Electronic Supplementary Material (ESI) for RSC Advances.

Supporting information for: Quantification of hot carrier thermalization in PbS colloidal quantum dots by power and temperature dependent photoluminescence spectroscopy

Supporting information S1: Determination of the size of PbS QDS

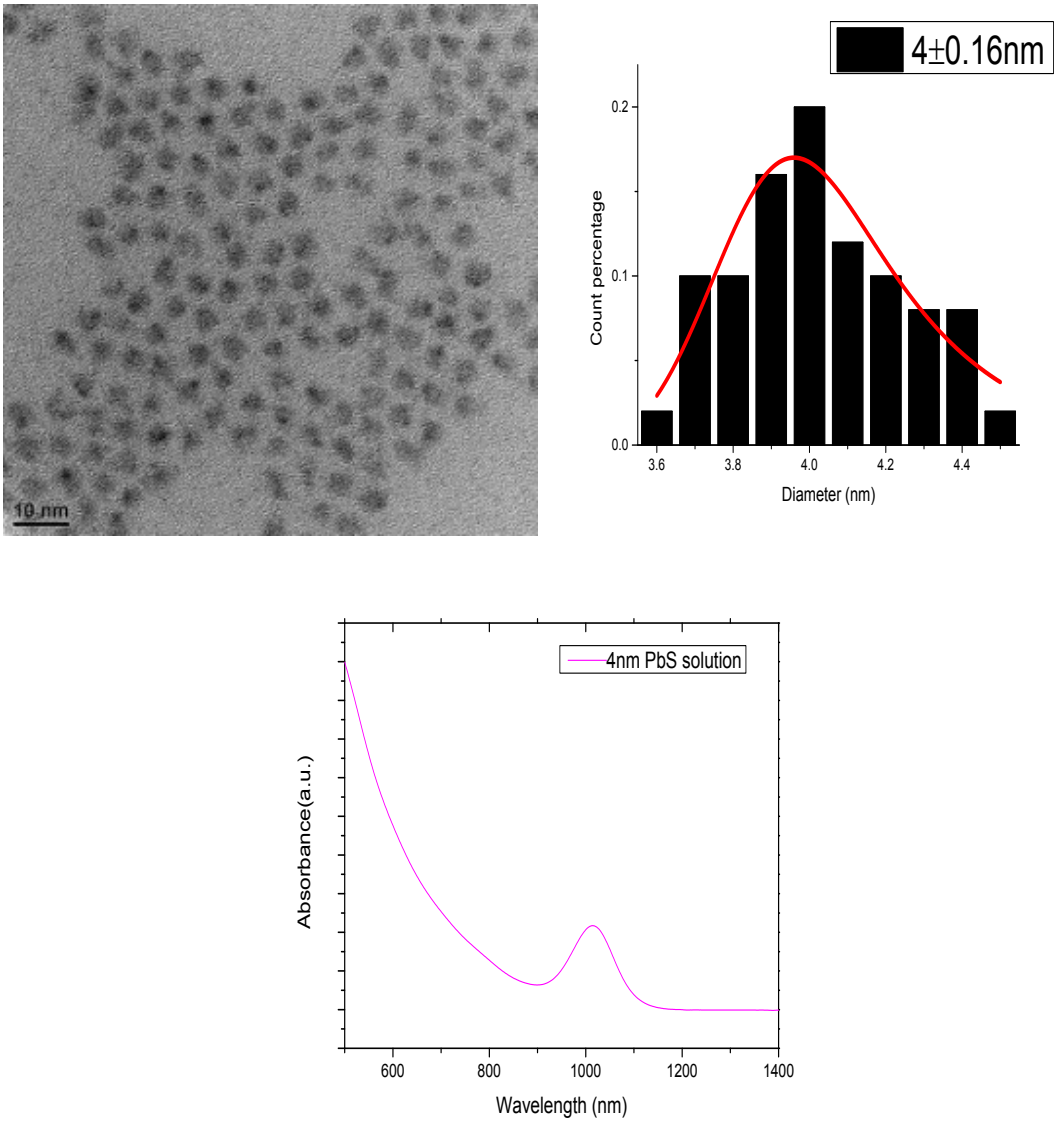


Fig S1. (a)TEM images showing PbS QDs with 4 and (b) size distribution are plotted in the form of column bars as a function of the QDs size. The size distribution are fitted with the Gaussian distribution equation, the QDs size with size distribution are calculated from the Gaussian fitting results. (c) Absorbance spectra of 4 nm PbS QDs solution in hexane

S2: Electron microscopy characterization results of PbS drop casting and LB film

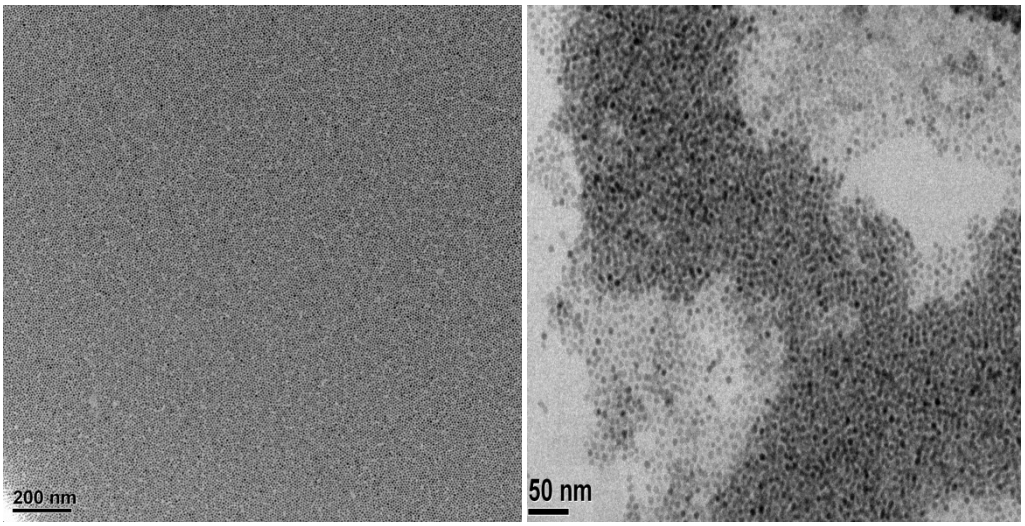
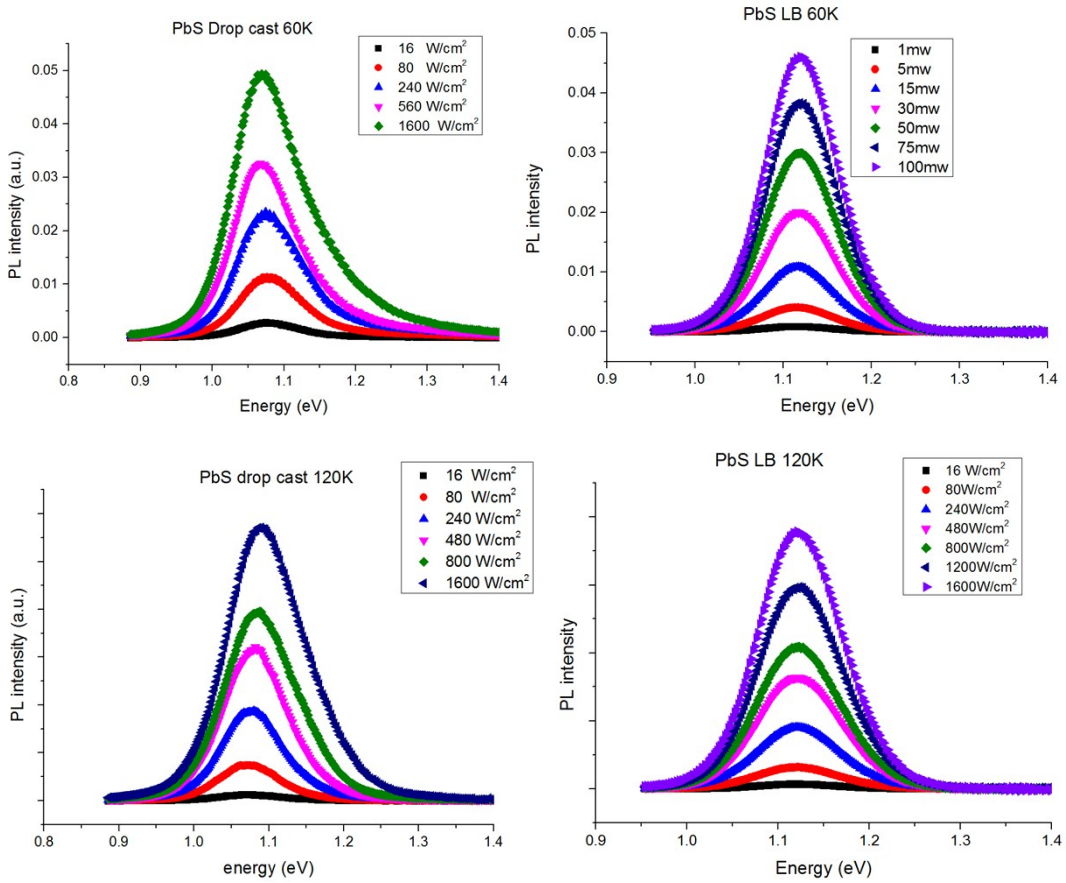


Fig S2. TEM image of PbS QDs (a) LB deposited and (b) drop casting film respectively.

S2: Power dependent PL spectra of PbS drop casting and LB film from 60 to 300 K.



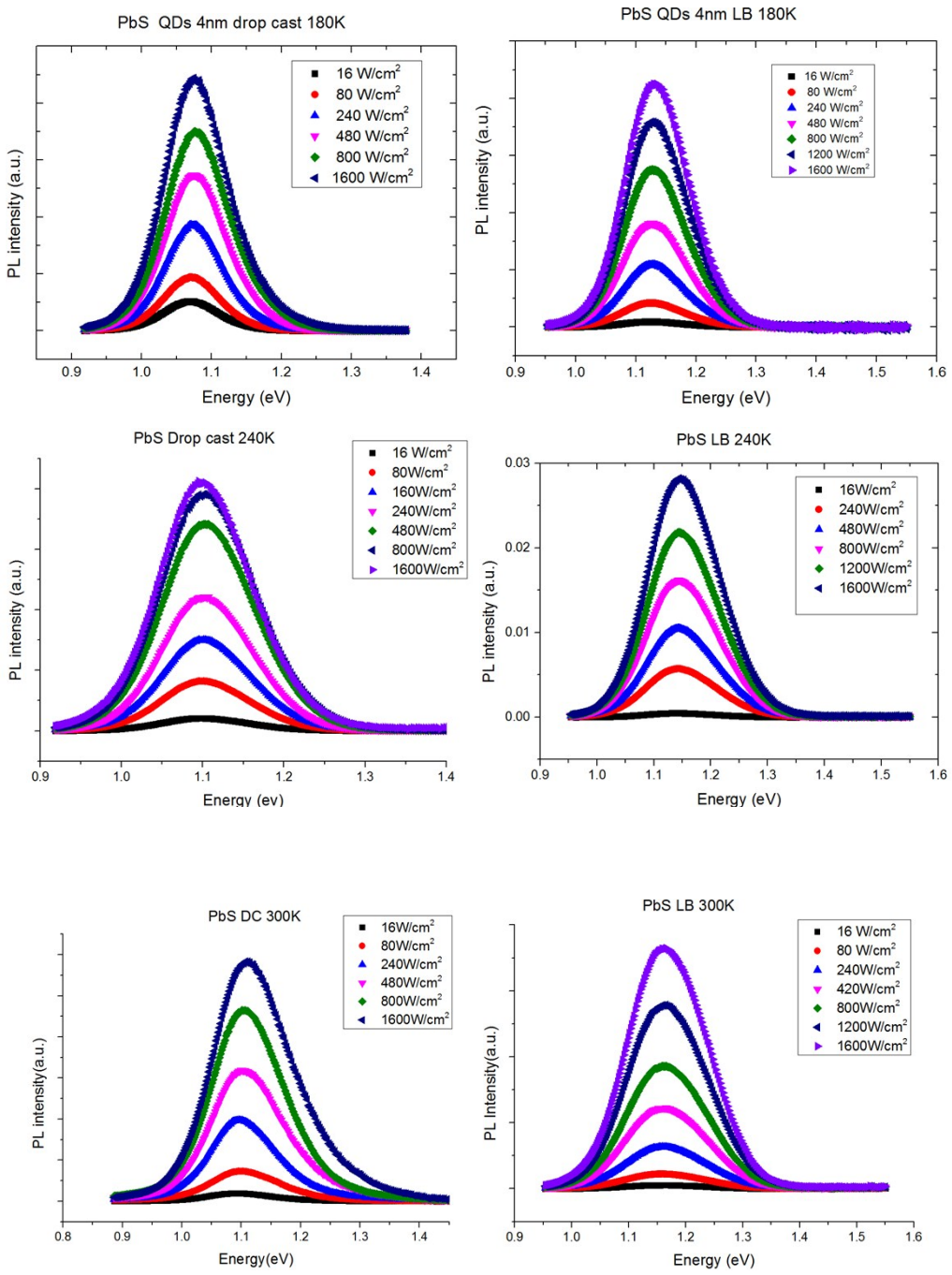


Fig S3. Power dependent PL spectra of PbS drop casting and LB films from 60 to 300 K.

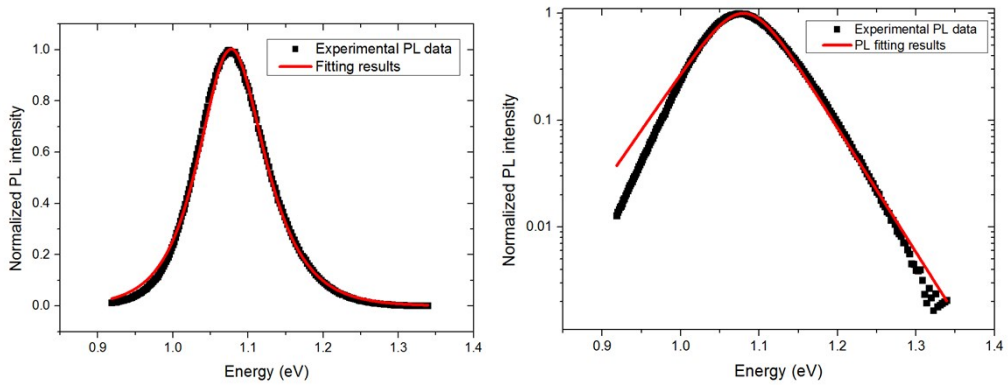


Fig S4. Full spectrum carrier temperature fitting of normalized plot in linear scale (left) and semi-log plot (right) respectively.

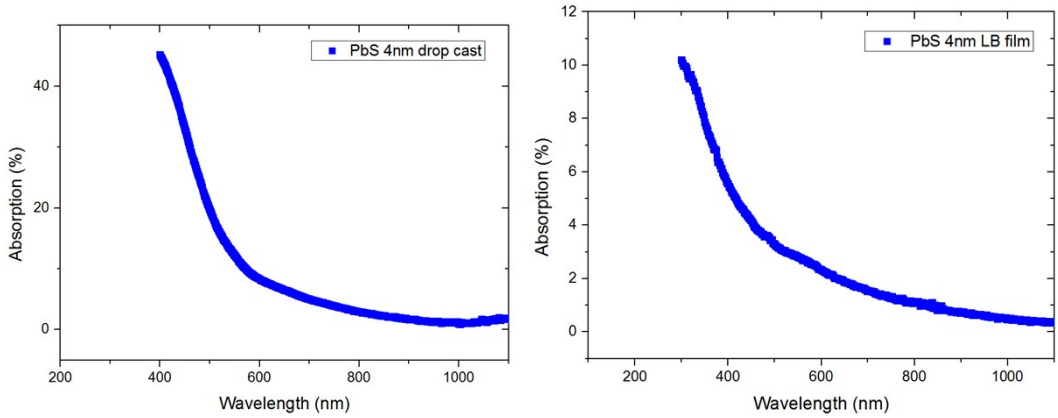


Figure S5. Absorption of the PbS QDs drop cast film and LB film measured with Perkin Elmer UV-VIS spectrometer.