

## Supporting Information

### ZnX<sub>2</sub> Mediated Post-Synthetic Transformation of Zero Dimensional Cs<sub>4</sub>PbBr<sub>6</sub> Nanocrystals for opto-electronic applications

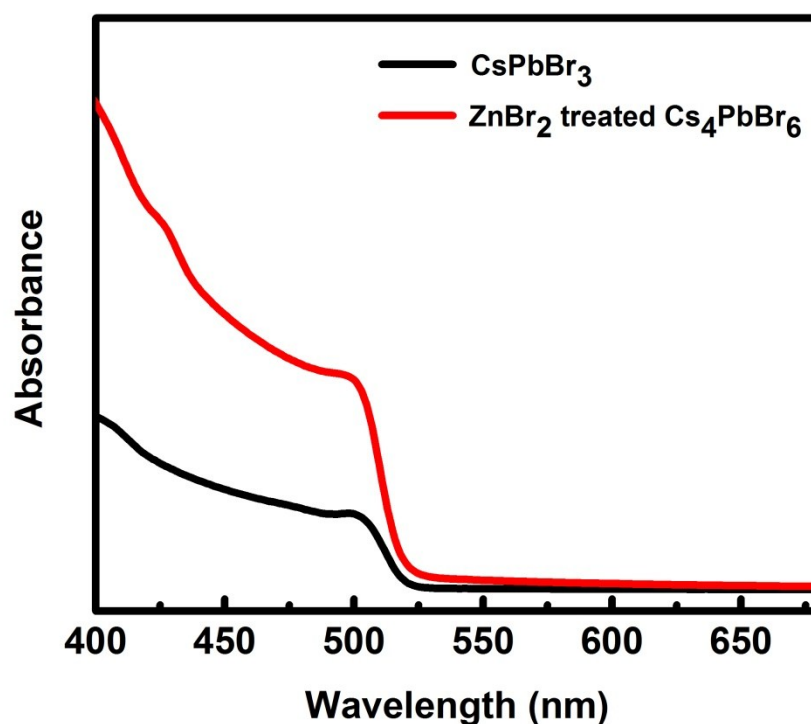
Sumit Kumar Sharma,<sup>^#</sup> Swati Mangain,<sup>^#</sup> Burhanuddin Attarwala,<sup>^\$</sup> Aswani Yella<sup>^\*</sup>

<sup>^</sup> Centre of Research in Nanotechnology and Science, Indian Institute of Technology Bombay, 400076, India.

<sup>^\$</sup> Department of Metallurgical Engineering and Materials Science, Indian Institute of Technology Bombay, 400076, India.

<sup>^#</sup> Both the authors contributed equally

<sup>^\*</sup> Corresponding Author



**Figure S1:** Comparison of the absorption spectra of the CsPbBr<sub>3</sub> NCs and ZnBr<sub>2</sub> treated Cs<sub>4</sub>PbBr<sub>6</sub> NCs.



**Figure S2.** Photograph of the ZnBr<sub>2</sub> treated nanocrystal dispersion(left) and CsPbBr<sub>3</sub> nanocrystal dispersion (right) after 2 months.

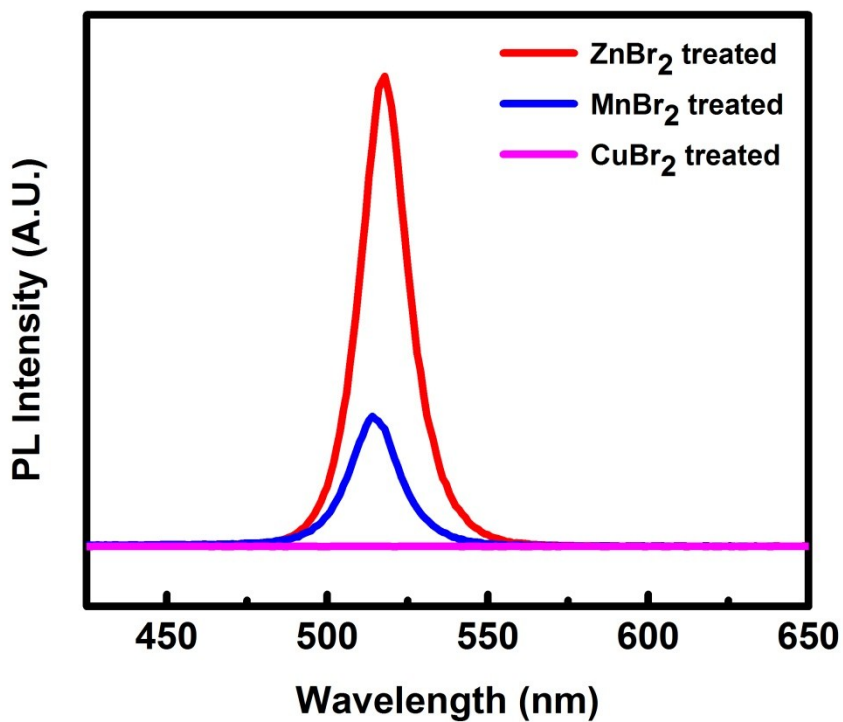


Figure S3: PL of ZnBr<sub>2</sub>, MnBr<sub>2</sub> and CuBr<sub>2</sub> treated Cs<sub>4</sub>PbBr<sub>6</sub> NCs.

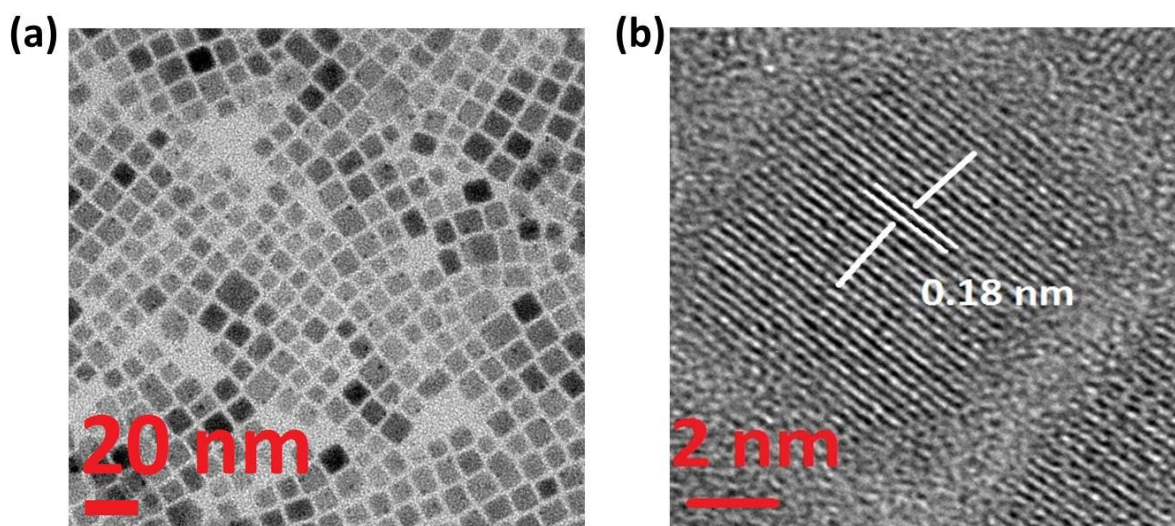
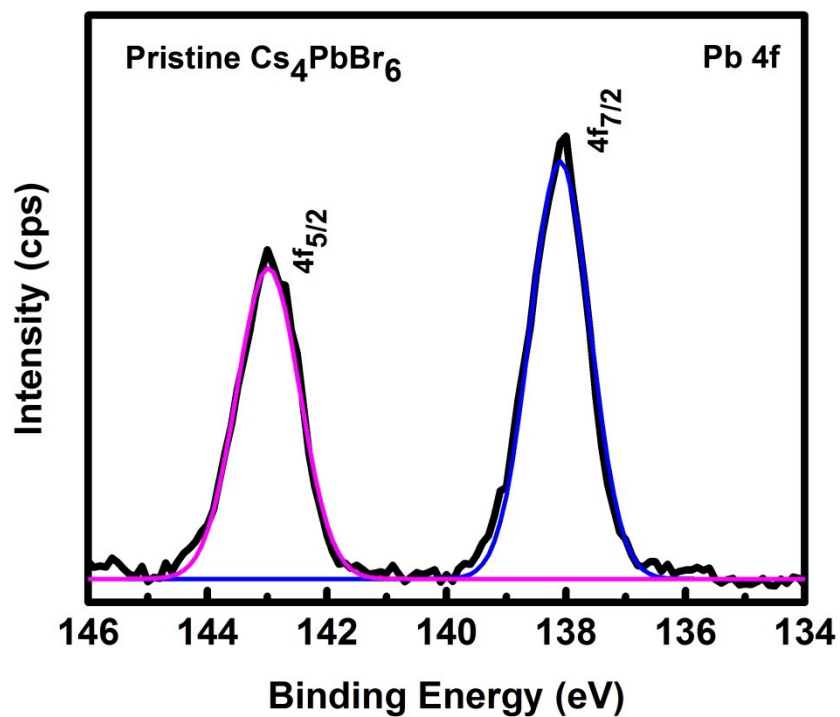
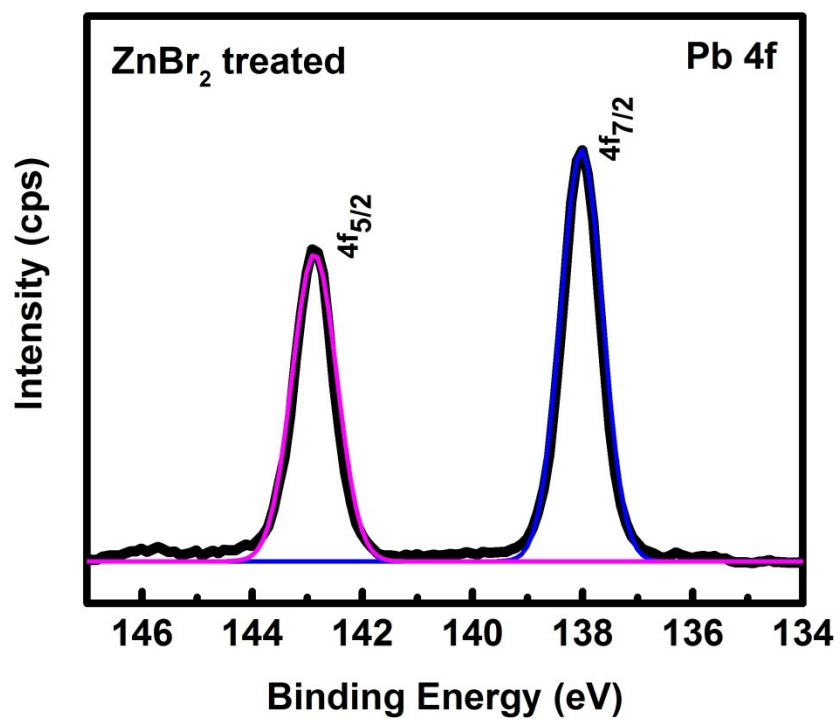


Figure S4: TEM and HRTEM images of CsPbBr<sub>3</sub> NCs synthesized by hot injection method.



**Figure S5:** High-resolution XPS spectrum of pristine Cs<sub>4</sub>PbBr<sub>6</sub> NCs for Pb 4f.



**Figure S6:** High-resolution XPS spectrum of ZnBr<sub>2</sub> treated Cs<sub>4</sub>PbBr<sub>6</sub> NCs for Pb 4f.

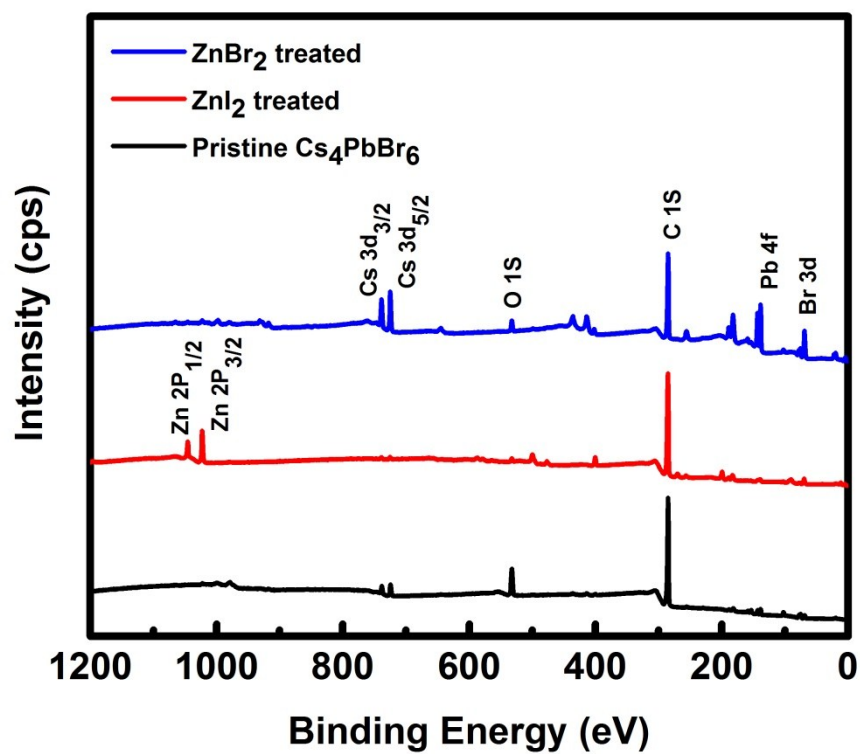


Figure S7: XPS spectra of pristine, ZnBr<sub>2</sub> and ZnI<sub>2</sub> treated Cs<sub>4</sub>PbBr<sub>6</sub> NCs

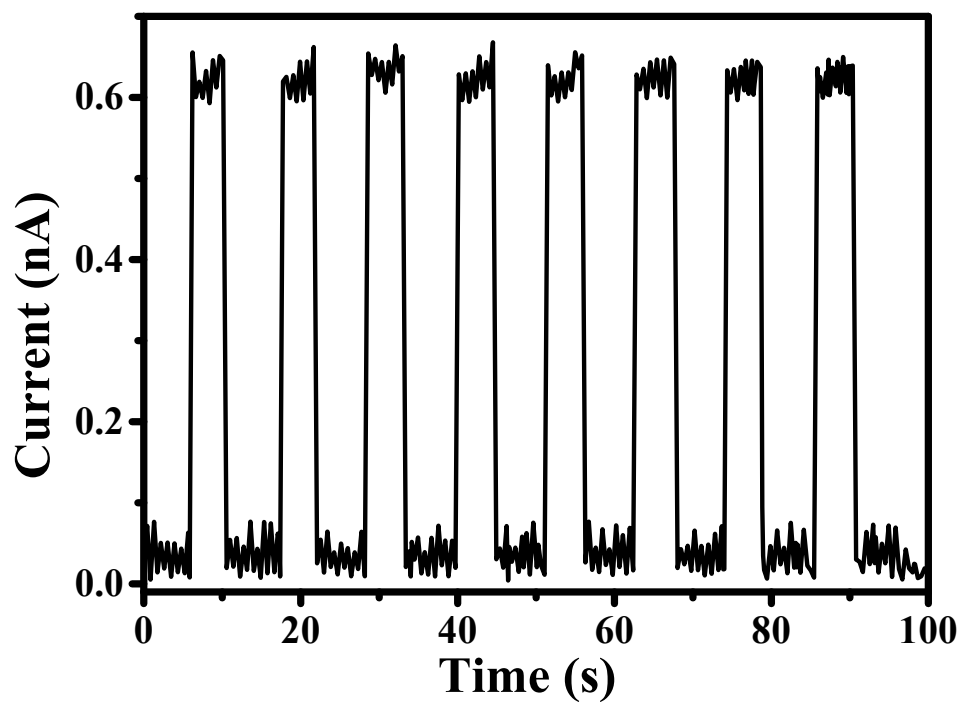


Figure S8 Photodetector response for the device fabricated using ZnBr<sub>2</sub> treated NC samples.