

Supporting information for

Polymethylmethacrylate Coating on Aligned Carbon Nanotube-Silicon Solar Cells for Performance Improvement

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1: Average thickness of CNT film drawn from double-walled spinnable CNT array

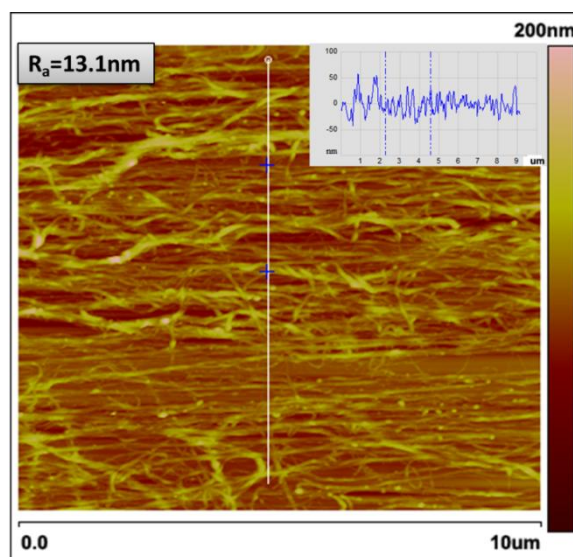


Fig. S1 Roughness and cross section height of CNT film from spinnable CNT array.

2: Transparency of CNT film drawn from double-walled spinnable CNT array

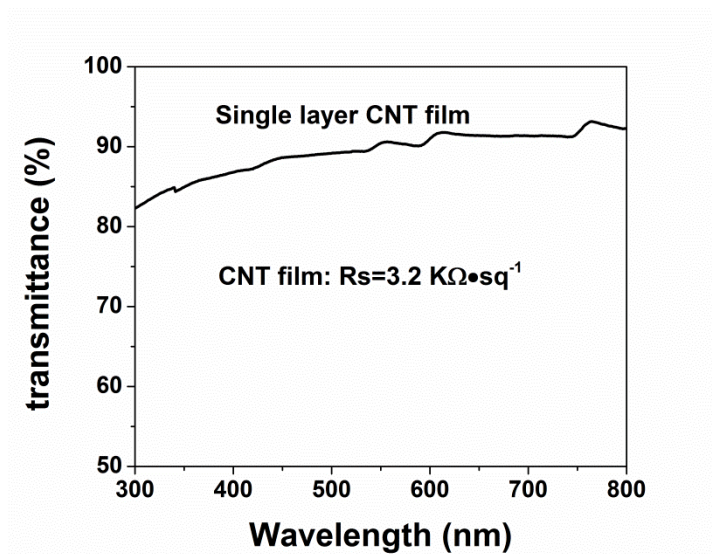


Fig. S2 Transmittance and square resistance of CNT film drawn from spinnable CNT array

3: **Table S1** Thickness of PMMA film from different concentration

Concentration (wt. %)	2%	2.5%	3%	3.5%	4%
Film thickness (nm)	84.7	112	142.2	178.5	236.7

4: Thickness of PMMA-CNT film from 2.5 wt. % PMMA concentration

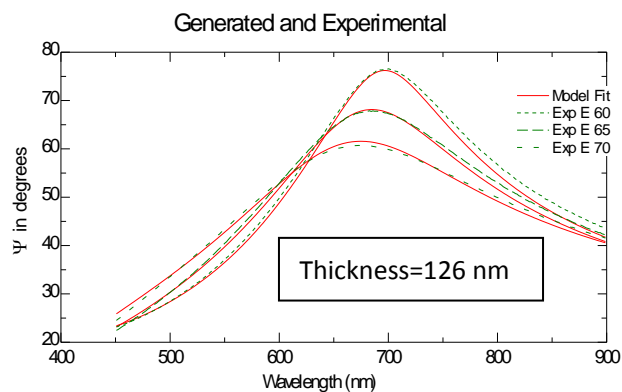


Fig. S3 Thickness of PMMA-CNT film from 2.5 wt. % PMMA concentration

5: Stability of PMMA-CNT-Si solar cell treated with HNO₃

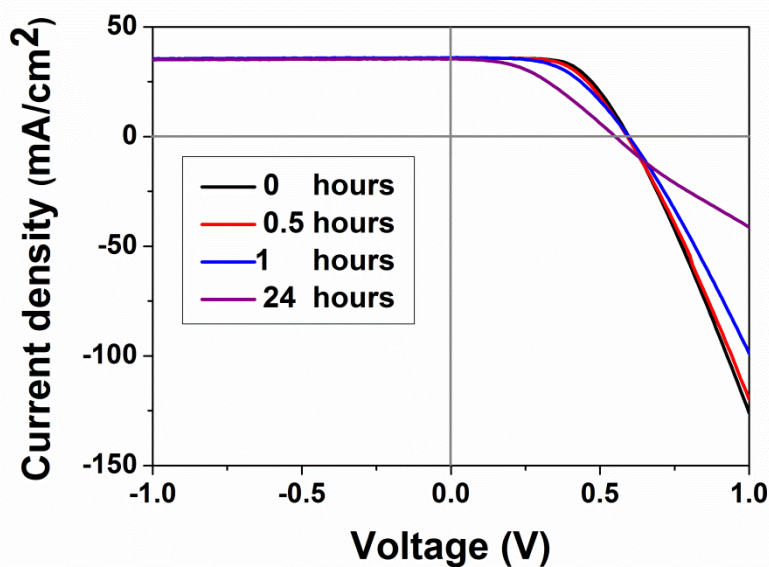


Fig. S4 Decrease of *FF* storage in air condition

6: **Table S2** Photovoltaic properties of 5 solar cells fabricated in a batch after doped with HNO₃.

Sample	$J_{sc}/\text{mA}\cdot\text{cm}^{-2}$	V_{oc}/V	$FF/\%$	$PCE/\%$
1	35.6	0.60	61.5	13.1
2	34.7	0.59	60.2	12.3
3	34.3	0.60	59.8	12.3
4	32.1	0.59	58.1	11
5	33.7	0.59	58.7	11.7

$$\overline{PCE} = 12.08, \sigma = 0.78$$

7: Conductivity of CNT film on glass before and after PMMA coating

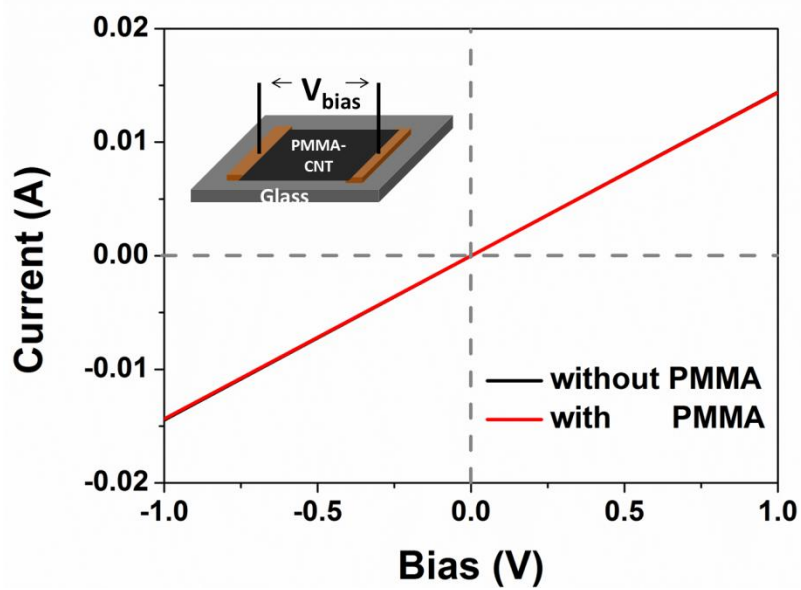


Fig. S5 Conductivity of CNT film on glass before and after PMMA coating