

Supporting information

A Stable and Large-Scale Organic-Inorganic Halide Perovskite Nanocrystals/Polymer Nanofiber Films Prepared by a Green and In-Situ Fiber Spinning Chemistry

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Supplementary Figures

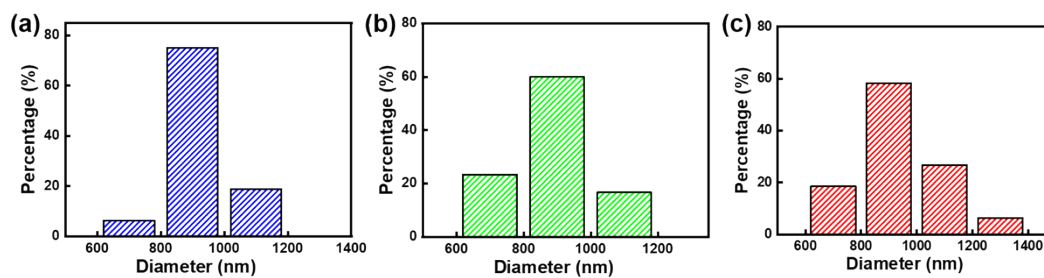


Figure S1. The corresponding size distributions of (a) PAN/MAPb(Br_xCl_{1-x})₃, (b) PAN/MAPbBr₃ and (c) PAN/MAPb(Br_xI_{1-x})₃ nanofibers.

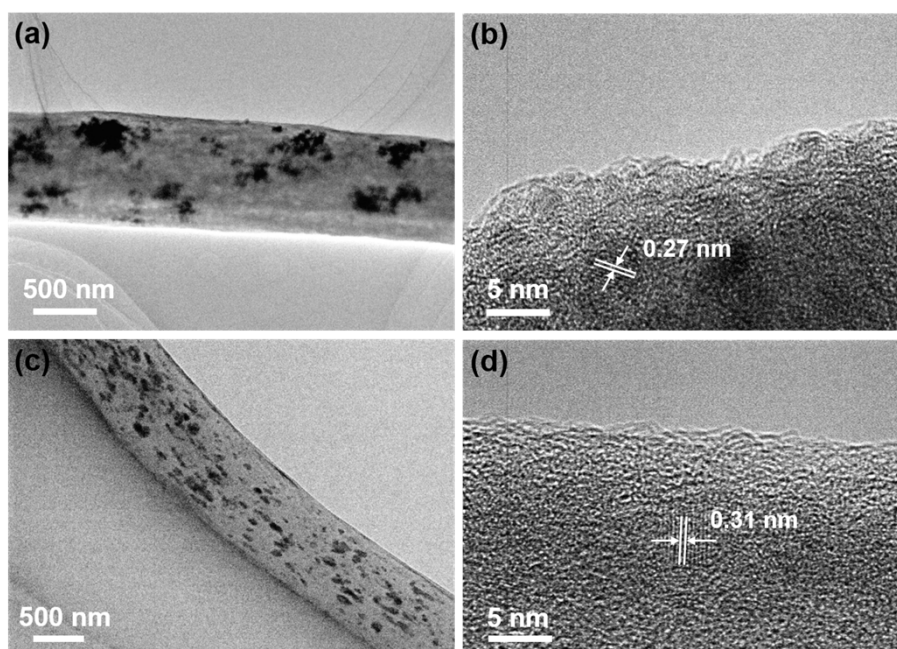


Figure S2. (a) TEM and (b) HRTEM images of PAN/MAPb(Br_xCl_{1-x})₃ nanofiber. (c) TEM and (d) HRTEM images of PAN/MAPb(Br_xI_{1-x})₃ nanofiber.

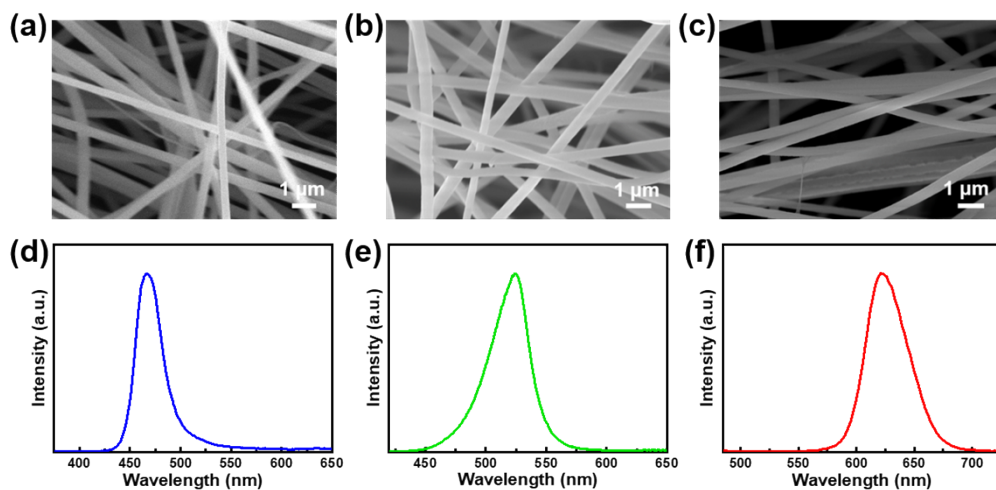


Figure S3. SEM images of (a) PMMA/MAPb(Br_xCl_{1-x})₃, (b) PMMA/MAPbBr₃ and (c) PMMA/MAPb(Br_xI_{1-x})₃ nanofiber films. PL emission spectra of (d) PMMA/MAPb(Br_xCl_{1-x})₃, (e) PMMA/MAPbBr₃ and (f) PMMA/MAPb(Br_xI_{1-x})₃ nanofiber films.

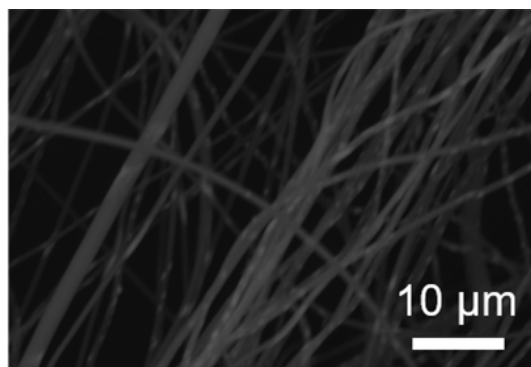


Figure S4. Original SEM image of PAN/MAPbBr₃ nanofiber film for collecting EDS mapping shown in Fig. 2g.

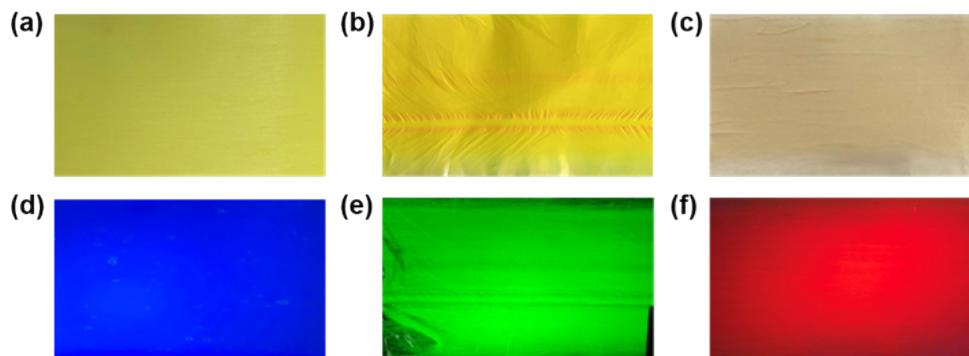


Figure S5. Photographs of (a) PAN/MAPb(Br_xCl_{1-x})₃, (b) PAN/MAPbBr₃ and (c) PAN/MAPb(Br_xI_{1-x})₃ nanofiber films and their corresponding digital photos under 365 nm UV light (d-f).

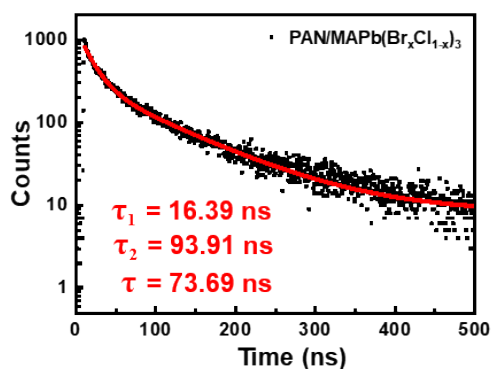


Figure S6. Time-resolved fluorescence decay curves of PAN/MAPb(Br_xCl_{1-x})₃ nanofiber film.

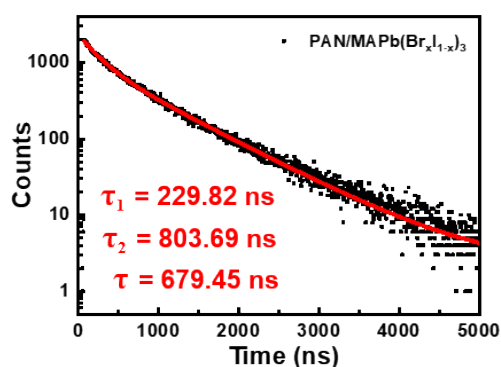


Figure S7. Time-resolved fluorescence decay curves of PAN/MAPb(Br_xI_{1-x})₃ nanofiber film.

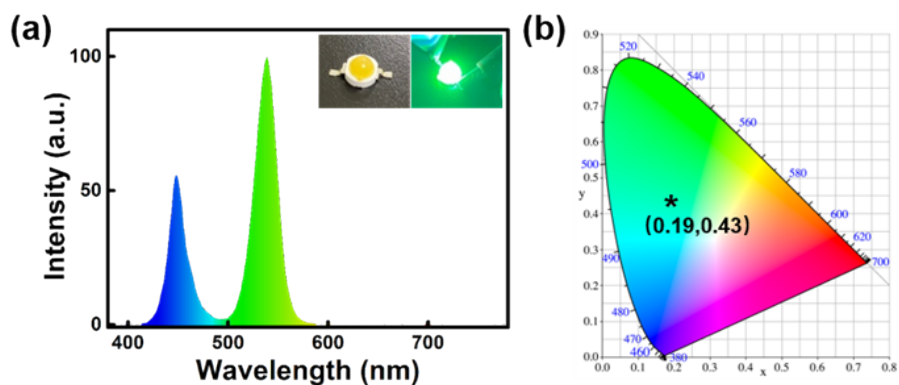


Figure S8. (a) Emission spectra of the green LED prepared by PAN/MAPbBr₃ nanofiber film. Inset: The photographs of the prepared green LED (the left one) and the LED driven by a voltage of 3.0 V (the right one). (b) CIE color coordinates corresponding to the PAN/MAPbBr₃ nanofiber film.

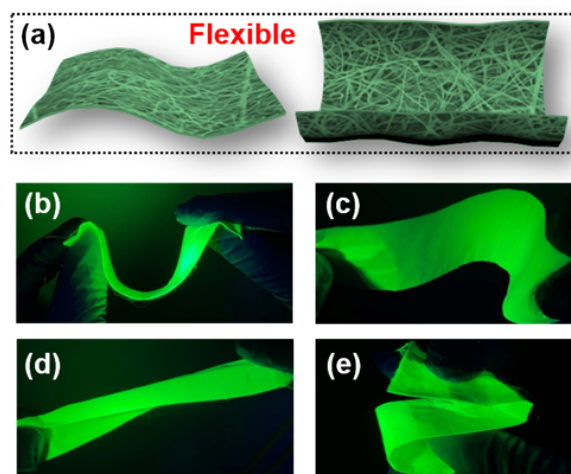


Figure S9. (a) Flexibility of PAN/MAPbBr₃ nanofiber film. (b-e) Photographs of the bending and folding shapes of PAN/MAPbBr₃ nanofiber film under 365 nm UV light.

Table S1. Preparation conditions and optical characteristics of PAN/MAPbX₃ (X = Cl, Br, I) nanofiber films.

Samples	MAX: PbBr ₂ [molar ratio]	PL Peak position [nm]	PLQY [%]	τ [ns]	Fitting values [ns]	FWHM [nm]
PAN/MAPbBr ₃	0.5 : 1	526	11	24.53	$\tau_1 = 0.68$ $\tau_2 = 8.87$ $\tau_3 = 37.75$	23
	1 : 1	532	18	96.24	$\tau_1 = 20.58$ $\tau_2 = 151.86$	24
	2 : 1	528	58	177.65	$\tau_1 = 34.48$ $\tau_2 = 262.64$	27
	3 : 1	534	36	214.36	$\tau_1 = 40.21$ $\tau_2 = 296.64$	25
	4 : 1	533	28	168.47	$\tau_1 = 20.23$ $\tau_2 = 87.62$ $\tau_3 = 322.56$	25
PAN/MAPb(Br _x I _{1-x}) ₃	4 : 1	612	16	679.45	$\tau_1 = 229.82$ $\tau_2 = 803.69$	70
PAN/MAPb(Br _x Cl _{1-x}) ₃	2 : 1	464	25	73.69	$\tau_1 = 16.39$ $\tau_2 = 93.91$	29