Electronic Supplementary Material

Enhanced photoluminescence quantum yield of $MAPbBr_3$ nanocrystals by passivation using graphene

Youngsin Park[1], Atanu Jana[1], Chang Woo Myung[1], Taeseung Yoon[1], Geunsik Lee[1], Claudius C. Kocher[2], Guanhua Ying[2], Vitaly Osokin[2], Robert A. Taylor[2] (✉), Kwang S. Kim[1] (✉)

[1]*School of Natural Science, Ulsan National Institute of Science and Technology, Ulsan 44919, Korea*

[2]*Clarendon Laboratory, Department of Physics, University of Oxford, Parks Road, Oxford OX1 3PU, UK*

Address corresponding to Robert A. Taylor, robert.taylor@physics.ox.ac.uk; Kwang S. Kim, kimks@unist.ac.kr

Figure S1 shows transmission electron microscopy (TEM) images of the $MAPbBr_3$ nanoparticles for arbitrarily dispersed clusters. The shape of a nanocrystal is almost circular and the diameter ranges from 20~30 nm for all the nanoparticles. Figure S1c presents a high-resolution TEM image showing lattice fringes with a spacing of 0.292 nm for the cubic crystal structure at room temperature, in good agreement with a previously reported value [1].

Figure S2 shows an X-ray diffraction pattern of the $MAPbBr_3$ nanocrystal, which confirms the Cubic crystal structure [2-4].

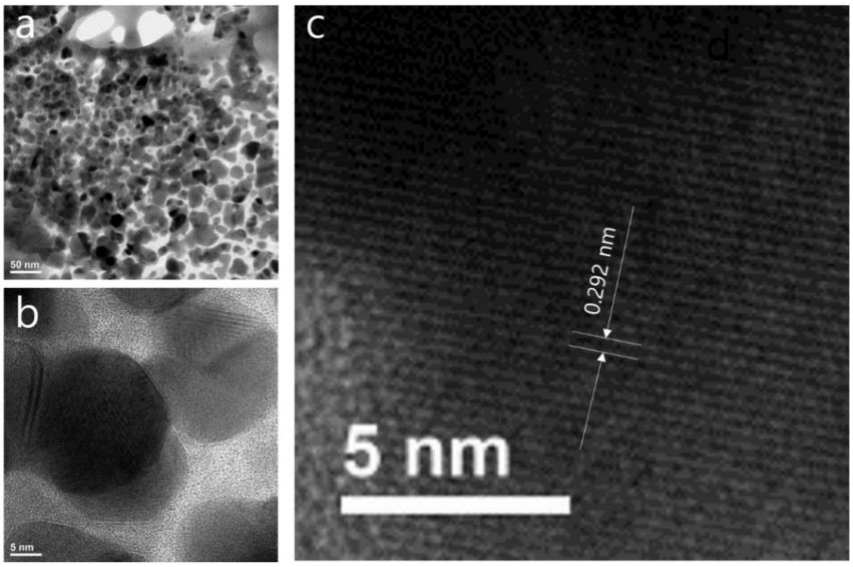

Figure S1 (a) and (b). Transmission electron microscopy images of the $MAPbBr_3$. (c) High resolution TEM image of a nanocrystal.

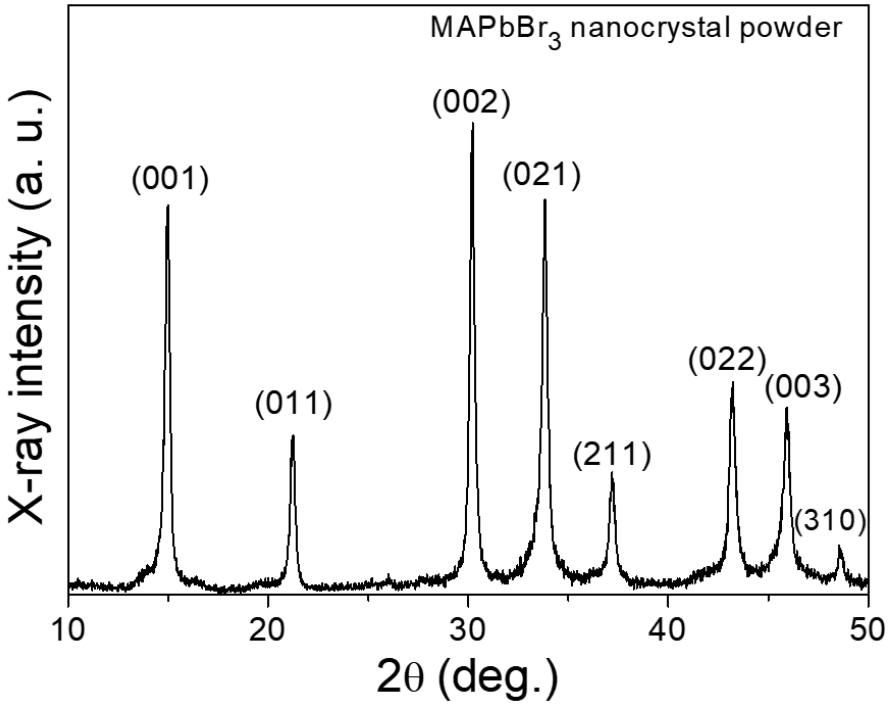

Figure S2 X-ray diffraction pattern of the $MAPbBr_3$ nanocrystal.

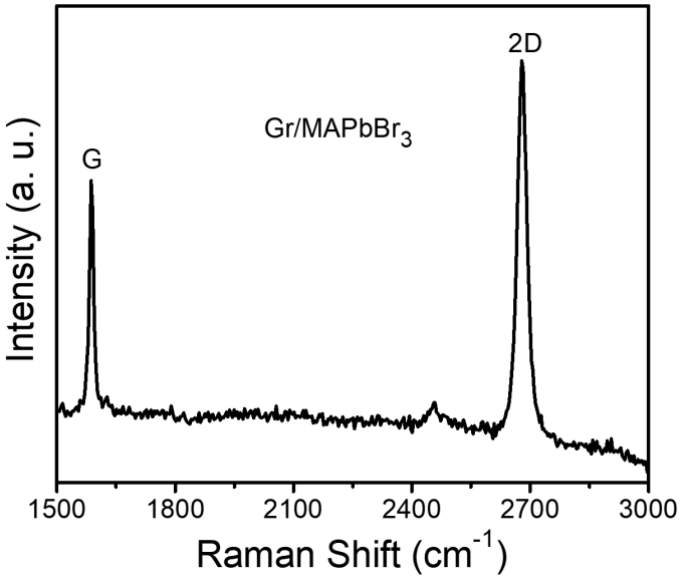

Figure S3 Raman spectroscopy measured at Gr/MAPbBr3.

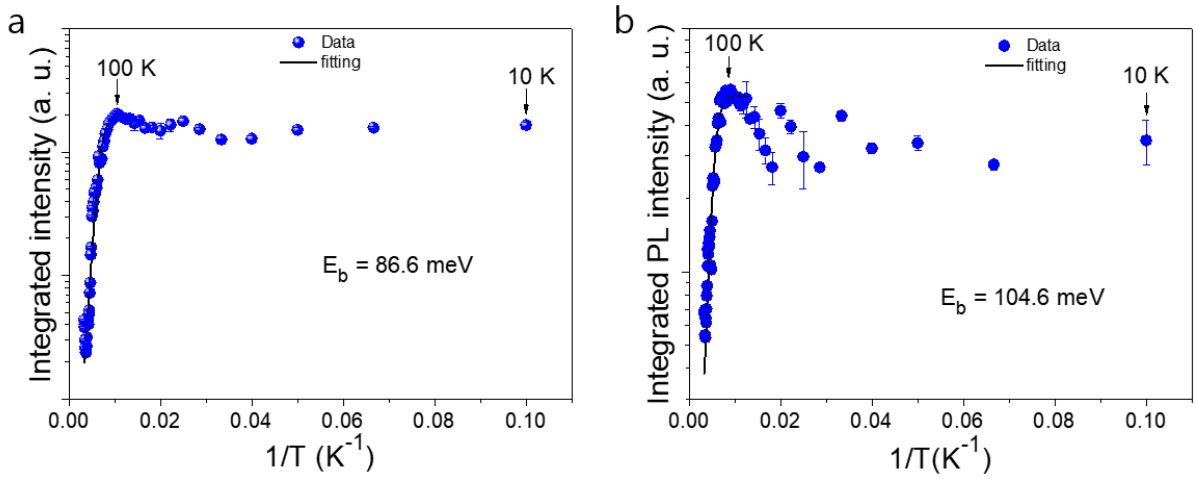

Figure S4. Intensity variation as a function of reciprocal temperature. The thermal activation energies of 86.6 meV for MAPbBr3 (a) and 104.6 meV for Gr/MAPbBr3/Gr (b) were obtained from the slope of the straight line.

References

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