Supporting Information

Solution-phase, template-free synthesis of PbI_2 and $MAPbI_3$ nano/microtubes for high-sensitivity photodetectors

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Figure S1 Photographic image of as-synthesized PbI_2 microtubes and $MAPbI_3$ nano/microtubes. The as-synthesized samples are dried in vacuum oven at 40 ℃.

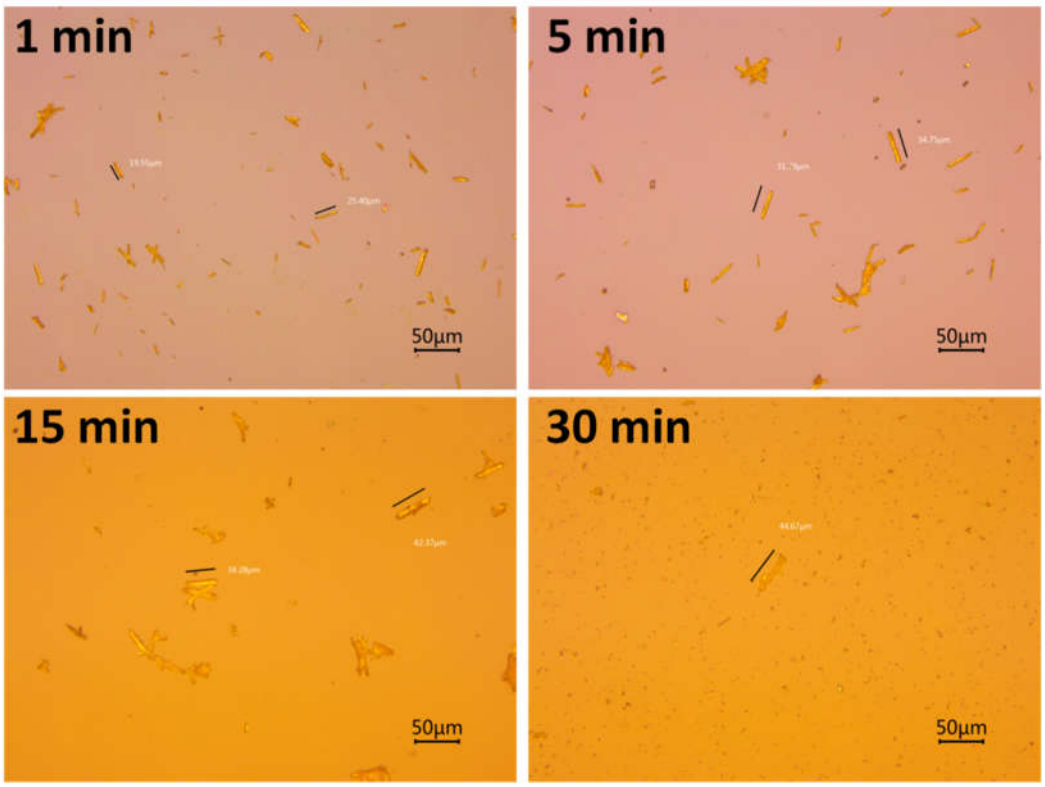

Figure S2 Optical microscopy image of PbI_2 microtubes synthesized at different time duration. The measurements were taken after the samples are dispersed on glass substrates.

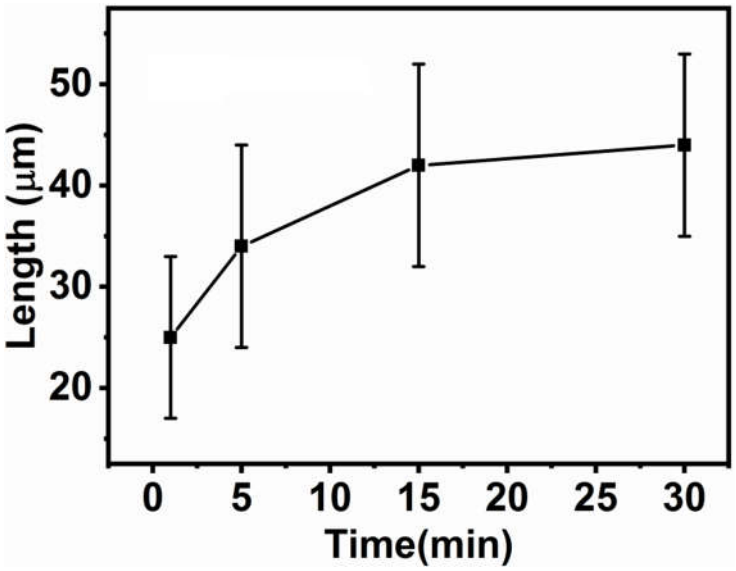

Figure S3 Effect of growth time on the length of PbI_2 microtubes.

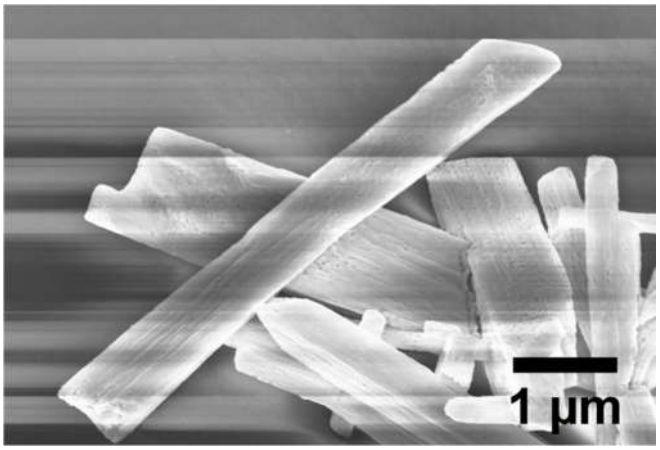

Figure S4 FE-SEM image PbI_2 microrods with faceted morphology.

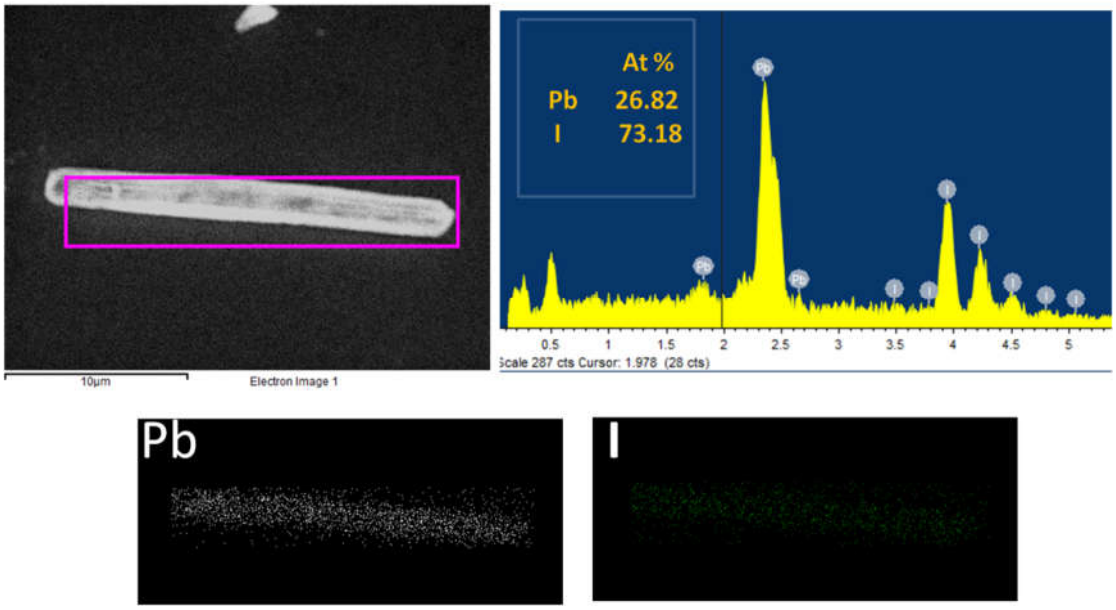

Figure S5 Energy dispersive X-ray spectrum of PbI_2 microtubes. The samples were dispersed on SiO_2/Si substrates.

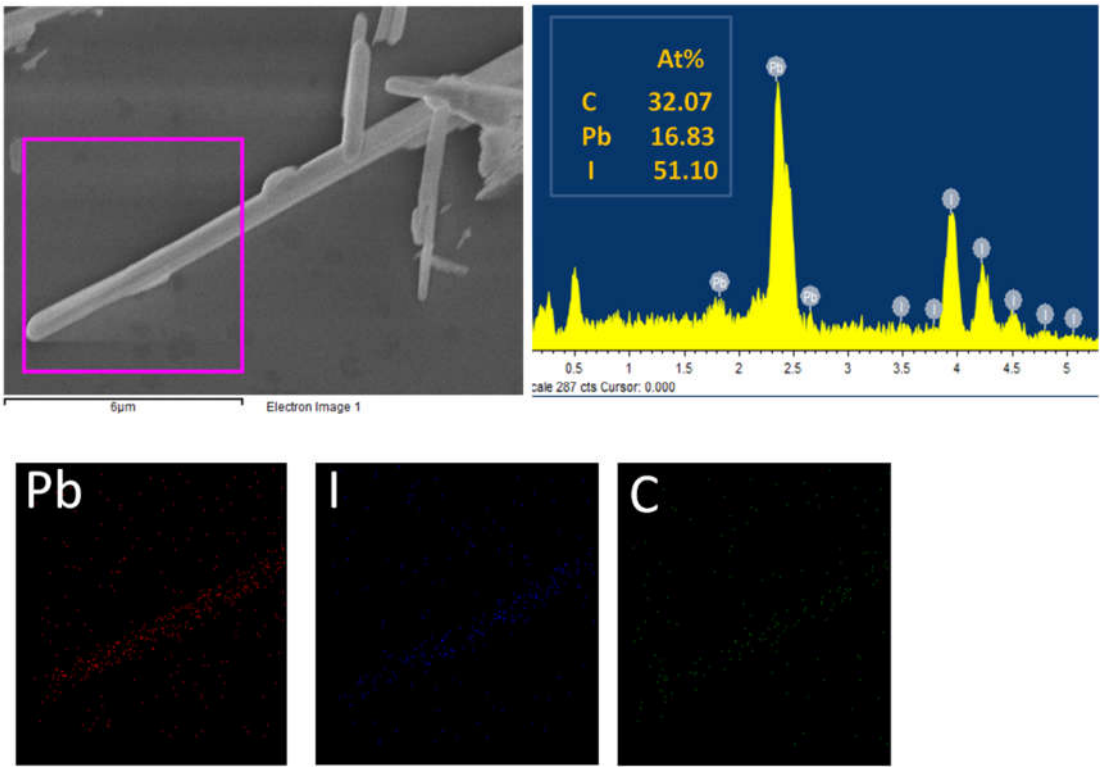

Figure S6 Energy dispersive X-ray spectrum of $MAPbI_3$ microtubes. The samples were dispersed on SiO_2/Si substrates.

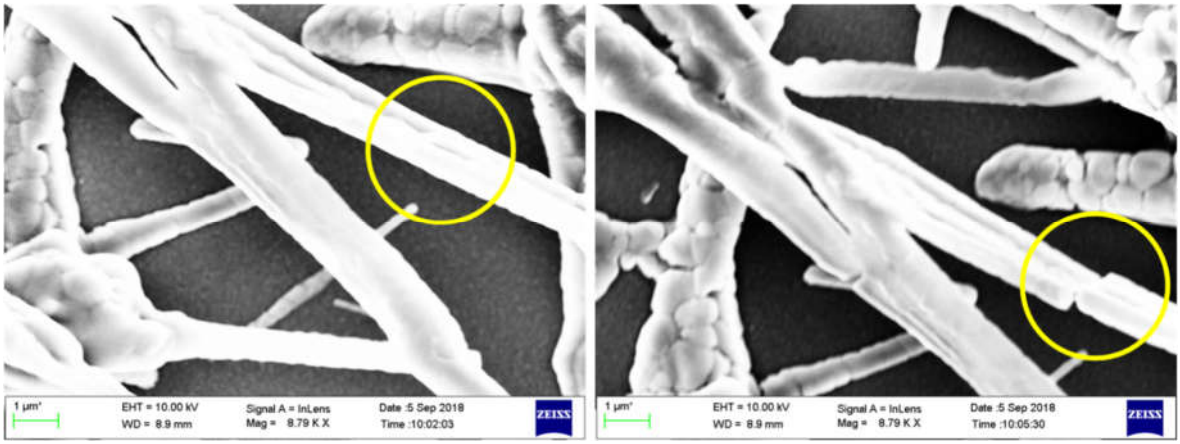

Figure S7 FE-SEM image of $MAPbI_3$ nano/microtubes after exposure of electron beam for a long time. The breakings of tubes were occurred (as indicated in orange circle).

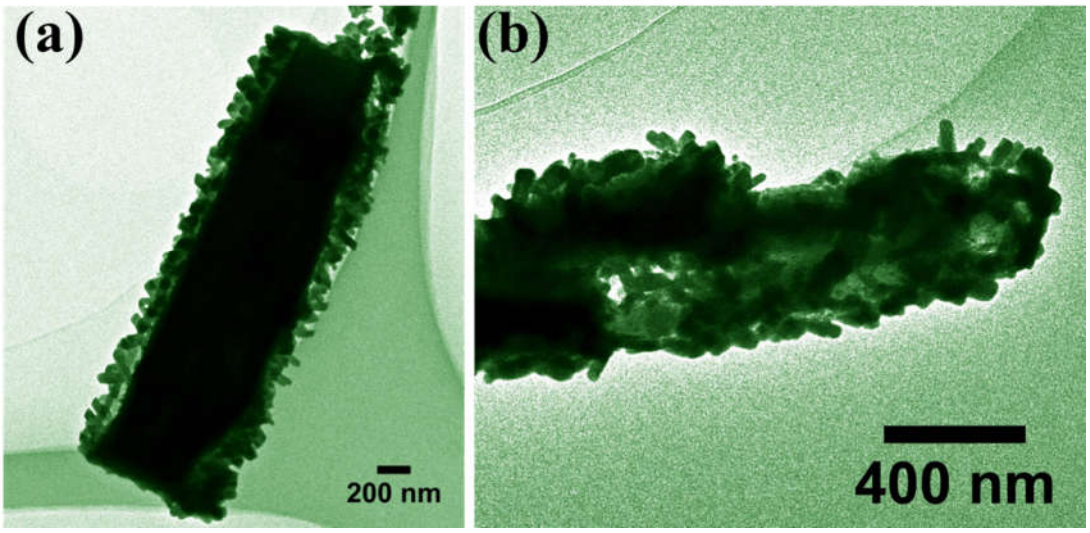

Figure S8 HR-TEM image of $MAPbI_3$ microtubes with protruded whisker-like nanorods. The diameter and length of the protruded nanorods were found to vary from 40 nm to 60 nm and the length was ~150 nm.

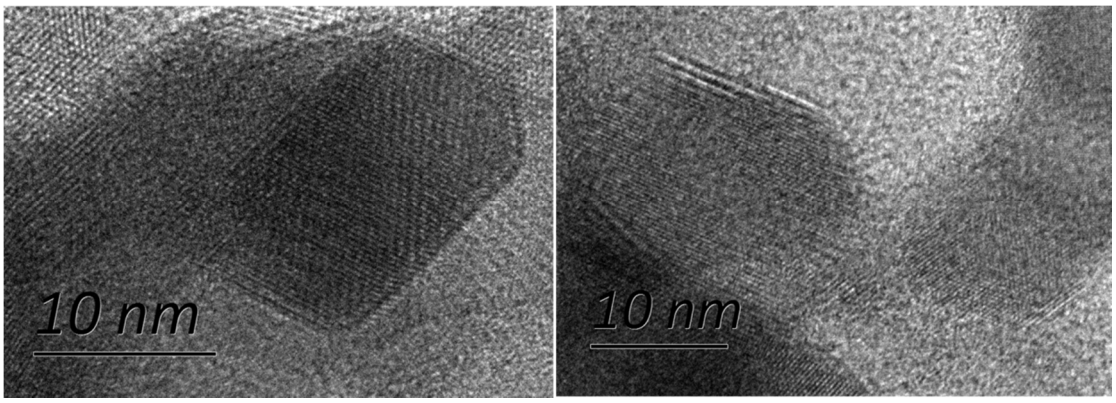

Figure S9 HR-TEM image of PbI_2 microtubes with well-distinguished twinned crystals.

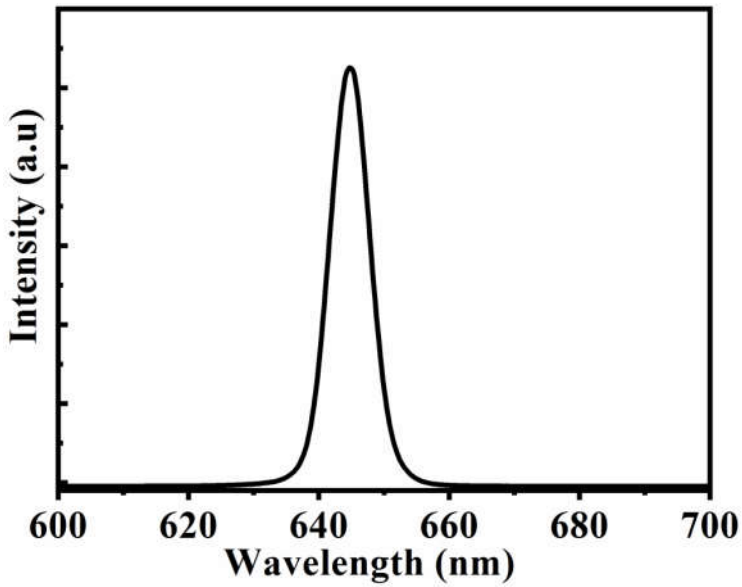

Figure S10 PL spectra of $MAPbI_3$ microtubes at room temperature.

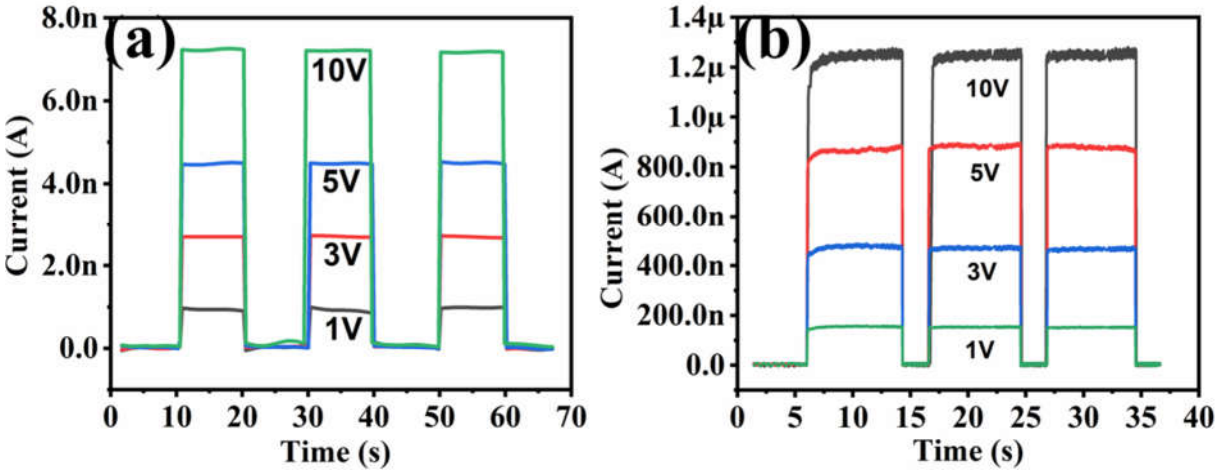

Figure S11 I-t curves of the photodetectors based on PbI_2 microtubes (**a**) and $MAPbI_3$ microtubes (**b**) at different biases.