

Highly luminescent hydrogels synthesized by covalent grafting of lanthanide complexes onto PNIPAM *via* one-pot free radical polymerization

Qing-Feng Li,^a Xiaodi Du,^a Lin Jin,^a Mengmeng Hou,^a Zhenling Wang^a* and Jianhua Hao^{b*}

^aThe Key Laboratory of Rare Earth Functional Materials and Applications, Zhoukou Normal University, Zhoukou 466001, Henan, P. R. China. zlwang2007@hotmail.com

^bDepartment of Applied Physics, The Hong Kong Polytechnic University, Hong Kong, P. R. China.
E-mail: jh.hao@polyu.edu.hk

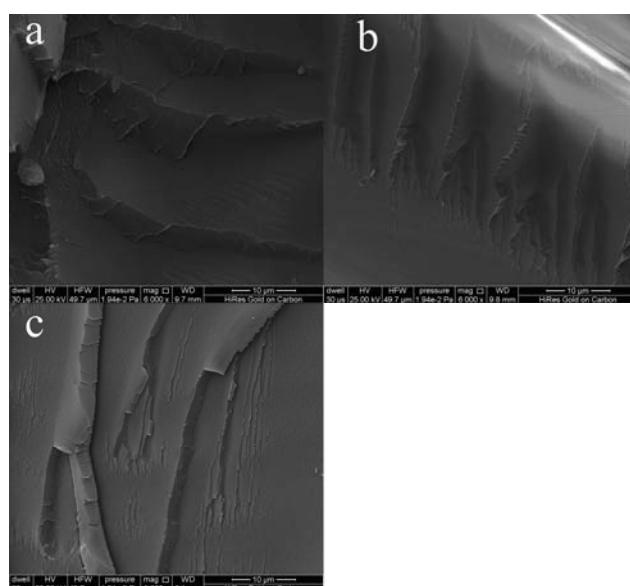


Fig. S1 SEM images of PNIPAM (a), PNIPAM-Tb(DPA)₃ (b) and PNIPAM-Eu(DPA)₃ (c)

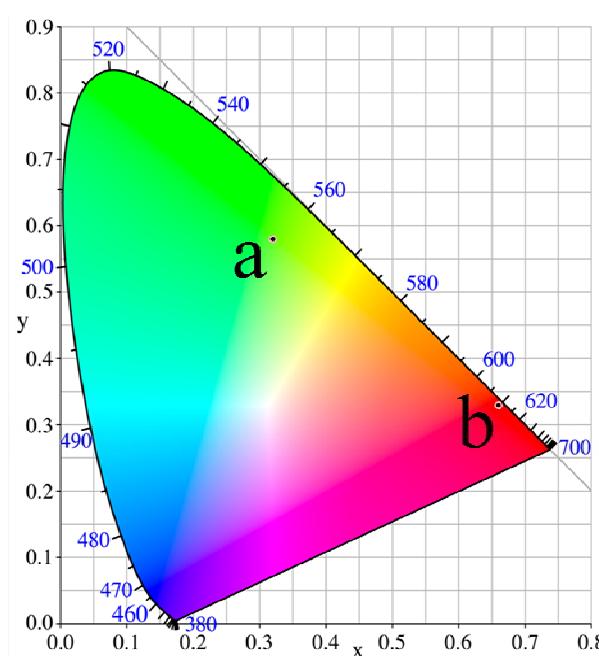


Fig. S2 The CIE chromaticity coordinates of PNIPAM-Tb(DPA)₃ (a) and PNIPAM-Eu(DPA)₃ (b)

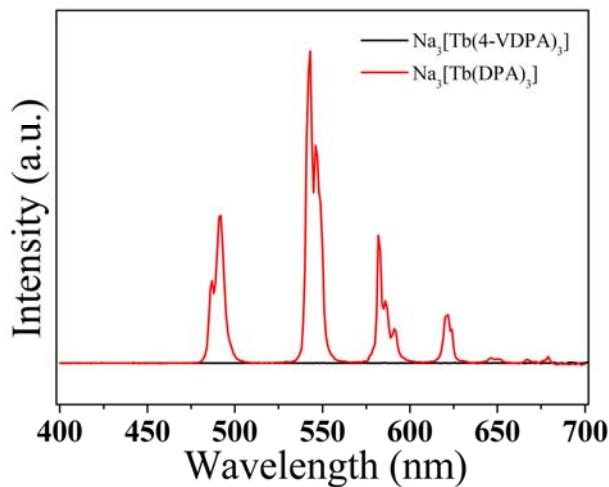


Fig. S3 PL emission spectra of $\text{Na}_3[\text{Tb}(4\text{-VDPA})_3]$ ($\lambda_{\text{ex}} = 315$ nm) and $\text{Na}_3[\text{Tb}(\text{DPA})_3]$ ($\lambda_{\text{ex}} = 286$ nm) in aqueous solution (0.1mmol/L)

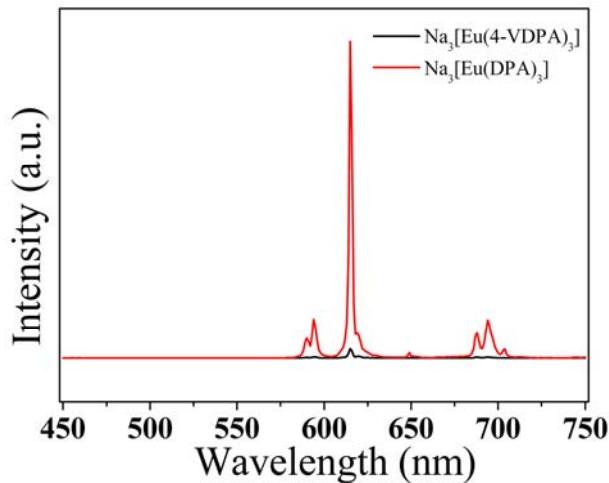


Fig. S4 PL emission spectra of $\text{Na}_3[\text{Eu}(4\text{-VDPA})_3]$ ($\lambda_{\text{ex}} = 315$ nm) and $\text{Na}_3[\text{Eu}(\text{DPA})_3]$ ($\lambda_{\text{ex}} = 286$ nm) in aqueous solution (0.1mmol/L)

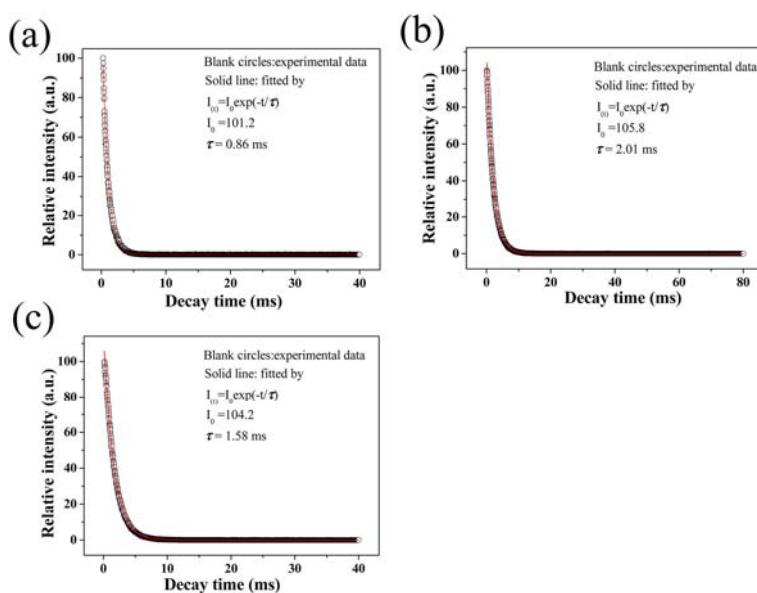


Fig. S5 Luminescence decay curves of $\text{Na}_3[\text{Eu}(4\text{-VDPA})_3]$ (a), $\text{Na}_3[\text{Tb}(\text{DPA})_3]$ (b) and $\text{Na}_3[\text{Eu}(\text{DPA})_3]$ (c)

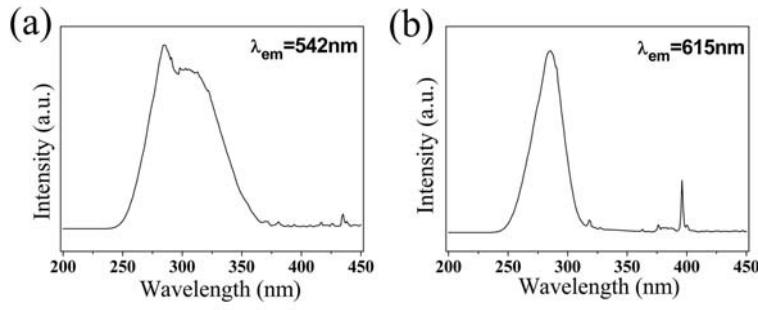


Fig. S6 Excitation spectra of $\text{Na}_3[\text{Tb}(\text{DPA})_3]$ (a) and $\text{Na}_3[(\text{Eu}(\text{DPA})_3]$ (b) dispersed in BaSO_4

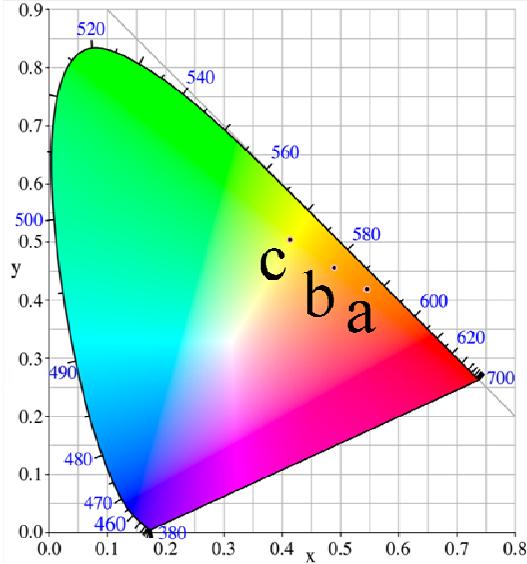


Fig. S7 The CIE chromaticity coordinates of PNIPAM- $\text{Eu}_2\text{Tb}_1(\text{DPA})_3$ (a), PNIPAM- $\text{Eu}_1\text{Tb}_1(\text{DPA})_3$ (b) and PNIPAM- $\text{Eu}_1\text{Tb}_3(\text{DPA})_3$ (c)

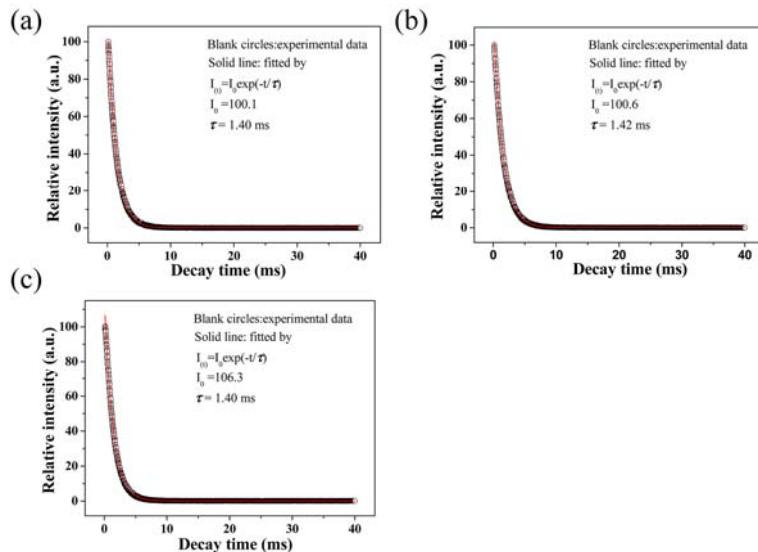


Fig. S8 Luminescence decay curves of PNIPAM- $\text{Eu}_2\text{Tb}_1(\text{DPA})_3$ (a), PNIPAM- $\text{Eu}_1\text{Tb}_1(\text{DPA})_3$ (b) and PNIPAM- $\text{Eu}_1\text{Tb}_3(\text{DPA})_3$ (c)