

Low defects density CsPbBr₃ single crystals grown by an additive assisted method for gamma-ray detection

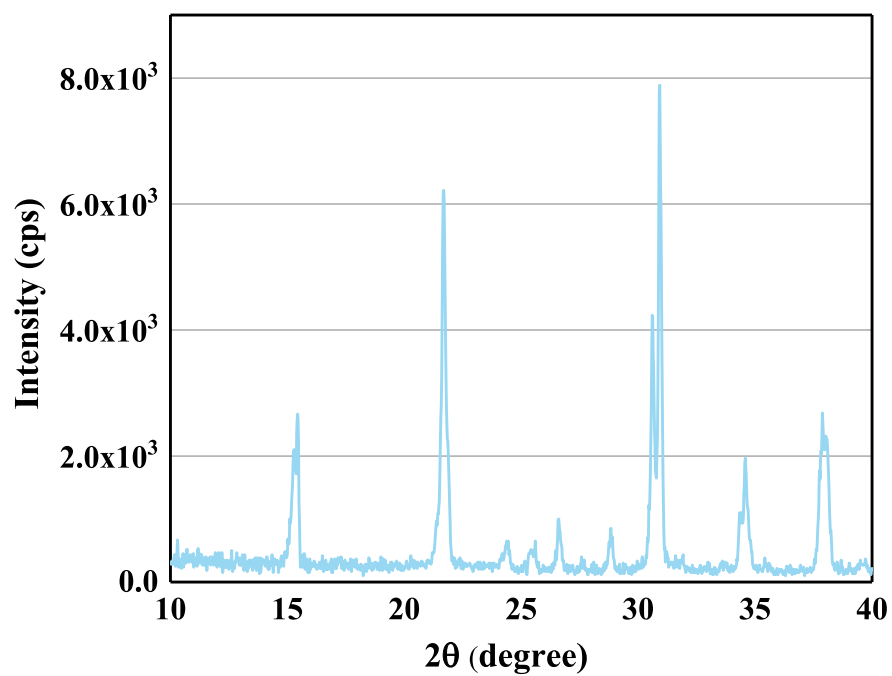
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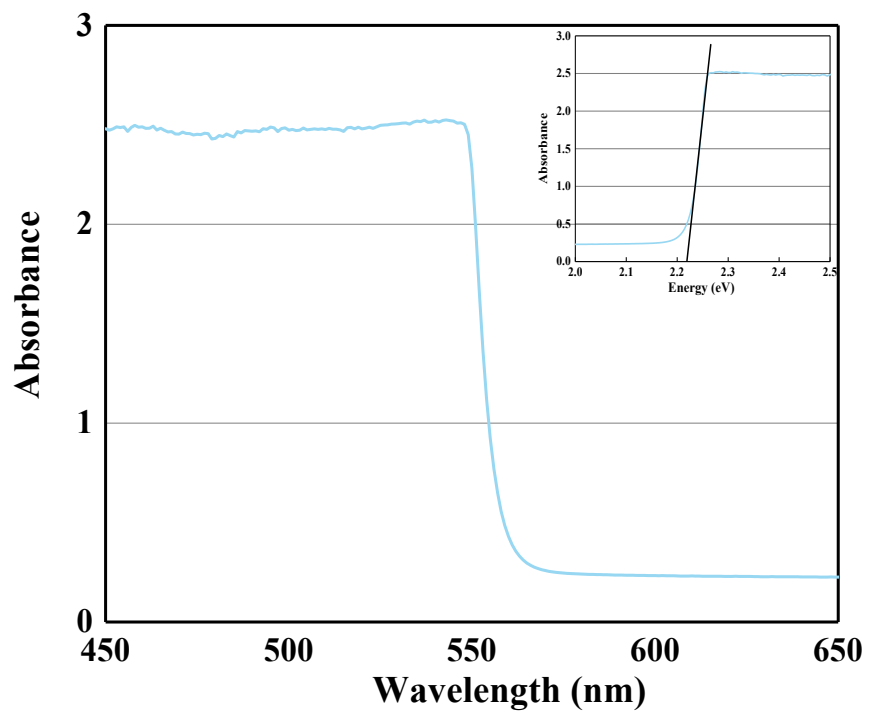
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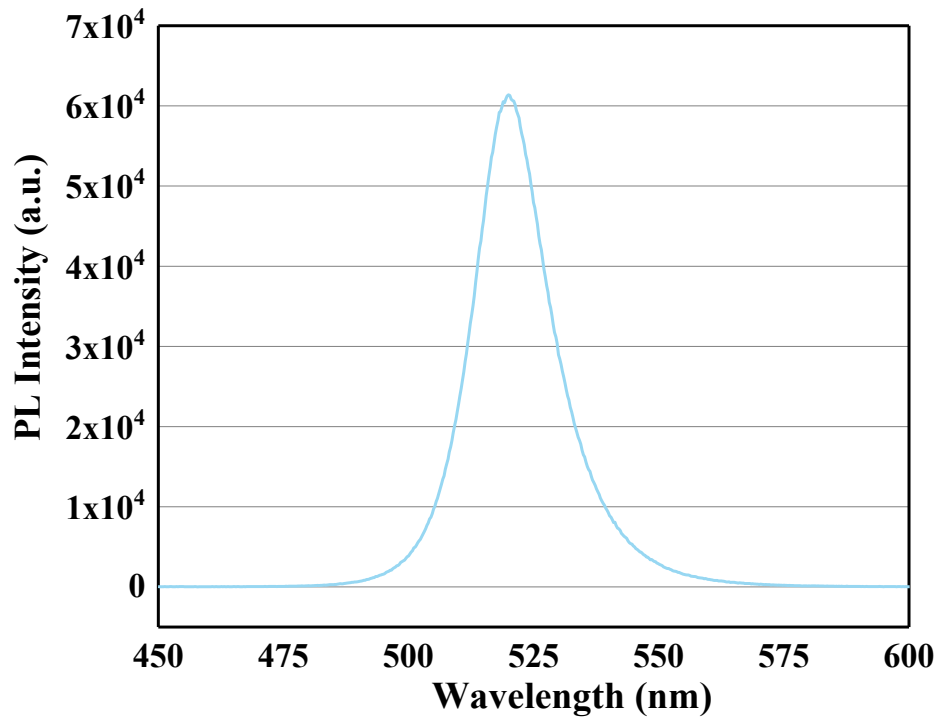
Supplementary Information



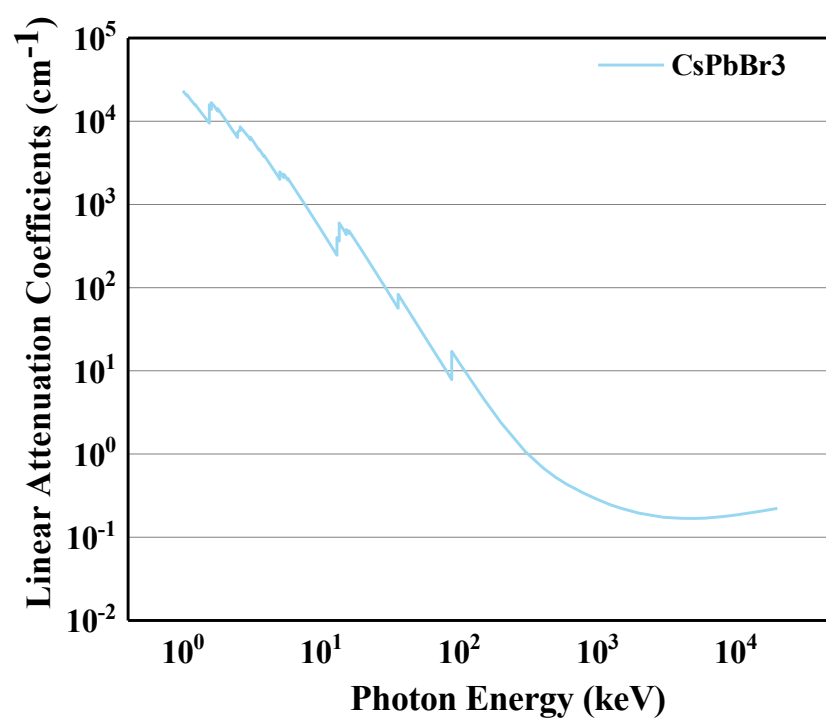
Supplementary Figure 1. XRD pattern of CsPbBr₃ powder grown with CB.



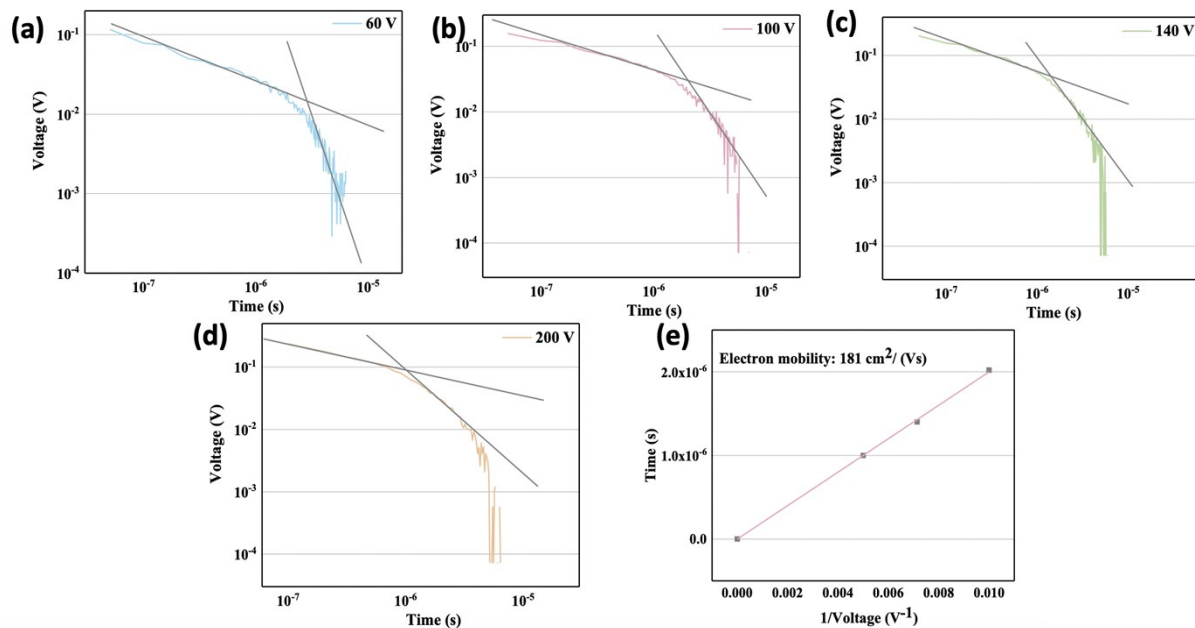
Supplementary Figure 2. UV-vis absorption spectrum of of CsPbBr_3 single crystal grown with CB. The inset is the Tauc plot which shows the optical bandgap about 2.22 eV.



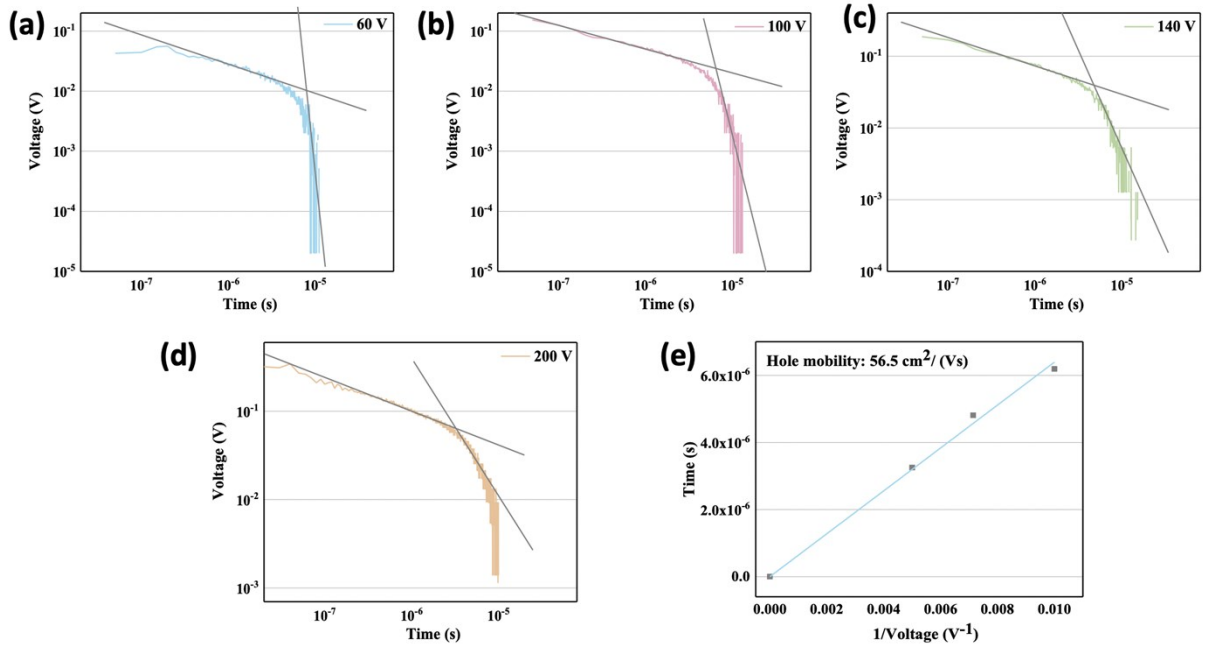
Supplementary Figure 3. PL spectrum of CsPbBr₃ single crystal grown with CB. PL was measured at 25 °C.



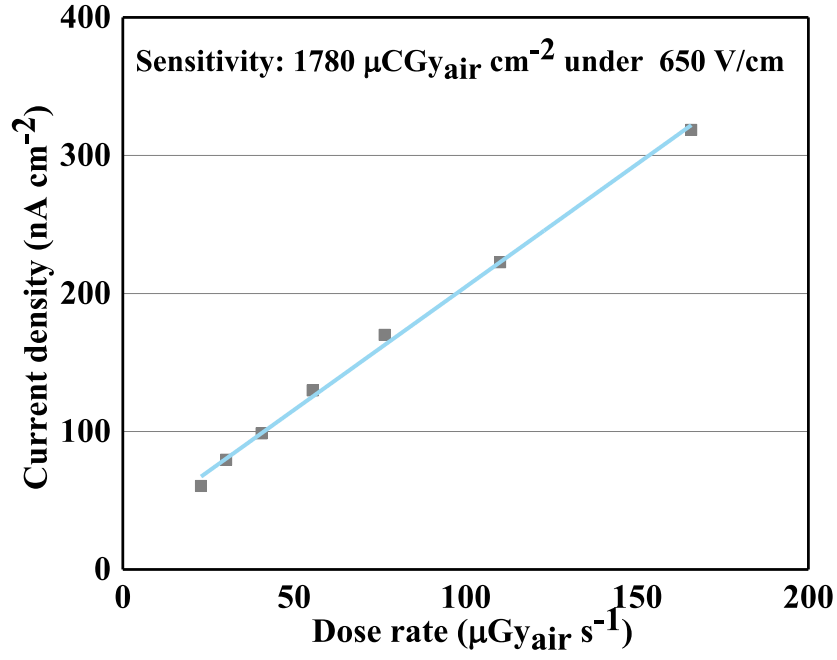
Supplementary Figure 4. Linear attenuation coefficients of CsPbBr₃ perovskite versus photon energy.



Supplementary Figure 5. Electron induced transient current of CB-assisted CsPbBr₃ single crystal detector under (a) 60 V, (b) 100 V, (c) 140 V, and (d) 200 V. (e) Electron mobility of CB-assisted CsPbBr₃ single crystal detector estimated by linear fitting $\tau_{transit}$ verse $1/V$



Supplementary Figure 6. Hole induced transient current of CB-assisted CsPbBr₃ single crystal detector under (a) 60 V, (b) 100 V, (c) 140 V, and (d) 200 V. (e) Hole mobility of CB-assisted CsPbBr₃ single crystal detector estimated by linear fitting $\tau_{transit}$ verse $1/V$.



Supplementary Figure 7. Sensitivity of detector based on CB-assisted CsPbBr₃ single crystal. The energy of X-ray is 60 keV, and the CB-assisted CsPbBr₃ is biased at 650 V/cm.