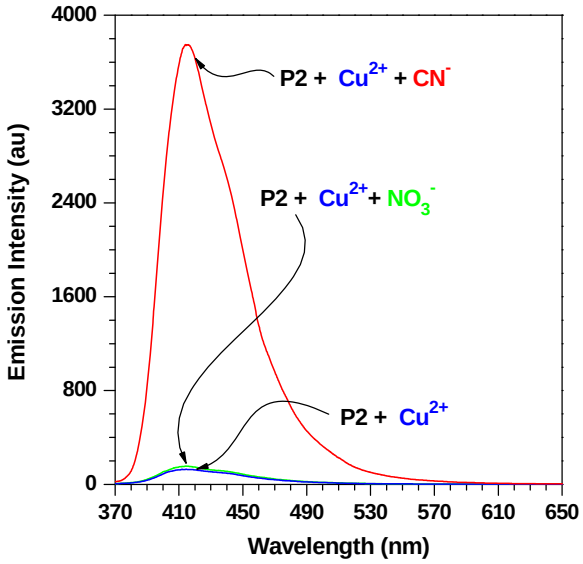


Figure S33. Fluorescence Emission spectra of **P2** (1 μM) and Cu^{2+} (5.67×10^{-7} mol/L) in THF in the presence of NO_3^- (3.5×10^{-5} mol/L). Excitation wavelength (nm): 355.

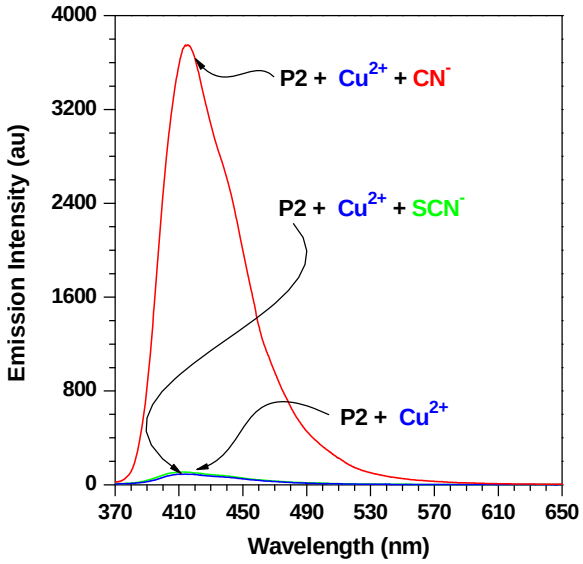


Figure S34. Fluorescence Emission spectra of **P2** (1 μM) and Cu^{2+} (5.67×10^{-7} mol/L) in THF in the presence of SCN^- (3.5×10^{-5} mol/L). Excitation wavelength (nm): 355.

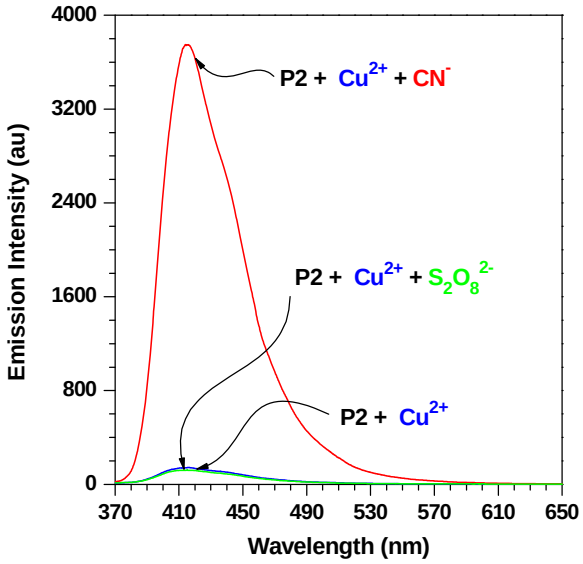


Figure S35. Fluorescence Emission spectra of **P2** (1 μM) and Cu^{2+} (5.67×10^{-7} mol/L) in THF in the presence of $S_2O_8^{-}$ (3.5×10^{-5} mol/L). Excitation wavelength (nm): 355.

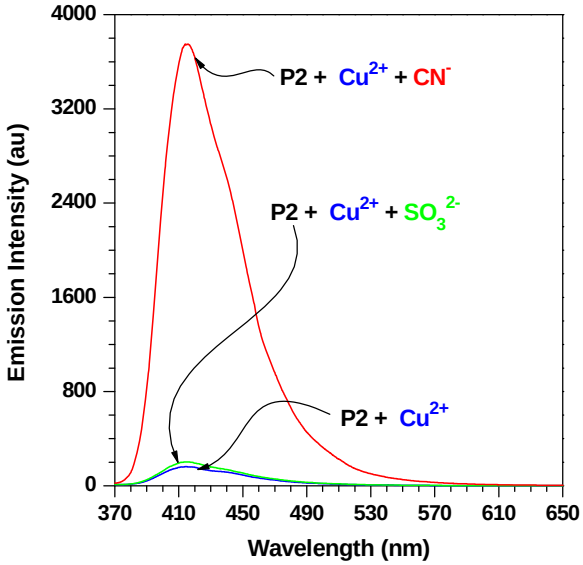


Figure S36. Fluorescence Emission spectra of **P2** (1 μM) and Cu^{2+} (5.67×10^{-7} mol/L) in THF in the presence of SO_3^{-} (3.5×10^{-5} mol/L). Excitation wavelength (nm): 355.

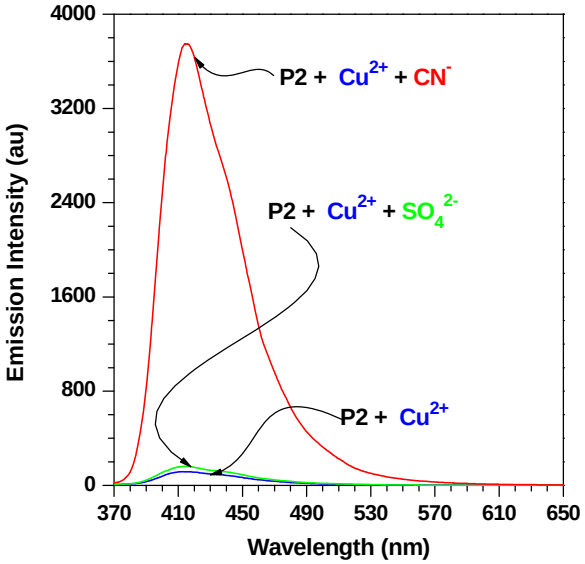


Figure S37. Fluorescence Emission spectra of **P2** (1 μM) and Cu^{2+} (5.67×10^{-7} mol/L) in THF in the presence of SO_4^- (3.5×10^{-5} mol/L). Excitation wavelength (nm): 355.

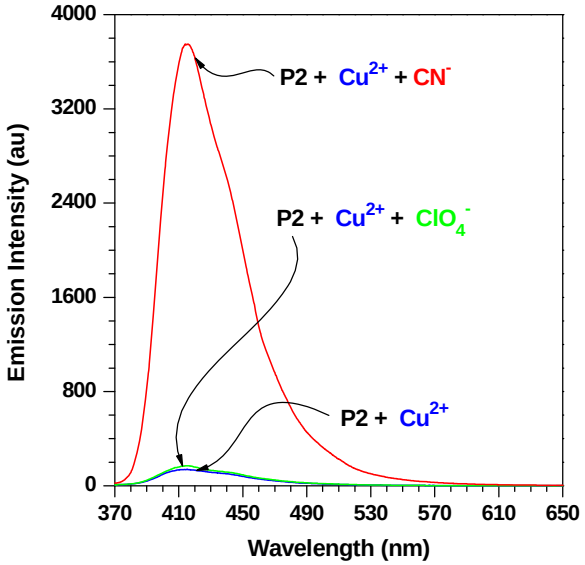


Figure S38. Fluorescence Emission spectra of **P2** (1 μM) and Cu^{2+} (5.67×10^{-7} mol/L) in THF in the presence of ClO_4^- (3.5×10^{-5} mol/L). Excitation wavelength (nm): 355.

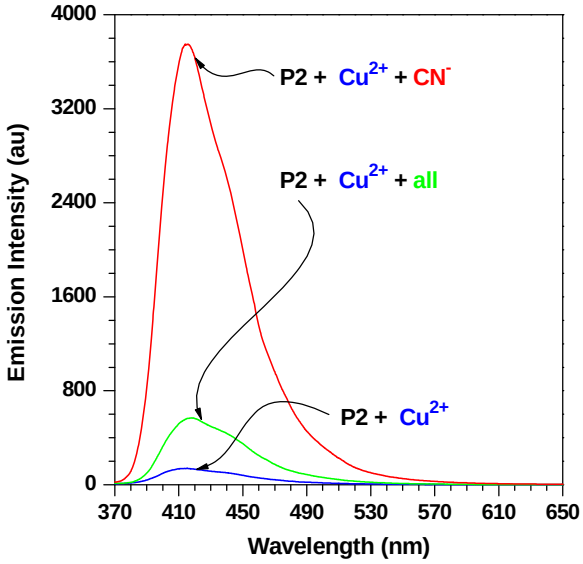


Figure S39. Fluorescence Emission spectra of **P2** (1 μM) and Cu^{2+} (5.67×10^{-7} mol/L) in THF in the presence of all the anions. Excitation wavelength (nm): 355.

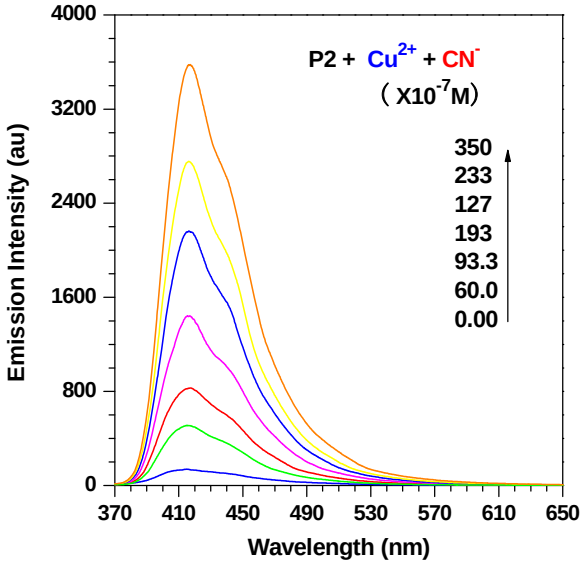


Figure S40. Fluorescence Emission spectra of P**2** (1 μM) and Cu^{2+} (5.67×10^{-7} mol/L) in THF in the presence of different amounts of CN^- (pH=10). Excitation wavelength (nm): 355.

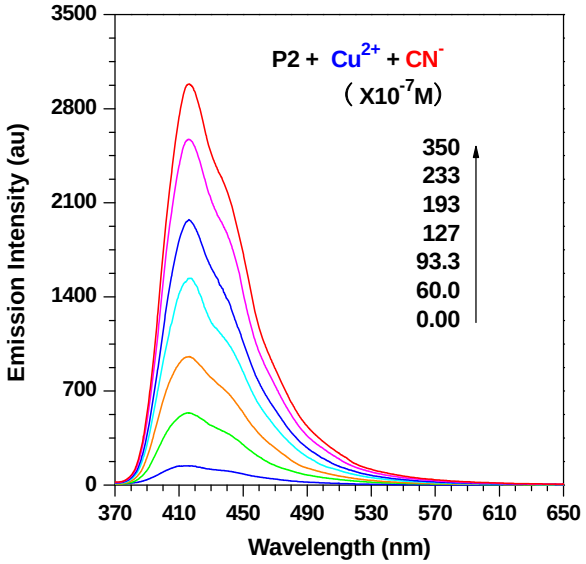


Figure S41. Fluorescence Emission spectra of P**2** (1 μM) and Cu^{2+} (5.67×10^{-7} mol/L) in THF in the presence of different amounts of CN^- (pH=12). Excitation wavelength (nm): 355.

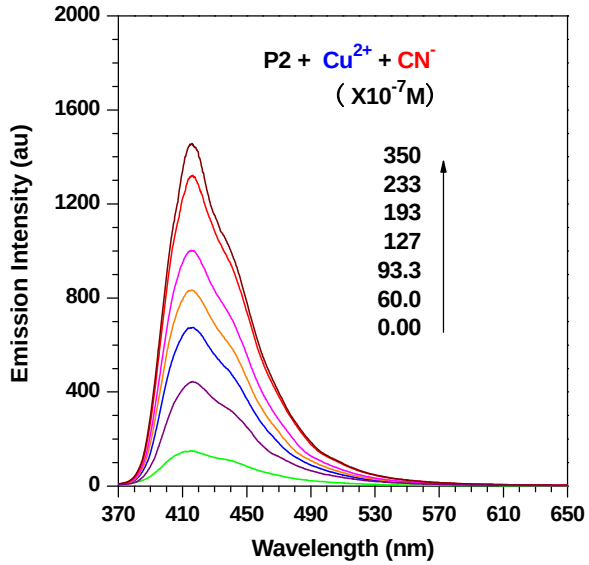


Figure S42. Fluorescence Emission spectra of P**2** (1 μM) and Cu^{2+} (5.67×10^{-7} mol/L) in THF in the presence of different amounts of CN^- (pH=7). Excitation wavelength (nm): 355.

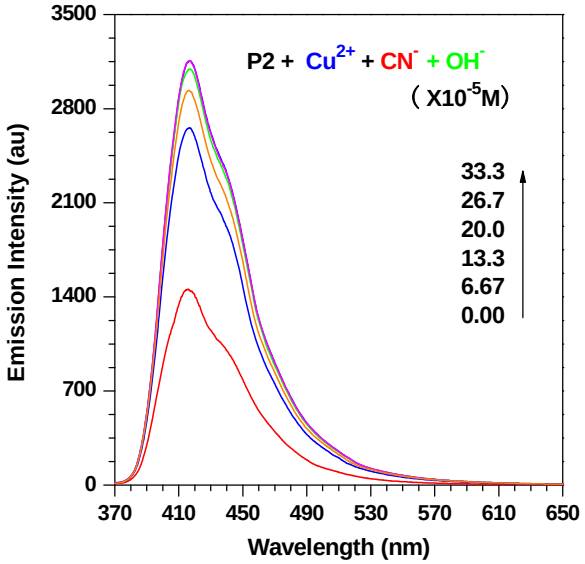


Figure S43. Fluorescence Emission spectra of P**2** (1 μM) and Cu^{2+} (5.67×10^{-7} mol/L) and CN^- (3.50×10^{-5} mol/L) in THF in the presence of different amounts of OH^-. Excitation wavelength (nm): 355.