Design Optimization of CsPbBr$_3$ Nanocrystals into Zeolite Beta as Ultra-Stable Green Emitters for Backlight Display Applications

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**Figure captions**

**Fig. S1** a XRD patterns of zeolite Beta b SEM image of pure zeolite Beta.

**Fig. S2** UV-Vis absorption spectra of CsPbBr$_3$-Beta at different calcination temperature when the mass ratio of (CsBr + PbBr$_2$): Zeolite Beta = 1: 5.

**Fig. S3** UV-Vis absorption spectra of CsPbBr$_3$-Beta at different mass ratio when calcined at 600 $^\circ$C.

**Fig. S4** Absorption (black line) and emission (green line) spectra of CsPbBr$_3$-Beta. Inset is its photograph under sunlight and UV illumination at 365 nm.

**Fig. S5** a XPS spectrum of CsPbBr$_3$-Beta composite; b Cs 3d, Pb 4f, Br 3d, Si 2p, O 1s spectra of CsPbBr$_3$-Beta composite, respectively.

**Fig. S6** Surface area and pore size of pristine beta and CsPbBr$_3$-Beta (CsBr + PbBr$_2$ : Zeolite Beta = 1: 5) calculated with BET/BJH method.
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a XRD patterns of zeolite Beta  
b SEM image of pure zeolite Beta.

**Fig. S2**  
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(a) XPS spectrum of CsPbBr$_3$–Beta composite; (b) Cs 3d, Pb 4f, Br 3d, Si 2p, O 1s spectra of CsPbBr$_3$–Beta composite, respectively.
Fig. S6 Surface area and pore size of pristine beta and CsPbBr$_3$–Beta (CsBr + PbBr$_2$ : Zeolite Beta = 1:5) calculated with BET/BJH method.