

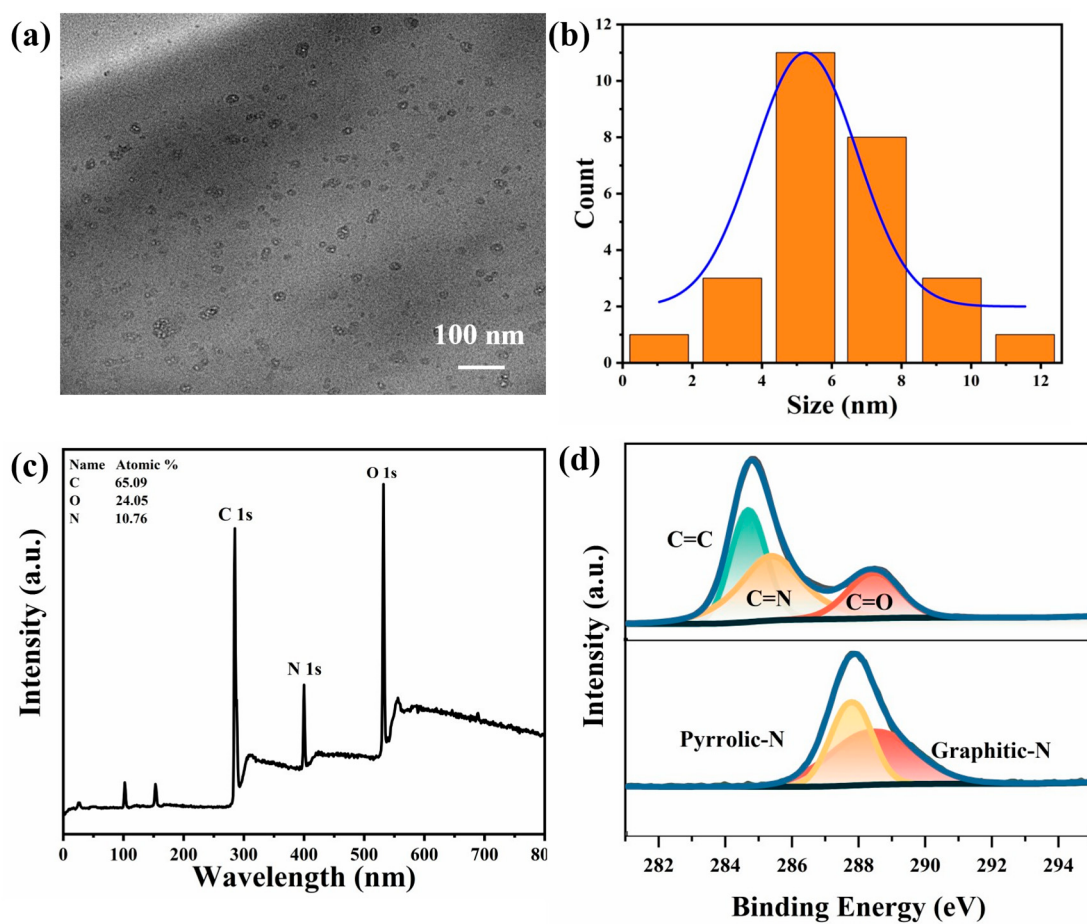


Figure S1. (a) TEM image of NGQDs. (b) Statistical size distribution of the prepared NGQDs. (c) XPS full spectrum of NGQDs. (d) High-resolution of N 1s and C 1s spectra of NGQDs.

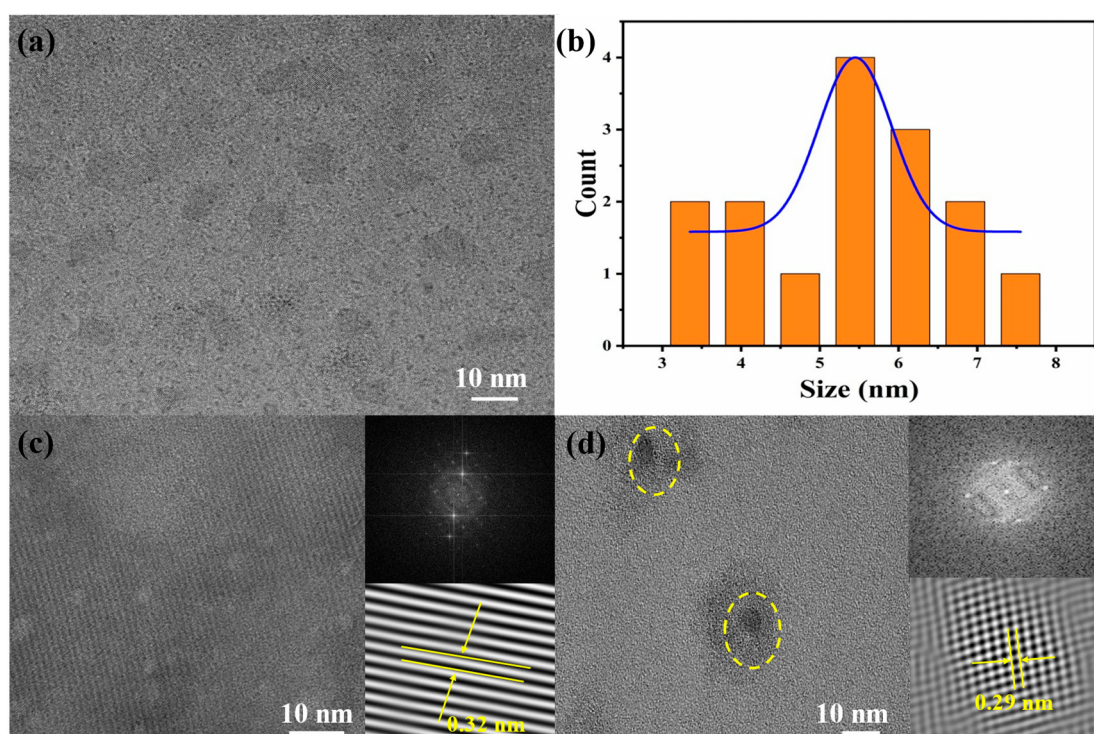


Figure S2. (a) TEM images of δ -phase CsPbI_3 nanocrystals. (b) Statistical size distribution of the prepared δ -phase CsPbI_3 . (c) and (d) High-resolution TEM images of NGQDs- CsPbI_3 with different space stripes.

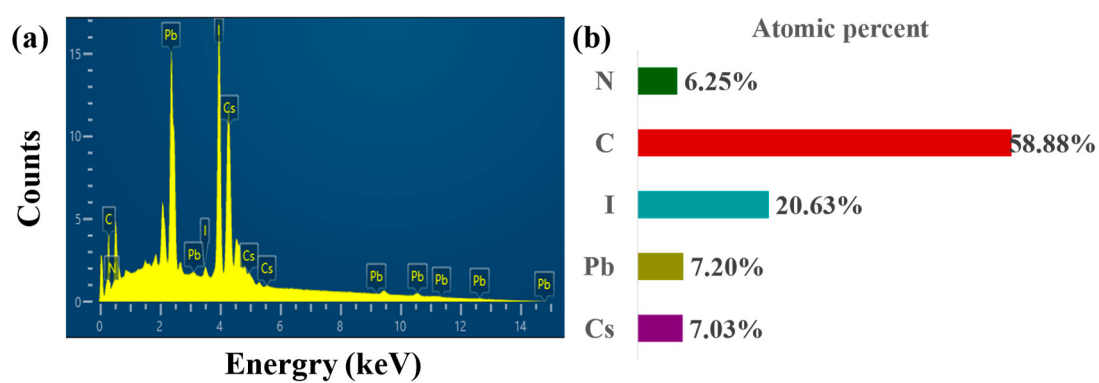


Figure S3. (a) EDS mapping and (b) the atomic proportion of NGQDs- CsPbI_3 .

Table S1. Quantum yields of δ -CsPbI₃, NGQDs, NGQDs-CsPbI₃ and NGQDs-CsPbI₃/TiO₂ using quinine sulfate as a reference.

Sample	Integrated emission intensity (I)	Abs. (A)	Refractive index of solvent (n)	Quantum yield (Φ)
Quinine sulfate	22615.06	0.08	1.33	0.54 (known)
δ -CsPbI ₃	2069.04	1.09	1.33	0.0036
NGQDs	16007.34	1.09	1.33	0.0281
NGQDs-CsPbI ₃	19008.36	1.09	1.33	0.0333
NGQDs-CsPbI ₃ /TiO ₂	11588.55	1.09	1.33	0.0203

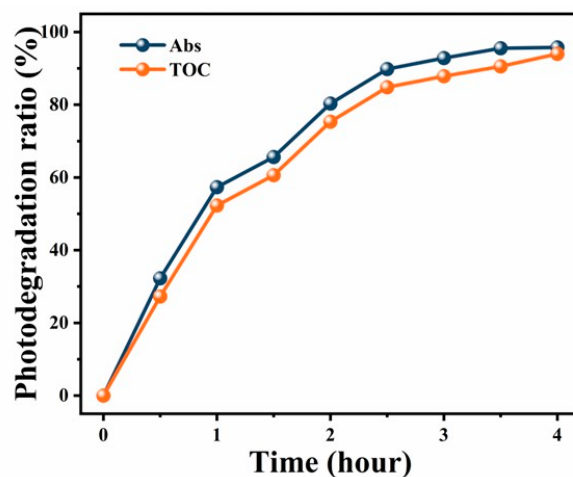


Figure S4. Comparison of the photodegradation ratios of RhB obtained by the absorbance (Abs) and total organic carbon (TOC) analysis of RhB solution.

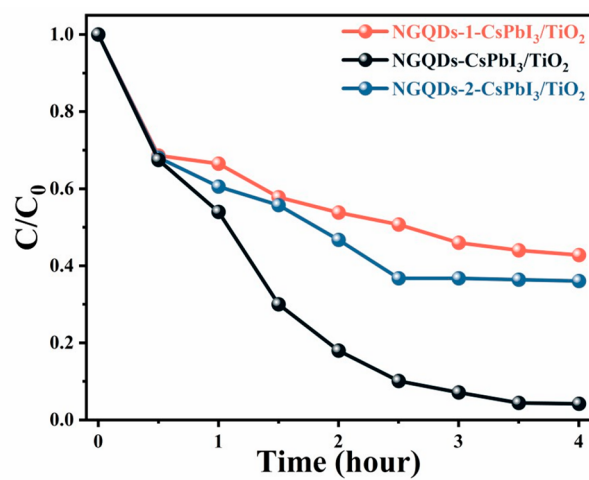


Figure S5. The RhB photodegradation activities of different NGQDs-CsPbI₃/TiO₂ samples by tuning the initial NGQDs mass. The NGQDs mass is 0.5, 0.7 and 0.9 mg in NGQDs-1-CsPbI₃, NGQDs-CsPbI₃ and NGQDs-2-CsPbI₃, respectively, and the CsPbI₃ part is 72 mg. The mass of TiO₂ is 250 mg.