Supplementary Information

Highly Porous Nanostructured Polyaniline/Carbon Nanodots as Efficient Counter Electrodes for Pt-free Dye-Sensitized Solar Cells

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Figure S1. (a) Photoluminescence spectra of CNDs and passivated CNDs under 350 nm excitation and inset is photographs of photoluminescent CNDs. (b) Zeta potential graphs for CNDs and passivated CNDs.



Figure S2. AFM images and cross-sectional analyses (1 X 1 μ m² scale) of (a) PANI and (b) PANI-CND counter electrodes (CEs). Measured surface roughness (*R*_a) values of the samples are 0.39 and 0.67 nm, respectively. PANI-CND CE was fabricated with PANI-CND (5 wt%).



Figure S3. *J-V* characteristics of assembled DSSCs using PANI and PANI-CND counter electrodes with different CNDs concentrations: 1, 5, and 10 wt%.

Samples ^a	V _{oc} (V)	$J_{\rm SC}$ (mA cm ⁻²)	FF	η (%)
Pristine PANI	0.77	10.1	0.72	5.60
PANI-CND (1 wt%)	0.78	10.3	0.72	5.71
PANI-CND (5 wt%)	0.77	13.8	0.70	7.45
PANI-CND (10 wt%)	0.76	13.3	0.67	6.84

Table S1. Photovoltaic parameters of assembled DSSCs using PANI and PANI-CND counter electrodes with different CNDs concentrations: 1, 5, and 10 wt%.

^{*a*} Active area of the assembled DSSC samples is 0.16 cm².