Electronic Supplementary Information

Highly efficient visible/near-IR-light-driven photocatalytic H₂ production over asymmetric phthalocyanine-sensitized TiO₂**

Xiaohu Zhang,‡,a Lijuan Yu,‡,a Chuansheng Zhuang,‡ Tianyou Peng,‡,* Renjie Li,‡,* and Xingguo Li b

a College of Chemistry and Molecular Science, Wuhan University, Wuhan 430072, P. R. China.
b Beijing National Laboratory for Molecular Sciences (BNLMS), College of Chemistry and Molecular Engineering, Peking University, Beijing 100190, China.

Figure S1. DRS spectra of 1.0wt% Pt-loaded Zn-tri-PcNc/TiO₂ with different dye-adsorbed contents.

Figure S2. (a) DRS spectra of Zn-tri-PcNc/TiO₂ with different Pt-loaded levels, and (b) effect of Pt-loaded amount on the photocatalytic H₂ production rate over Zn-tri-PcNc/TiO₂. Conditions: 30 mg photocatalyst with 5 μmol/g dye-adsorbed amount, 10 mM EDTA aqueous solution with original pH value (3.6-3.8) without adjusting.
Figure S3. Effects of dye-adsorbed amount (a), pH value (b), photocatalyst amount (c), and EDTA concentration (d) on the photocatalytic H₂ production rate over Zn-tri-PcNc/TiO₂. Conditions: 30 mg photocatalyst with 5 μmol/g dye-adsorbed amount, 10 mM EDTA aqueous solution with original pH value (3.6-3.8) without adjusting if otherwise statement.

Figure S4. UV-vis absorption spectra: filtrate of Zn-tri-PcNc/TiO₂ suspension after 15h irradiation; desorbed solution of un-irradiated Zn-tri-PcNc/TiO₂ suspension; desorbed solution of 15h irradiated Zn-tri-PcNc/TiO₂ suspension.
Figure S5. Electrochemical impedance spectra (EIS) of the solar cells fabricated with Zn-tri-PcNc/TiO₂ electrode. (a) Nyquist plot; (b) Bode phase plot.

Figure S6. Electrochemical impedance spectra (EIS) of the solar cells fabricated with Zn-tetra-Nc/TiO₂ electrode. (a) Nyquist plot; (b) Bode phase plot.

Figure S7. Open-circuit voltage decay (OCVD) curves (a) and corresponding τₙ⁻¹-V_OC curves (b) of the solar cells fabricated with Zn-tri-PcNc/TiO₂ and Zn-tetra-Nc/TiO₂ film electrode.
Figure S8. Emission spectrum of Xe-lamp provided by Excelitas Technologies can be seen at http://www.excelitas.com/downloads/DTS_PE300BFA.pdf. F = UV filtered output.