

**Electronic Supporting Information (ESI)**

for

**UV light-switchable transparent polymer films and invisible luminescent inks based on  
carbon dots and lanthanide complexes**

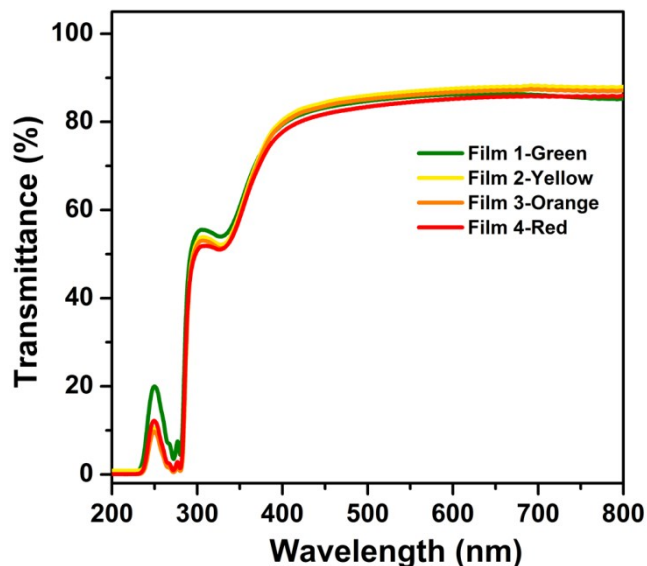
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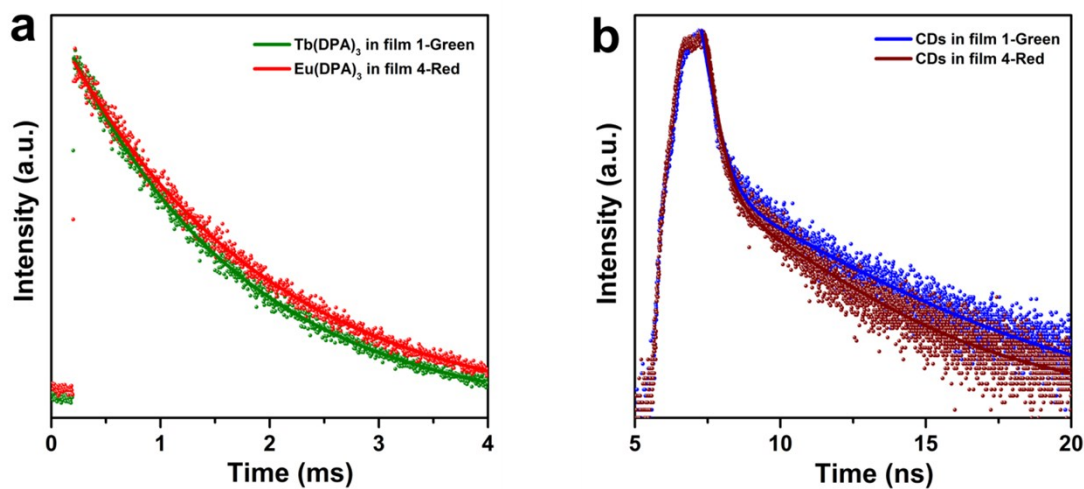
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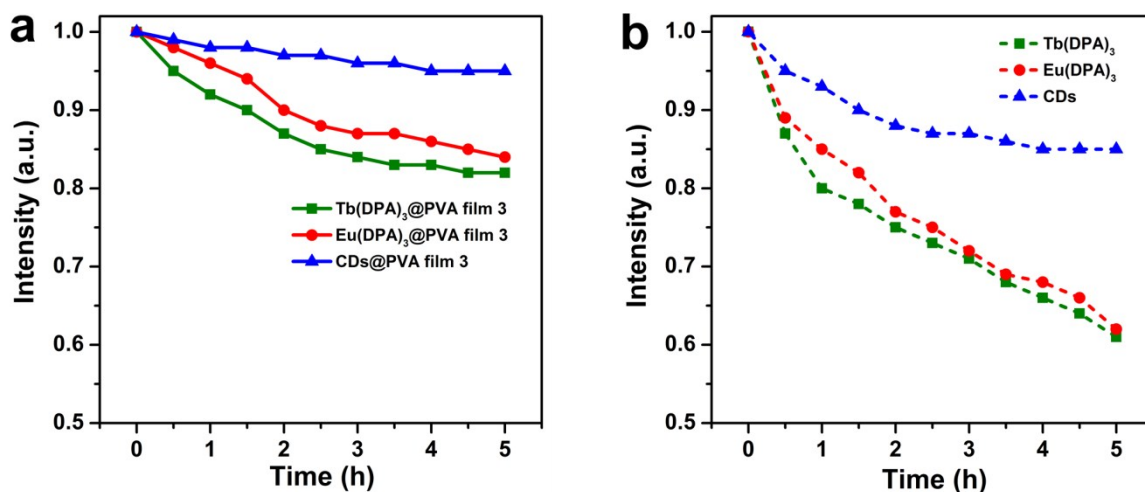
Number of figures: 3



**Fig. S1.** UV/vis transmittance spectra of the CDs-Ln(DPA)<sub>3</sub>@PVA film samples 1-4 with the thickness of 0.5 mm.



**Fig. S2.** (a) Decay curves of Tb(DPA)<sub>3</sub> in film 1-Green (green line,  $\lambda_{\text{ex}} = 254$  nm,  $\lambda_{\text{monitored}} = 544$  nm) and Eu(DPA)<sub>3</sub> in film 4-Red (red line,  $\lambda_{\text{ex}} = 254$  nm,  $\lambda_{\text{monitored}} = 616$  nm), fitted according to the single-exponential function ( $I = I_0 + A\exp[-(t-t_0)/\tau]$ ). (b) Decay curves at 406 nm excitation for CDs in film 1-Green (blue line) and film 4-Red (wine line) probed at 420 nm, respectively, fitted according to the two-exponential function ( $I = A_1\exp[-t/\tau_1] + A_2\exp[-t/\tau_2]$ ).



**Fig. S3.** (a) Photostability of CDs-Ln(DPA)<sub>3</sub>@PVA film 3-Orange under UV light irradiation for 5 h at 254 nm for Ln(DPA)<sub>3</sub> and 365 nm for CDs. Changes in PL emission intensity for Tb(DPA)<sub>3</sub> ( $\lambda_{\text{em}} = 544$  nm), Eu(DPA)<sub>3</sub> ( $\lambda_{\text{em}} = 616$  nm), and CDs ( $\lambda_{\text{em}} = 420$  nm). (b) Photostability of the drop-casting film under UV light irradiation for 5 h at 254 nm for Ln(DPA)<sub>3</sub> and 365 nm for CDs. Changes in PL emission intensity for Tb(DPA)<sub>3</sub> ( $\lambda_{\text{em}} = 544$  nm), Eu(DPA)<sub>3</sub> ( $\lambda_{\text{em}} = 616$  nm), and CDs ( $\lambda_{\text{em}} = 420$  nm).