Supporting Information

Experimental and Theoretical Study on the Europium Doped Organo-Metal Halide Perovskite Nanoplatelets for UV Photodetection with High Responsivity and Fast Response

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Sample	$\tau_1(ns)$	$A_1\%$	$ au_2(ns)$	$A_2 \%$	$ au_3(ns)$	$A_3 \%$	$ au_{avg}(ns)$
Eu0	1	1.84	11.15	9.74	139.04	88.42	124.03
Eu10	1.01	2.52	14.440	15.04	111.44	82.445	94.08
Eu20	1.088	3.88	11.81	14.83	110.24	81.29	91.4
Eu30	1.088	4.55	11.53	17.23	105.26	78.21	84.39
Eu40	1.332	8.191	49.256	35.602	26.188	38.21	21.44
Eu50	0.784	5.649	38.430	62.244	2.377	16.434	9.61
Eu60	0.955	4.921	26.174	38.559	0.3588	31.474	9.77

Table S1: Details of time resolved PL decay components of the samples fitted with triexponential function.



Fig. S1: AFM topography images of (a) Eu0, (c) Eu10 and (e) Eu30. Corresponding height profiles are shown in (b), (d) and (f), respectively.



Fig. S2: (a) FESEM image of Eu10 and the marked square show the region on which the mapping is done. (b) EDX spectrum of Eu³⁺ doped NS with 10 mol% EuCl₃ concentrations. (c-h) Corresponding elemental mapping images showing C, N, Pb, Eu, Br and Cl.



Fig. S3: EDX spectrum of Eu³⁺ doped NS with 30 mol% EuCl₃ concentrations.



Fig. S4: (a) Deconvoluted PL spectrum of Eu20 showing 3 peaks. (b) Change in PL spectra of Eu40 after storage for 15 days in ambient condition.







Fig. S6: (a) The logarithmic plot of the photocurrent vs light intensities for Eu0 under bias voltage of -2 V. (b) Variation of photo/dark current with bias voltage of Eu10.



Fig. S7: Comparison of I-V characteristics of freshly prepared Eu0 photodetector and after storing it for 7 days.