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Supplementary Information

Growth, characterization, and thin film transistor application of $CH_3NH_3PbI_3$ perovskite on polymeric gate dielectric layers

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1. Grazing incidence X-ray diffraction (GIXRD)analysis

Grazing incidence X-ray diffraction (GIXRD) measurements were carried out to investigate the crystallinity and microstructure of the perovskite thin films. Fig. S1 shows the grazing incidence X-ray diffraction (GIXRD) pattern of the $CH_3NH_3PbI_3$ film on different polymers. Strong peaks were observed at $2\theta = 14.1^o$, 28.4^o and 31.9^o, associated to the (110), (220) and (310) diffractions of $CH_3NH_3PbI_3$ respectively. The peaks indicated that the organo-lead halide perovskite films possessed high crystallinity. The absence of the diffraction peak at 12.7^o showed that the samples were free from the starting material PbI_2, which in other words indicated the reactions were driven to completeness during the formation of perovskite crystals.

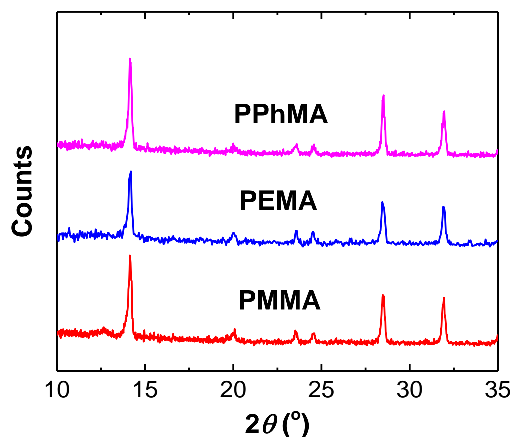

Fig. S1 GIXRD pattern of $CH_3NH_3PbI_3$ perovskite films grown on different polymer substrate surfaces.