

Supporting information

Multi-component assembly and luminescence tuning of lanthanide hybrids based Zeolite L/A and SBA-15 through two organically grafted linkers

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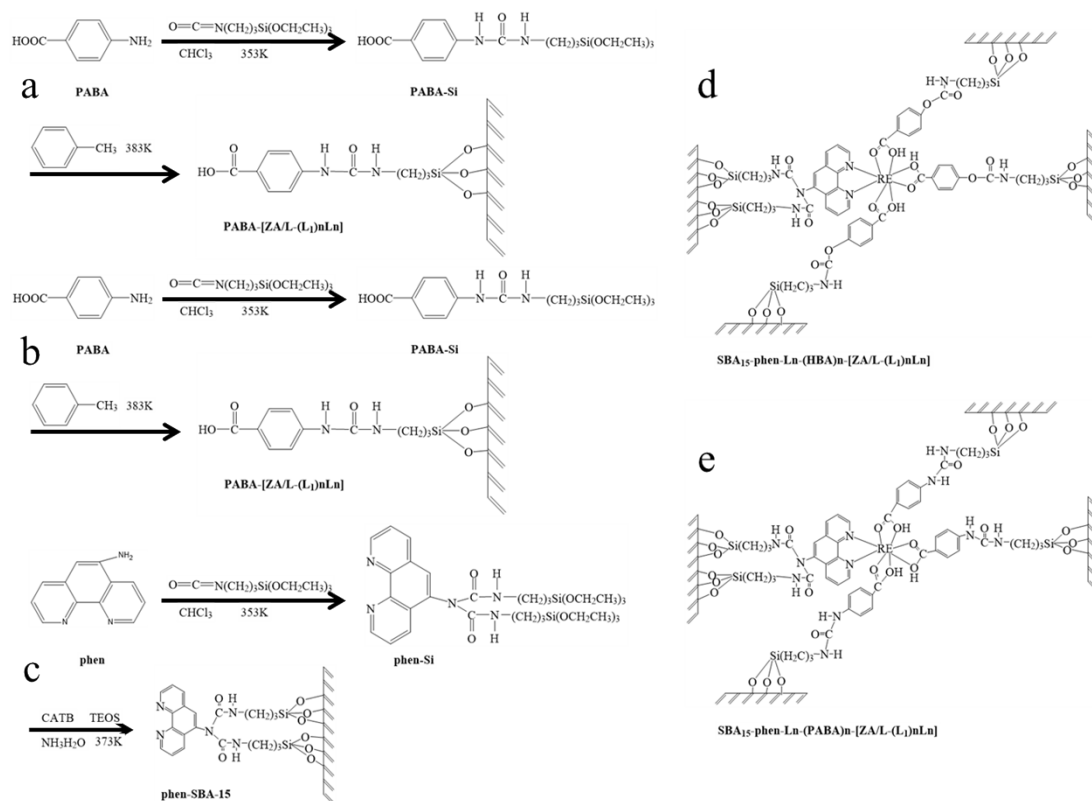


Figure S1 The synthesis process of the organically modified silane linkers phen-Si, HBA-Si, ABA-Si, functionalized microporous zeolite L/Z and SBA-15 (HBA-[Z/L-Ln-L1] (a), ABA-[Z/L-Ln-L1] (b) and phen-SBA-15 (c) and final hybrids S-phen-Ln-HBA-[Z/L-Ln-L1] (d) and S-phen-Ln-ABA-[Z/L-Ln-L1] (e).

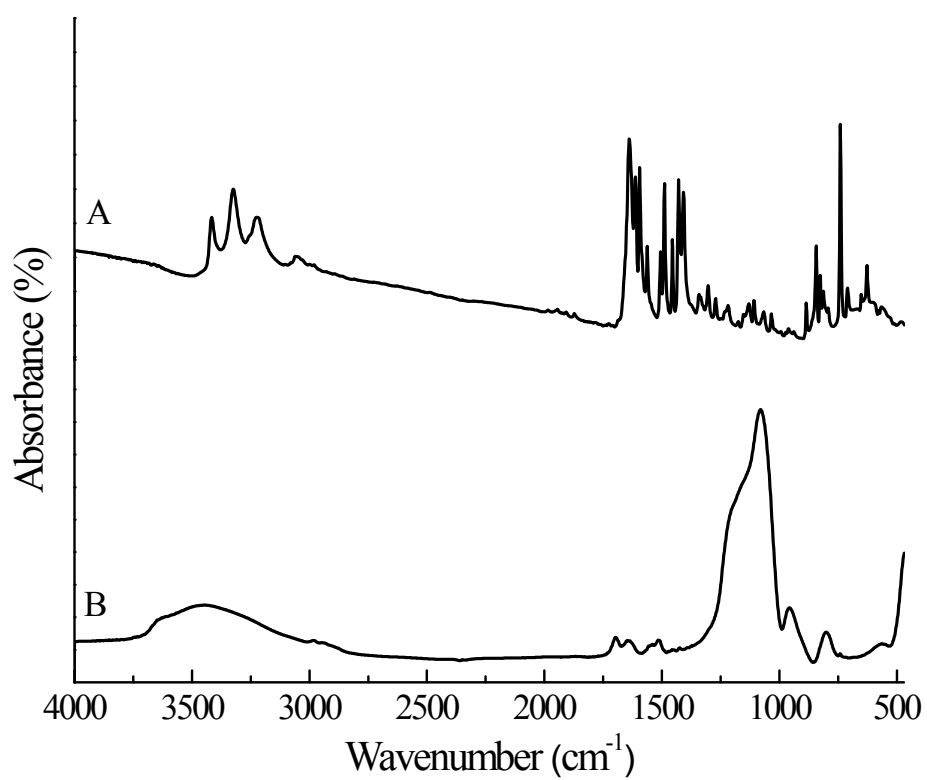


Figure S2 FTIR spectrum of the free ligand phen-NH₂ (A) and the precursor phen-SBA-15 (B).

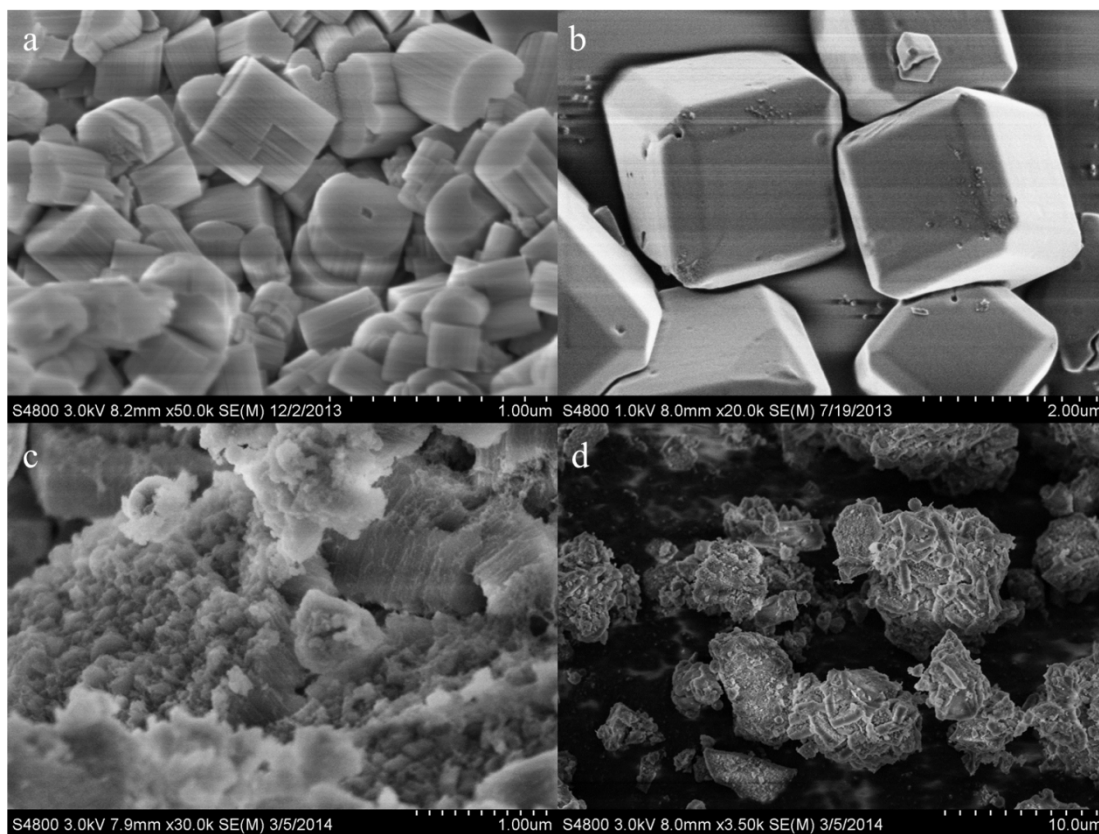


Figure S3 SEM images of zeolite L crystals (a), zeolite A crystals (b) and micro-mesoporous hybrid materials S-phen-Eu-HBA-[ZA-bipy-Tb] (c), S-phen-Eu-ABA-[ZL-bipy-Tb] (d)

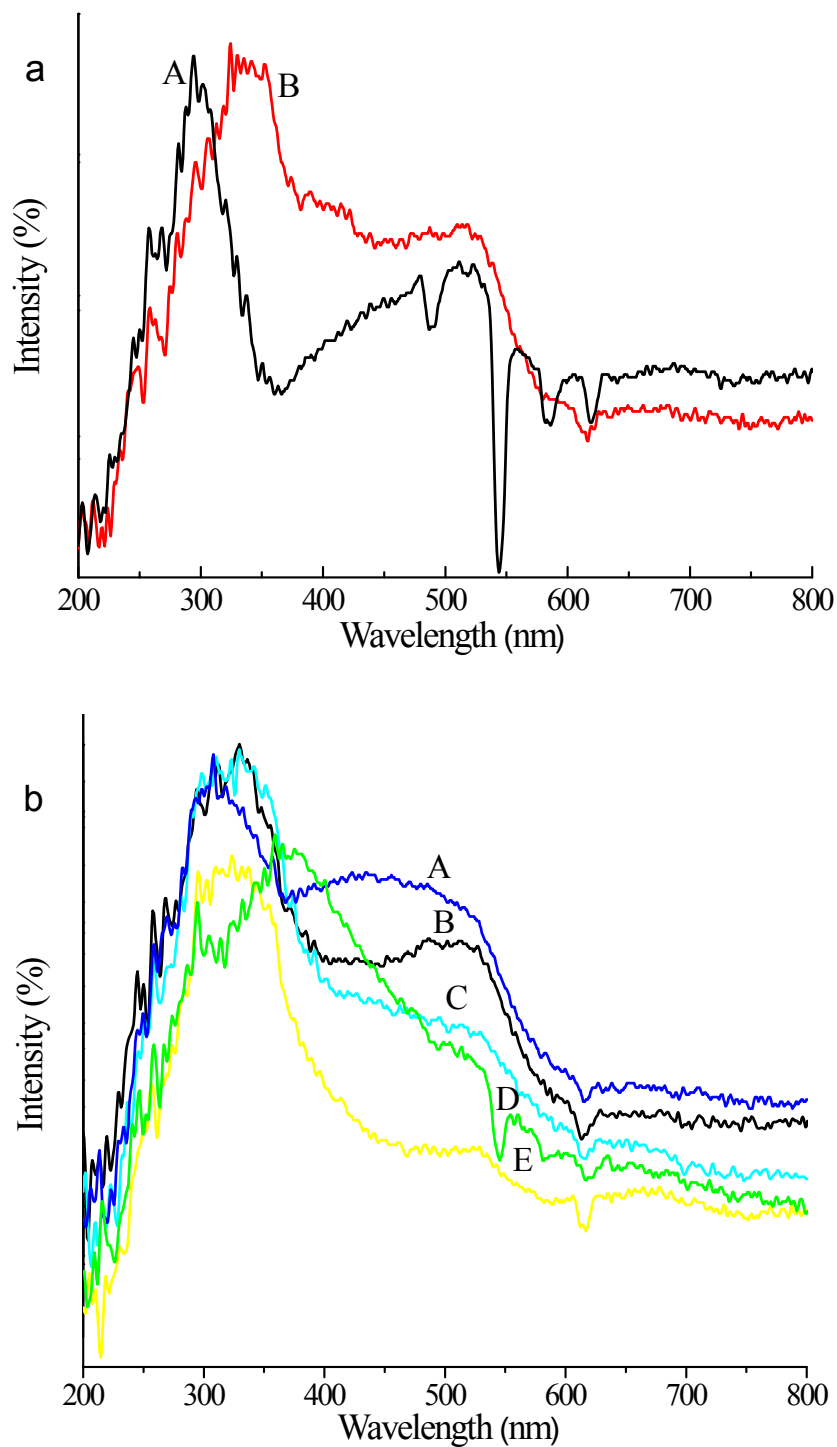


Figure S4 Ultraviolet-visible diffuse reflective absorption spectra of hybrids with Zn²⁺ loaded zeolites (a) S-phen-Eu-HBA-[ZA-Zn-bipy] (A) and S-phen-Tb-ABA-[ZL-Zn-bipy] (B); (b) hybrids with Ln³⁺ loaded zeolites S-phen-Eu-ABA-[ZL-Tb-bipy] (A), S-phen-Eu-HBA-[ZA-Tb-bipy] (B), S-phen-Eu-ABA-[ZA-Tb-bipy] (C), S-phen-Tb-HBA-[ZA-Eu-TTA] (D) and S-phen-Eu-ABA-[ZA-Tb-TAA] (E).

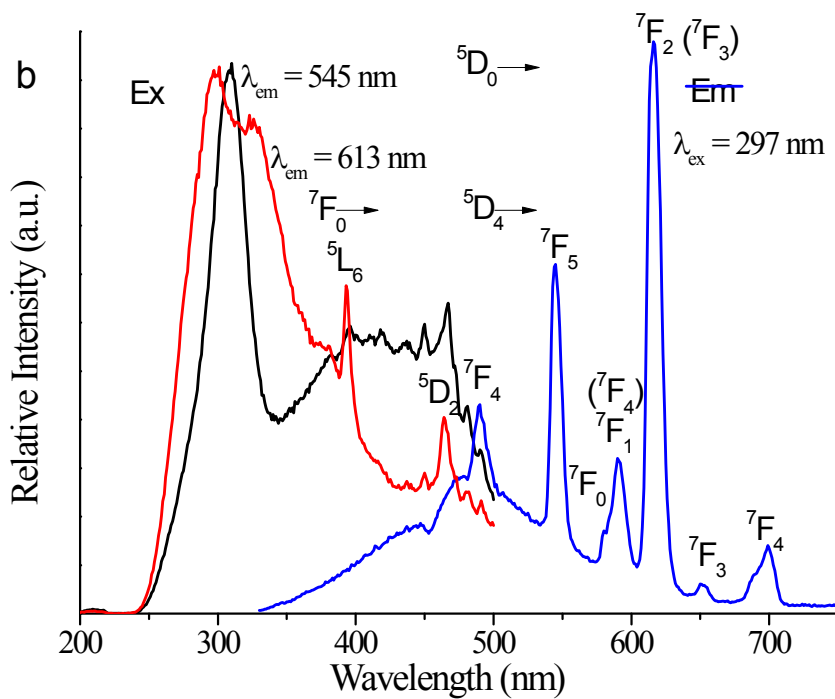
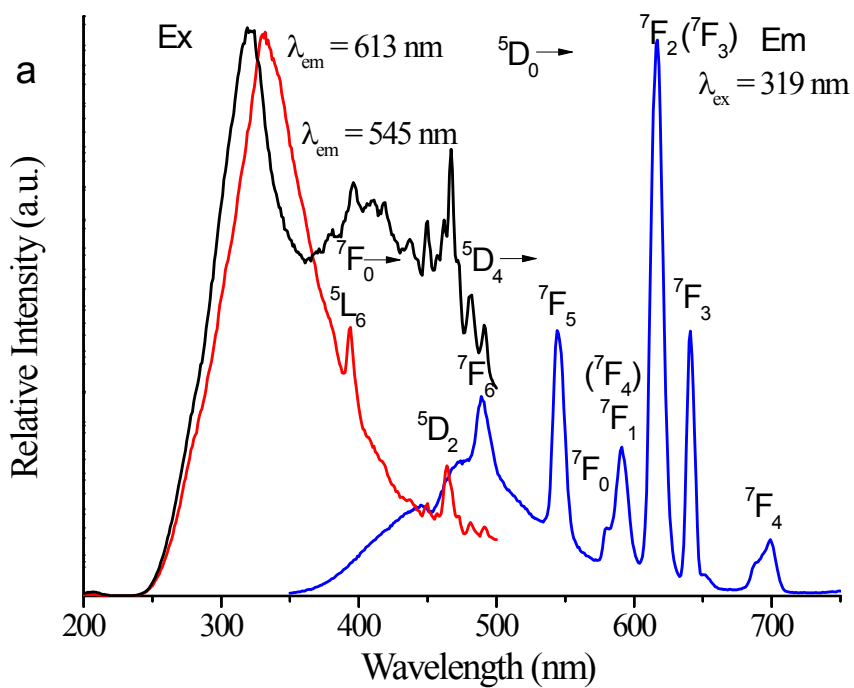


Figure S5 Luminescent spectra of hybrid materials S-phen-Eu-ABA-[ZA-Tb-TAA] (a) and S-phen-Eu-ABA-[ZL-Tb-bipy] (b).

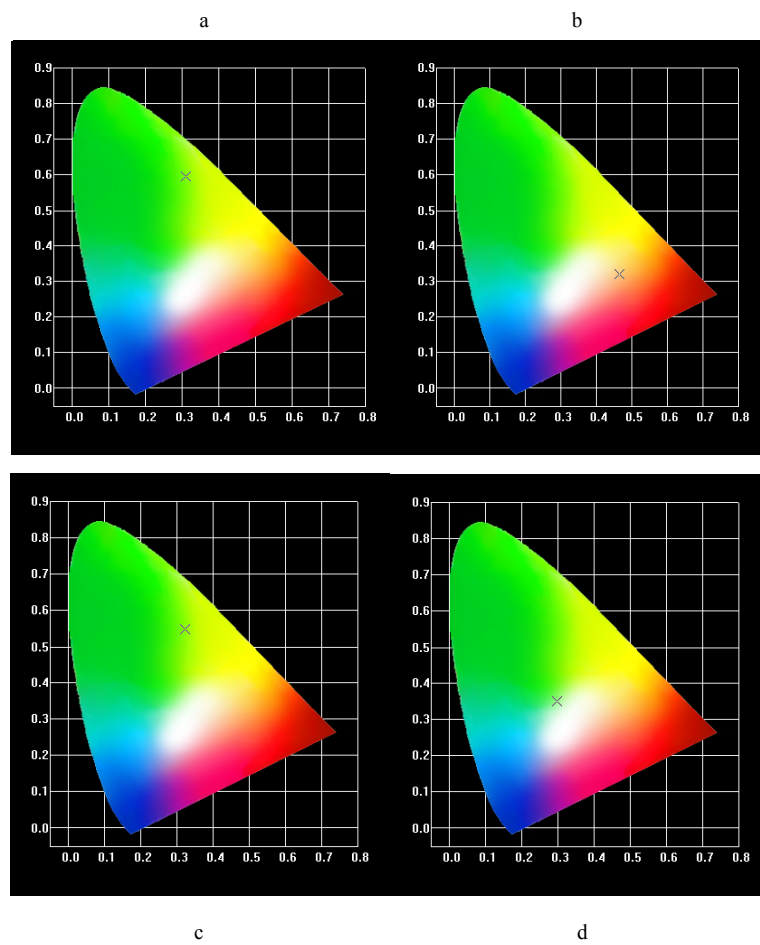


Figure S6 The CIE diagrams of hybrid materials: (a) S-phen-Tb-ABA-[ZA-Zn-bipy], (b) S-phen-Eu-ABA-[ZA-Tb-bipy] and (c)-(d) Tb-HBA-[ZA-Eu-TTA] (c, $\lambda_{\text{ex}} = 305 \text{ nm}$; d, $\lambda_{\text{ex}} = 357 \text{ nm}$)