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Supporting Information

In situ growth of mirror-like platinum as highly-efficient counter electrode with light harvesting function for dye-sensitized solar cell

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Photovoltaic performance of the DSCs with different amounts of conventional Pt:

The Pt loading amount of conventional Pt and Pt-mirror films were explored by a Varian 710ES Inductively Coupled Plasma Atomic Emission Spectrometry (ICP-AES). The amount of Pt of the conventional Pt film was 0.009 mg with an geometric area of 0.36 cm^2, while 0.012 mg of the Pt-mirror film with geometric area 0.36cm^2.

In order to explore the influence of the mass amount of the conventional Pt film, we assembled the DSCs with different amounts of Pt, and the detailed photovoltaic parameters are summarized in Table S1. Fig. S1 displays the photocurrent-voltage (*J-V*) curves for DSCs with different folds of the mass of conventional Pt. As shown in Table S1, the DSCs with 0.5F Pt show J_{sc}=15.44 mA cm^{-2}, V_{oc}=603 mV, *FF*=0.38 and η=3.56%, much inferior to that of the 1F Pt (Pt) (J_{sc}=16.04 mA cm^{-2}, V_{oc}=687 mV, *FF*=0.56, η=6.32%). The curves of the 2F and 3F Pt are very similar to that of Pt. There no obvious enhancement of the η when more amount of the conventional Pt was used. The η of the cells with 2F Pt was 6.48%. In the meantime, the η of DSCs with Pt-M is 7.49%, but the mass amount of Pt of the Pt-M is smaller than that of the 2F Pt. Moreover, the J_{sc} (18.50 mA cm^{-2}) of the DSCs with Pt-M is much higher than that of the 2F Pt (16.11 mA cm^{-2}). In conclusion, according to the analysis above, it can be concluded that the Pt-M prepared in our method is facilitates to improve the performance of the DSCs.

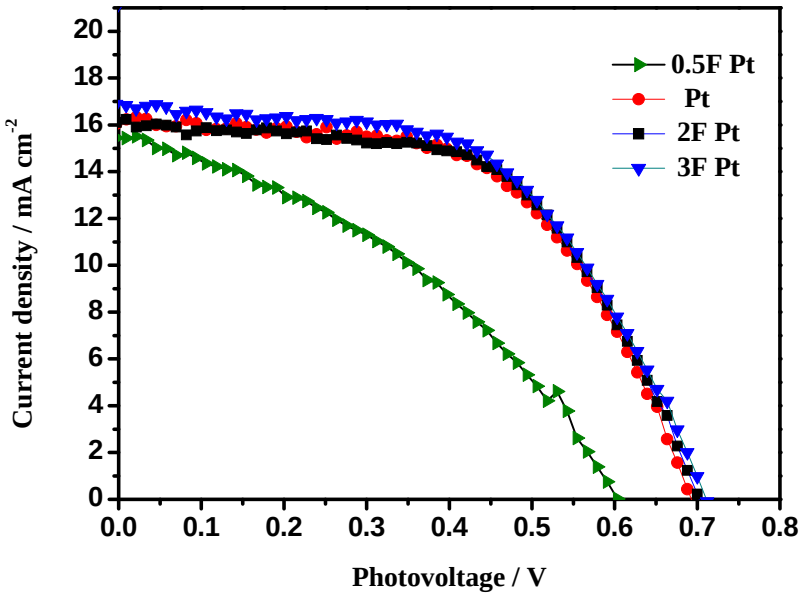

Fig. S1 The *J-V* curves of the DSCs with different folds of the mass of the conventional Pt.

Table S1. Energy conversion efficiency of DSCs with different folds of the mass amount of conventional Pt CEs.

Folds	J_{sc} (mA cm^{-2})	V_{oc} (mV)	*FF* (%)	η (%)
0.5	15.44	603	38	3.56
1	16.04	687	56	6.32
2	16.11	700	57	6.48
3	16.89	710	55	6.57