

Supporting Information for

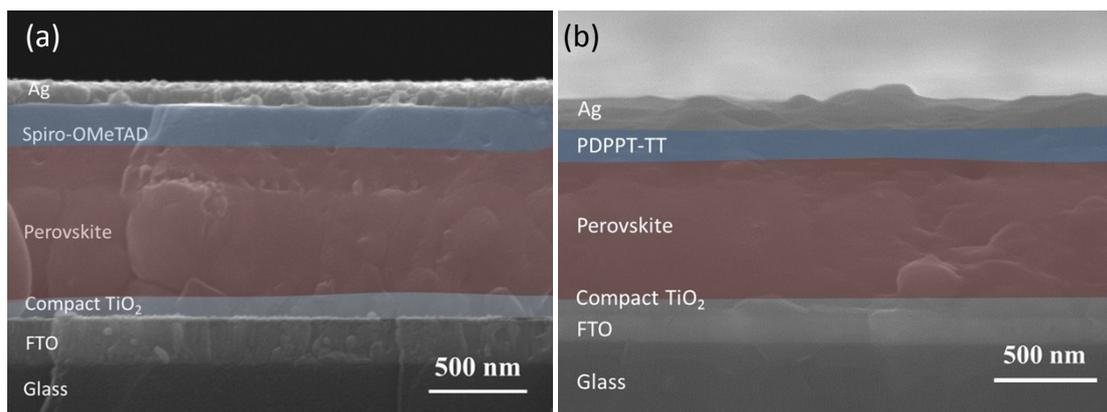
**High Efficient Perovskite Solar Cells Based On Dopant-Free  
Conjugated DPP Polymer Hole Transport Layer: Influence of  
Solvent Vapor Annealing**

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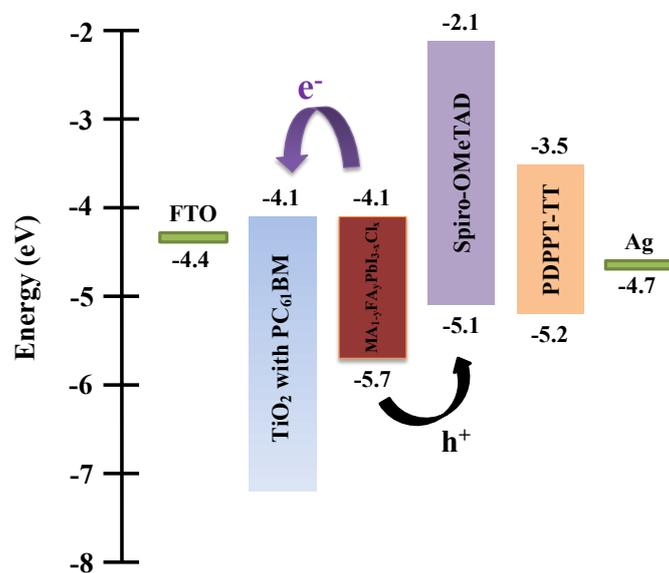
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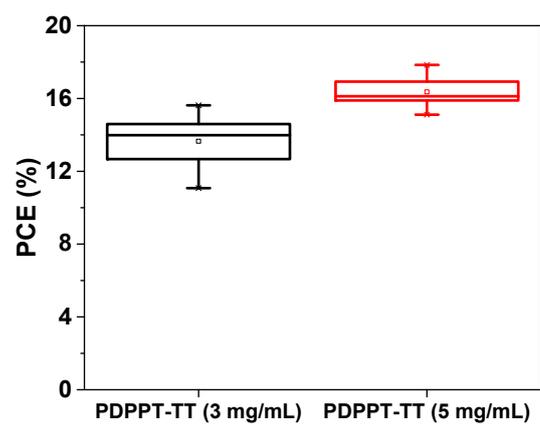
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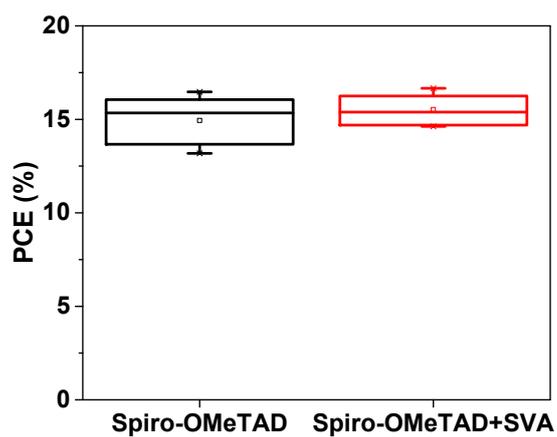
**Figure S1.** The cross-section SEM image of the devices based on different HTLs.



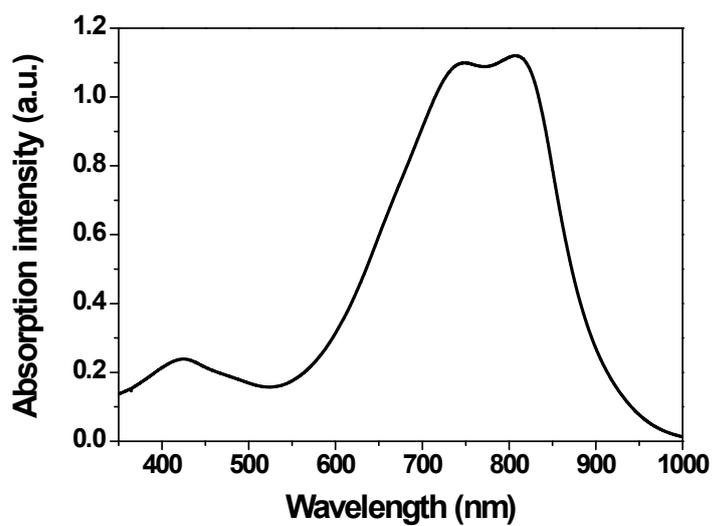
**Figure S2.** The energy band diagram of different materials in the device.



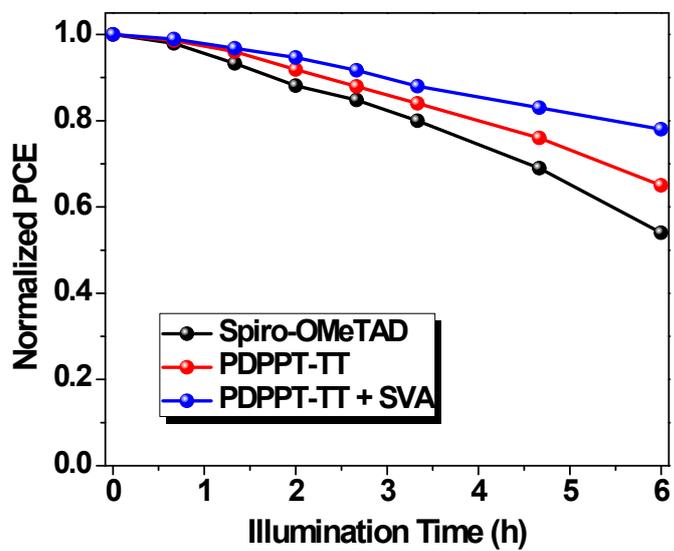
**Figure S3.** Statistical PCE distribution of perovskite solar cells based on different concentrations of PDPPT-TT solution.



**Figure S4.** PCE statistics of the perovskite devices based on Spiro-OMeTAD and Spiro-OMeTAD+SVA.



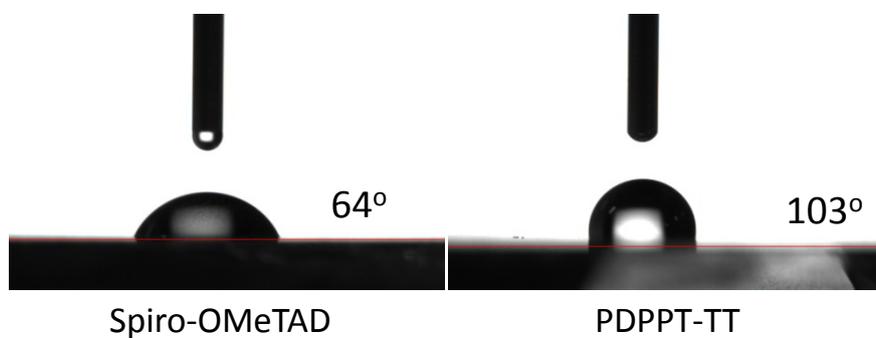
**Figure S5.** UV-vis absorption of PDPPT-TT thin film.



**Figure S6.** The device stabilities as a function of illumination time using ISOS-L1 protocols without excluding the UV-light.

**Table S1.** Fitted decay times of perovskite thin films deposited on different HTLs.

	Fraction 1	$\tau_1$ (ns)	Fraction 2	$\tau_2$ (ns)	$\tau_{ave}$ (ns)
Spiro-OMeTAD	0.41	3.54	0.59	18.69	12.53
PDPPT-TT	0.46	6.27	0.54	32.64	20.45
PDPPT-TT+SVA	0.56	3.99	0.44	26.54	13.90



**Figure S7.** Water contact angle measurements based on Spiro-OMeTAD and PDPPT-TT polymers.