

## Supporting Information

# Sensitized Near IR Luminescence of $\text{Ln}^{3+}$ ion in Lanthanide Complexes Based on Push-Pull Diketone Derivatives: Synthesis and Photophysical Behaviors

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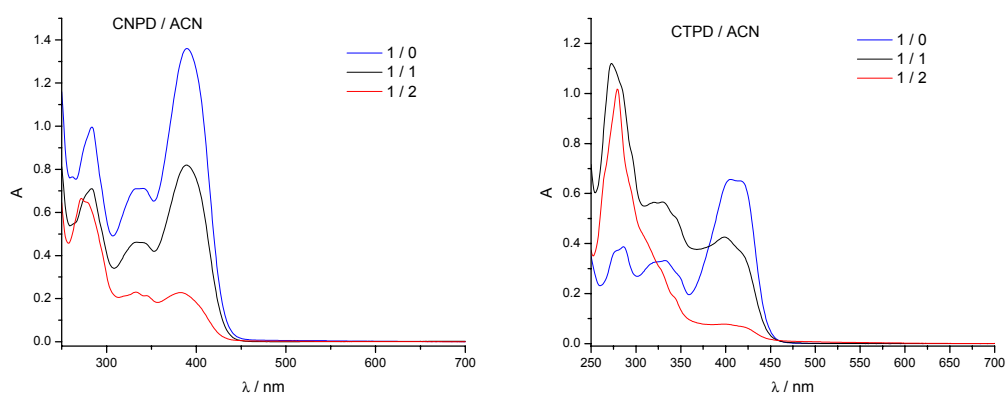


Fig. S1 UV-Vis absorption spectra of CNPD-Na and CTPD-Na as a function of the composition ratio of ligand/sodium ratio (ACN, Conc. =  $2.0 \times 10^{-5}$  M).

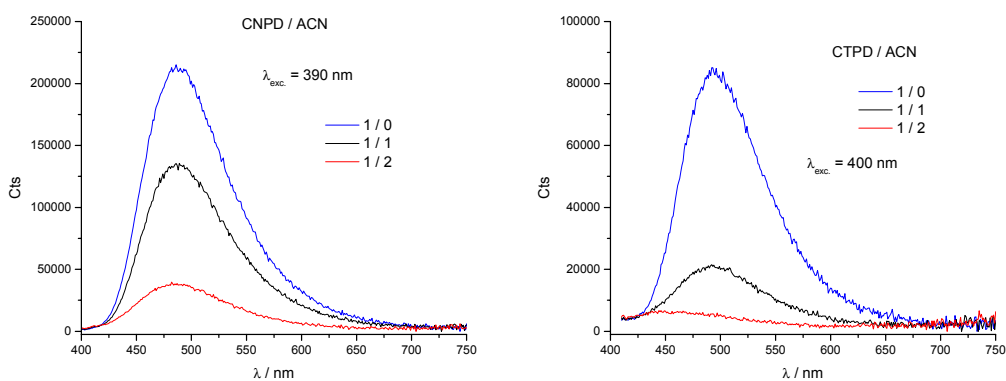


Fig. S2 Photoluminescence spectra of CNPD-Na and CTPD-Na as a function of the composition ratio of ligand/sodium ratio (ACN, Conc. =  $2.0 \times 10^{-5}$  M).

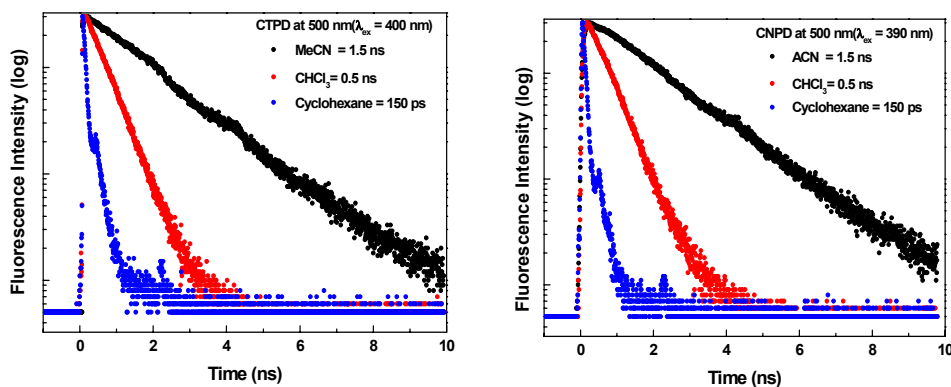


Fig. S3 UV-Vis absorption spectra of CNPD-Na and CTPD-Na (ACN)  $2.0 \times 10^{-5}$  M

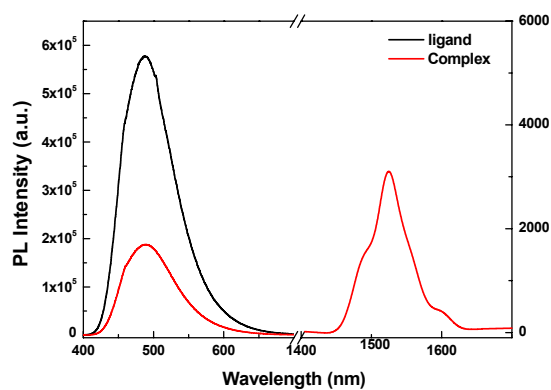


Fig. S4 Near-IR emission spectra of  $\text{Er}^{3+}$ -[CNPD]<sub>3</sub>(tpy) in MeCN ( $\lambda_{ex} = 390$  nm, Conc. =  $2.0 \times 10^{-5}$  M).

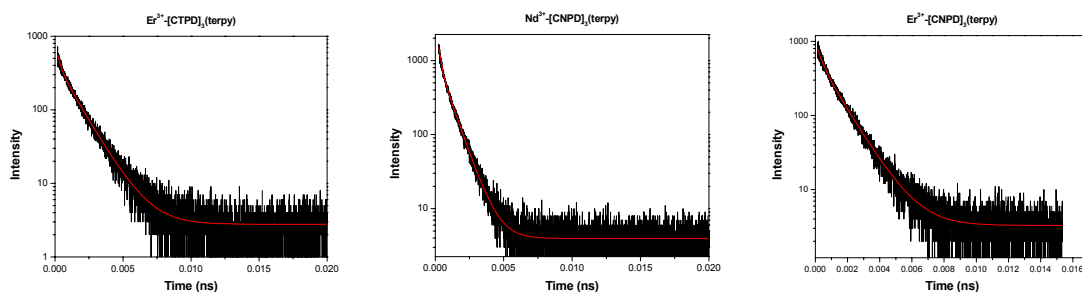
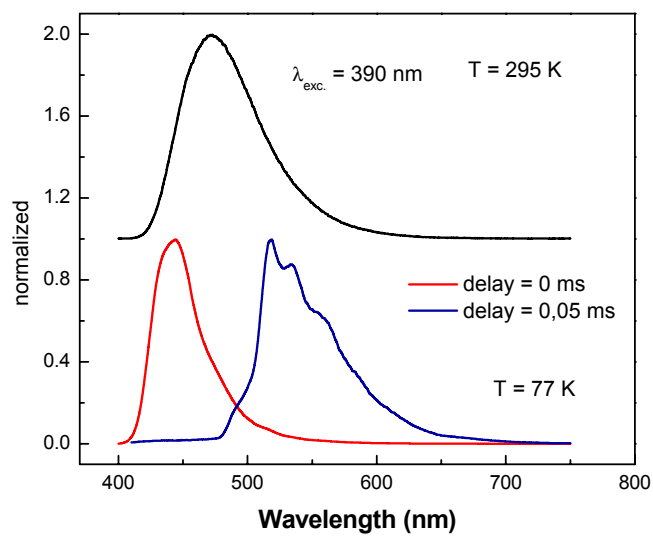


Fig. S5 NIR luminescence decays of [Er(CTPD)<sub>3</sub>(terpy)], [Nd(CNTD)<sub>3</sub>(terpy)], and [Er(CNPD)<sub>3</sub>(terpy)]  $2.0 \times 10^{-5}$  M in MeCN at 10 K and upon excitation at 355 nm with a pulse width of 10 ns.



**Fig. S6.** Emission spectra of [Gd(CNPD)<sub>3</sub>(tpy)] :  $2.0 \times 10^{-5}$  M in MeCN at 295 K (Top) and 77 K (Bottom) without and with time delay.