Electronic Supplementary Material (ESI) for Catalysis Science & Technology.


# Core-shell g-$C_3N_4$/Pt/$TiO_2$ nanowires for simultaneous photocatalytic $H_2$ evolution and RhB degradation under visible light irradiation

Hailong Dou[†‖], Yumei Qin[‡‖], Feng Pan[‡], Dan Long[†], Xi Rao[†], Guo Qin Xu[§*], and Yongping Zhang[†*]

[†]School of Materials and Energy, Southwest University, 2 Tiansheng Road, Beibei, Chongqing 400715, China

[‡]College of Chemistry and Molecular Engineering, Peking University, 202 Chengfu Road, Haidian, Beijing100871, China

[§]Department of Chemistry, National University of Singapore, 3 Science Drive 3, Singapore 117543, Singapore

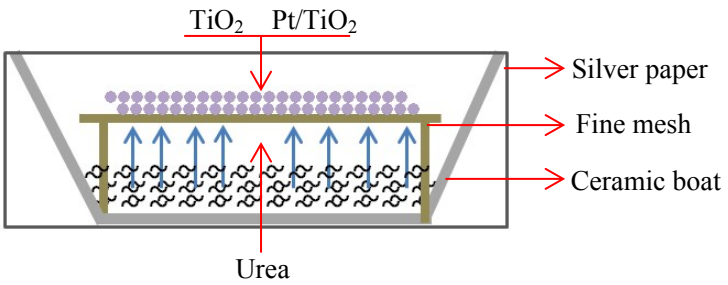


Fig. S1 Schematic illustration for synthesizing g-$C_3N_4$/$TiO_2$ and g-$C_3N_4$/Pt/$TiO_2$.

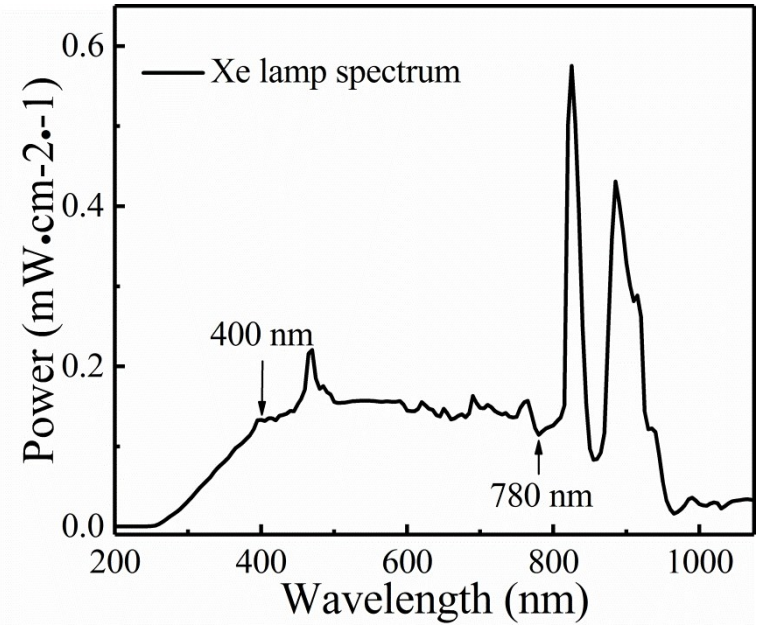


Fig. S2 Xe lamp spectrum

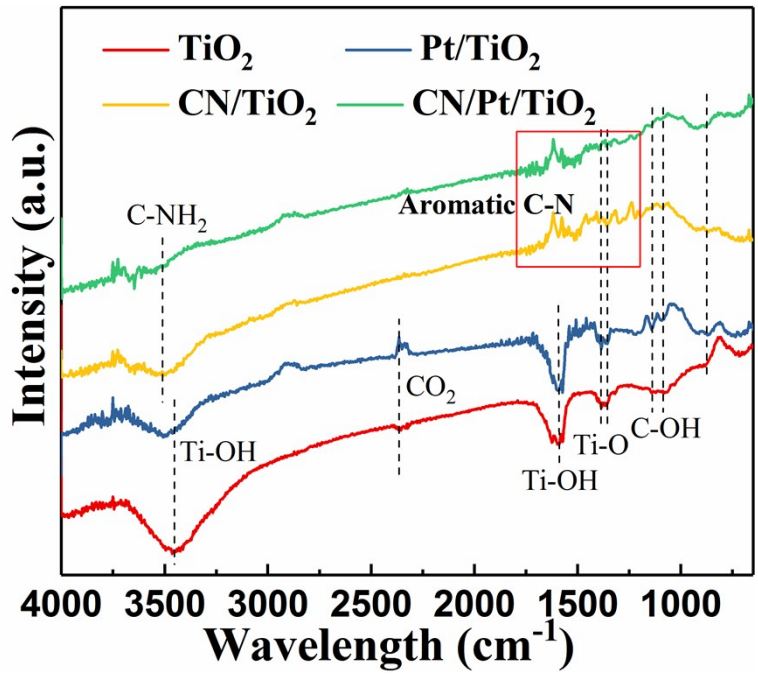


Fig. S3 FTIR spectra of $TiO_2$, $Pt/TiO_2$, $CN/TiO_2$, $CN/Pt/TiO_2$.

FTIR spectra in Fig. S3 also confirms the coexistence of g-$C_3N_4$ and $TiO_2$. In FTIR spectra of $CN/TiO_2$ and $CN/Pt/TiO_2$ samples, the vibration peaks at 500-900$cm^{-1}$, 1340$cm^{-1}$ and 1380$cm^{-1}$ can be assigned to the stretching modes of Ti–O.[19] The

vibration peaks at 1200-1650cm$^{-1}$ can be assigned to the stretching modes of aromatic ring C–N of g-$C_3N_4$.

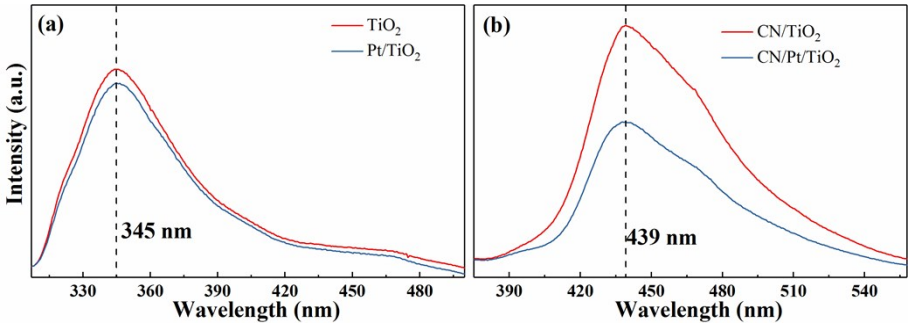


Fig. S4 PL spectra of $TiO_2$, $Pt/TiO_2$, $CN/TiO_2$, $CN/Pt/TiO_2$.

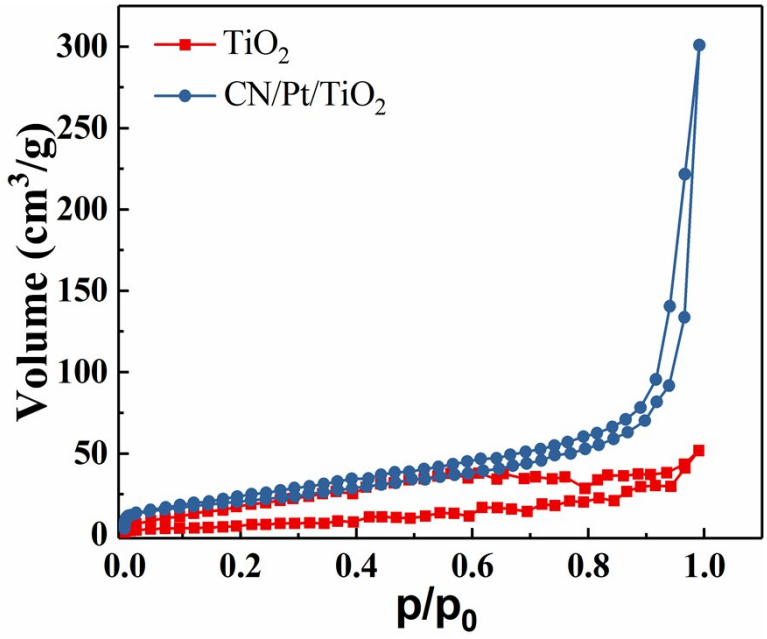


Fig. S5 Adsorption–desorption isothermal curve of $TiO_2$ and $CN/Pt/TiO_2$.