

Electronic Supplementary Information for

Bidentate-complexes-derived TiO₂/carbon dots

photocatalysts: *in situ* synthesis, versatile heterostructures,

and enhanced H₂ evolution

*Jing Wang, Minmin Gao, Ghim Wei Ho**

*To whom correspondence should be addressed. E-mail: elehgw@nus.edu.sg

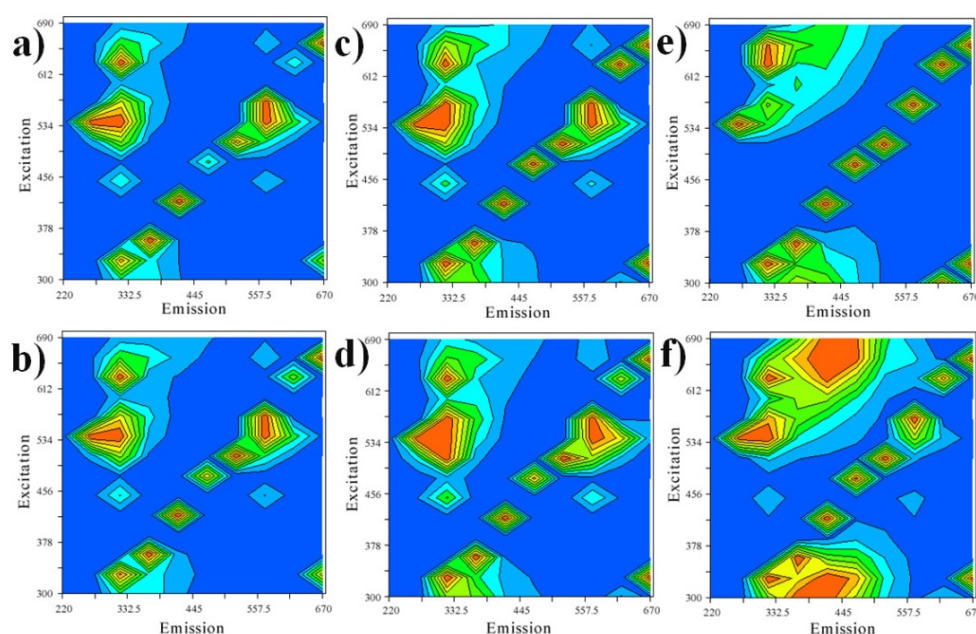


Fig. S1 PL distribution maps of pure CDs solutions obtained at (a) 90 °C, 2 h, (b) 90 °C, 6 h, (c) 150 °C, 2 h, (d) 150 °C, 6 h, (e) 200 °C, 2 h, and (f) 200 °C, 6 h.

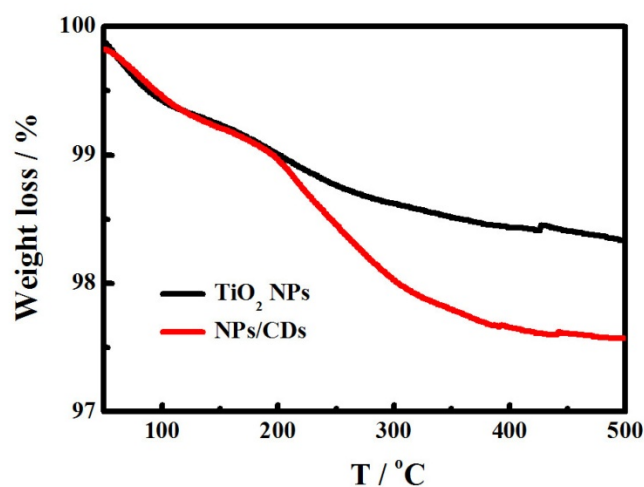


Fig. S2 TGA curves of (black) pure TiO₂ NPs and (red) NPs/CDs composites.

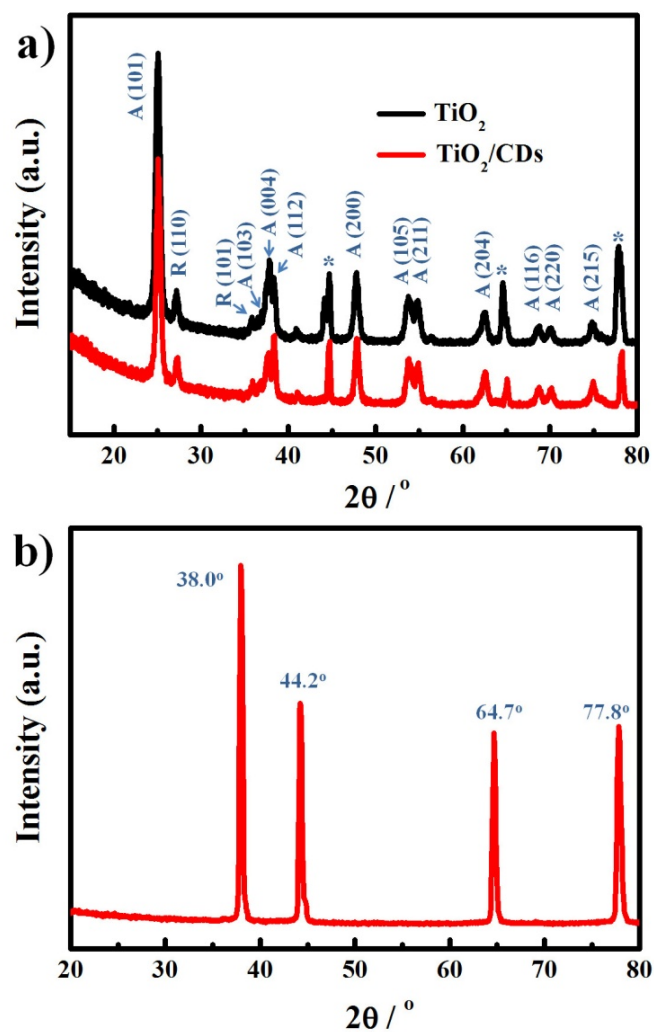


Fig. S3 (a) XRD patterns of pure TiO_2 NPs and NPs/CDs nanocomposites (A indicates anatase phase, R is the rutile phase, and the * denotes the peaks from the sample stage), and (b) the bare sample stage.

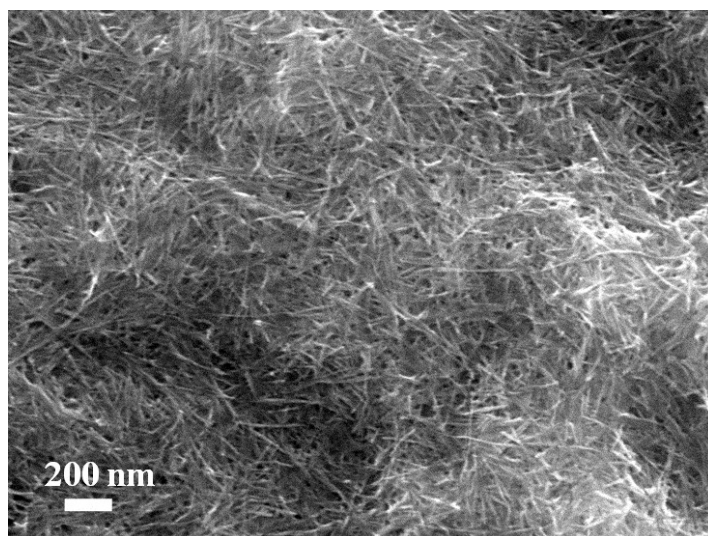


Fig. S4 SEM image of the as-prepared TiO_2 nanowires.

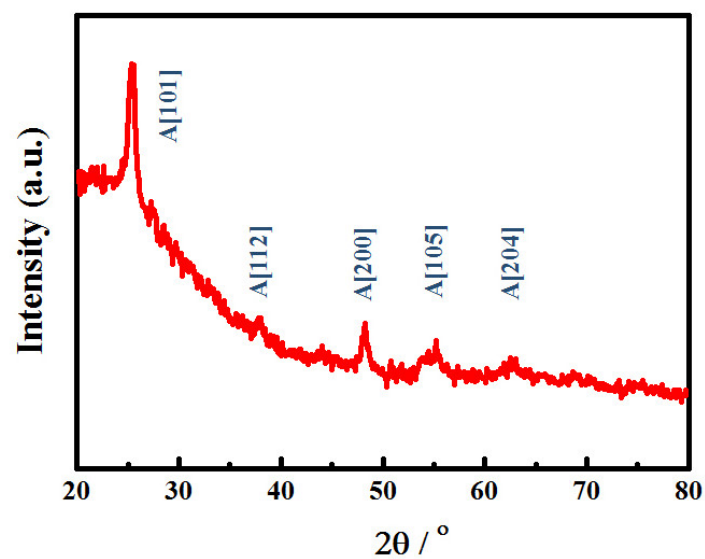


Fig. S5 XRD patterns of the as-prepared TiO₂ nanowires.

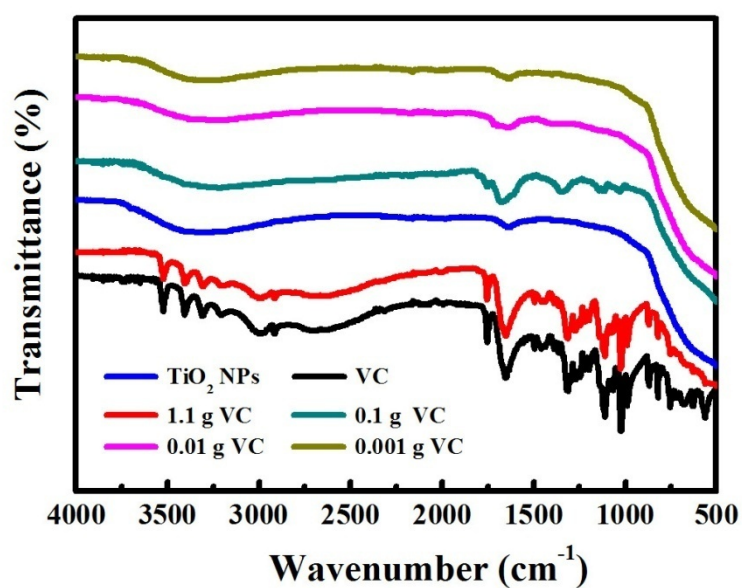


Fig. S6 FT-IR spectra of TiO₂ NPs, VC and NPs/VC complexes at various VC amounts.

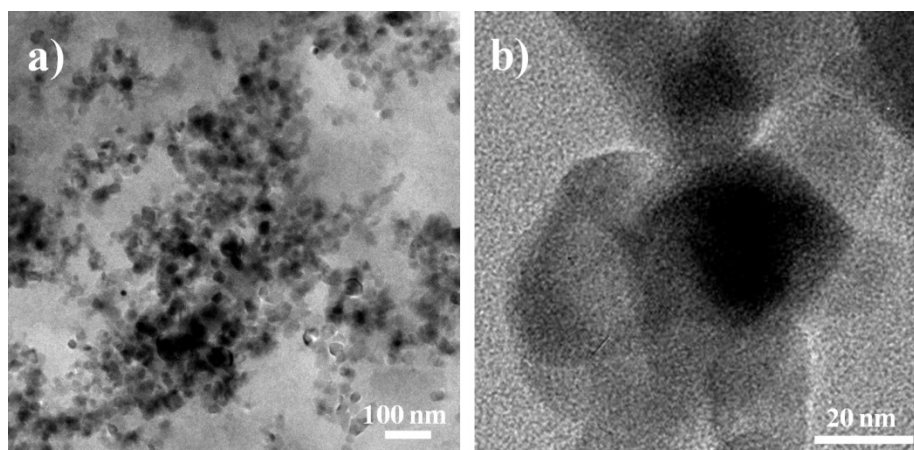


Fig. S7 TEM images of NPs/CDs composites (obtained at VC amount of 1.1 g) at (a) low and (b) high magnification.

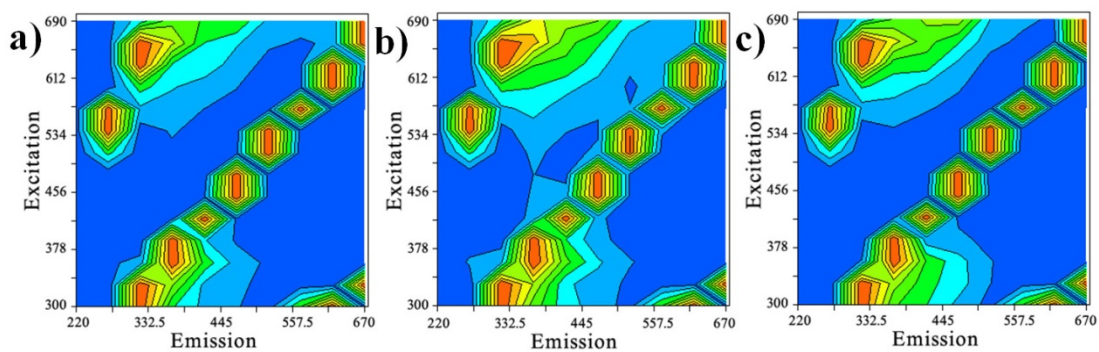


Fig. S8 PL distribution maps of the CDs from NWs/CDs nanocomposites obtained at 90 °C for (a) 2 h, (b) 4 h and (c) 6 h.

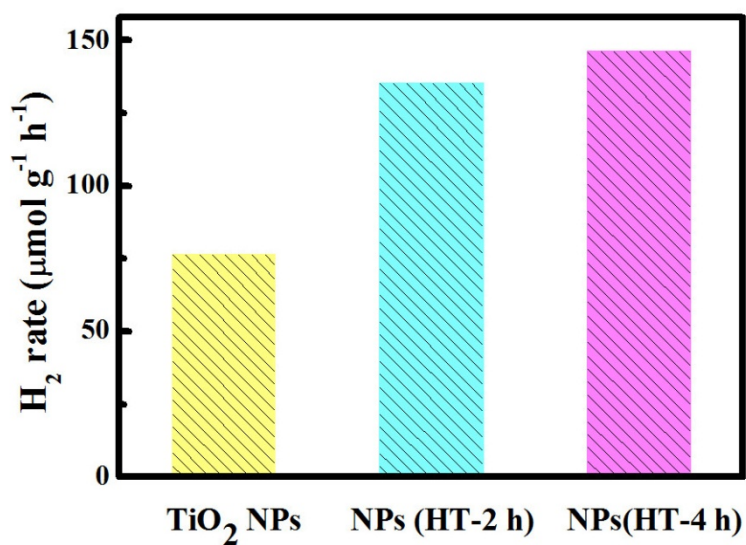


Fig. S9 Photocatalytic H₂ production studies of TiO₂ NPs and hydrothermally treated TiO₂ NPs for 2 and 4 h, respectively.

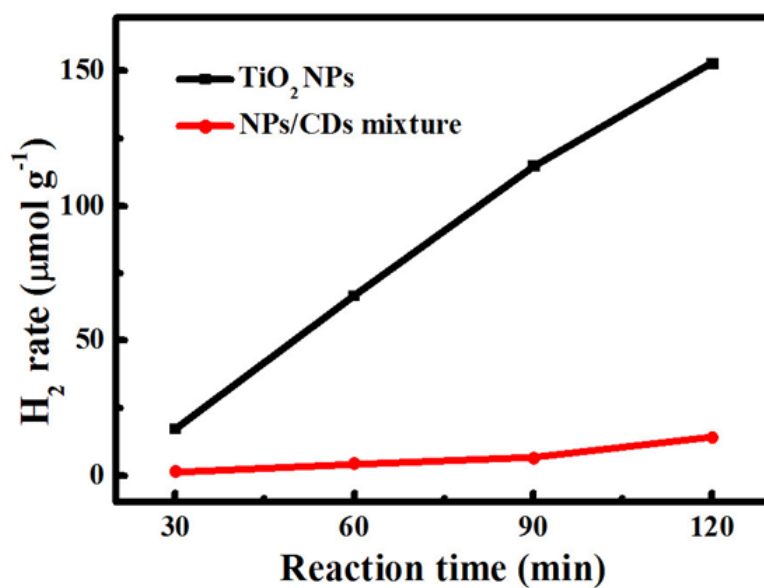


Fig. S10 Time course of H₂ production from TiO₂ NPs and the mixture of TiO₂ NPs and CDs (the CDs were obtained at 90 °C for 4 h).