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Electronic Supporting Information

Multi-component lanthanide hybrids based on zeolite A/L and zeolite A/L-polymer for tunable luminescence

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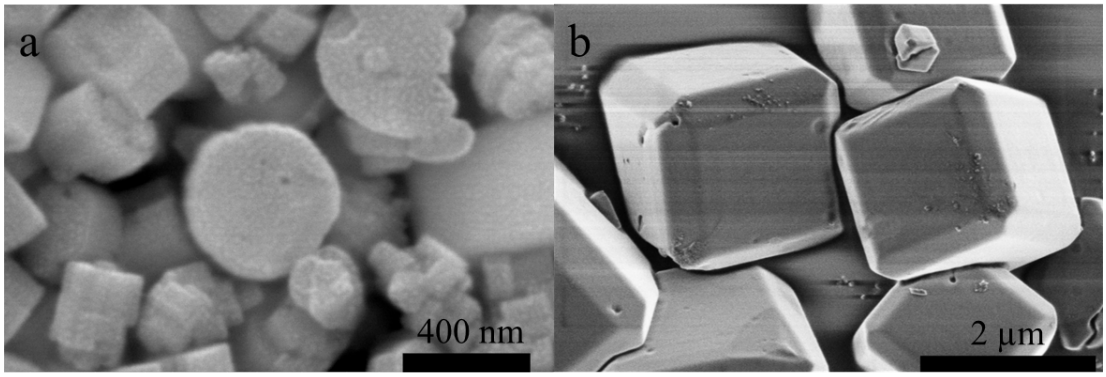


Figure S1 SEM images of zeolite L crystals (a) and zeolite A crystals (b) prepared in this work.

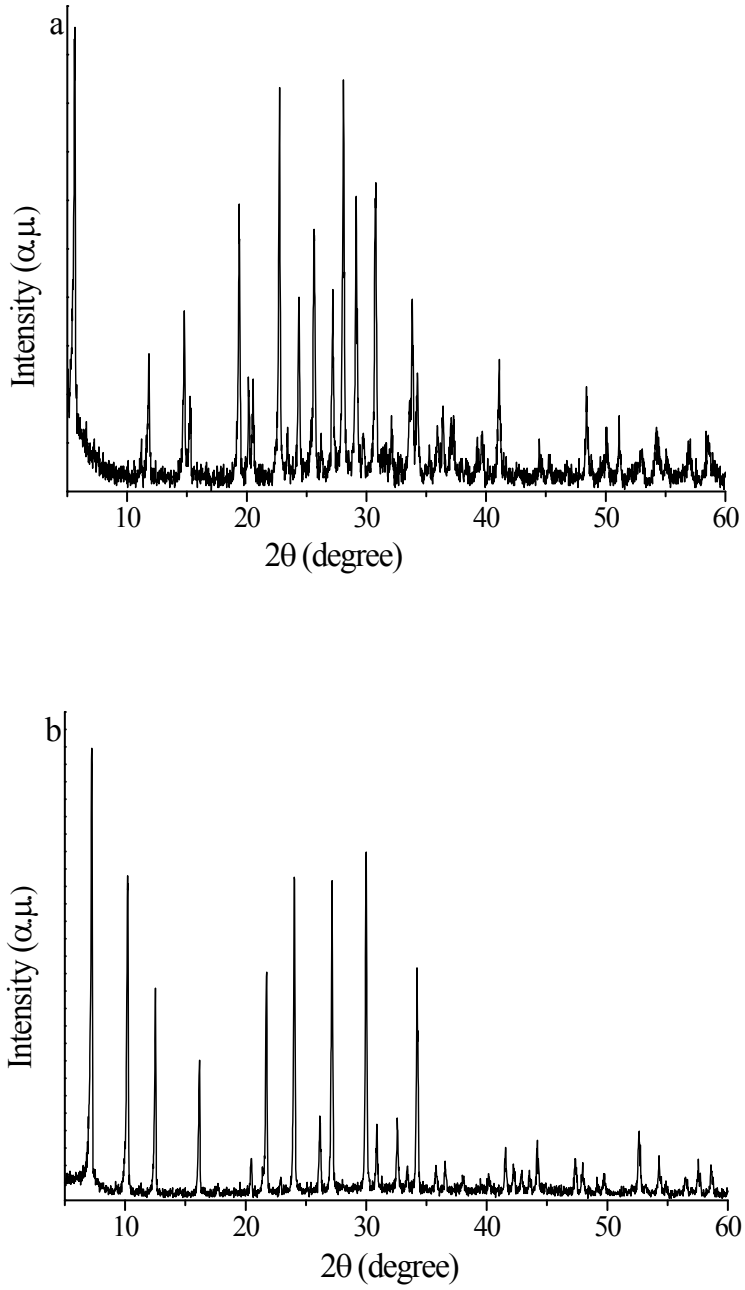


Figure S2 XRD patterns of the zeolite L (A) and zeolite A (B) synthesized in this work.

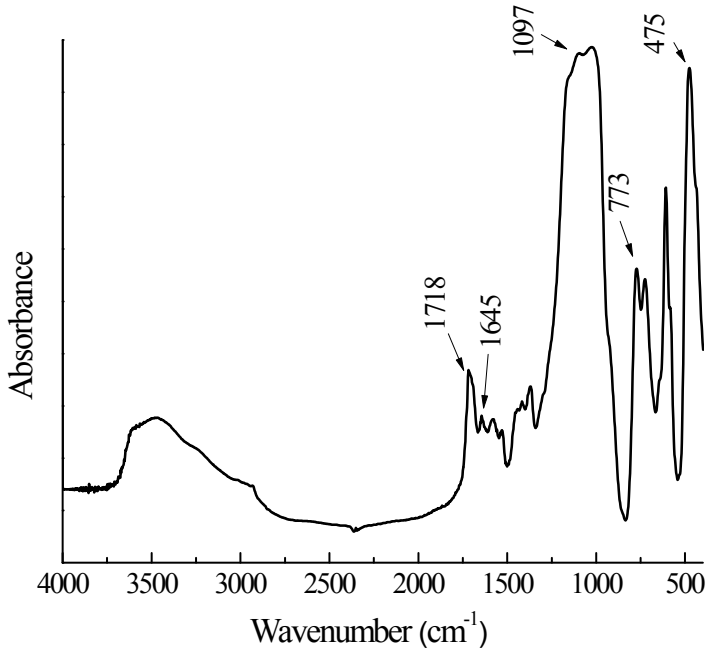


Figure S3 Selected FT-IR spectra of bipy-Eu-Si-[ZL⊃Tb-AA] hybrids.

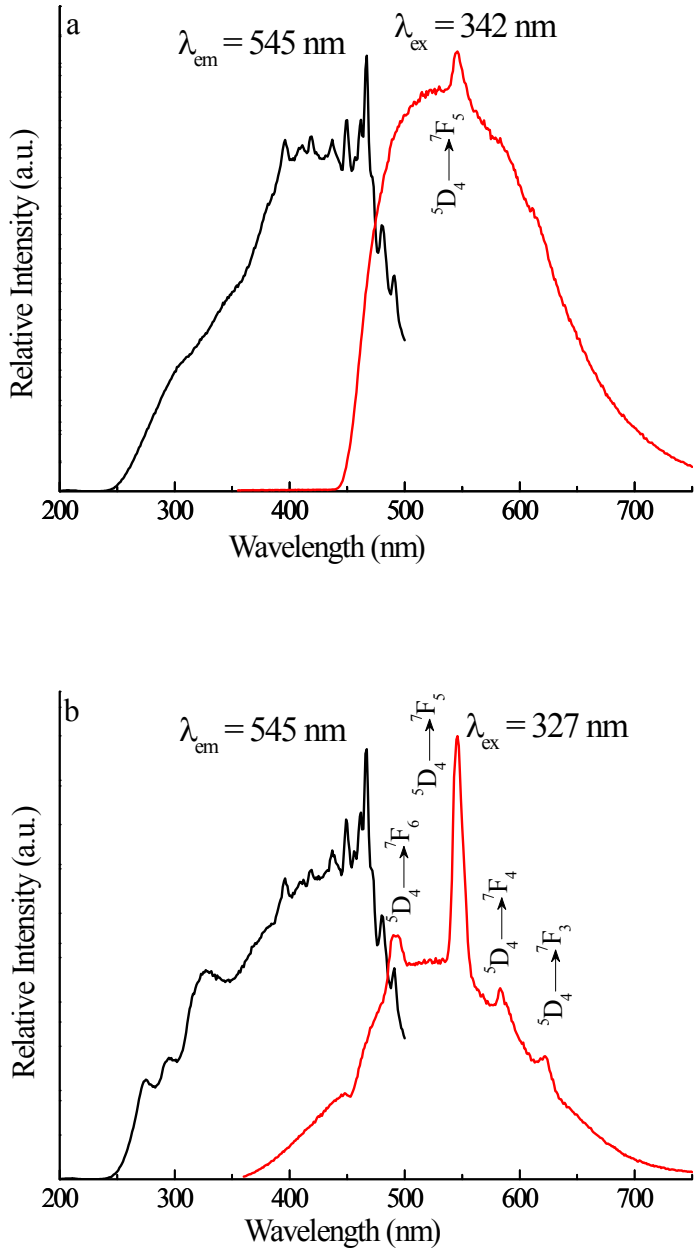


Figure S4 Luminescence of bipy-Eu-Si-[ZA⊃Tb-AA] (a) and phen-Tb-Si-[ZA⊃Tb-AA] (b). Excitation spectrum was observed at 545 nm; emission spectrum was obtained upon excitation at 342 nm and 327 nm, respectively.

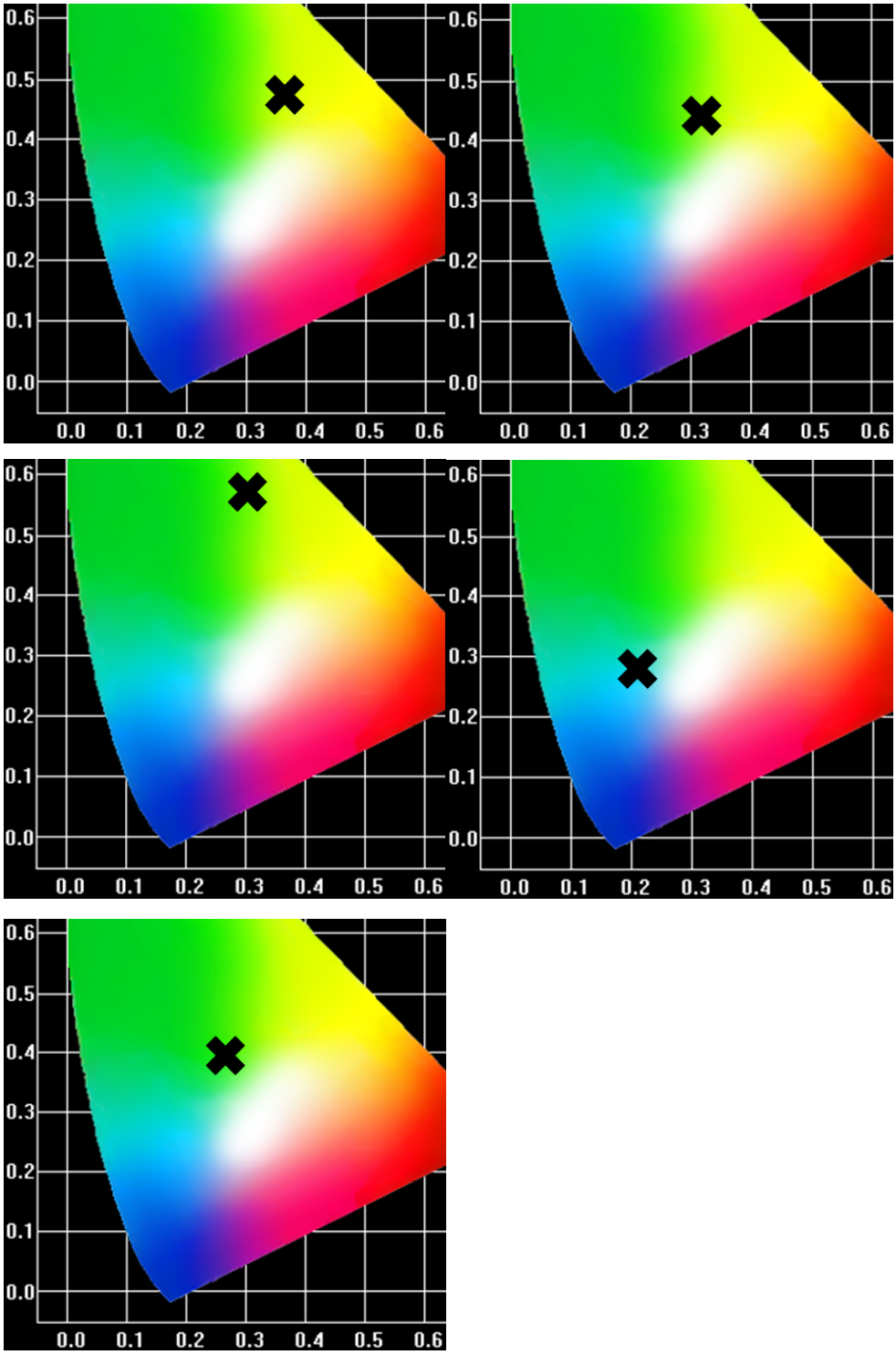


Figure S4 The selected CIE diagrams for hybrid materials: from left-right, top-bottom a-e: a for bipy-Eu-Si-[ZA⊃Tb-AA] (λ_{ex} = 342 nm), b for phen-Tb-Si-[ZA⊃Tb-AA] (λ_{ex} = 327 nm), c for bipy-Eu-Si-[ZL⊃Tb-AA] (λ_{ex} = 301 nm), d for phen-Tb-Si-[ZL⊃Tb-AA] (λ_{ex} = 307 nm), and e for phen-Tb-Si-[ZA⊃Tb-AA]-PMMA (λ_{ex} = 365 nm).

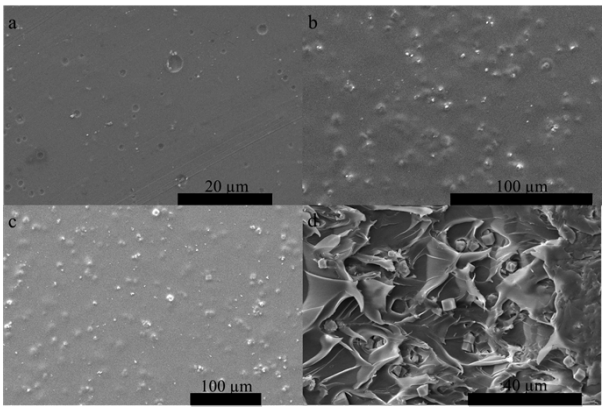
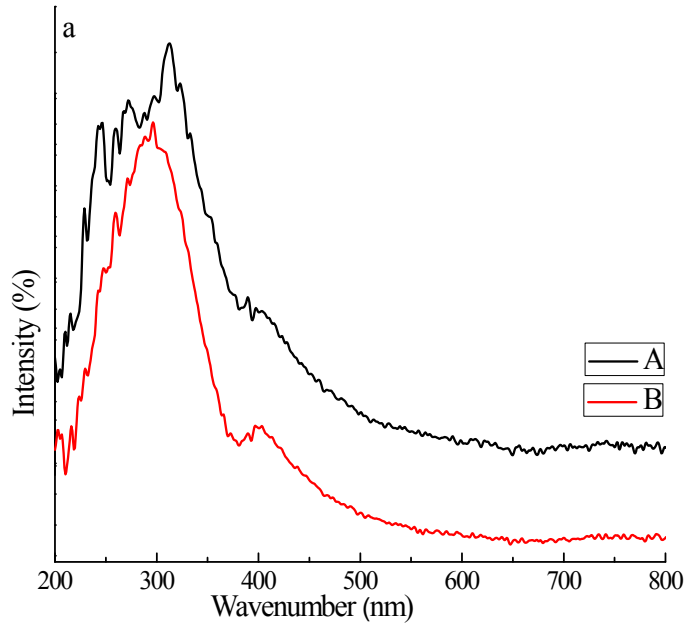
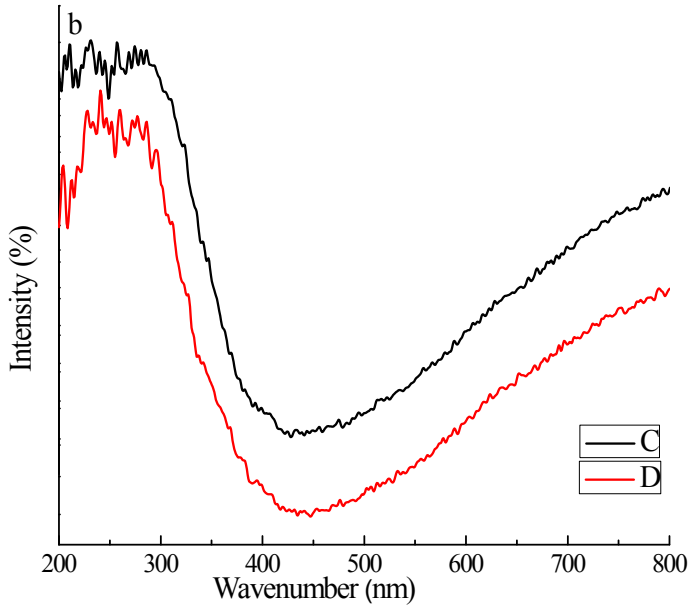


Figure S6 The selected typical surface SEM images of phen-Tb-Si-[ZL⊃Eu-DBM]-PEMA (a), phen-Tb-Si-[ZA⊃Tb-AA]-PMMA (b), phen-Tb-Si-[ZA⊃Eu-DBM]-PMMA (c) and cross-sectional SEM image of phen-Tb-Si-[ZA⊃Tb-AA]-PMMA (d).


a
Intensity (%)
A
B
200
300
400
500
600
700
800
Wavenumber (nm)


b
Intensity (%)
C
D
200
300
400
500
600
700
800
Wavenumber (nm)

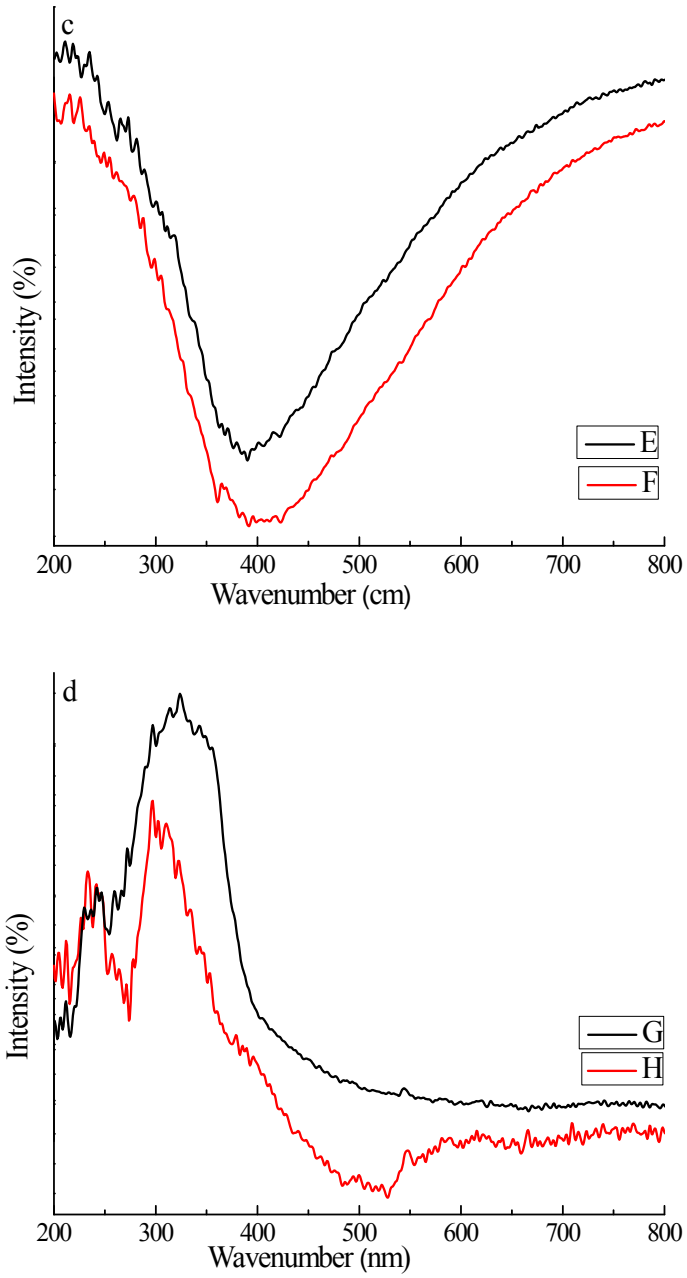


Figure S7 Ultraviolet-visible diffuse reflective absorption spectra of hybrids with Eu^{3+} loaded zeolites A (a) bipy-Eu-Si-[ZA⊃Eu-DBM] (A) and phen-Tb-Si-[ZA⊃Eu-DBM] (B); hybrids with Eu^{3+} loaded zeolites L (b) bipy-Tb -Si-[ZL-Eu-DBM] (C) and phen-Eu-Si-[ZL⊃Eu-DBM] (D); hybrids with Eu^{3+} loaded zeolites A (c) bipy-Tb-Si-[ZA⊃Tb-AA] (E) and phen-Eu-Si-[ZA⊃Tb-AA] (F); hybrids with Tb^{3+} loaded zeolites L (d) bipy-Eu-Si-[ZL⊃Tb-AA] (G) and phen-Tb-Si-[ZL⊃Tb-AA] (H).