

Supporting Information

Dye-sensitized solar cells based on a double layered TiO₂ photoanode consisting of hierarchical nanowire arrays and nanoparticles with greatly improved photovoltaic performance

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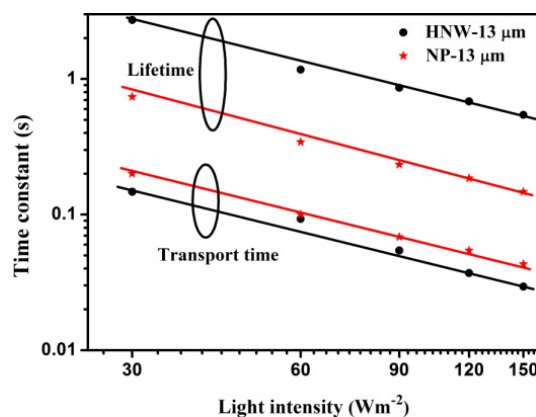


Fig. S1 Incident light intensity dependent transport time and lifetime for TiO_2 HNW and NP DSSCs with a similar film thickness of around $13 \mu\text{m}$ based on Ti substrate.

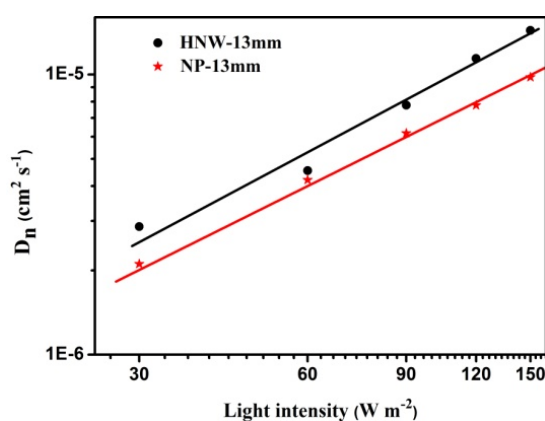


Fig. S2 Incident light intensity dependent electron diffusion coefficient for TiO_2 HNW and NP DSSCs with a similar film thickness of around $13 \mu\text{m}$ based on Ti substrate.

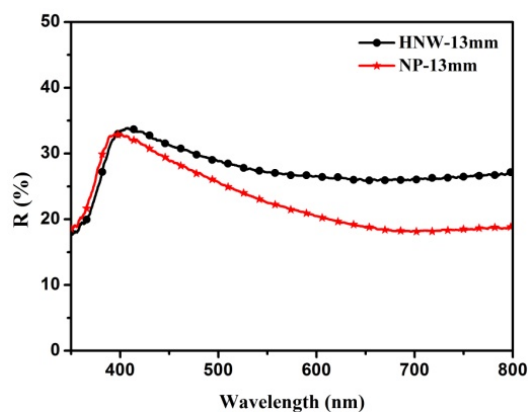


Fig. S3 Diffuse reflectance spectra for TiO_2 HNW and NP DSSCs with a similar film thickness of around $13 \mu\text{m}$.

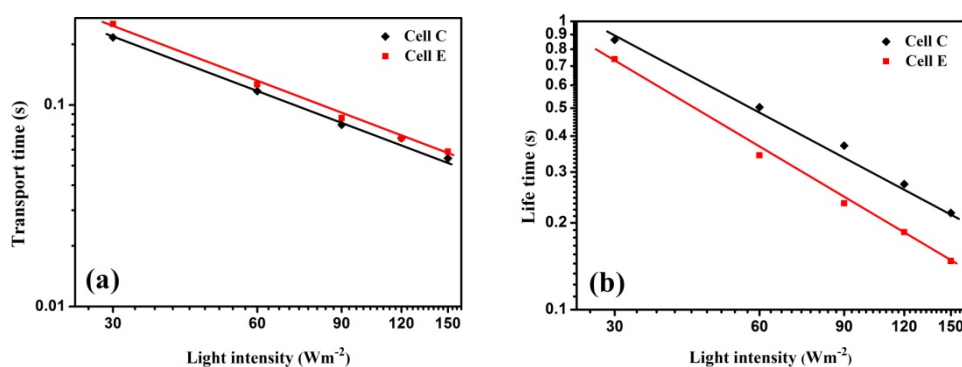


Fig. S4 Incident light intensity dependent transport time and lifetime of DSSCs with TiO_2 HNW+NP/Ti and TiO_2 NP/Ti are presented in (a) and (b), respectively.

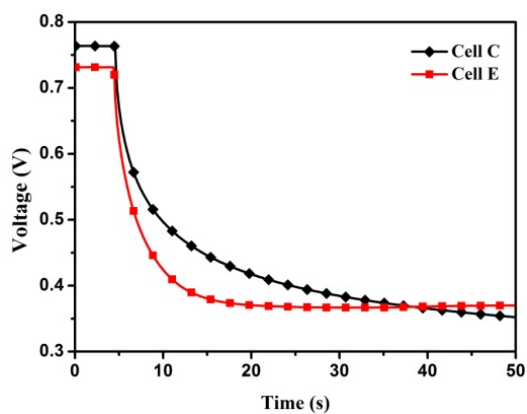


Fig. S5 Open-circuit voltage decay measurement of DSSCs with TiO_2 HNW+NP/Ti and TiO_2 NP/Ti based on the same thicknesses ($31 \mu\text{m}$).

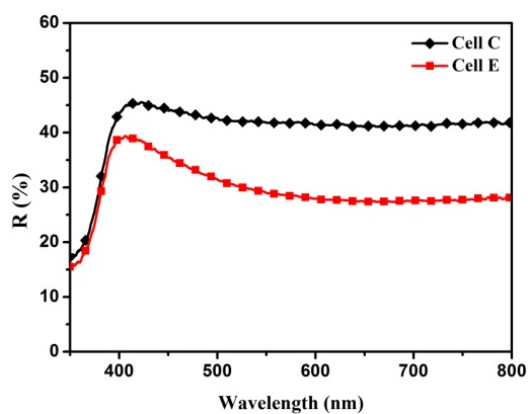


Fig. S6 Diffuse reflectance spectra of DSSCs with TiO_2 HNW+NP/Ti and TiO_2 NP/Ti based on the same thicknesses ($31 \mu\text{m}$).