# Supporting Information

**Photon Reabsorption in Mixed $CsPbCl_3$:$CsPbI_3$ Perovskite Nanocrystal Films for Light-Emitting Diodes**

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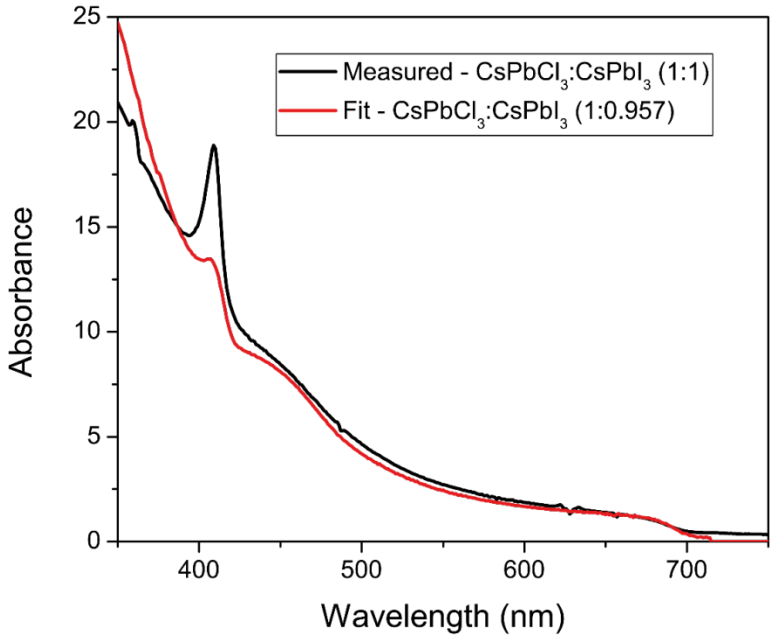


*Figure S1: Measured absorbance and modelled absorbance spectrum of the mixed 1:1 solutions.*

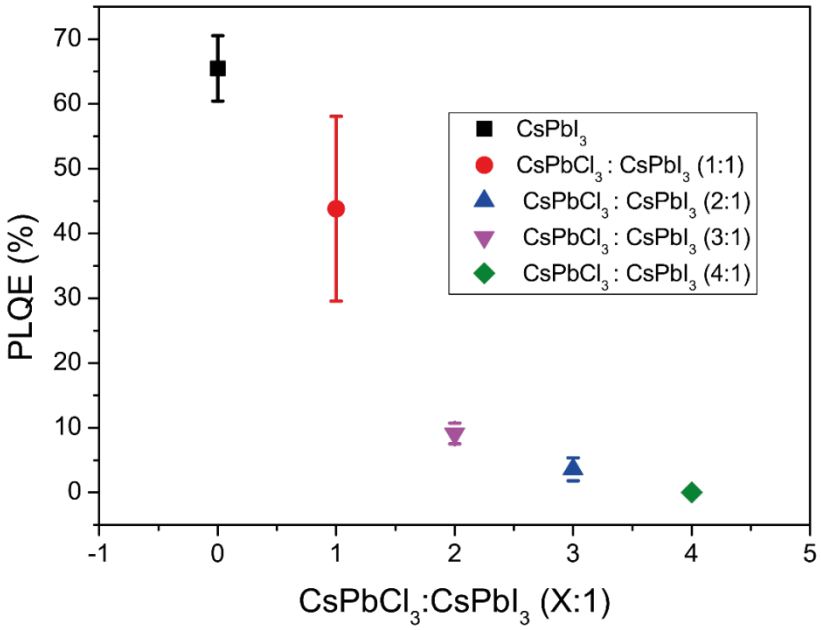


*Figure S2: Photoluminescence quantum efficiency of different $CsPbCl_3$:$CsPbI_3$ blend ratios in PMMA.*

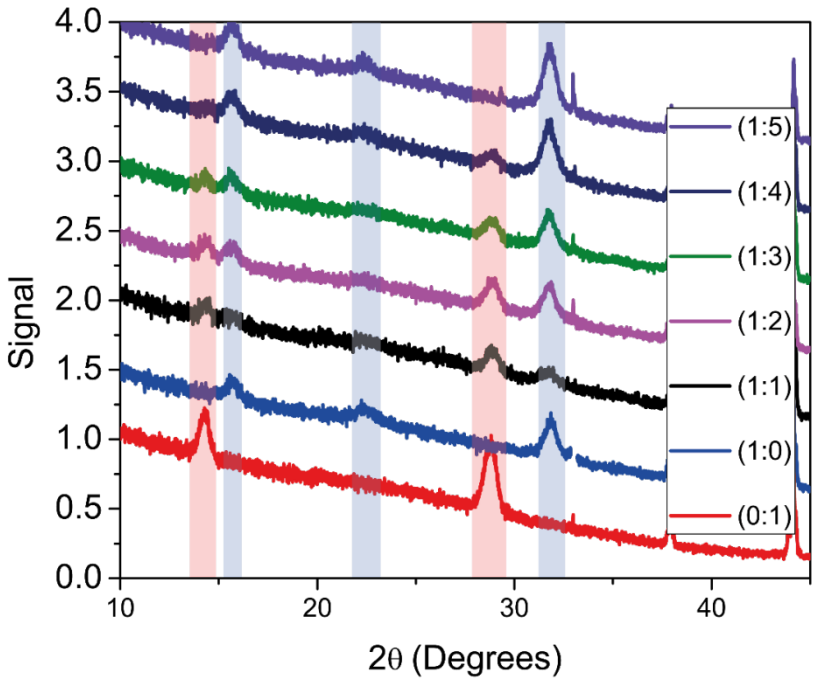


*Figure S3: Powder X-ray diffraction pattern of different CsPbCl3:CsPbI3 blend ratios in PMMA. Highlighted region denote peaks associated with CsPbI3 nanocrystals (red) and CsPbCl3 nanocrystals (blue).*

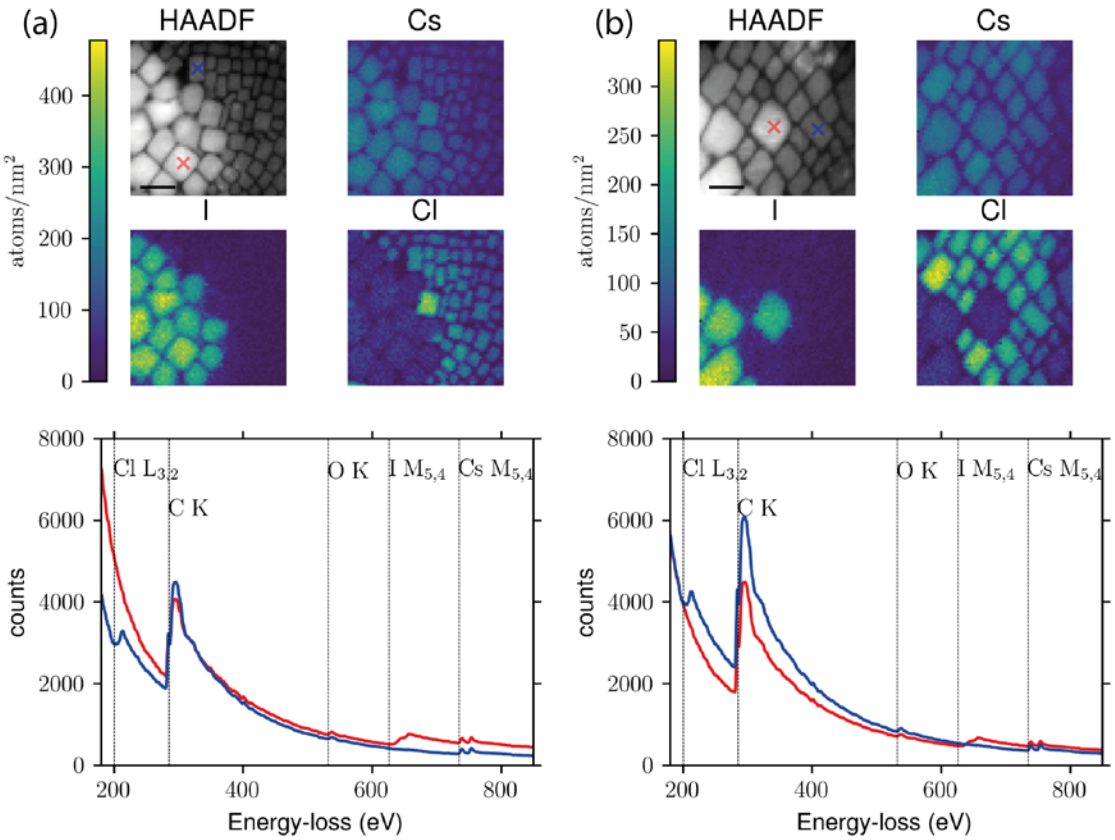


*Figure S4: Two different ((a) and (b)) HAADF and EELS TEM scans of different regions. Both samples show $CsPbCl_3$ and $CsPbI_3$ nanocrystals are not homogenously mixed. Lines indicated atom absorption edges.*

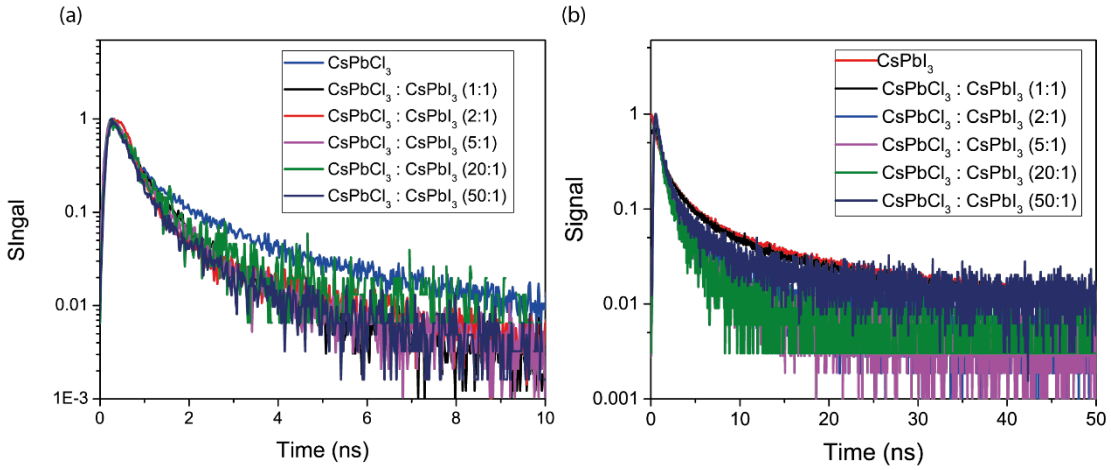


*Figure S5: Transient decays for different nanocrystal polymer films excited at 405 nm and measured at 450 nm (a) and 670 nm (b).*

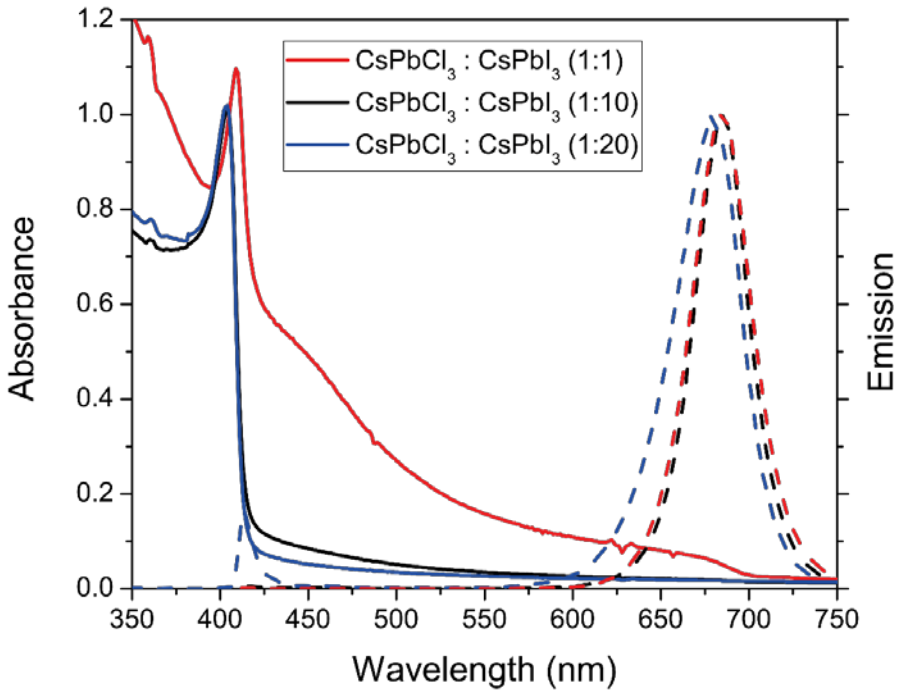


*Figure S6: Solution absorbance (solid) and emission (dashed) of $CsPbCl_3$:$ClPbI_3$ blends in hexane. While the concertation of $CsPbI_3$ remained constant at 0.021 mg $mL^{-1}$, the concretion of $CsPbCl_3$ was 0.021 mg $mL^{-1}$, 0.21 mg $mL^{-1}$ and 0.42 mg $mL^{-1}$ for the 1:1, 1:10, 1:20 blends respectively.*

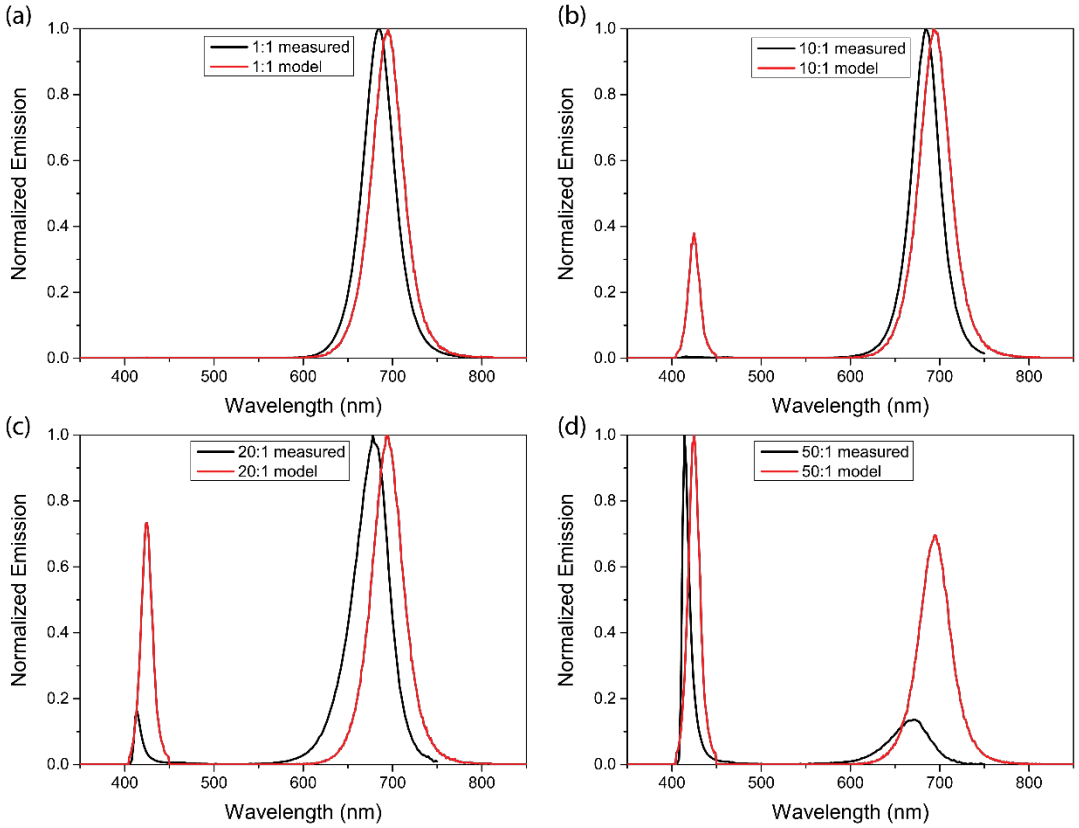


*Figure S7: Monte Carlo simulations of emission spectra from different nanocrystal solutions with different $CsPbCl_3$:$CsPbI_3$ ratios ((a)-(d)). The results of these simulations show that we expect there to only be a red peak visible from the 1:1 $PbCsCl_3$:$PbCsI_3$ mixture, but that a blue peak should grow as the $PbCsCl_3$ fraction increases, becoming larger than the red peak when we have a 50:1 ratio. This is qualitatively consistent with the measured behaviour.*

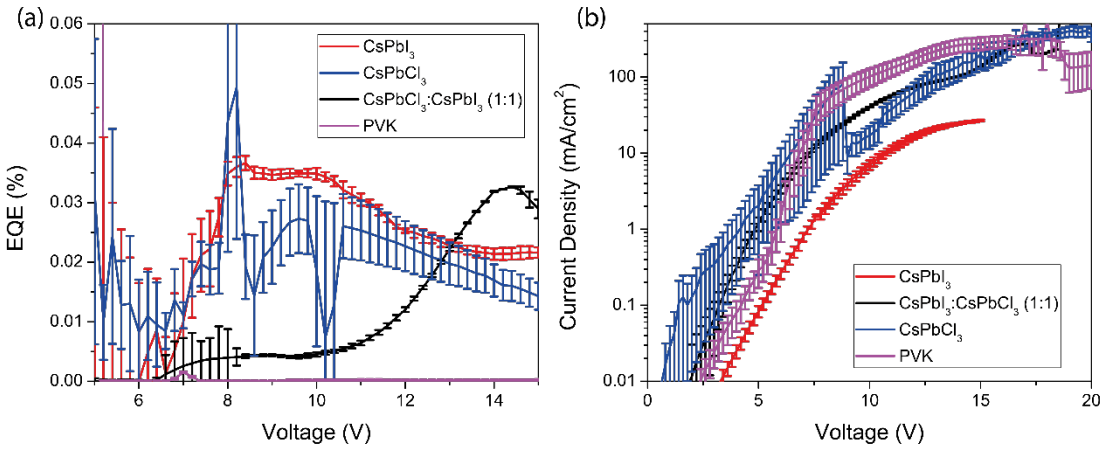


*Figure S8: (a) External quantum efficiencies of LED devices. (b) Current density/voltage characteristic of LED devices.*