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Enhanced Performance of ZnO Nanoparticles Decorated All-inorganic $CsPbBr_3$ Quantum Dot Photodetectors

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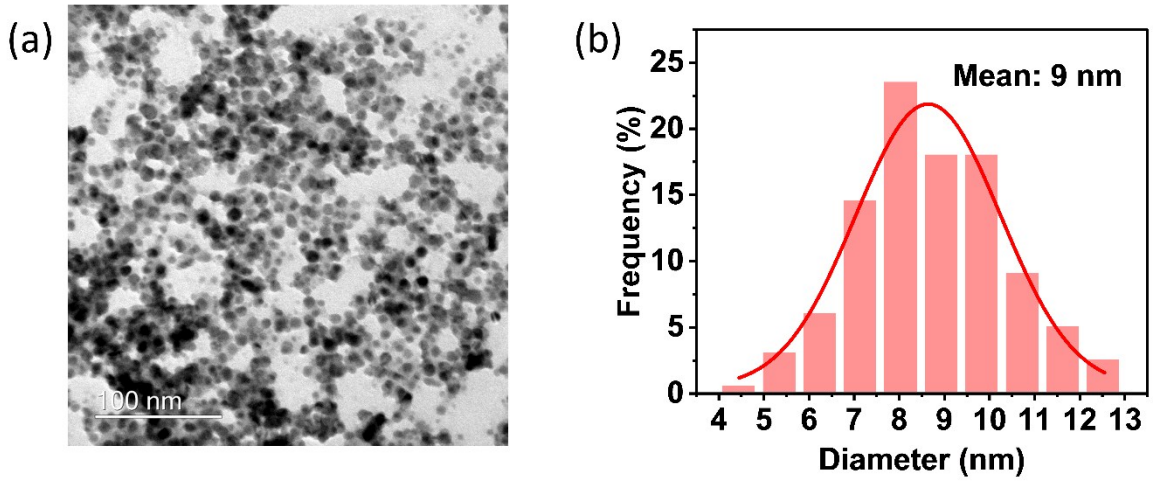
Table S3. The details of single-exponential decay fitting for comparing the fall time of PGH_2 photodetector before and after from Figure S4 and S6, for stability testing. Both fall time were measured under 405 nm laser illumination at 1 V bias.



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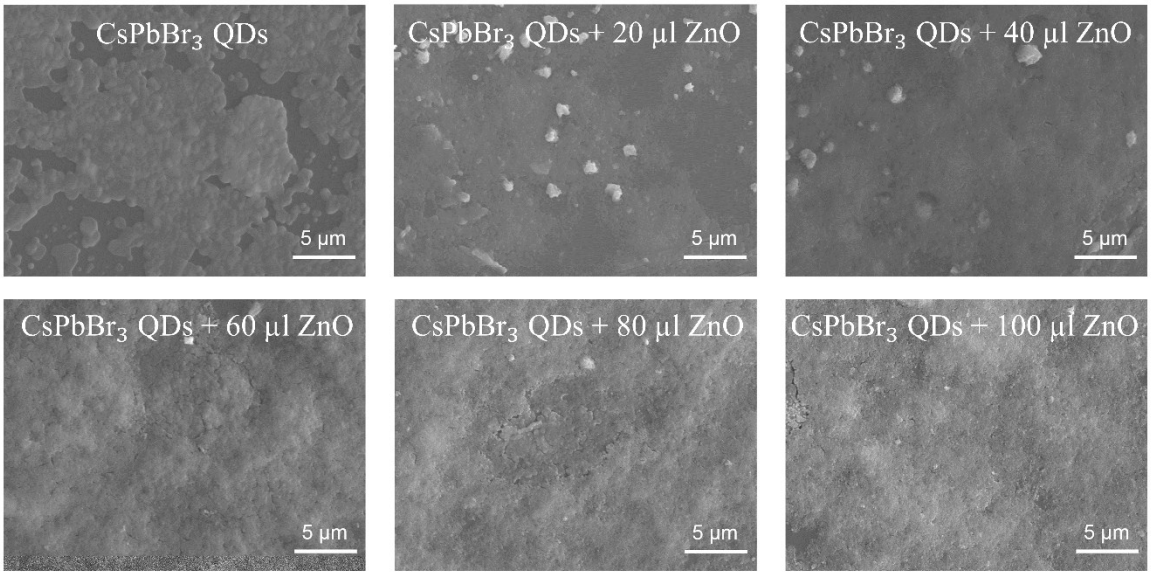

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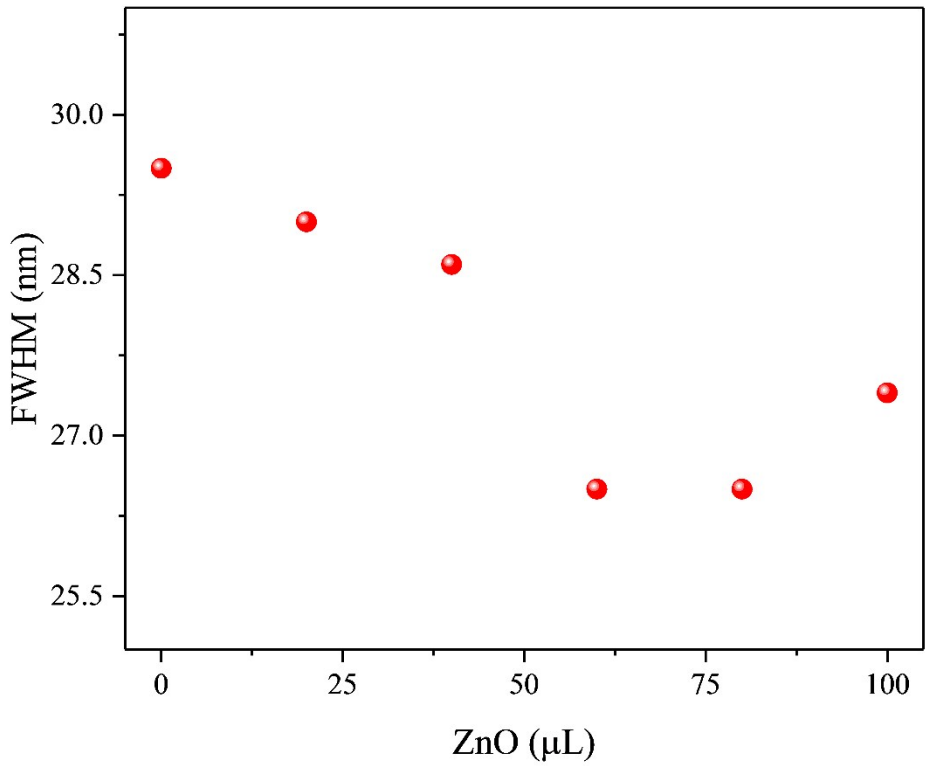

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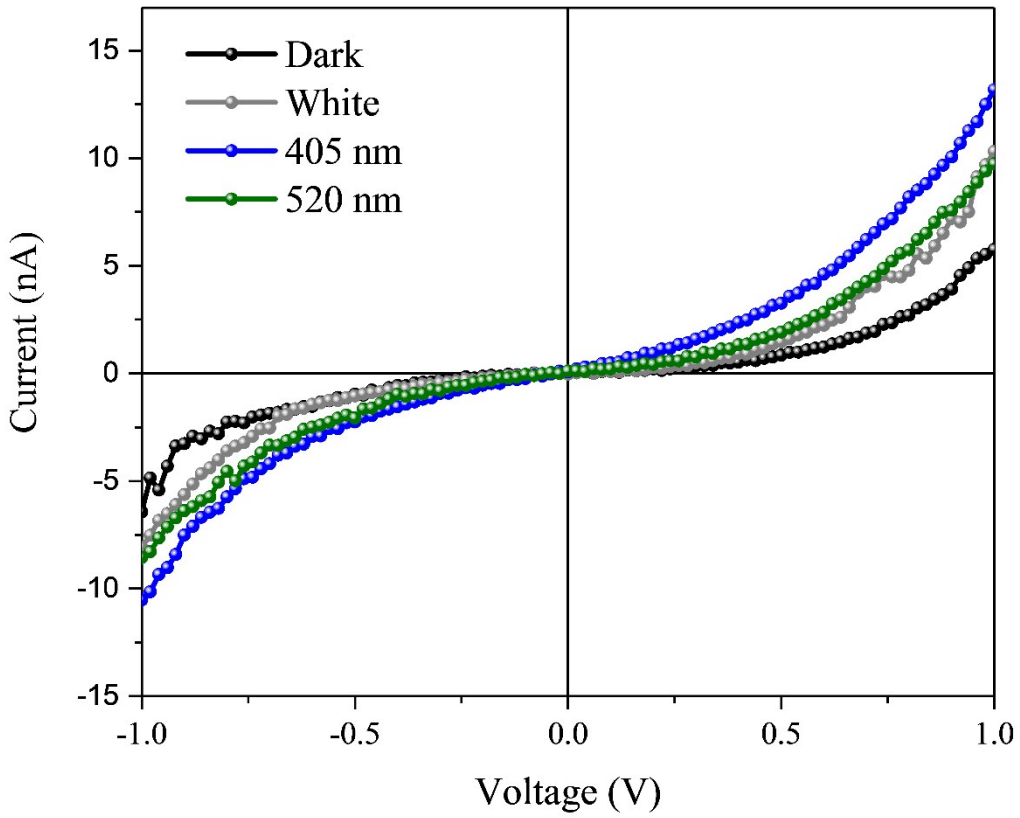

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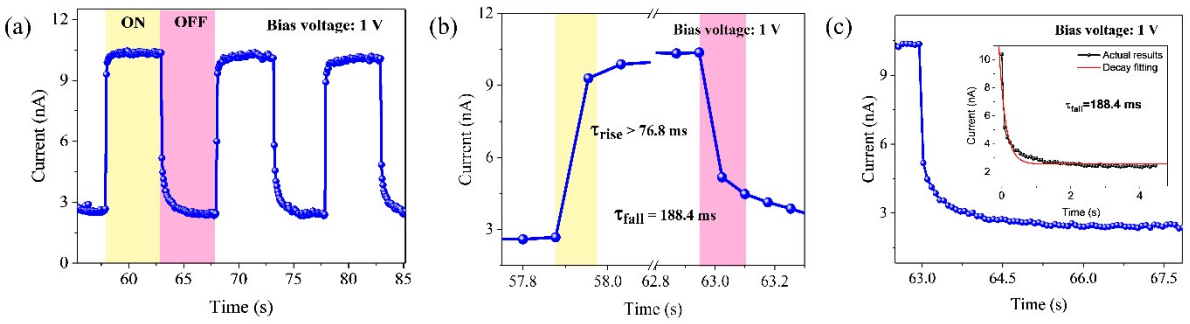

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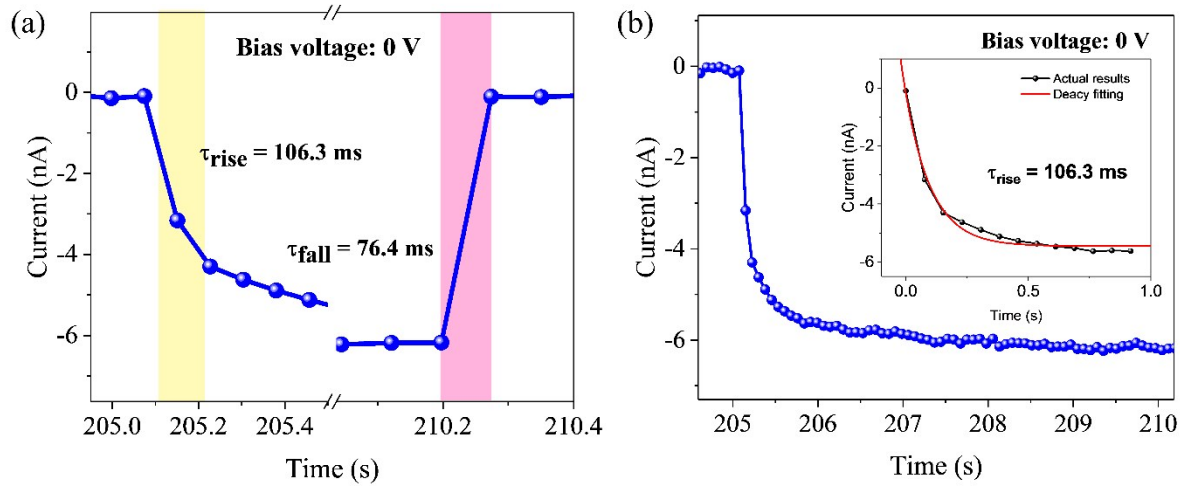

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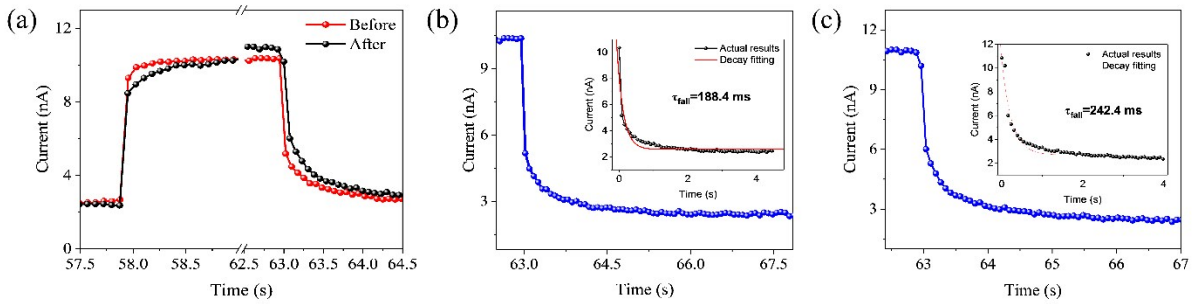

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Table S1. Summarization of decay lifetime and ratios for each material in TRPL measurements, with different amounts of ZnO NPs decoration. Using multi-exponential decay fitting: $I(t) = A_1\exp(-t/\tau_1) + A_2\exp(-t/\tau_2) + A_3\exp(-t/\tau_3)$.

	Pure	20 μL	40 μL	60 μL	80 μL	100 μL
τ_1 (ns)	0.256	0.229	0.224	0.368	0.365	0.408
τ_2 (ns)	1.449	1.168	1.197	1.972	1.962	2.140
τ_3 (ns)	16.955	18.623	21.142	15.462	15.782	15.607
A_1 (%)	8.889	10.561	8.513	8.731	7.578	9.809
A_2 (%)	13.151	15.809	14.196	23.263	22.270	21.242
A_3 (%)	77.960	73.630	77.291	68.006	70.153	71.949
τ_{avg} (ns)	13.431	13.921	16.530	11.006	11.536	11.724

Table S2. The details of single-exponential decay fitting for analyzing the rise time of PGH_1 photodetector in Figure 5g. The rise time was measured under 405 nm laser illumination at 0 V bias.

Equation	$I(t) = A_1*\exp(-t/t_1) + y_0$
y_0	-5.45608 ± 0.06991
A_1	5.26002 ± 0.19008
t_1	0.10626 ± 0.00854
Reduced Chi-Sqr	0.03526
R-Square (COD)	0.98764
Adj. R-Square	0.98517

Table S3. The details of single-exponential decay fitting for comparing the fall time of PGH_2 photodetector before and after from Figure S4 and S6, for stability testing. Both fall time were measured under 405 nm laser illumination at 1 V bias.

Equation	$I(t) = A_1*\exp(-t/t_1) + y_0$	
	Before (Figure S4)	After (Figure S6)
y_0	2.57019 ± 0.05817	2.69715 ± 0.05802
A_1	5.45073 ± 0.36683	7.99019 ± 0.31278
t_1	0.18837 ± 0.02268	0.24238 ± 0.01672
Reduced Chi-Sqr	0.16600	0.13538
R-Square (COD)	0.87490	0.95068
Adj. R-Square	0.87043	0.94871