Table S1. Raw particles luminescence intensity measurements used for smooth surface linear model fit

No	X, um	Y, um	Z1, nm	Z2, nm	λ_{max}, nm	I, counts
1	39.903	20.918	3.673	7.530	532	105000
2	42.891	20.918	1.089	-11.576	532	97352
3	43.594	20.918	-3.913	-15.231	532	63744
4	43.946	20.918	-0.087	-13.643	532	82942
5	39.903	22.852	0.68	-9.34	532	28728
6	41.309	22.852	0.637	9.581	532	30012
7	42.188	22.852	3.589	-6.595	532	29437
8	43.243	22.852	2.902	-7.629	532	29098
9	44.473	22.852	4.736	8.548	532	30604
10	39.903	23.731	-2.449	-6.688	532	21848
11	42.188	23.731	5.618	16.999	532	27612
12	44.122	23.731	4.041	-1.63	532	27058
13	39.903	24.961	0.286	0.976	532	17864
14	40.606	24.961	5.481	-7.228	532	16201
15	43.067	24.961	-3.168	38.141	532	15198
16	39.903	25.664	3.272	-2.925	532	16182
17	41.309	25.664	-0.015	-13.504	532	13376
18	43.243	25.664	-2.343	11	532	11206

Data description:

No – number of particle;

X,Y (μm) – particle coordinates on substrate surface at x-y plane;

Z1, Z2 (nm) – surface height without/with particles measured by AFM;

λ_{max} (nm) – luminescence intensity maximum wavelength;

I (counts) – photocurrent caused by particles luminescence at λ_{max}.

Materials used: The perovskite ($CsPbBr_3$) nanoplates with a thickness of about 5 nm diluted in ethyl acetate (volume ratio 1:4), deposited on a polished glass substrate (Ra ≈ 2.9 nm, Rq ≈ 3.7 nm).

Methods used:

1) X, Y, Z coordinates data were measured by AFM microscope (NT-206) and processed in ScopePhoto software.
2) Luminescence intensity data were measured by Raman spectrometer (RENISHAW RM1000) and obtained by analyzing their spectra maximum in GRAMS/32 software.