

Support information

High-efficiency, stable and non-chemical-doped graphene-Si solar cells through interface engineering and PMMA antireflection

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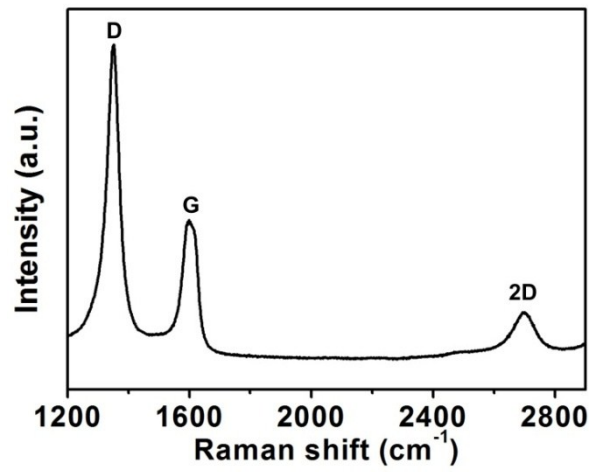


Figure S1. Raman spectra of the CNWs.

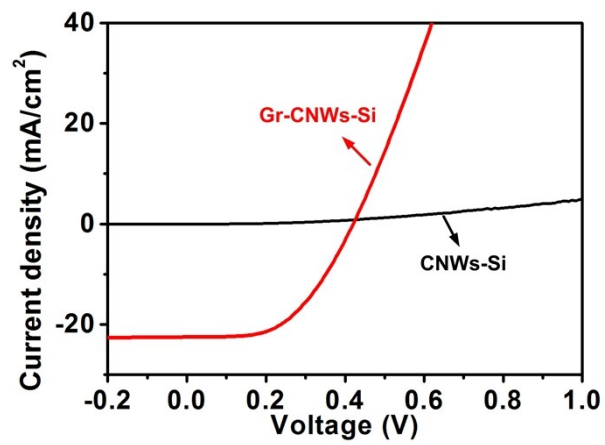


Figure S2. Light J-V curves for CNWs-Si (dark line) and Gr-CNWs-Si (red line) solar cells.

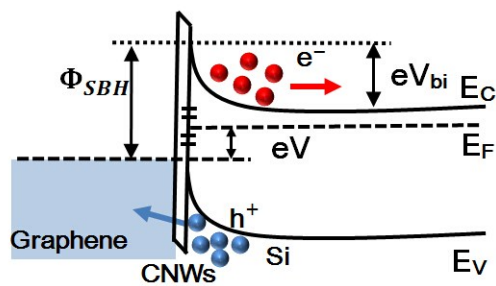


Figure S3. Energy band diagram of the Gr-CNWs-Si junction. Φ_{SBH} is the barrier height, V_{bi} is the built-in potential, V is the applied voltage, E_F is the energy of Fermi level.

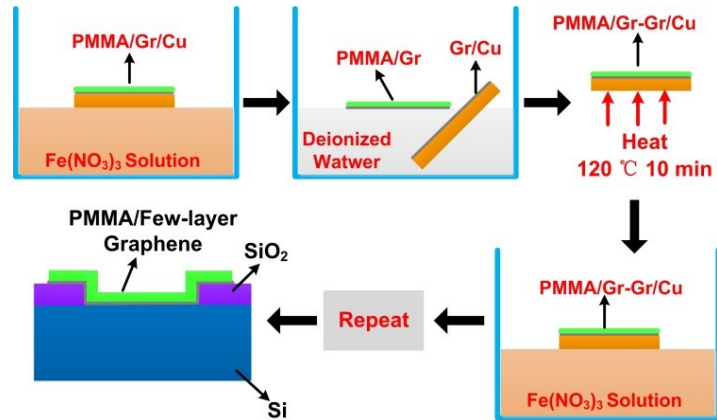


Figure S4. The layer-by-layer graphene transfer process for PMMA-few-layer Gr-Si solar cells.

Table S1. The performances of the PMMA-Gr-CNWs-Si solar cells with 1-4 layer graphene and the degraded efficiency under different days.

	V_{OC} (V)	J_{SC} (mA/cm ²)	FF (%)	PCE (%)
Monolayer	0.43	27.8	63.0	7.5
2-layer	0.44	29.1	69.8	8.9
3-layer	0.43	27.2	70.1	8.2
4-layer	0.42	25.1	71.8	7.6
30 days	0.43	28.9	68.7	8.6
60 days	0.43	28.7	67.7	8.4
90 days	0.43	28.4	67.3	8.2
120 days	0.42	28.6	66.8	8.0