

Electronic Supporting Information

Ultrathin Efficient Perovskite Solar Cell Employing Periodic Structure of Composite Hole Conductor for Elevated Plasmonic Light Harvesting and Hole Collection

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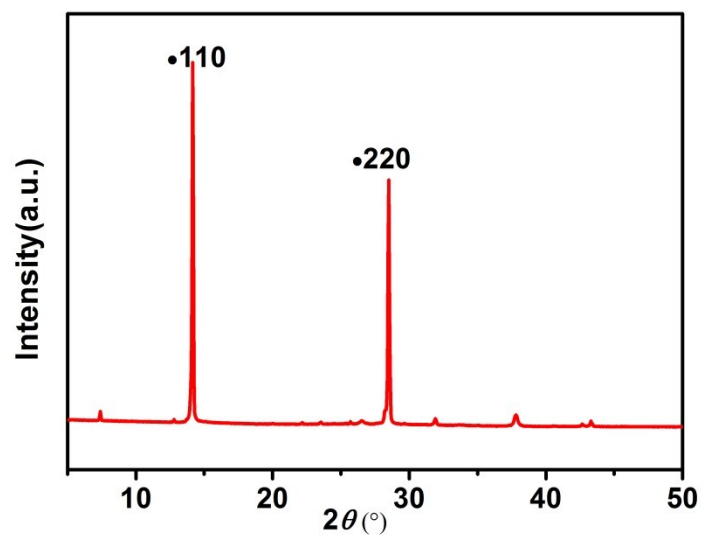


Figure S1 XRD patterns corresponding to the perovskite thin film in the device

As shown in the XRD, the perovskite thin film has excellent crystallite with prevalent peaks at 14.17° , 28.38° and 43.3° , which suggests that the film is well crystallized.

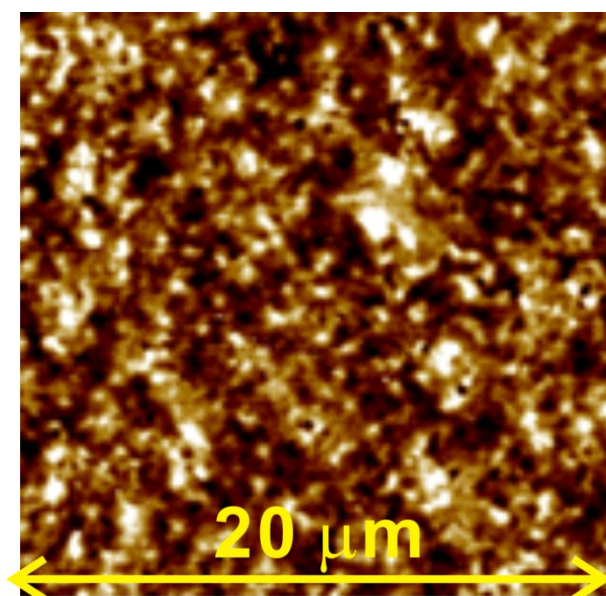


Figure S2 AFM images of 3D PMC HTM perovskite solar cell

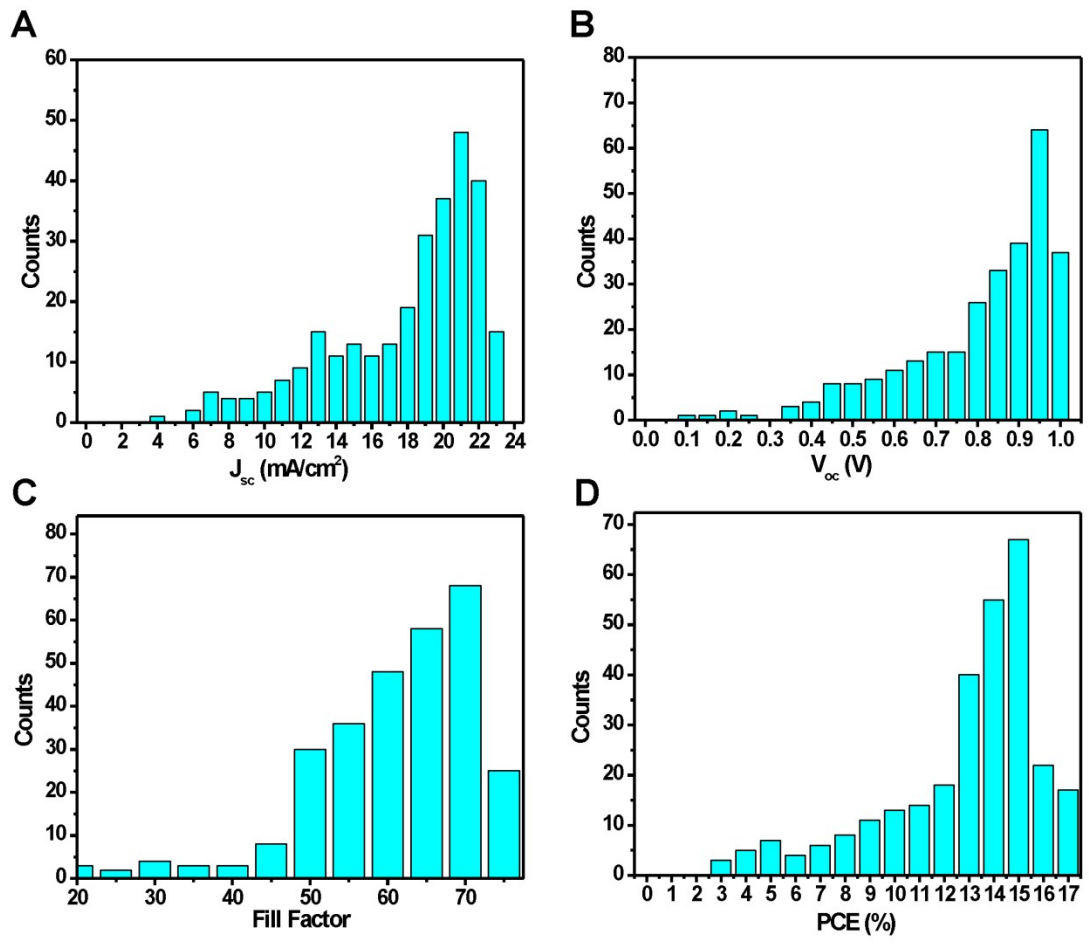


Figure S3 Performance statistics for 3D PMC HTM

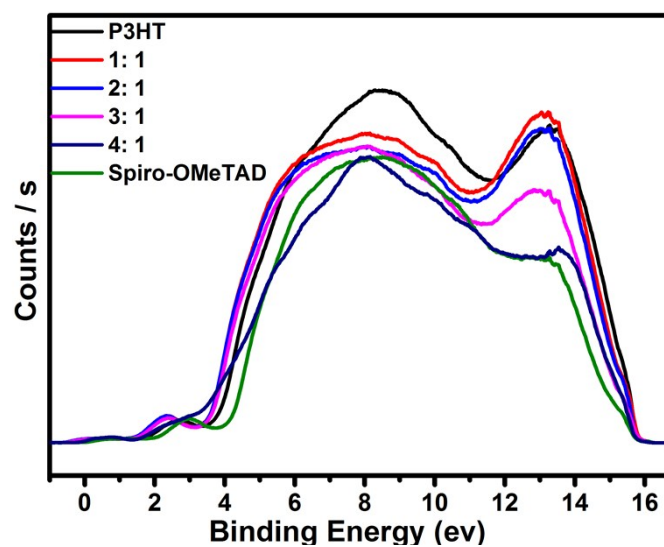


Figure S3 Ultraviolet photoelectron spectra (UPS) of HTMs on FTO

UPS spectra of the secondary electron cutoff energy onset and the HOMO energy level for the HTM are shown in Fig. S3. The electron secondary cutoff energy increases with the P3HT mixture. This is corresponding to the decreased V_{oc} compared to the device with spiro as the HTM.