Supplementary Material (ESI) for Dalton Transactions

Supporting Information

Near-infrared Luminescent Xerogel Materials Covalently Bonded with Ternary Lanthanide [Er(III), Nd(III), Yb(III), Sm(III)] Complexes

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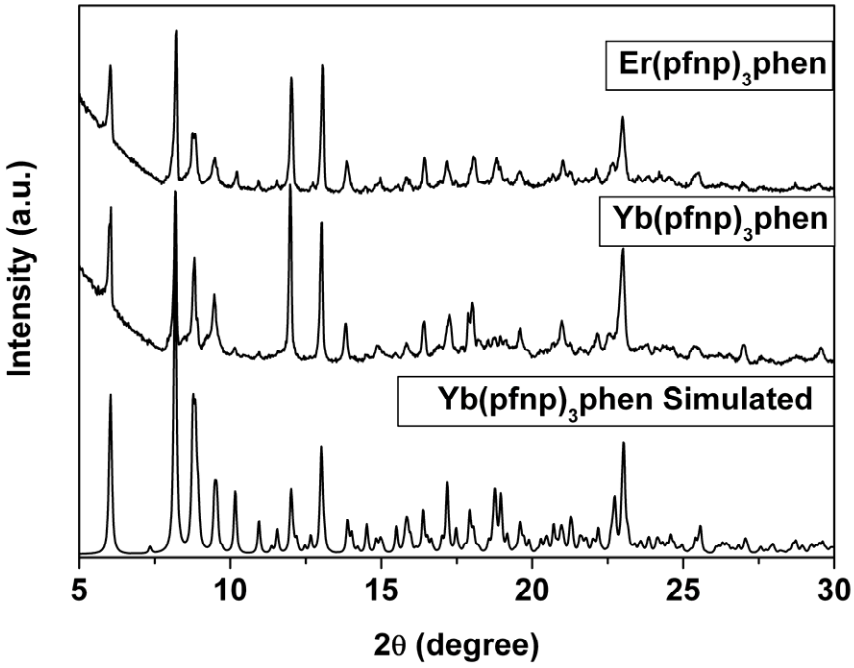

Fig. S1 XRD patterns of $Er(pfnp)_3phen$, $Yb(pfnp)_3phen$ and $Yb(pfnp)_3phen$ simulated.

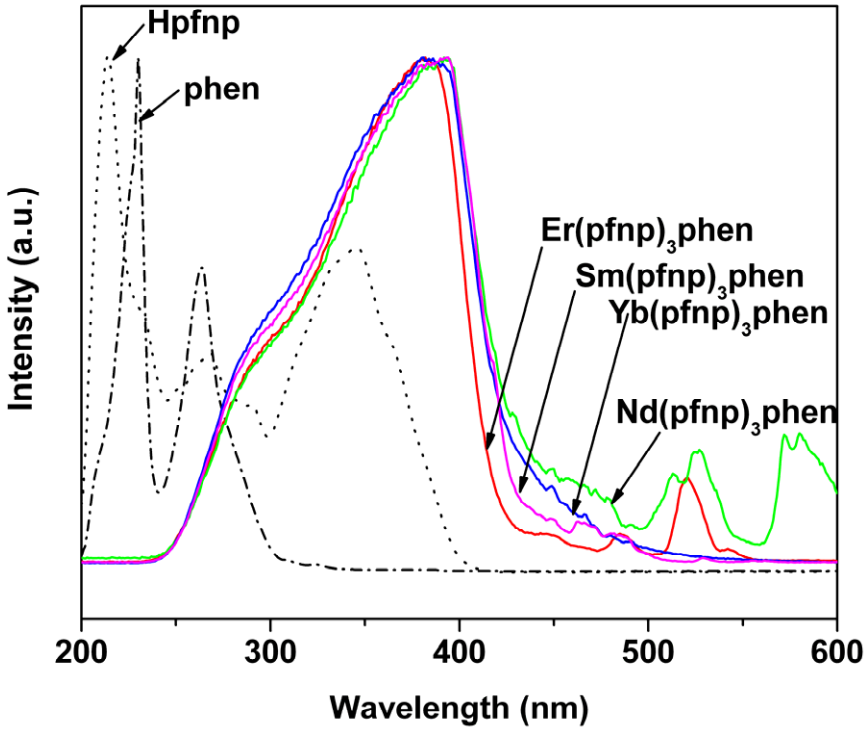

Fig. S2 UV-vis absorption spectra of Hpfnp and phen ligands and excitation spectra of $Er(pfnp)_3phen$ (λ_{em} = 1533 nm), $Nd(pfnp)_3phen$ (λ_{em} = 1058 nm), $Yb(pfnp)_3phen$ (λ_{em} = 978 nm) and $Sm(pfnp)_3phen$ (λ_{em} = 950 nm) complexes. The ligands are at 5×10^{4} M in ethanol, and the complexes are in solid state.

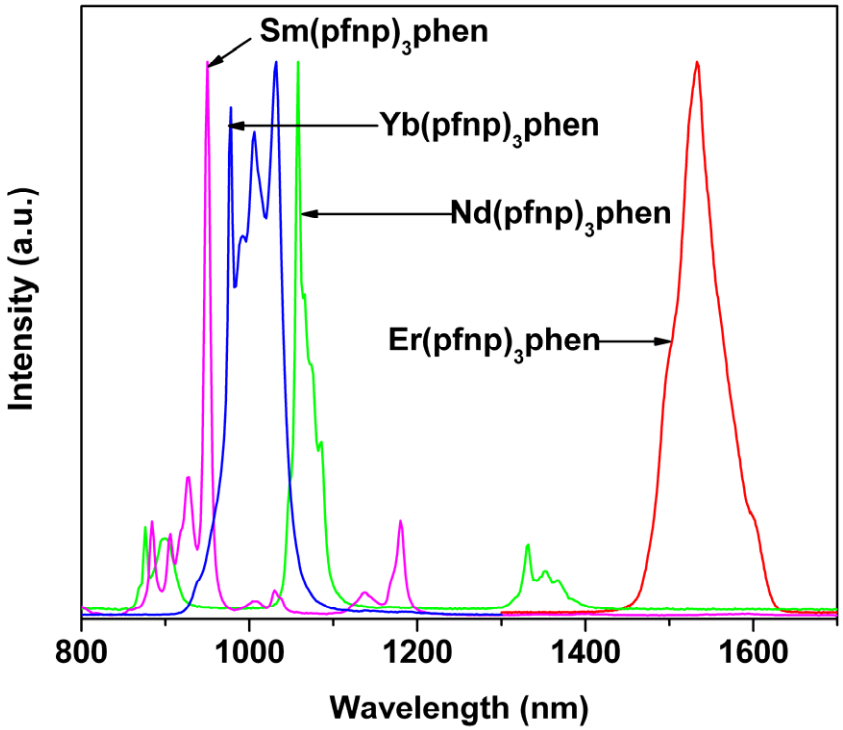

Fig. S3 Emission spectra of $Er(pfnp)_3phen$ (λ_{ex} = 380 nm), $Nd(pfnp)_3phen$ (λ_{ex} = 390 nm), $Yb(pfnp)_3phen$ (λ_{ex} = 380 nm) and $Sm(pfnp)_3phen$ (λ_{ex} = 385 nm) complexes.

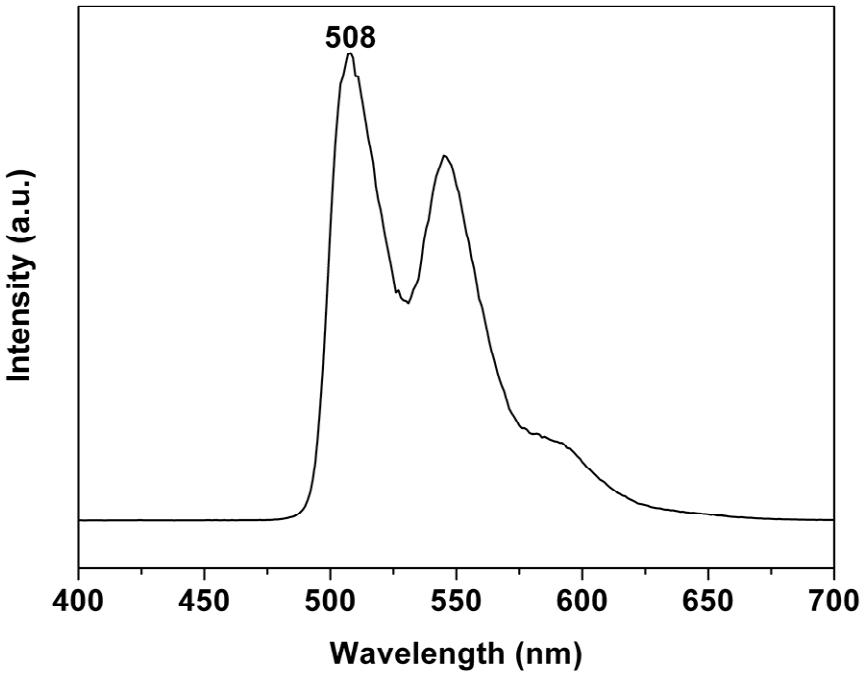

Fig. S4 The phosphorescence spectra of $Gd(pfnp)_3(H_2O)_2$ complex (λ_{ex} = 342 nm), was measured at 77 K after a delay time of 1 s.

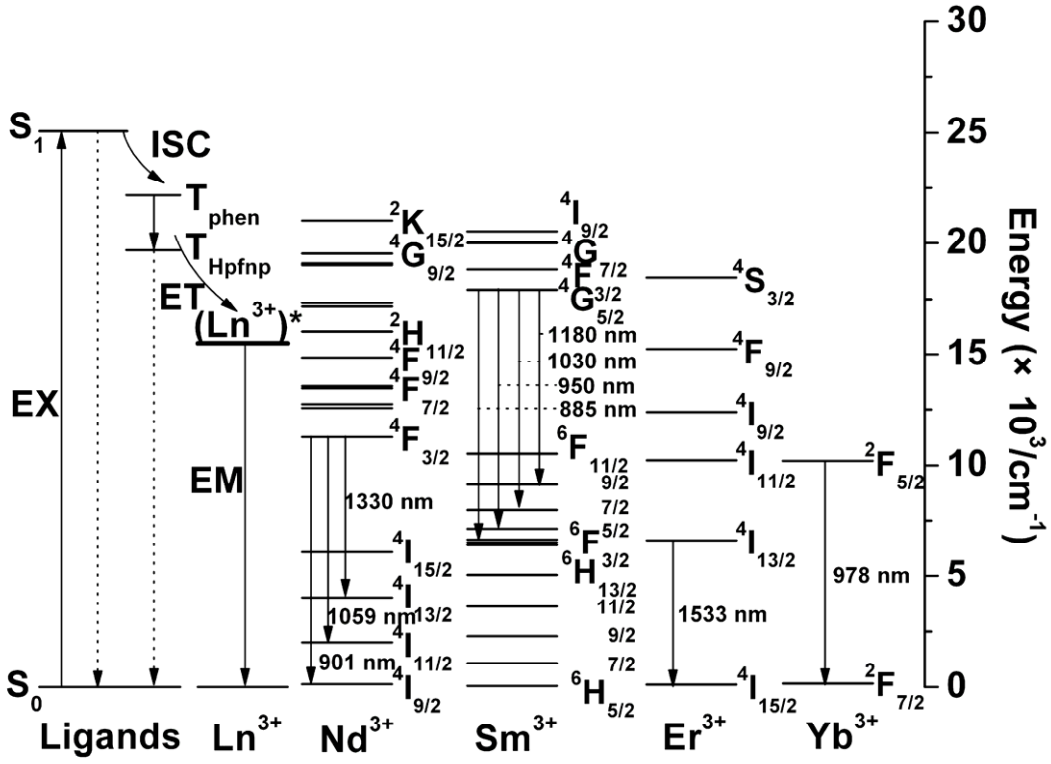

Fig. S5 Energy levels and the energy transfer processes in the Ln-ligand system (Ln = Er, Nd, Yb, Sm). (EX: excitation; EM: emission; ISC: intersystem crossing; ET: energy transfer.)