Electronic Supplementary Information

Unprecedented Rutile TiO_2 Nanosheets with Exposed (001) Facets

Jun Song Chen[a], and Xiong Wen (David) Lou[a]*

[a] School of Chemical and Biomolecular Engineering, Nanyang Technological University, 70 Nanyang Drive, Singapore 637457 (Singapore)

Email: xwlou@ntu.edu.sg

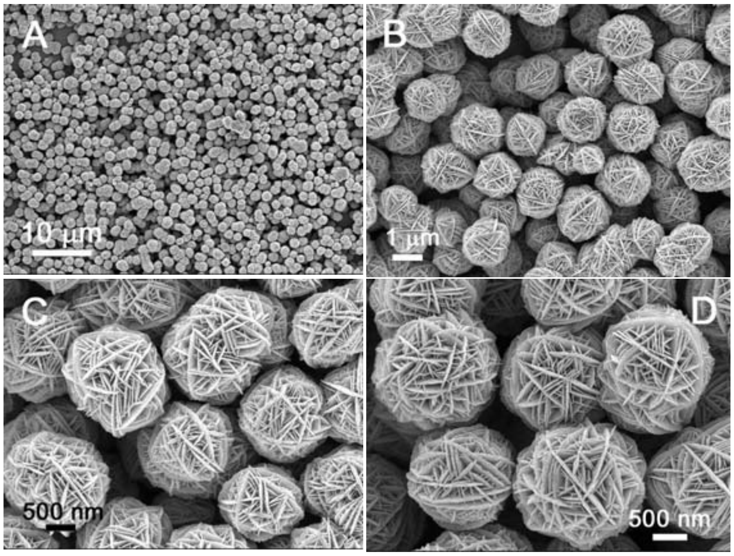

Figure S1. FESEM images of the TiO_2-MoO_3 nanocomposite.

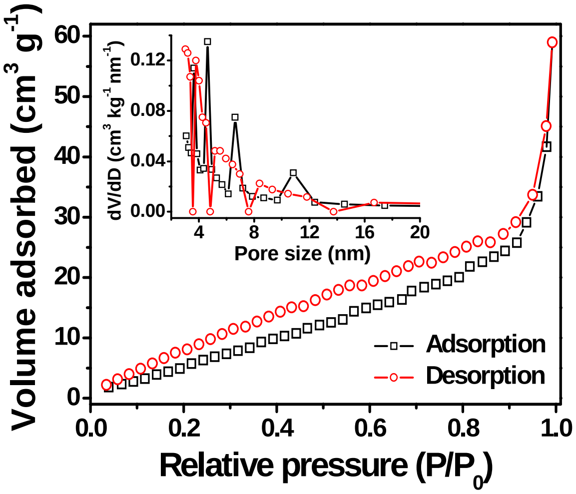

Figure S2. N2 adsorption-desorption isotherm of as-synthesized TiO_2-MoO_3 nanocomposite. The inset shows the BJH pore size distribution.

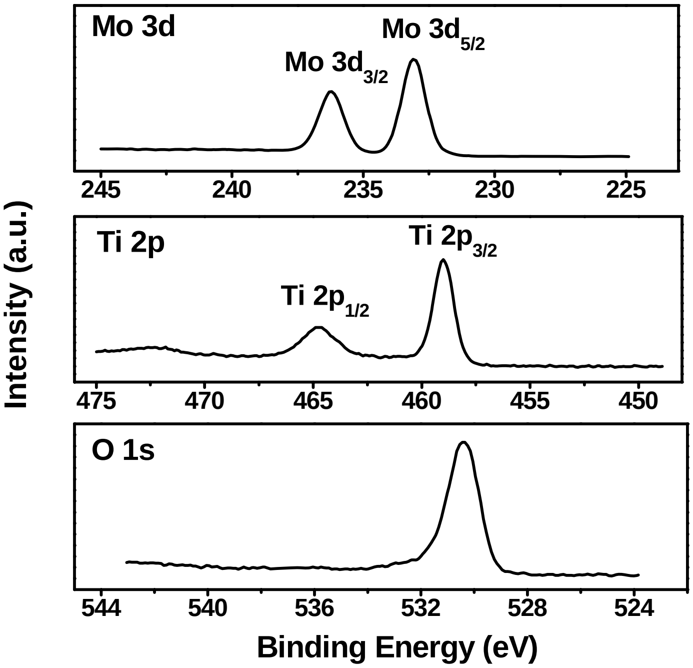

Figure S3. XPS spectra of the Mo 3s, Ti 2p, and O 1s of the as-prepared TiO_2-MoO_3 composite. Mo $3d_{5/2}$, BE = 233.1 eV, and Mo $3d_{3/2}$, BE = 236.2 eV; Ti $2p_{3/2}$, BE = 459 eV, and Ti $2p_{1/2}$, BE = 464.7 eV; O 1s, BE = 530.35 eV.

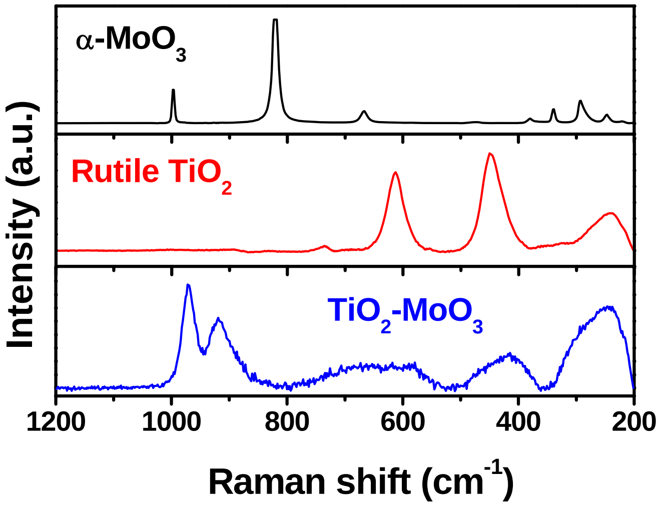

Figure S4. Raman spectra of α-MoO_3, rutile TiO_2, and TiO_2-MoO_3 composite.

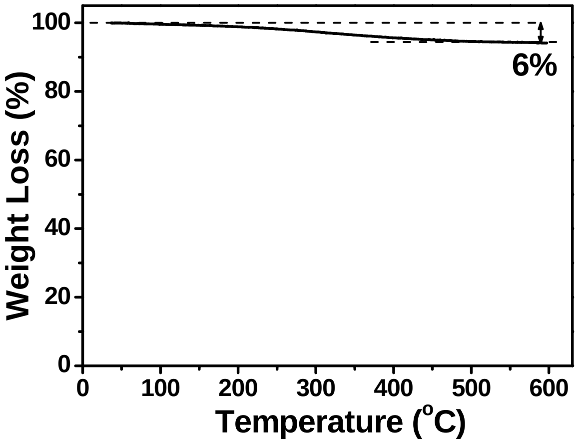

Figure S5. Thermogravimetry analysis (TGA) of the sample, which was heated from R.T. to 600 ^{o}C at a ramping rate of 5 ^{o}C min^{-1} in air.

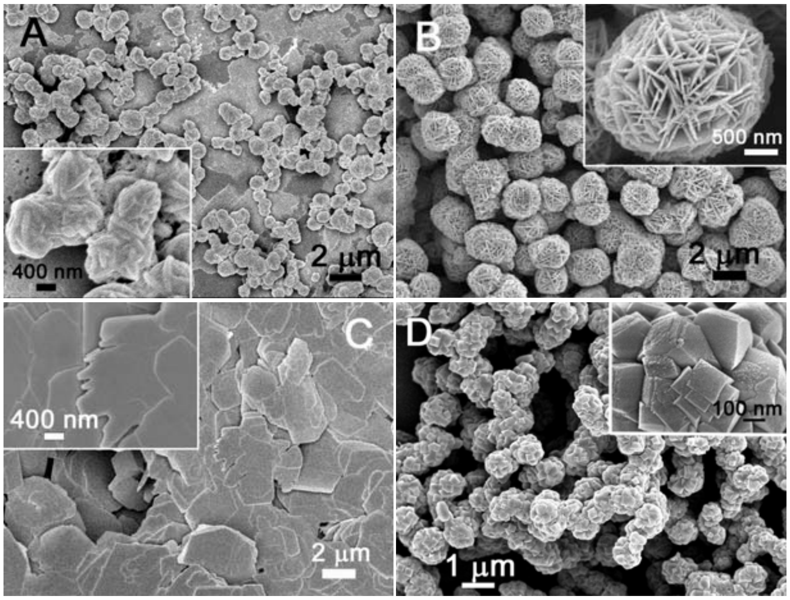

Figure S6. FESEM images of the samples synthesized for 2 h (A), 12 h (B), and with only AHM (C) or only TiF_4 (D), while other conditions are kept unchanged.

Table S1. Typical experimental conditions investigated at 180 °C for 5 h.

Sample ID	AHM (g)	65% HNO_3 (ml)	TiF_4 (ml)	H_2O (ml)
A	0.05	3	6	51
B	0.1	1	1	58
C	0.1	1	4	55
D	0.1	1	6	53
E	0.1	3	3	54
F	0.1	6	6	48
G	0.1	1	2	57
H	0.12	2	6	52

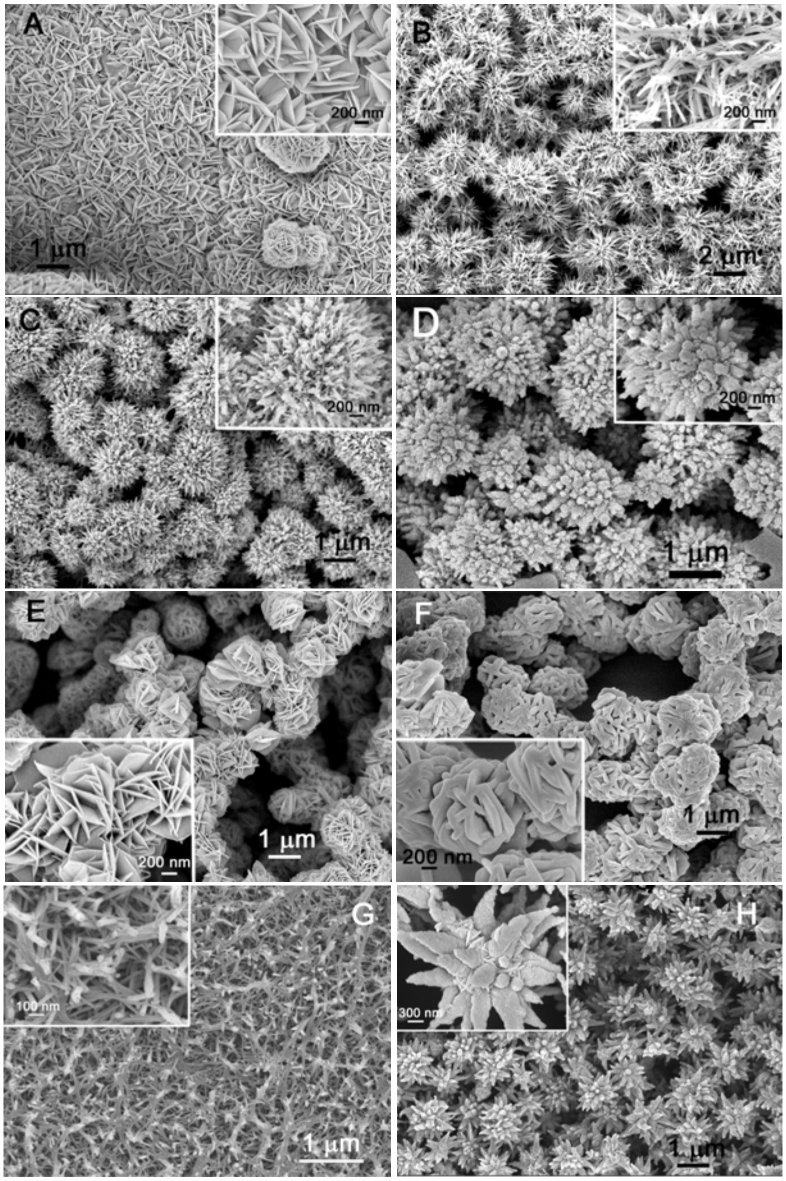

Figure S7. FESEM images of the morphology of samples corresponding to Table S1.

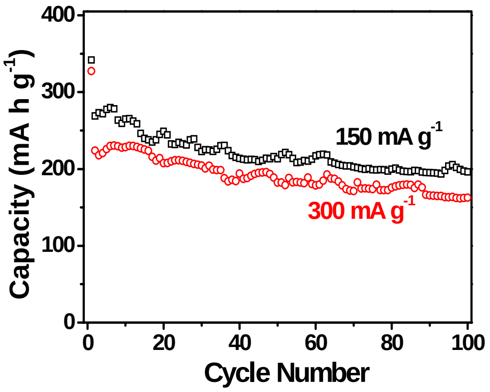

Figure S8. Cycling performance of the as-prepared sample at different current rates.