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Supporting Information

Morphological Control of Platinum Nanostructures for Highly Efficient Dye-sensitized Solar Cells

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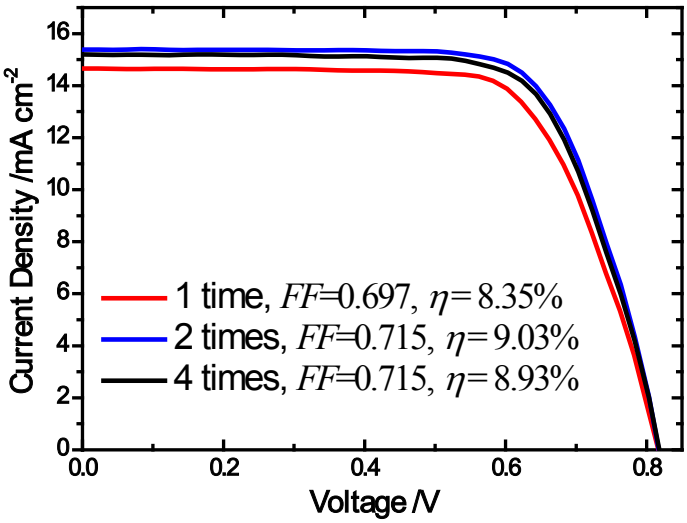

Figure S1. Current-voltage characteristics of DSSC devices with platinum counter electrodes prepared by TD method with the same thermal decomposition process repeated by 1 (red curve), 2 (blue curve) and 4 (black) times.

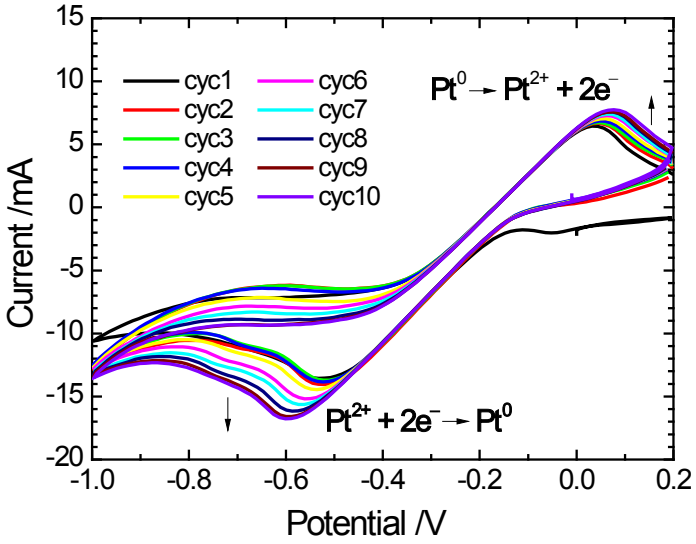

Figure S2. Cyclic voltammograms for the electro-deposition of Pt via CV scans in aqueous solution containing H_2PtCl_6 (5 mM) and $NaNO_3$ (5 mM) at scan rate 0.05 V s^{-1}. The arrows indicate the order of the deposition cycles.

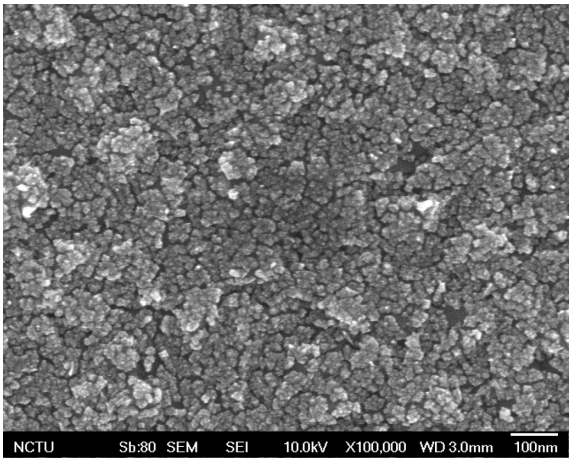

Figure S3. FESEM top-view image of deposited Pt films obtained on cyclic electro-deposition from a solution composed of H_2PtCl_6 (5 mM) and KCl (5 mM) with the potential sweeping in range -1.0 – 0.2 V at scan rate 0.05 V s^{-1}.

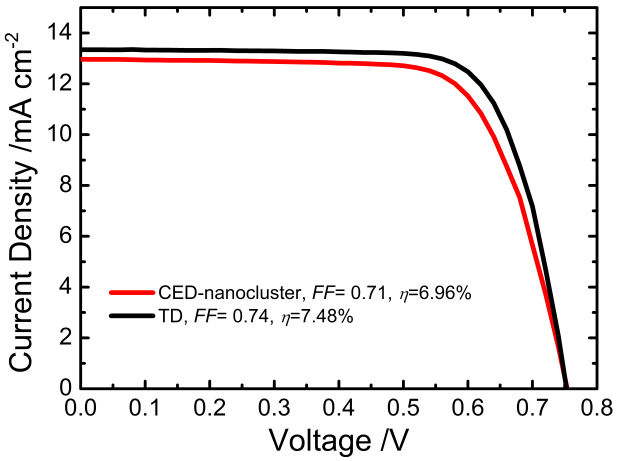

Figure S4. Current-voltage characteristics of DSSC devices with platinum counter electrodes prepared by TD method (black) and CED method (red); the CED counter electrode was prepared at $[H_2PtCl_6]$ = 5.0 mM with scan cycles of 4 showing the nanocluster morphology.

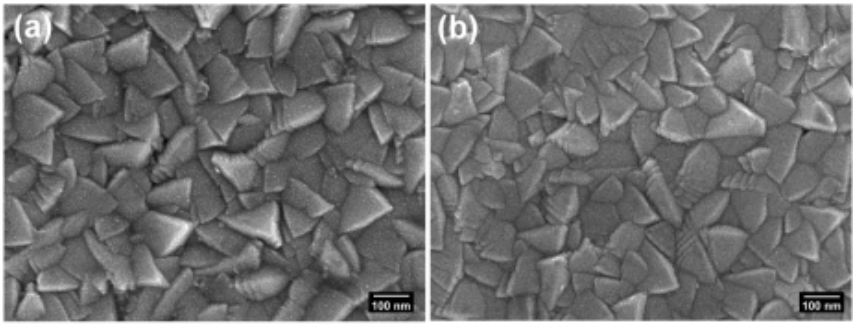

Figure S5. FESEM top-view images of platinized electrodes fabricated with methods (a) TD and (b) SD.

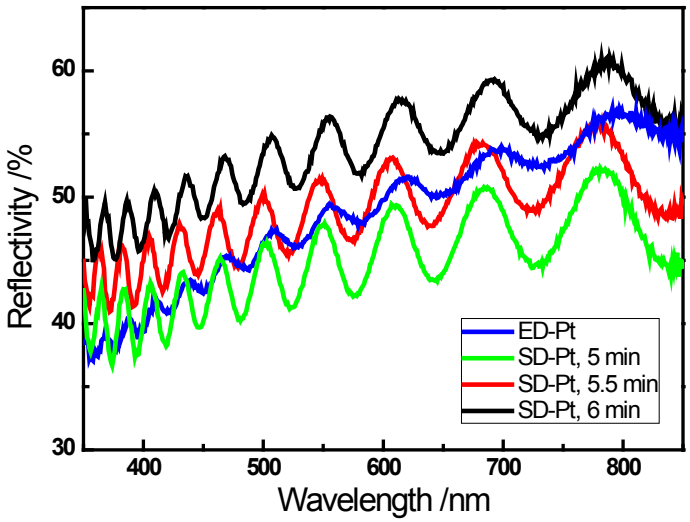

Figure S6. Reflection spectra of Pt films fabricated with CED (blue curve) and SD under different sputtering deposition periods, 5 min (green curve), 5.5 min (red curve) and 6 min (black curve).