Electronic Supplementary Material (ESI) for RSC Advances.

Supporting Information

High Efficiency Dye-sensitized Solar Cells with V_{OC}-J_{SC} Trade off Eradication by Interfacial Engineering of Photoanode|electrolyte Interface

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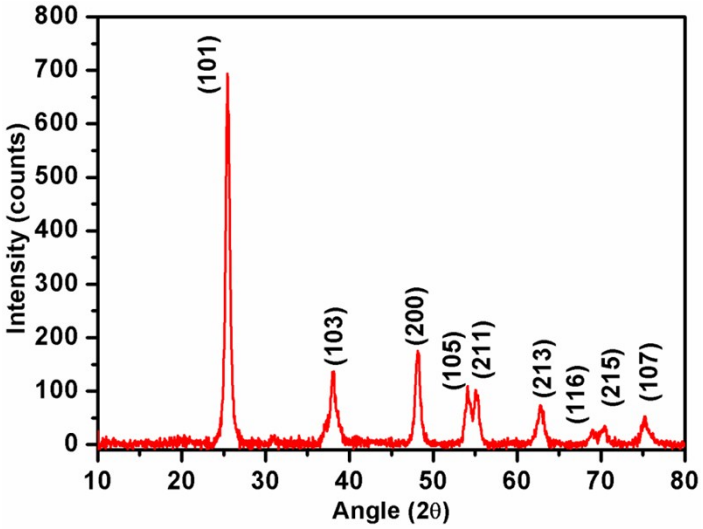


Fig. S1. XRD pattern of TiO_2 nanoparticles. The peaks are well matched with the standard ICDD reference pattern (00-001-0562)

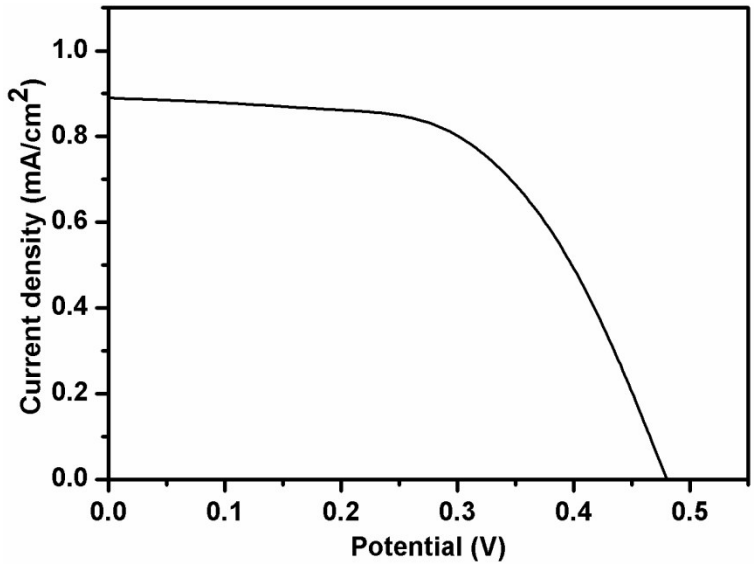


Fig. S2. J-V characteristics of DSSC sensitized OA alone under the illumination of 100 mW/cm^2.

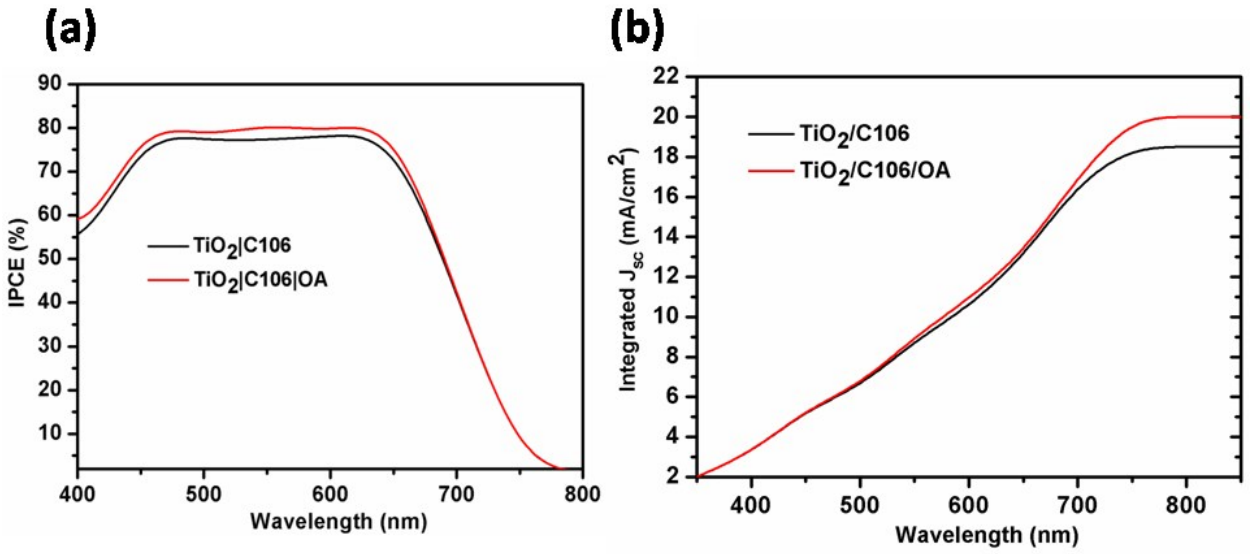


Fig. S3. IPCE spectrum of DSSCs as a function of wavelength for the standard device and OA modified device (a) and the integrated current density spectra.

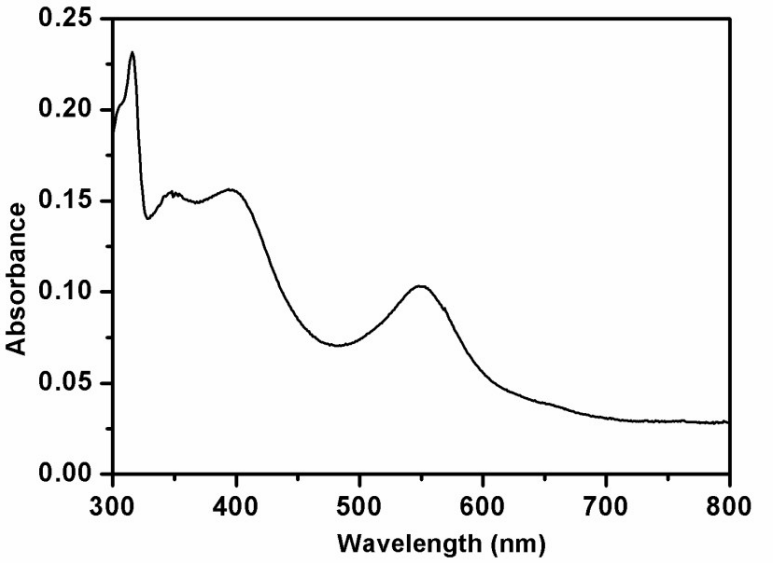


Fig. S4. UV-Vis spectrum of C 106 dye solution in DMF.

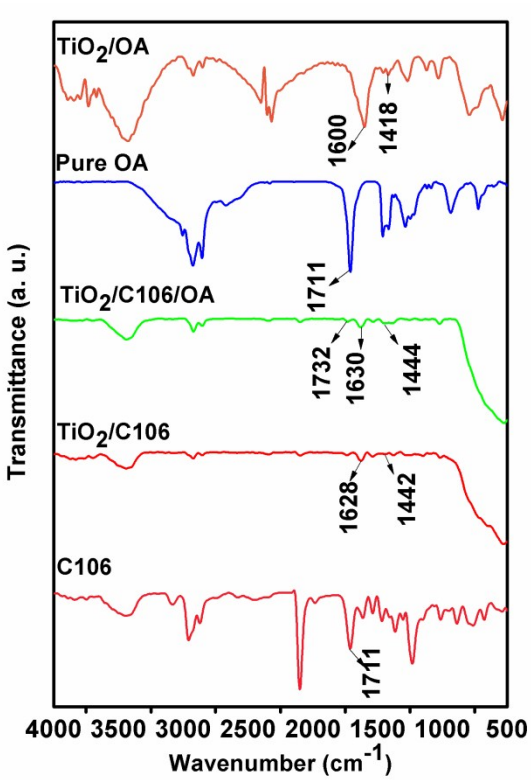


Fig. S5. FT-IR spectra of C106, TiO_2/C106, TiO_2/C106/OA, OA and TiO_2/OA.

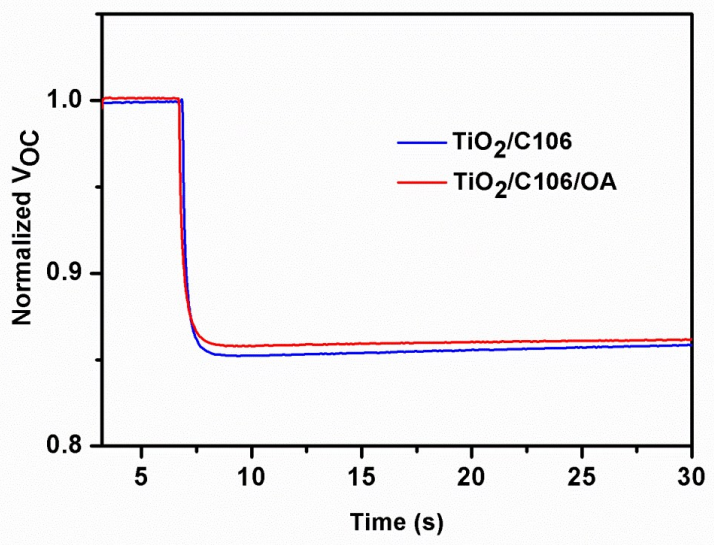


Fig. S6. V_{OC} decay profile of DSSCs

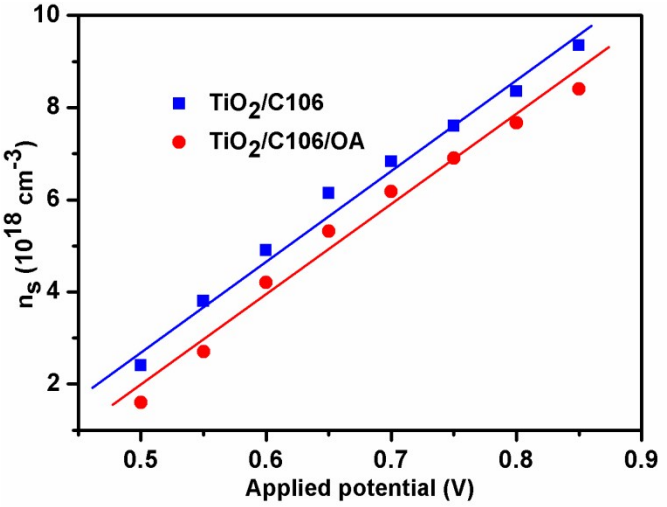
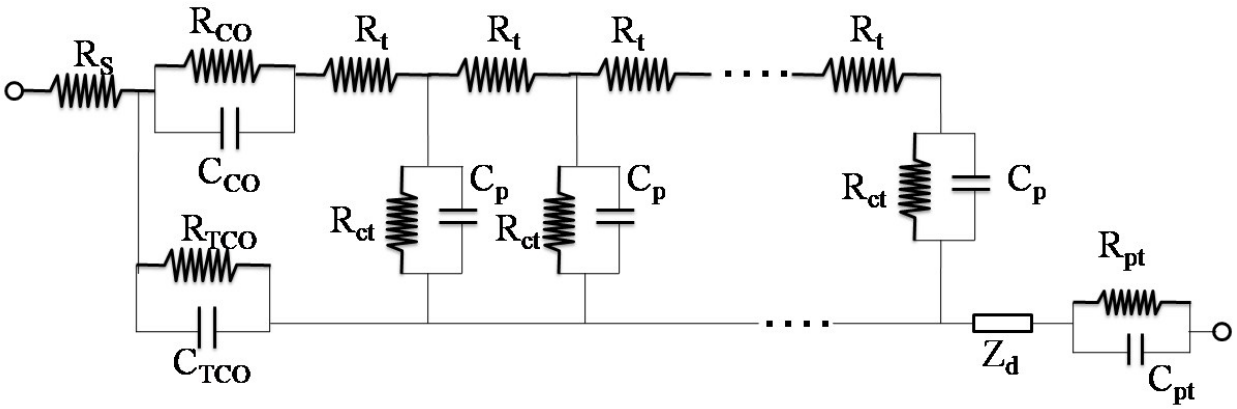


Fig. S7. Variation steady state electron density as a function of applied potentials under dark condition.



Scheme. S1. Equivalent circuit (Transmission line model) used for fitting the impedance data. Rs-total series resistance, R_{pt}, R_{ct} , R_t and C_p are the charge transfer resistance at platinum/electrolyte interface, recombination resistance at the photoanode/electrolyte interface, electron transport resistance in TiO_2 network and chemical capacitance at the photoanode/electrolyte interface, respectively. Z_d is the Warburg diffusion element.