Supplementary Information

Ag-encapsulated Au plasmonic nanorods for enhanced Dye-Sensitized Solar Cell performance

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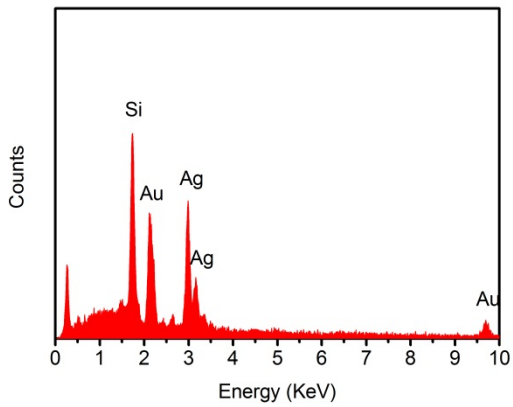

Fig. S1 EDX analysis of the Au@Ag NRs on the silicon substrate.

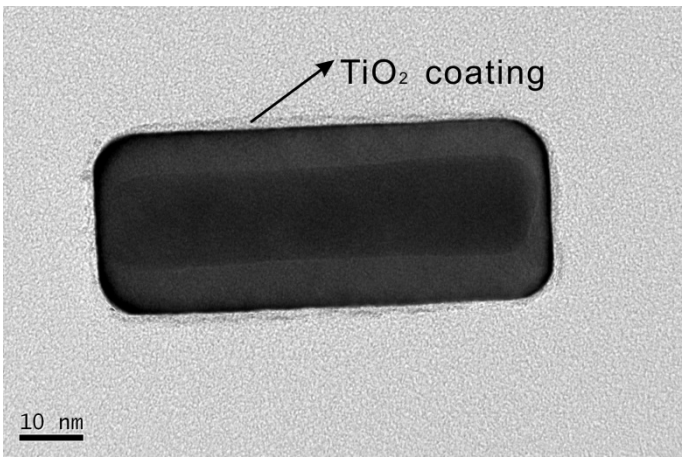

Fig. S2 TEM images of the Au@Ag NRs with TiO_2 shell

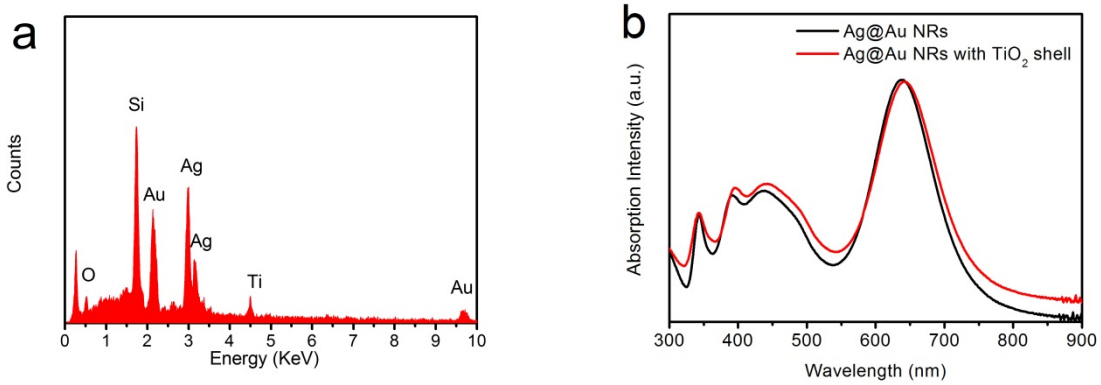

Fig. S3 EDX analysis of the Au@Ag NRs with TiO_2 shell on the silicon substrate (a) and Absorption spectrum of the Au@Ag NRs with and without TiO_2 shell.

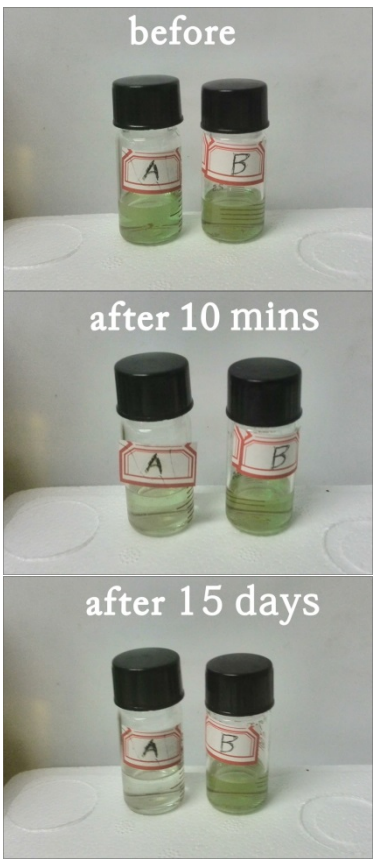

Fig. S4. Appearance variation tendency of bare and treated Au@Ag NRs before and after mixed with electrolyte for a period of time.

Solution A: bare Au@Ag NRs and Solution B: treated Au@Ag NRs

In this experiment, 10 μL of electrolyte was injected into 3mL of bare Au@Ag NRs and treated Au@Ag NRs solution followed by ltrasound, respectively. The molar ratio of Au element in these two solutions is the same.

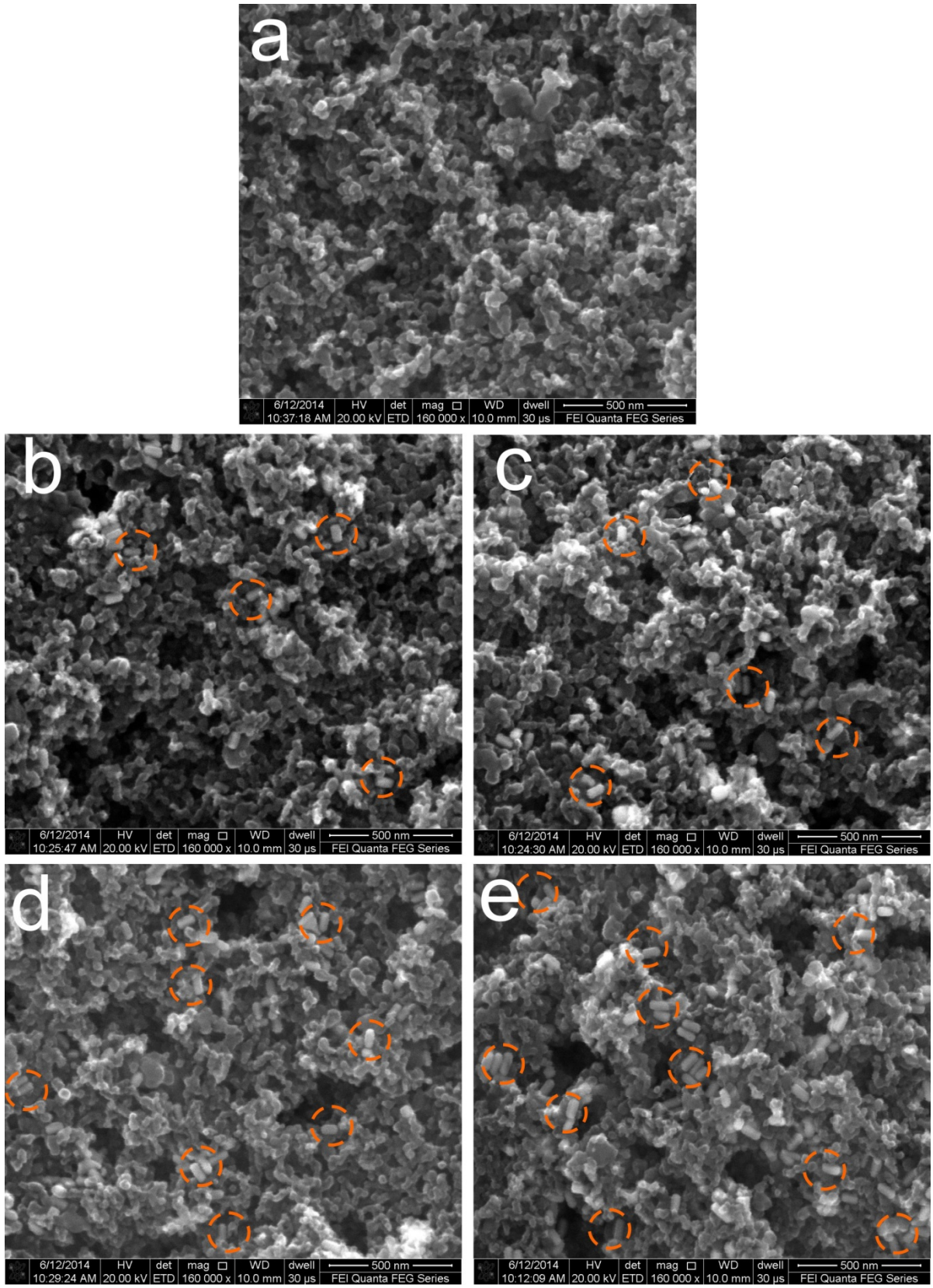

Fig. S5 SEM images of different photoanode films with various amounts of Au@Ag NRs

(0.00wt%, 1.28 wt%, 2.49 wt%, 3.68 wt%, 4.97 wt%)

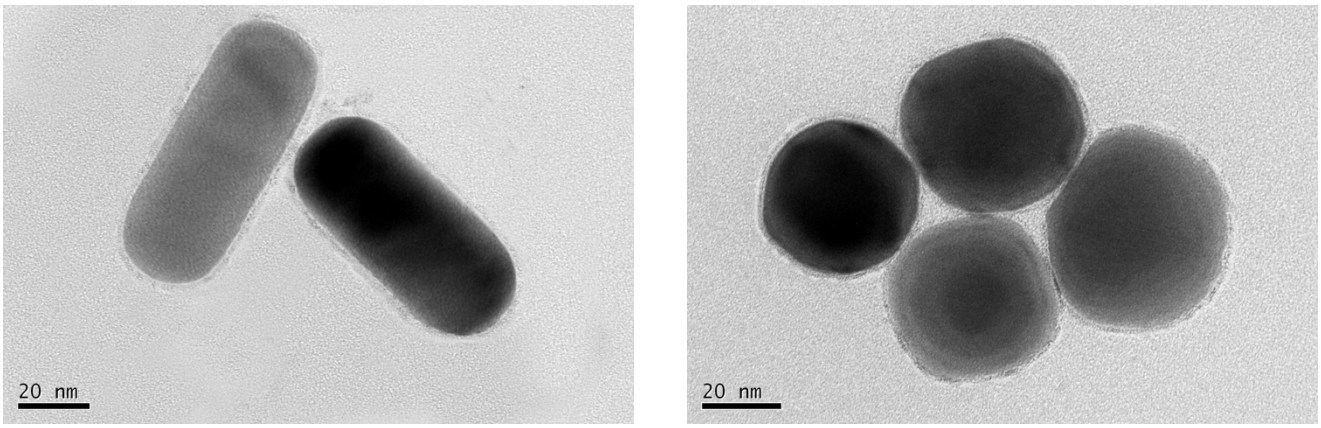

Fig. S6 TEM images of the Ag NRs and Ag NPs with TiO_2 shell

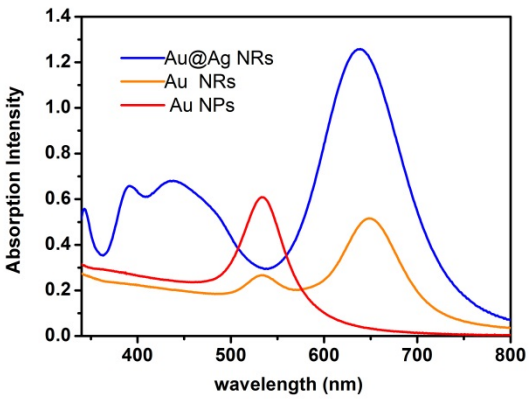

Fig. S7 Absorption spectra of three metal nanostructures

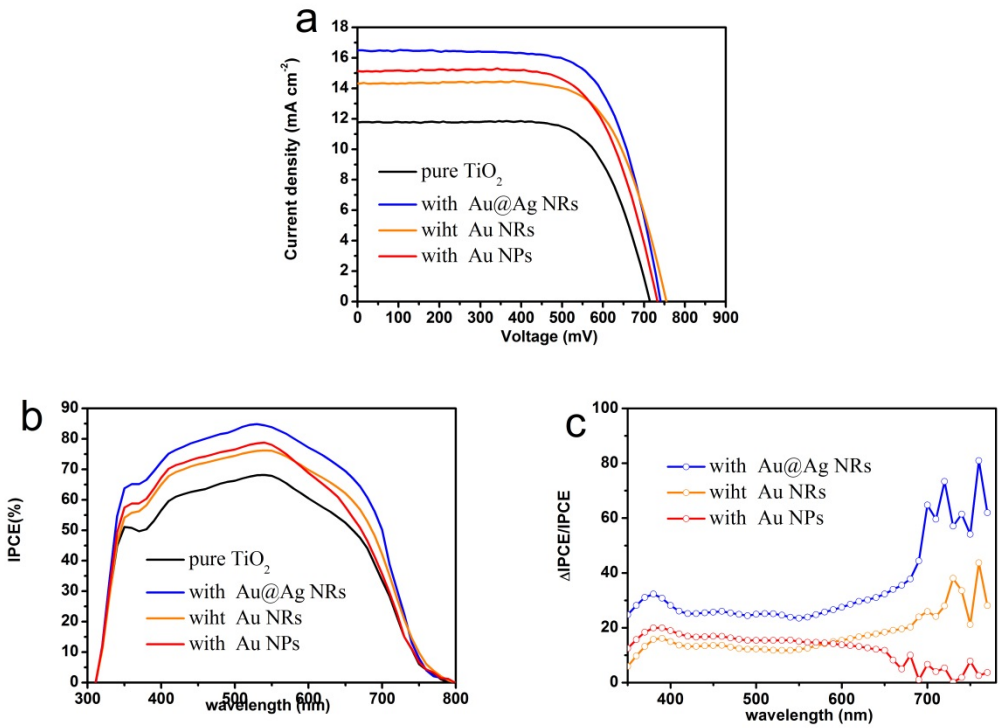

Fig. S8 (a) I-V characteristic of DSSCs with various TiO_2 photoanodes. (b) IPCE and (c) IPCE enhancement ratio characteristic of DSSCs with various TiO_2 photoanodes

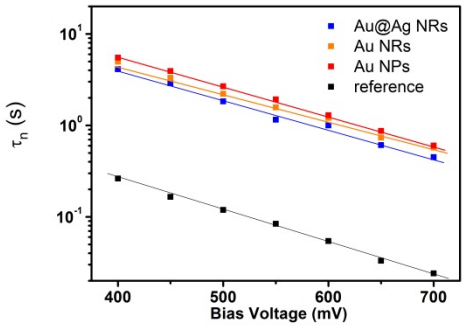

Fig. S9 Electron residence time (τ_n) in different DSSCs.

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