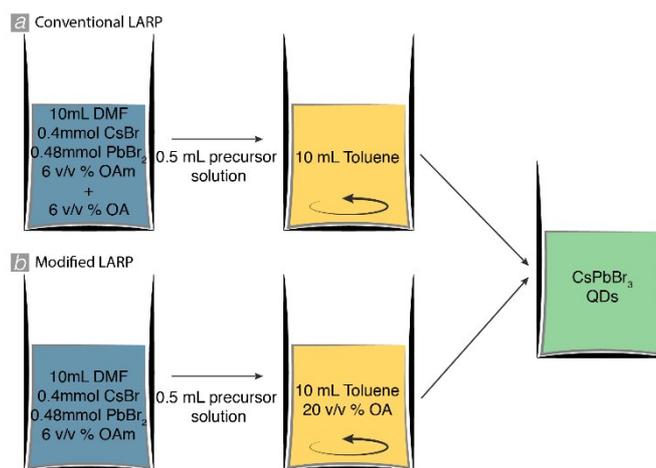


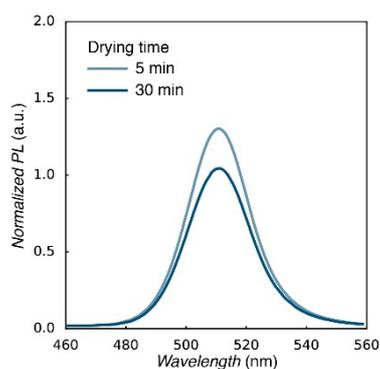
## Supporting Information

### Ligands removal and photo-activation of CsPbBr<sub>3</sub> quantum dots for enhanced optoelectronic devices.

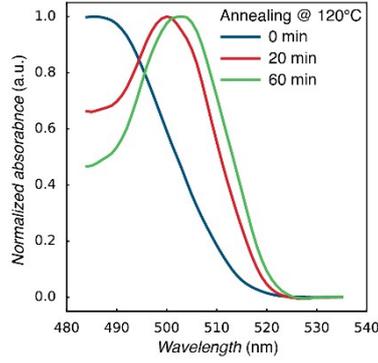
Eric Moyen, Anil Kanwat, Sinyoung Cho, Haeyeon Jun, Roy Aad and Jin Jang\*



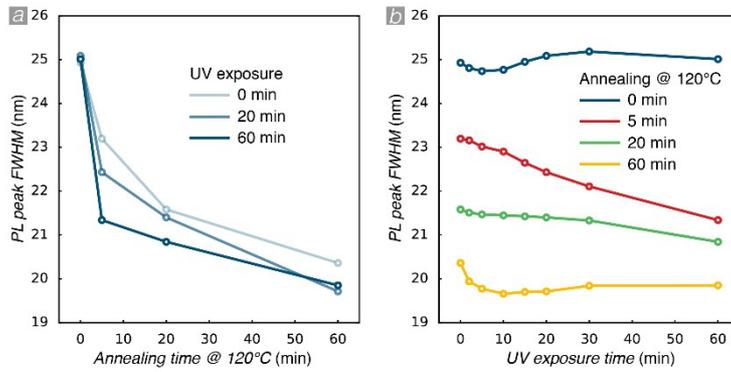
**Fig. S1.** Conventional (a) and modified (b) room temperature ligand assisted re-precipitation (LARP) technique for the fabrication of CsPbBr<sub>3</sub> quantum dots.



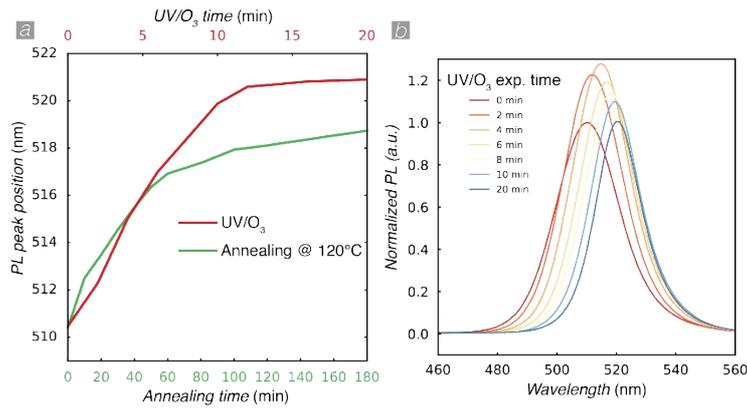
**Fig. S2.** The PL intensity of CsPbBr<sub>3</sub> thin films rapidly decreases after spin-coating due to solvent evaporation and ligands reorganization, and stabilizes after 30 min.



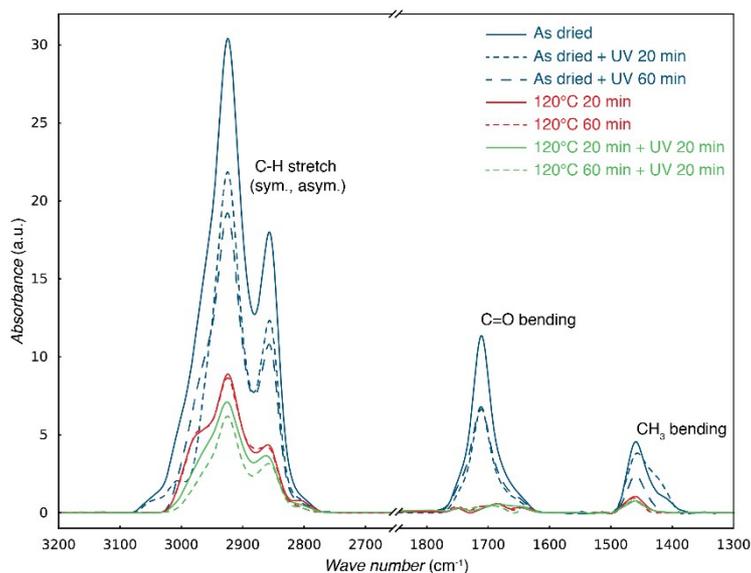
**Fig. S3.** Absorption spectra for the as dried CsPbBr<sub>3</sub> QDs thin films (blue), after annealing for 20 min at 120°C w/o exposure to UV (red and green resp.)



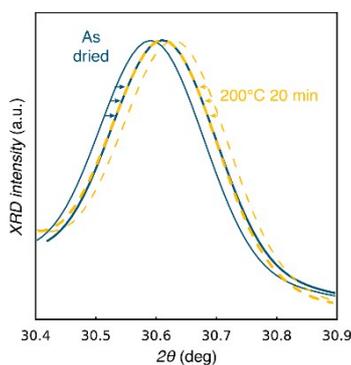
**Fig. S4.** FWHM of the PL peaks of CsPbBr<sub>3</sub> QDs as a function of the (a) annealing time at 120°C for various UV exposure times, (b) UV exposure times for various annealing times at 120°C.



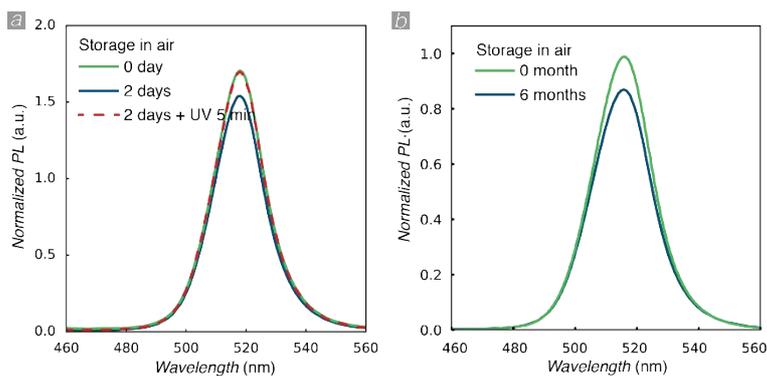
**Fig. S5.** (a) time evolution of the PL emission wavelength of CsPbBr<sub>3</sub> QDs upon annealing at 120°C in air and exposure to UV/O<sub>3</sub>. (b) PL spectra of CsPbBr<sub>3</sub> QDs after various exposure times to UV/O<sub>3</sub>.



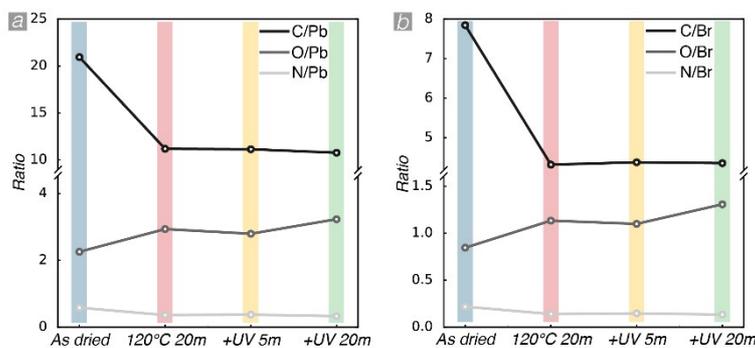
**Fig. S6.** FT-IR spectra of the as-dried CsPbBr<sub>3</sub> QDs thin films (blue), after exposure to UV for 20/60 min (short/long dashed blue), after annealing at 120°C for 20/60 min (plain/dashed red), and exposure to UV for 20 min (plain/dashed green).



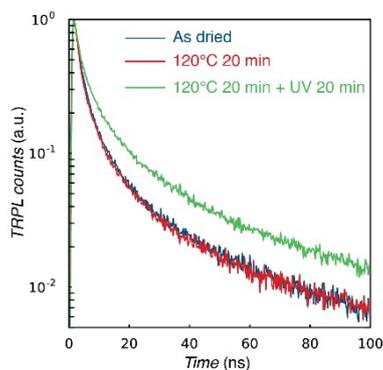
**Fig. S7.** Details of the CsPbBr<sub>3</sub> QDs (202) XRD peak measured at room temperature and after annealing for 20 min at 200°C in air. Both peak perfectly superimpose, there is no peak broadening upon annealing which indicates no size widening of the QDs.



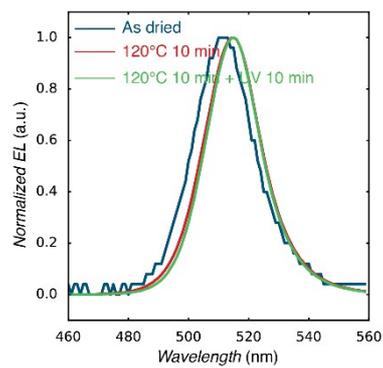
**Fig. S8.** PL emission spectra of CsPbBr<sub>3</sub> QDs thin films (a) after annealing for 20 min at 120°C and exposure to UV for 20 min (green). The intensity decreases of 10% after two days in air (blue) and recovers after 5 min exposure to UV (dashed red). (b) PL spectra of as-prepared and 6 months old CsPbBr<sub>3</sub> QDs thin films.



**Fig. S9.** Relative content of carbon, oxygen and nitrogen versus (a) Pb, (b) Br extracted from XPS data.



**Fig. S10.** Time-resolved photoluminescence (TRPL) measured on as dried CsPbBr<sub>3</sub> QDs thin films (blue), after annealing for 20 min at 120°C w/o exposure to UV (red and green resp.)



**Fig. S11.** Electroluminescence spectra in QLEDs with an emitting CsPbBr<sub>3</sub> QDs layer at room temperature (blue), annealed at 120°C for 10 min (red), additionally exposed to UV for 10 min (green).