Performance Dependence of SWCNT/n-Silicon Hybrid Solar Cells on the Charge Carrier Concentration in Silicon Substrates

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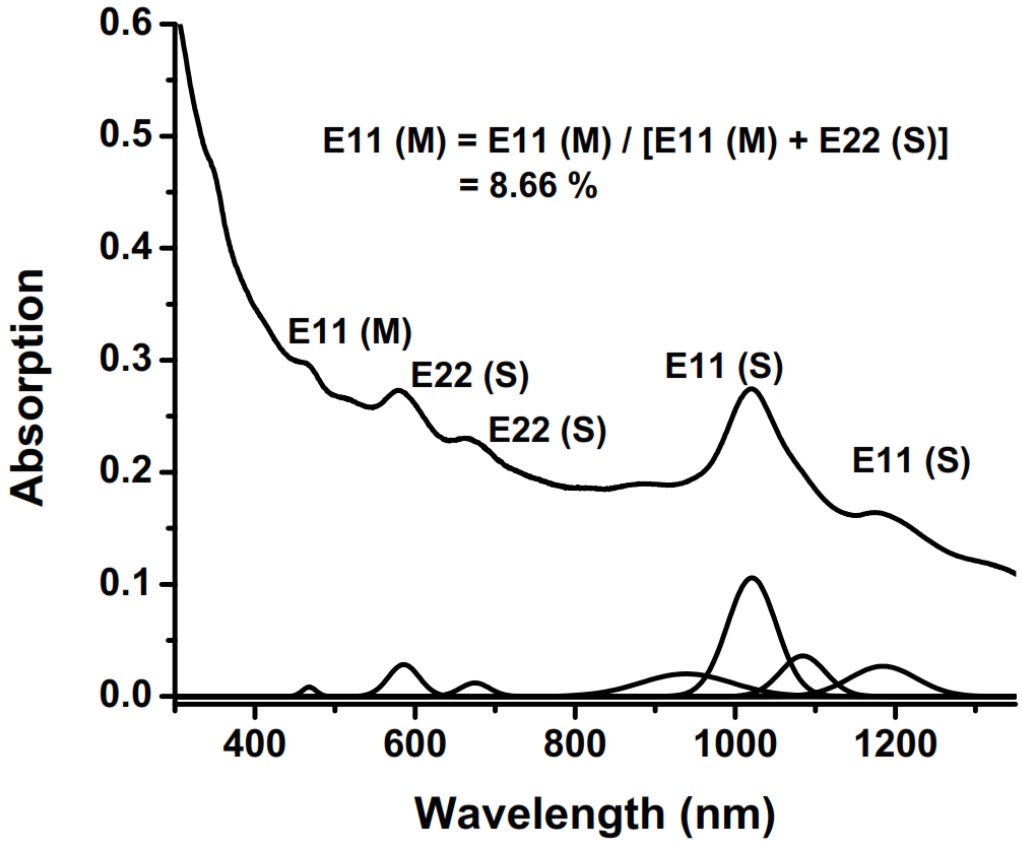

Figure S1. Optical absorption spectrum of SWCNT dispersion before SWCNT film fabrication. The peaks were fitted (Adjusted R^2 – 0.999108) in order to determine the different SWCNT species present. After integrating the area under the fitted peaks, the metallic contents in the dispersion was found to be ~8.66%.[1,2,3]

Table S1. Table summarizing the open-circuit voltages (V_{oc}), short-circuit current densities (J_{sc}), fill factor (FF), power conversion efficiencies, series resistance (R_s) and shunt resistance (R_{sh}) obtained from the solar cell devices.

	Si-1	Si-2	Si-3	Si-4	Si-5	Si-6
Voc (V)	0	0.008±0.0003	0.405±0.001	0.295±0.003	0.297±0.003	0.059±0.003
Jsc (mA/cm^2)	0	8.52±0.50	10.18±0.19	13.19±0.15	14.90±0.4	0.29±0.01
FF	0	0.26±0.05	0.57±0.01	0.4±0.01	0.33±0.01	0.24±0.01
Efficiency (%)	0	0.02±0.01	2.35±0.02	1.57±0.04	1.43±0.07	0.004±0.001
R_s (KΩ)	0	0.009±0.002	0.115±0.001	0.144±0.005	0.159±0.007	2.91±0.16
R_{sh} (KΩ)	0	0.010±0.001	15.7±1.8	1.18±0.16	0.62±0.10	2.93±0.13

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