

Supporting Information

To enhance performance of PbS:CsPbBr₃ bulk-heterojunction photodetectors by treating with Imidazolium-based ionic liquids

Ying Wang¹, Shengyi Yang^{1*}, Muhammad Sulaman¹, Guanzhen Zou¹, Haiyuan Xin¹, Zhenhua Ge¹, Zhenheng Zhang¹, Mengchun Zhu¹, Bingsuo Zou², Yurong Jiang³

¹Beijing Key Lab of Nanophotonics and Ultrafine Optoelectronic Systems, School of Physics, Beijing Institute of Technology, Beijing 100081, P. R. China

²School of Physical Science and Technology, Guangxi University, Nanning 530004, P. R. China

³School of Optics and Photonics, Beijing Institute of Technology, Beijing 100081, P. R. China

KEYWORDS: Perovskites, colloidal quantum dots, surface-passivation, ligand exchange, hybrid bulk-heterojunction, energy band, broadband photodetectors.

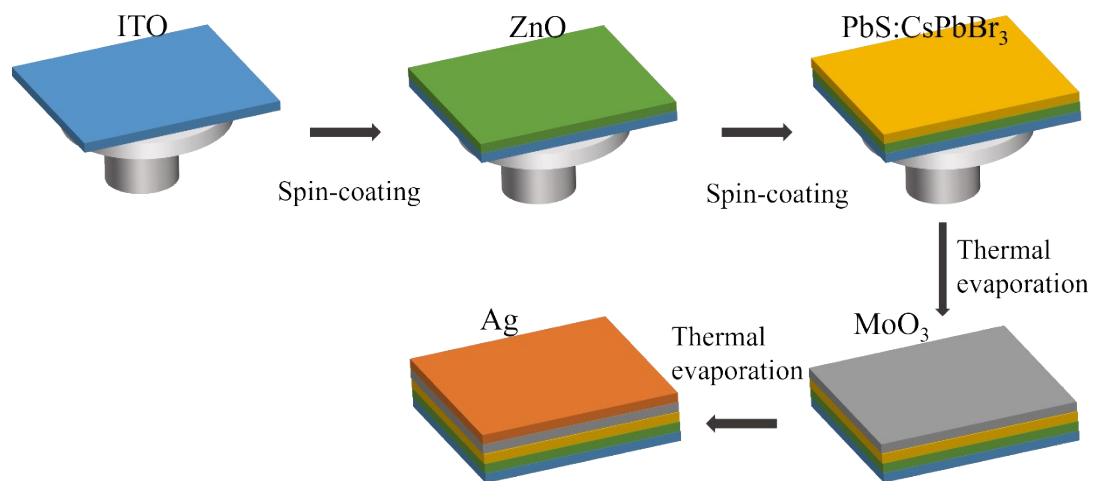


Fig.S1 Schematic diagram of the fabrication process for bulk-heterojunction photodetectors ITO/ZnO/PbS:CsPbBr₃/MoO₃/Ag.

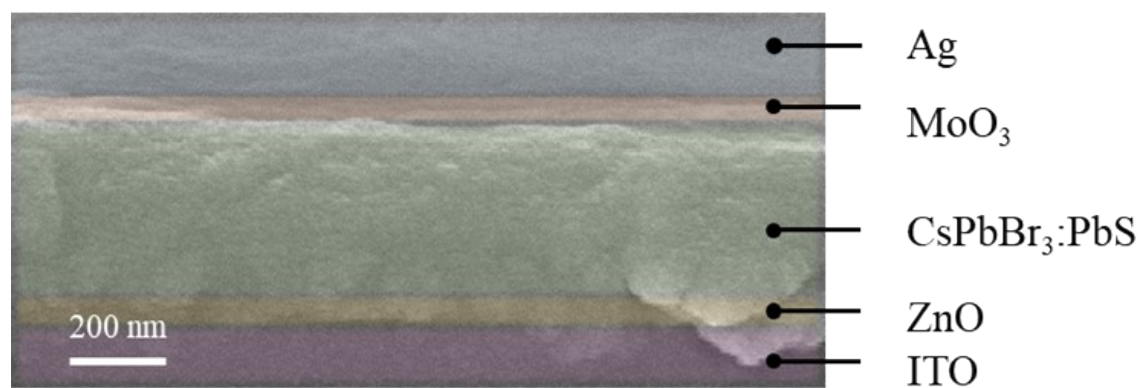


Fig.S2 Cross-sectional SEM image of the photodetectors ITO/ZnO/PbS:CsPbBr₃/MoO₃/Ag.

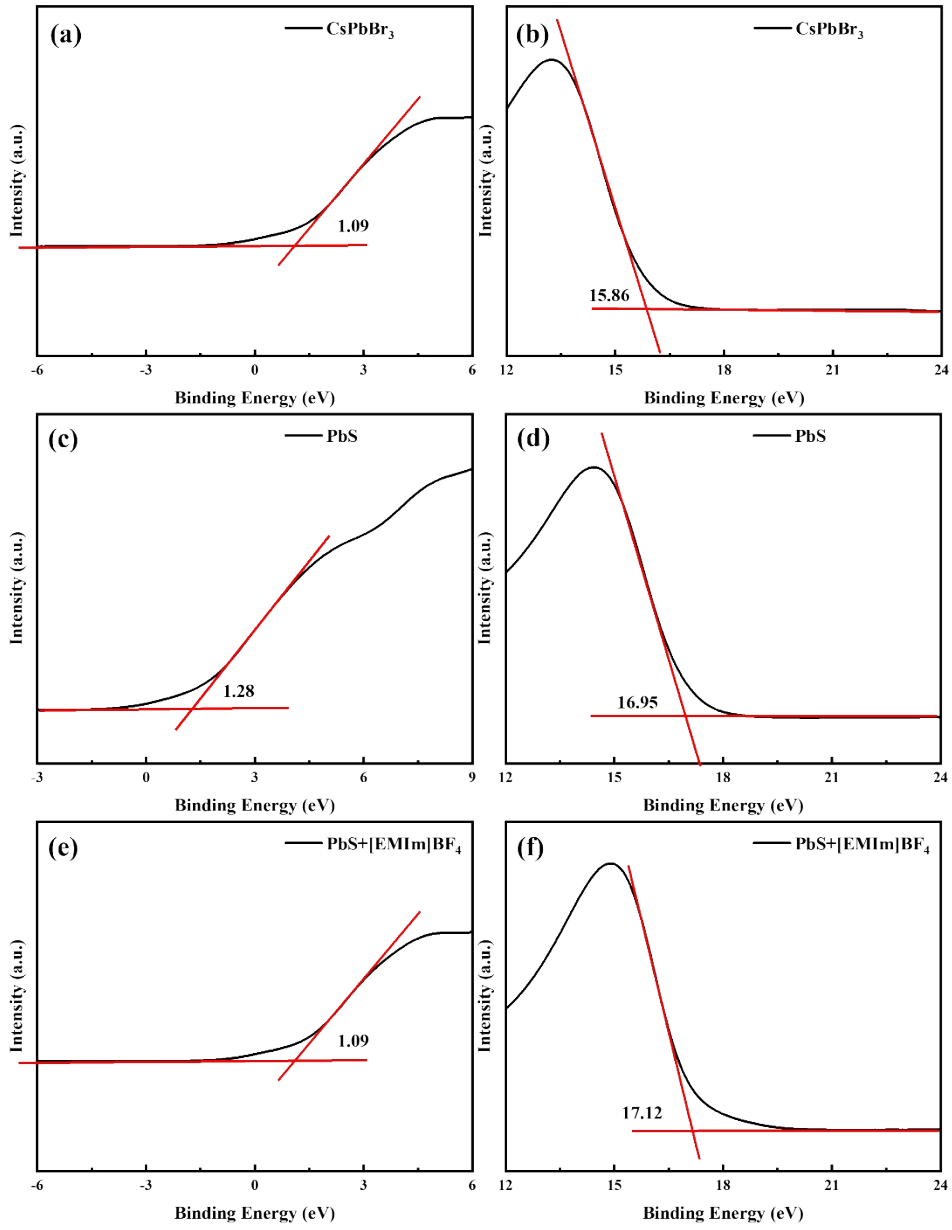


Fig.S3 UPS of CsPbBr₃ (a-b), PbS (c-d) and PbS+[EMIM]BF₄ (e-f).

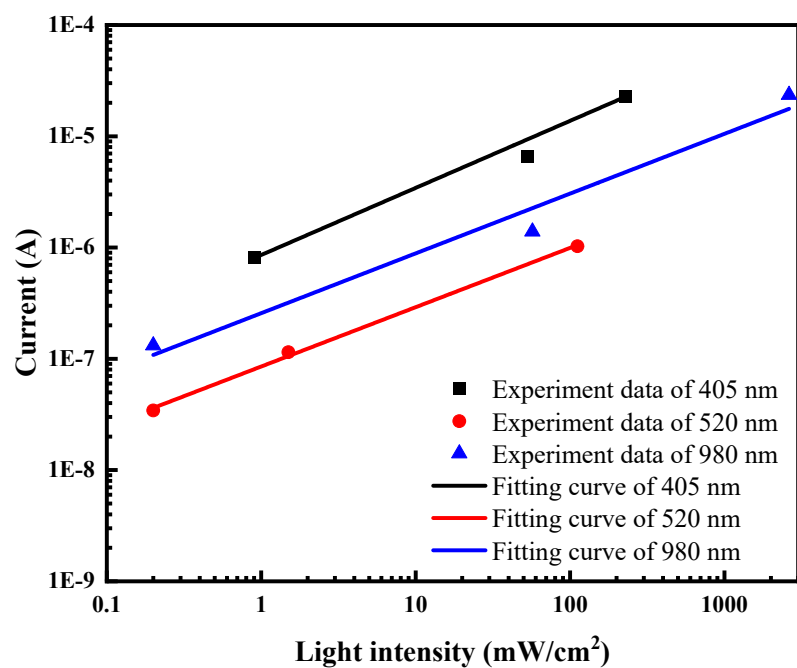


Figure S4 LDR of photodetectors under different wavelength illuminations.