

Supplementary Information

Visible-ultraviolet dual-band photodetector based on all-inorganic CsPbCl₃/p-GaN heterostructure

Bingjie Ye^a, Boxiang Wang^a, Yan Gu^a, Jiarui Guo^a, Xiumei Zhang^a, Weiying Qian^a, Xiangyang Zhang^a, , Guofeng Yang^{a,*}, Zhixing Gan^{b,*} and Yushen Liu^{c,*}

^a School of Internet of Things Engineering, Jiangnan University, Wuxi 214122, China

^b Center for Future Optoelectronic Functional Materials, School of Computer and Electronic Information/School of Artificial Intelligence, Nanjing Normal University, Nanjing 210023, China

^c Yancheng Polytechnic college, Yancheng 224005, China

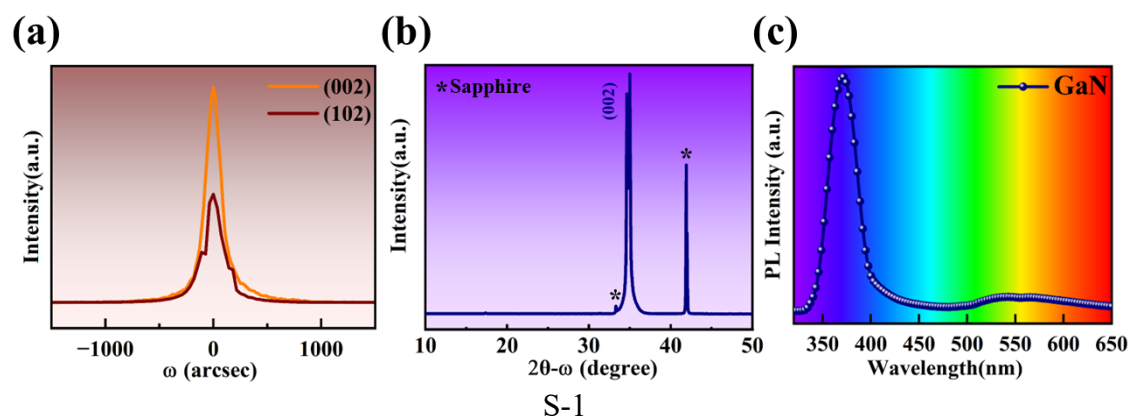


Fig. S1. (a) Rocking curve; (b) ω -2 θ XRD scanning of (002) plane and (c) PL spectrum of GaN substrate.

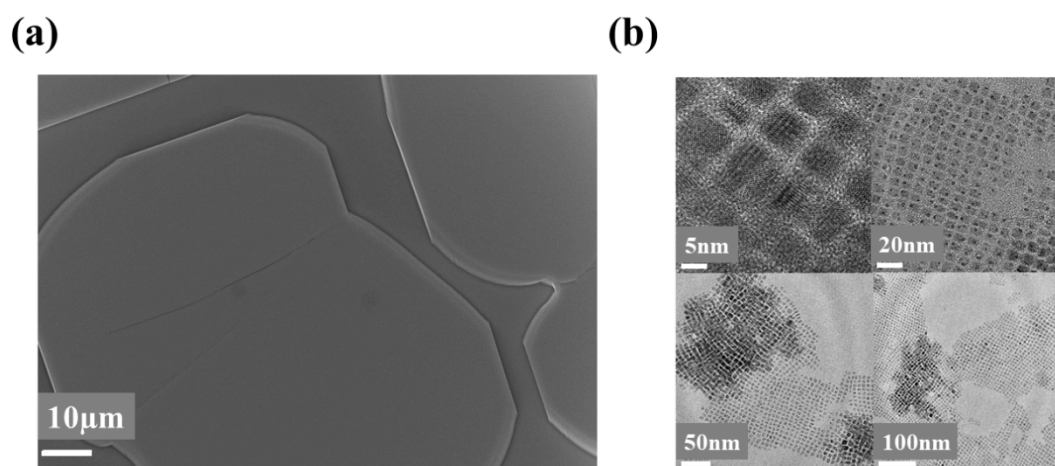


Fig. S2. (a) SEM images and (b) TEM images of CsPbCl_3 nanocrystals at different scales.

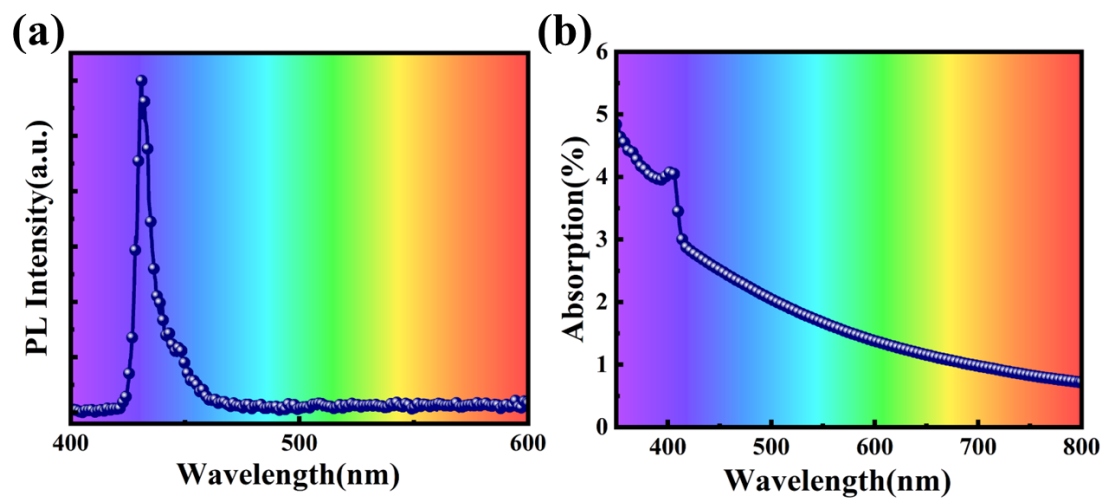


Fig. S3. (a) PL spectrum; (b) absorption spectrum of CsPbCl_3 nanocrystal.

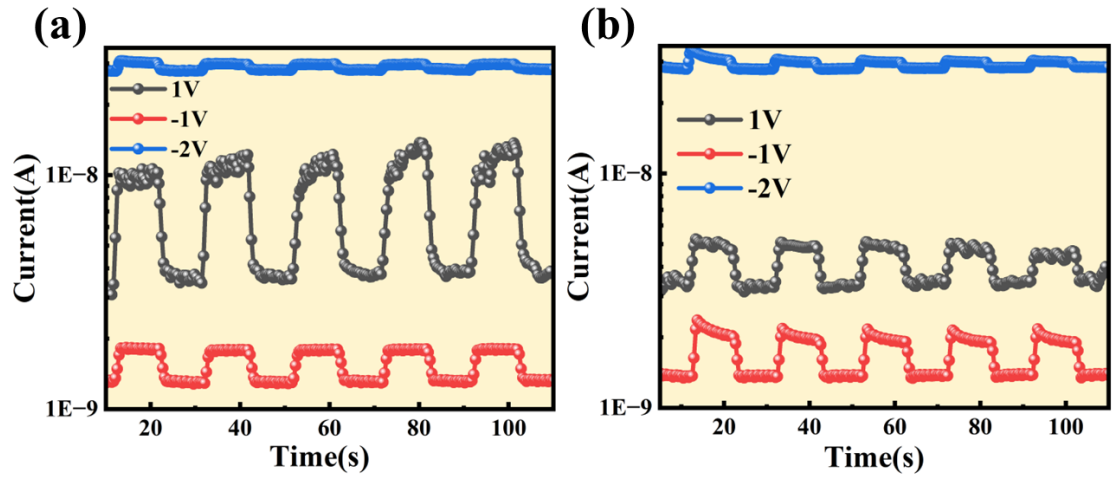


Fig. S4. Continuous switching modulation curves of devices under (a) 350 nm and (b) 420 nm illumination, with a period of 40 s.

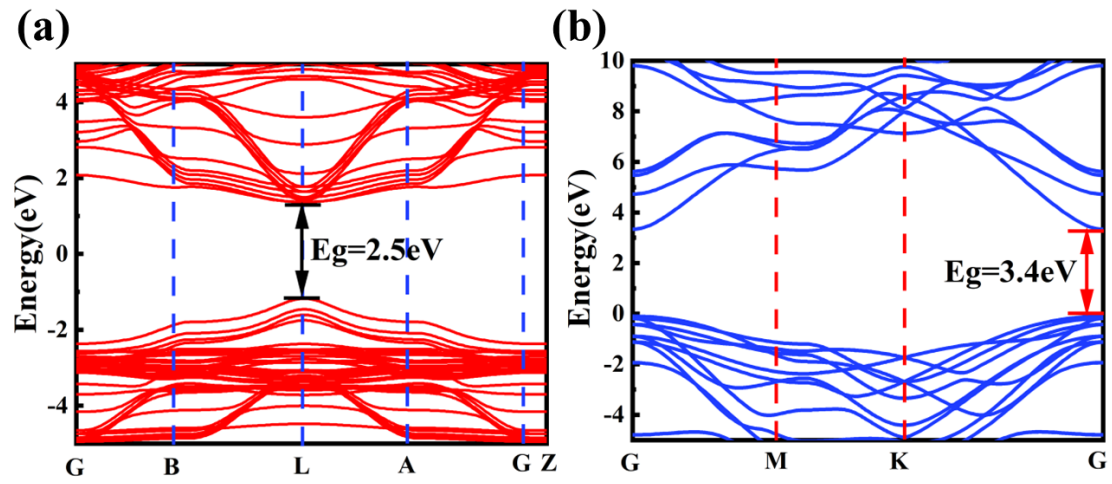


Fig. S5. (a) Energy band diagram of CsPbCl_3 ; (b) energy band diagram of GaN .

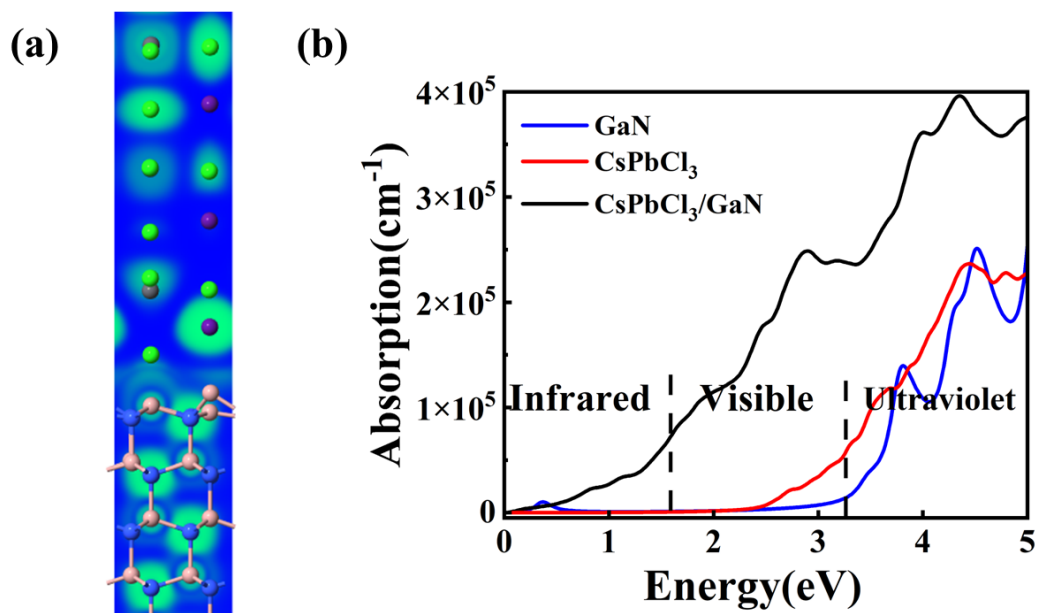


Fig. S6. (a) Heterojunction electron localization function; (b) The function diagram of absorption coefficient and light energy of isolated GaN, CsPbCl₃ and CsPbCl₃/GaN heterojunction.