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Supplementary Material

Enhancing Effects of Reduced Graphene Oxide on Photoluminescence of $CsPbBr_3$ Perovskite Quantum Dots

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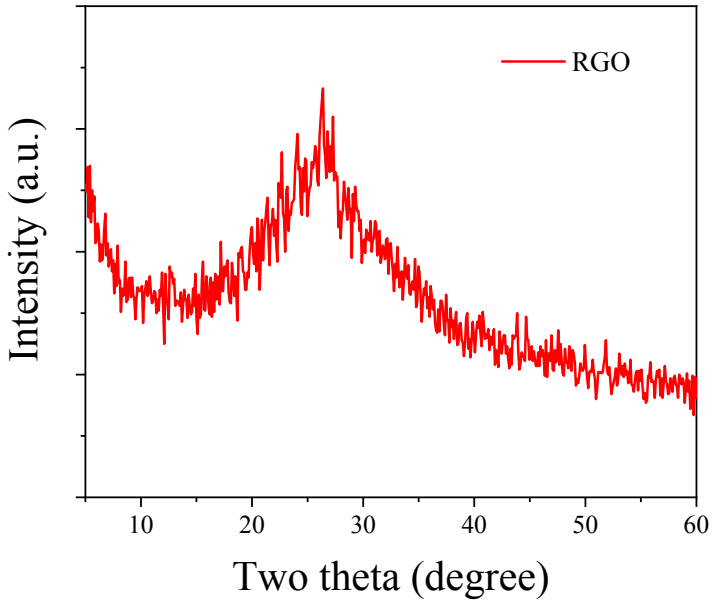

Figure S1. XRD pattern of RGO

Figure S1 shows the XRD pattern of RGO. The peak at 26^{o} confirms the presence of RGO.

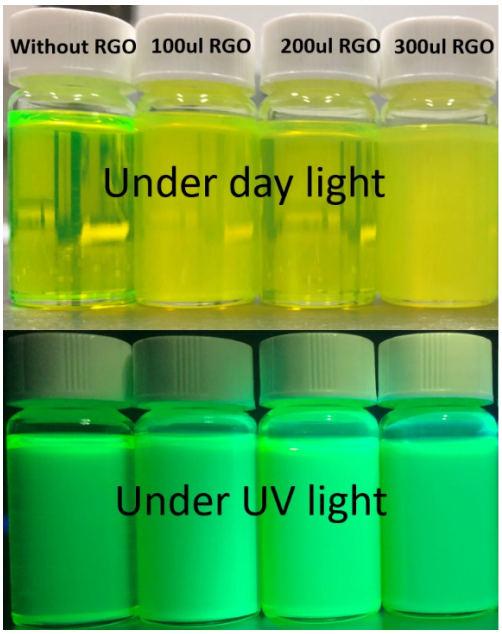

Figure S2. Photographs of the samples under daylight and UV light of 365 nm.

Figure S2 shows the photographs of the bare $CsPbBr_3$ QDs, and $CsPbBr_3$ QD/RGO (100, 200 and 300 μL) solutions under daylight and UV light of 365 nm. All solutions are clear, indicating that the adding of RGO does not lead to aggregation of QDs.

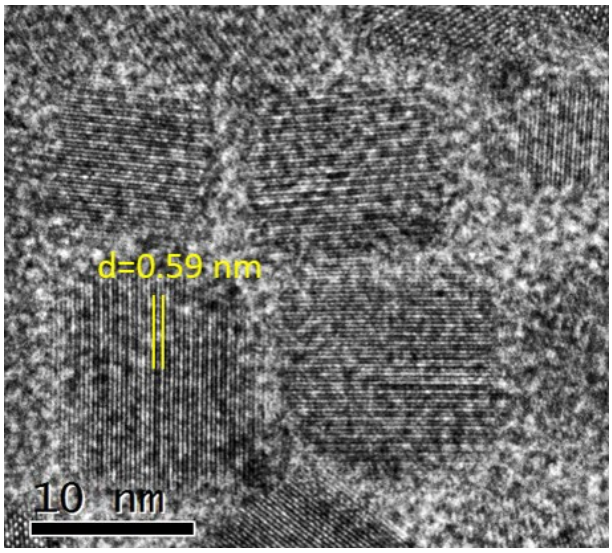

Figure S3 HRTEM image of pure $CsPbBr_3$ QDs

The HRTEM image of bare $CsPbBr_3$ QDs is shown in the following, and added in supporting information as Figure S3. The interplanar distance of 0.59 nm corresponds to (110) crystal facet in orthorhombic phase of $CsPbBr_3$.

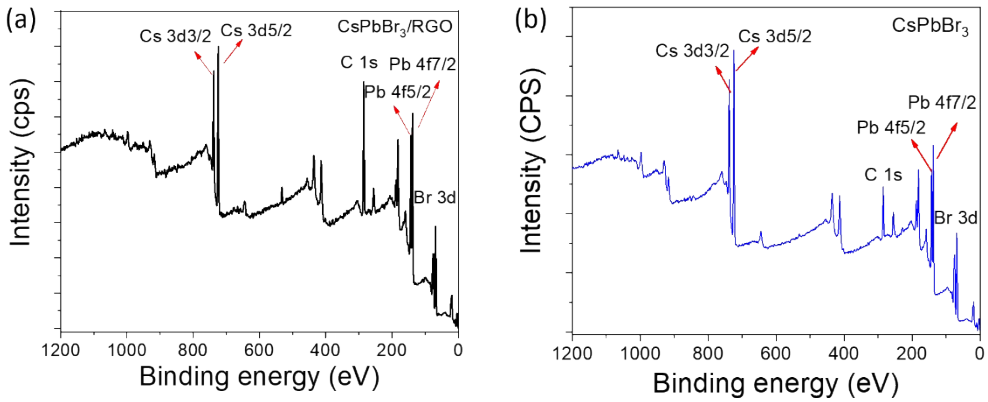

Figure S4. The survey XPS spectra of bare $CsPbBr_3$ QDs and $CsPbBr_3$ QDs/RGO composite with 200 μL RGO in starting solution.

We can clearly identify the existence of Cs, Pb, Br, C from peaks of Cs 3d, Pb 4f, Br 3d, C 1s. In contrast, their positions do not shift, which means the chemical environments of Cs 3d, Pb 4f, Br 3d are not changed by adding RGO. However, the C content in $CsPbBr_3$ QDs/RGO composite is higher than that in bare $CsPbBr_3$ QDs because the intensity of C 1s peak in $CsPbBr_3$ QDs/RGO composite is much strong than that in $CsPbBr_3$ QDs. This result indicates that RGO sheets were composited with $CsPbBr_3$ QDs.