

## Supporting Information

Interface engineering for gain perovskite photodetectors with an extremely high external quantum efficiency

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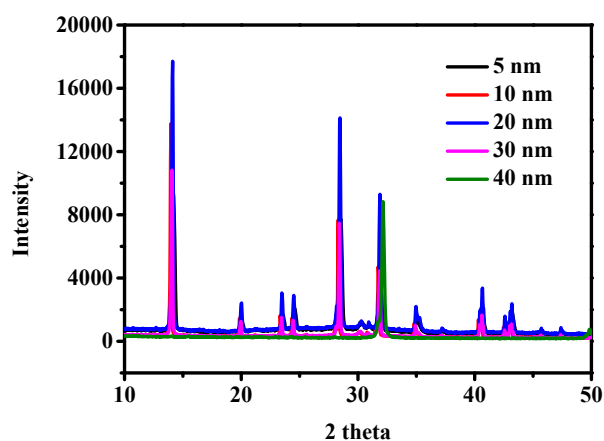
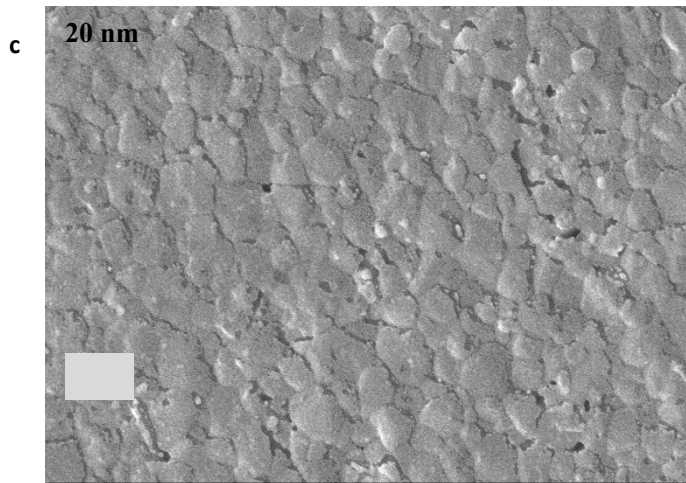
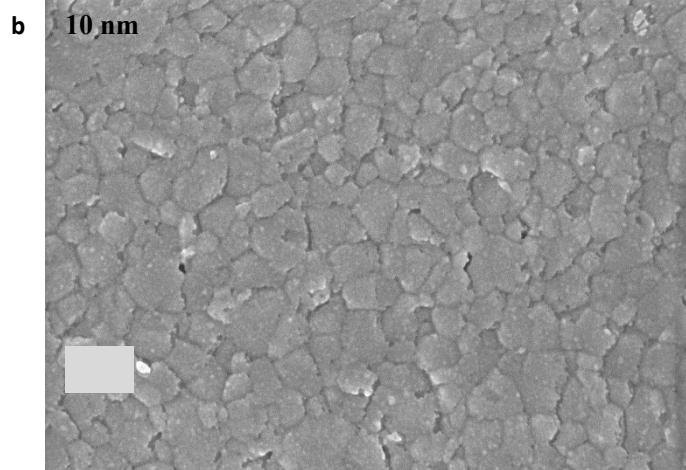


Figure S1 Absolute XRD of perovskite films on different thicknesses of C<sub>60</sub> layer

a

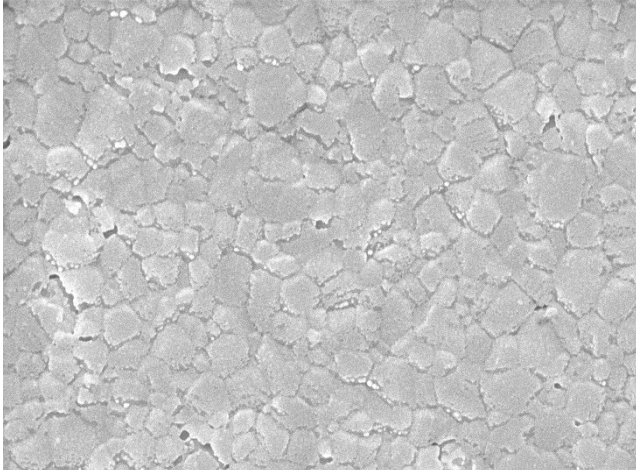
5 nm



**30 nm**



d



e

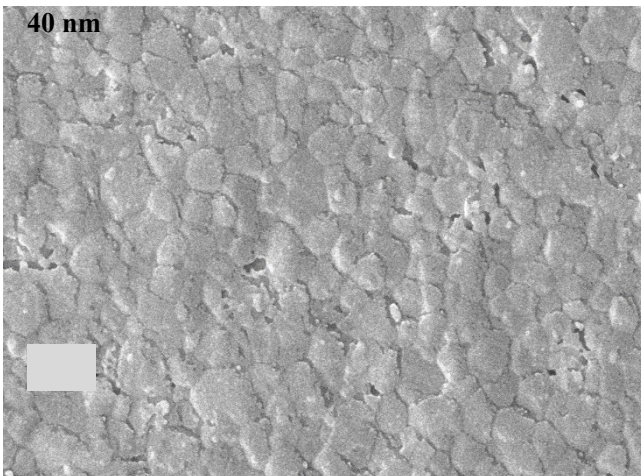


Figure S2 a-e SEM of perovskite films on different thicknesses of C<sub>60</sub> layer

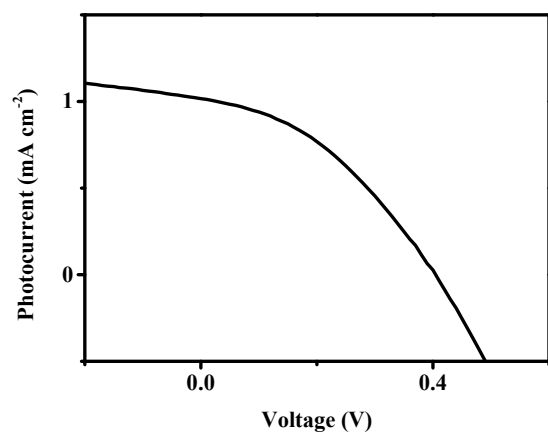


Figure S3 Current density vs. voltage curves of perovskite solar cells without C<sub>60</sub>

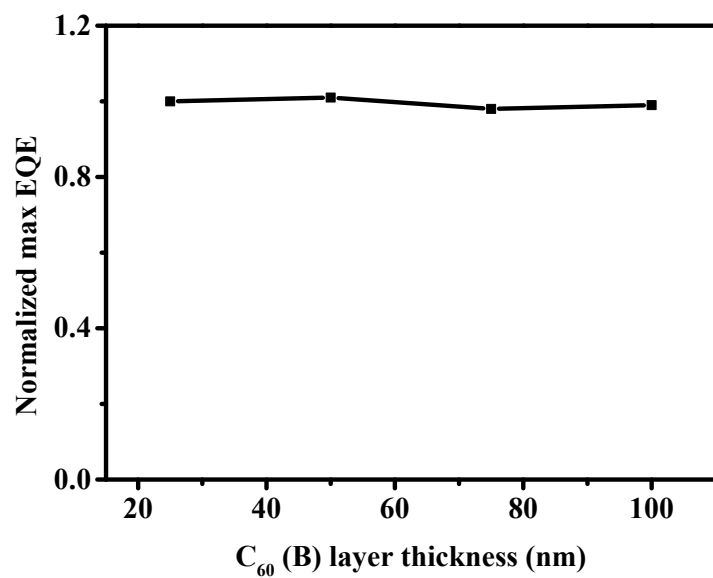


Figure S4 Normalized EQE of PDs with different thicknesses of C<sub>60</sub> (B) (@ 550 nm and -5V)