Electronic Supplementary Material (ESI) for RSC Advances.
This journal is © The Royal Society of Chemistry 2016

Electronic Supplementary Information for

One-pot low-temperature synthesis of TiO_2 nanowires/rGO composites with enhanced photocatalytic activity

Huan Xing [a], Wei Wen [b] and Jin-Ming Wu [a*]

[a] *State Key Laboratory of Silicon Materials, and School of Materials Science and Engineering, Zhejiang University, Hangzhou, 310037, P. R. China*

[b] *College of Mechanical and Electrical Engineering, Hainan University, Haikou 570228, P. R. China.*

GO synthesis

In an ice-water bathed beaker, 1 g of graphite powders and 0.75 g of $NaNO_3$ were mixed with 45 mL H_2SO_4 and 5 mL H_3PO_4, into which 4.5 g of $KMnO_4$ was added slowly and batch-wisely. The reactant was then heated to 60 ˚C and stirred for 10 h until the mixture turned to sticky and dark grey. When cooled down to room temperature, the mixture was added with ice (100 mL DI water) and the color turned to purple. The temperature was raised to 95 ˚C and the mixture was continuously stirred for 1 h and then cooled to 60 ˚C, at which temperature 15 mL of 30% H_2O_2 was added. The mixture obtained was centrifuged at 6000 rpm for 2 min and washed with a mixture of 50 mL DI water and 5 mL HCl. The obtained material was centrifugal washed with DI water several times until the pH value reaches neutral. It should be noted that a two-step centrifugal washing has been adopted to get few-layered graphene oxide. The first centrifugation was carried out at 3000 rpm to expel the large particles. The remaining suspensions were then centrifuged at 8000 rpm in succession.

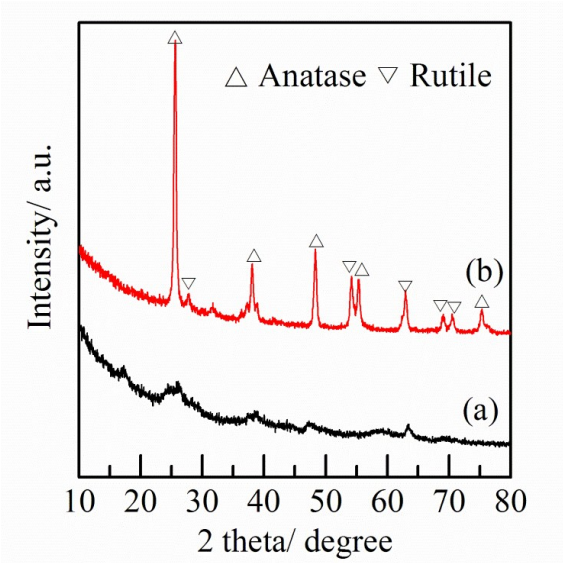

Fig. S1. XRD patterns of TGN-80 before (a) and after (b) calcination.

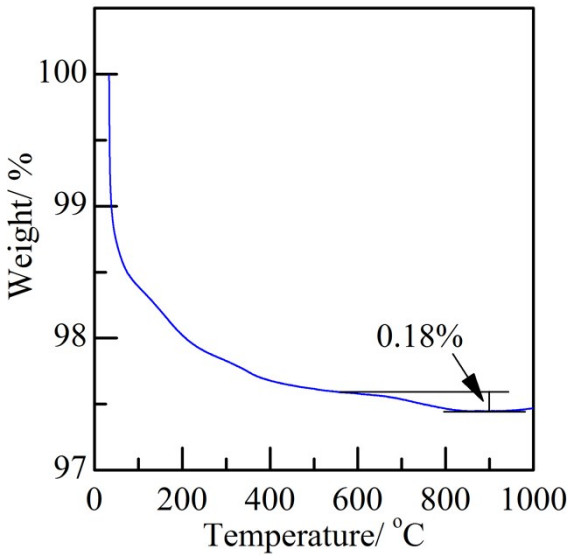

Fig. S2. TGA curve of TGN-80, measured in air condition at a heating rate of 10 ˚C min^{-1}.

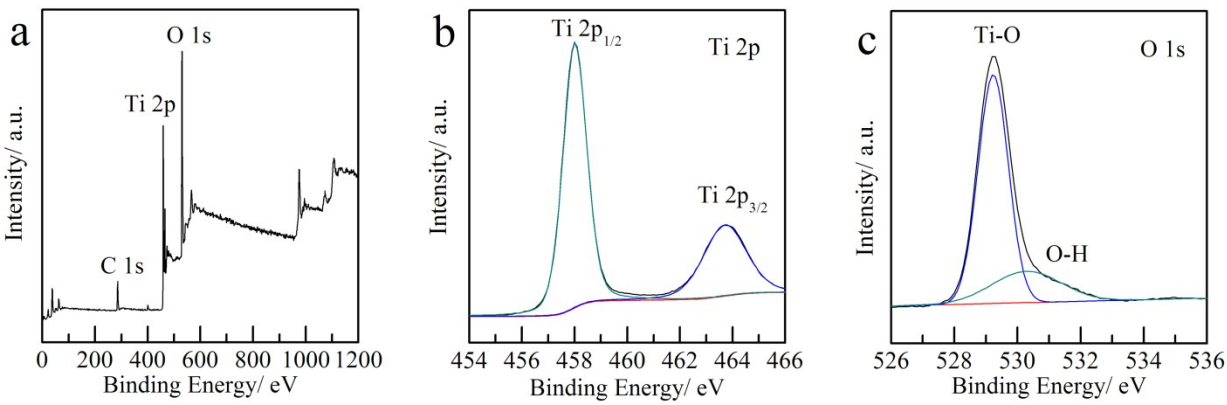

Fig. S3. XPS survey spectra (a), and core level XPS spectra of Ti 2p (b) and O 1s (c) of TiO_2 nanowires.