Supporting Information

Centrifugal-Coated Quasi-Two-Dimensional Perovskite $CsPb_2Br_5$ Films for Efficient and Stable Light-Emitting Diodes

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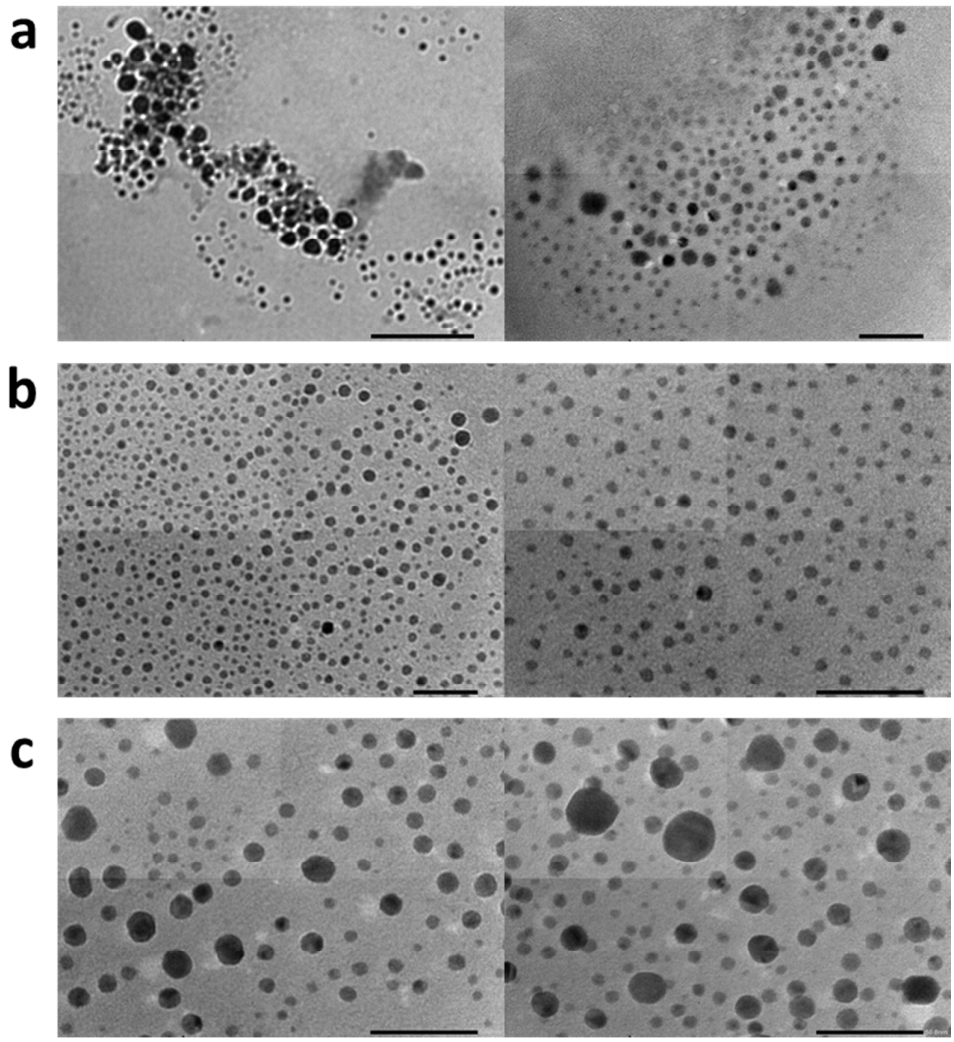

Figure S1. TEM images of as-synthesized $CsPb_2Br_5$ particles from different steps. (a) First step, drop-casted film from raw fresh prepared colloidal solution, scale bar is 100 nm. (b) Second step, drop-casted film from supernatant after first centrifugal process, scale bar is 50 nm. (c) Third step, drop-casted film from supernatant after second centrifugal process, scale bar is 50 nm.

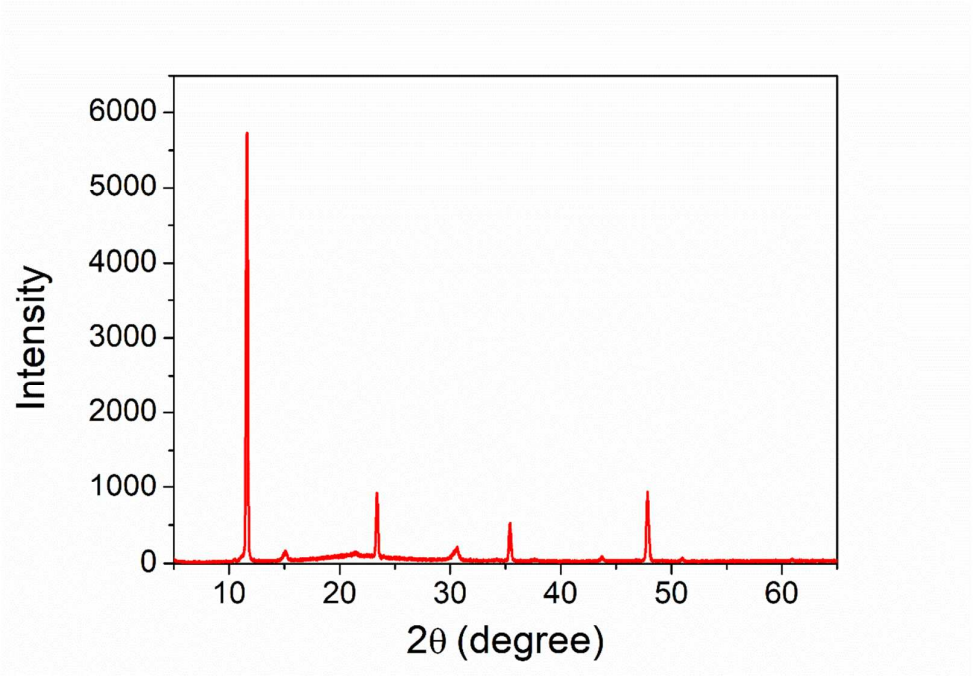

Figure S2. XRD pattern of centrifugal-coated films from a colloidal solution prepared by the reaction between $PbBr_2$ and CsBr in a 5 : 1 ratio. We observed not only strong diffraction peaks at 2θ = 11.4, 23.2, 35.2, and 47.7° ($CsPb_2Br_5$) but also weak diffraction peaks at 2θ = 14.9° and 30.3° ($CsPbBr_3$) in the films.

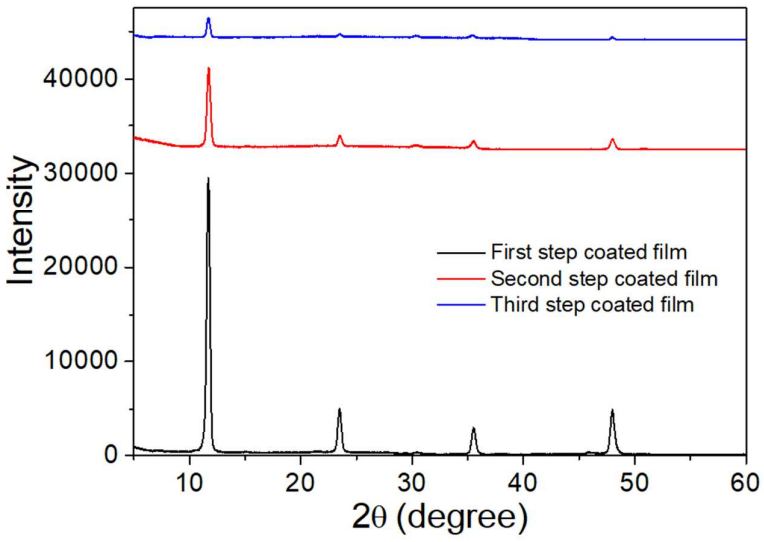

Figure S3. XRD patterns of centrifugal-coated $CsPb_2Br_5$ films at different steps. The patterns are vertically offset to make it easy to see.

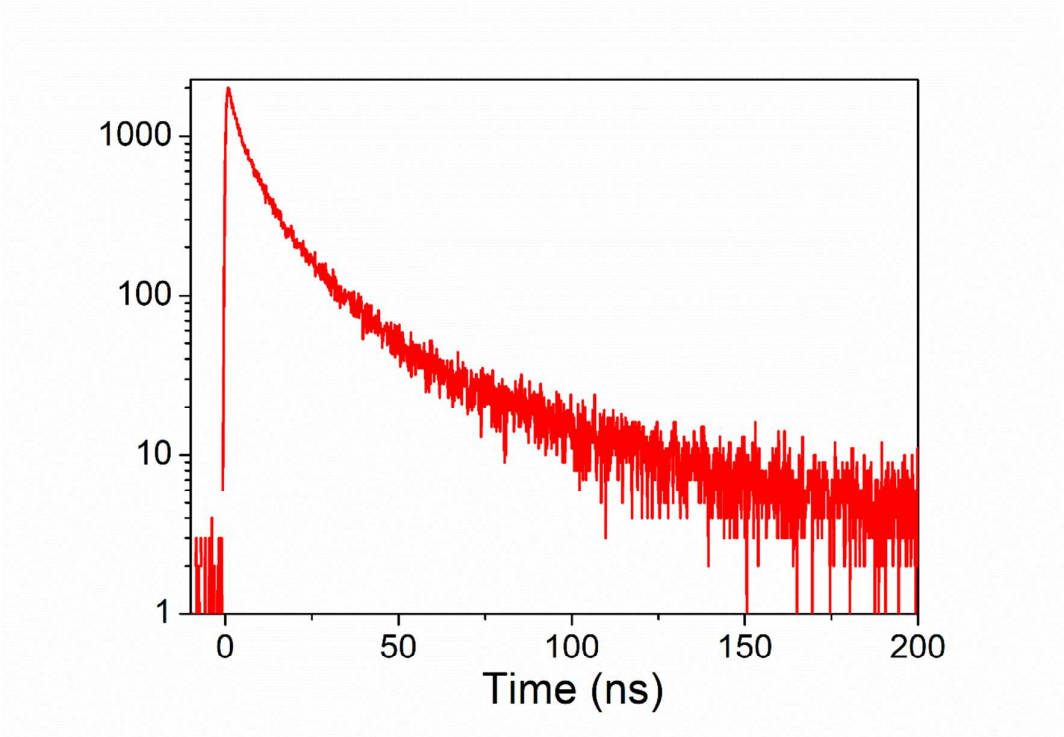

Figure S4. Transient PL decay curve of centrifugal-coated $CsPb_2Br_5$ films.

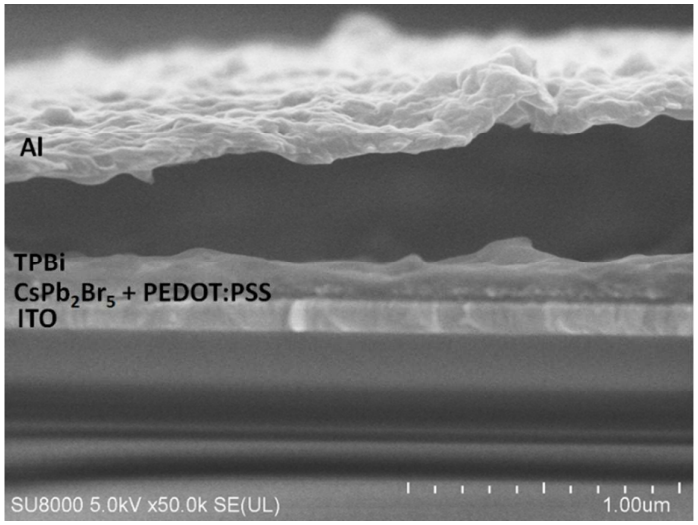

Figure S5. Cross-sectional SEM image of a $CsPb_2Br_5$ based device. The Al film was separated from the bottom film during the cutting of device.

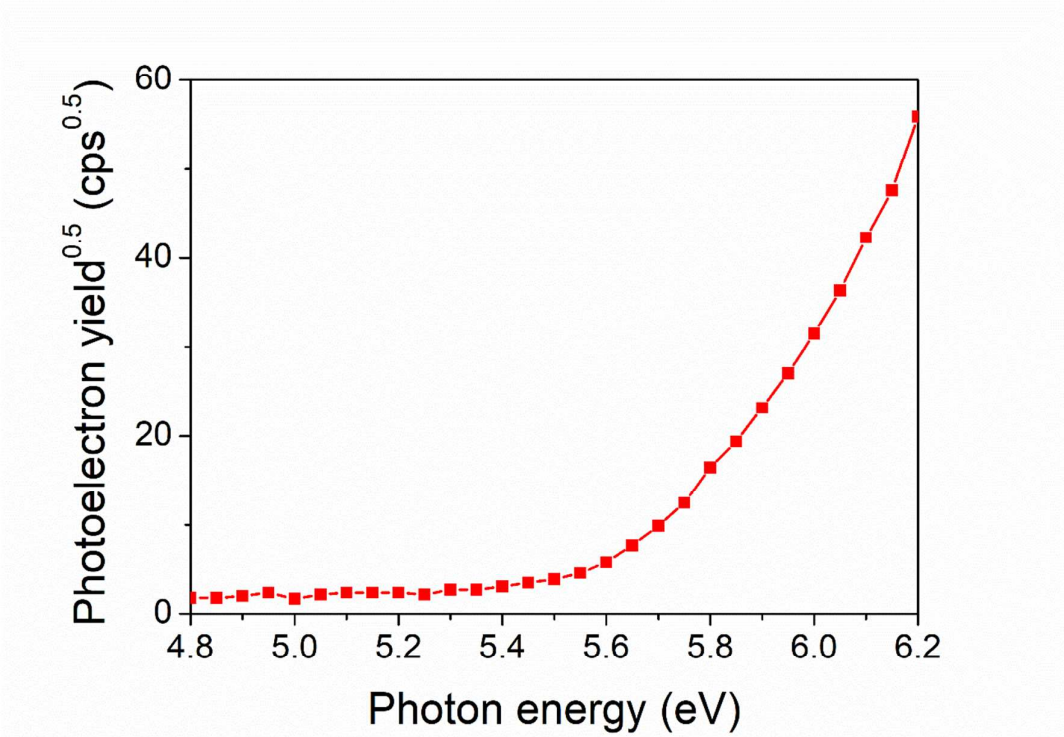

Figure S6. Photoelectron yield spectrum of centrifugal-coated $CsPb_2Br_5$ films. The valence band edge level of $CsPb_2Br_5$ was determined to be 5.66 eV from the photoelectron onset energy.

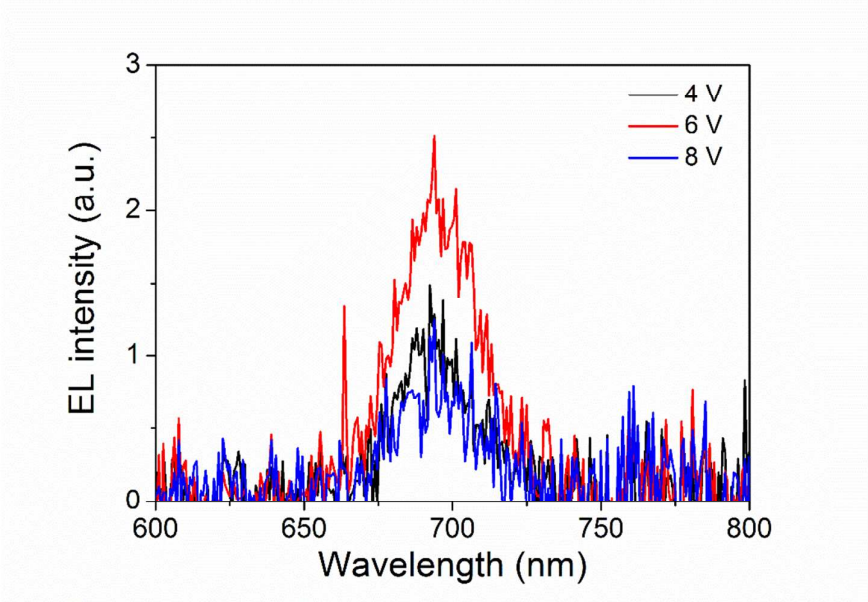

Figure S7. EL spectra of $CsPb_2I_5$ PeLEDs operating under different applied voltages.