

Electronic Supplementary Material (ESI) for Journal of Materials Chemistry A.
This journal is © The Royal Society of Chemistry 2015

Supporting Information

High-capacity TiO₂/C negative electrode for sodium secondary battery with ionic liquid electrolyte

*Changsheng Ding^a, Toshiyuki Nohira^{*b} and Rika Hagiwara^{*a}*

^a Graduate School of Energy Science, Kyoto University, Sakyo-ku, Kyoto 606-8501, Japan.

E-mail: hagiwara@energy.kyoto-u.ac.jp; Tel.: +81-75-753-5822; Fax: +81-75-753-5906

^b Institute of Advanced Energy, Kyoto University, Uji 611-0011, Japan.

E-mail: nohira.toshiyuki.8r@kyoto-u.ac.jp

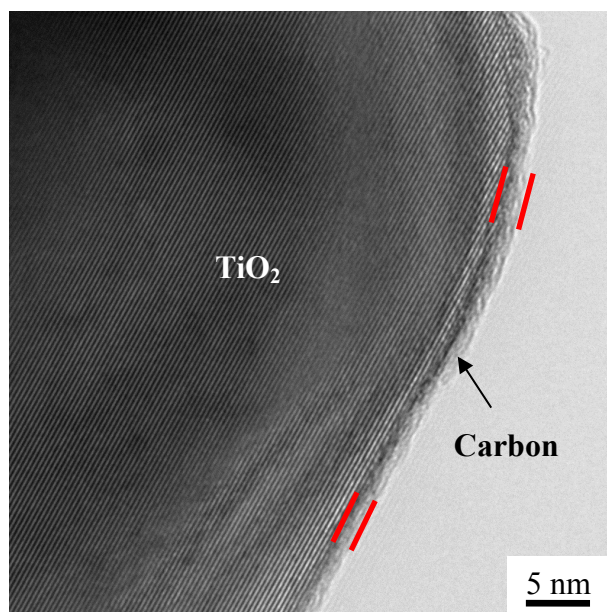


Figure S1. A TEM image of TiO_2/C nanopowder.

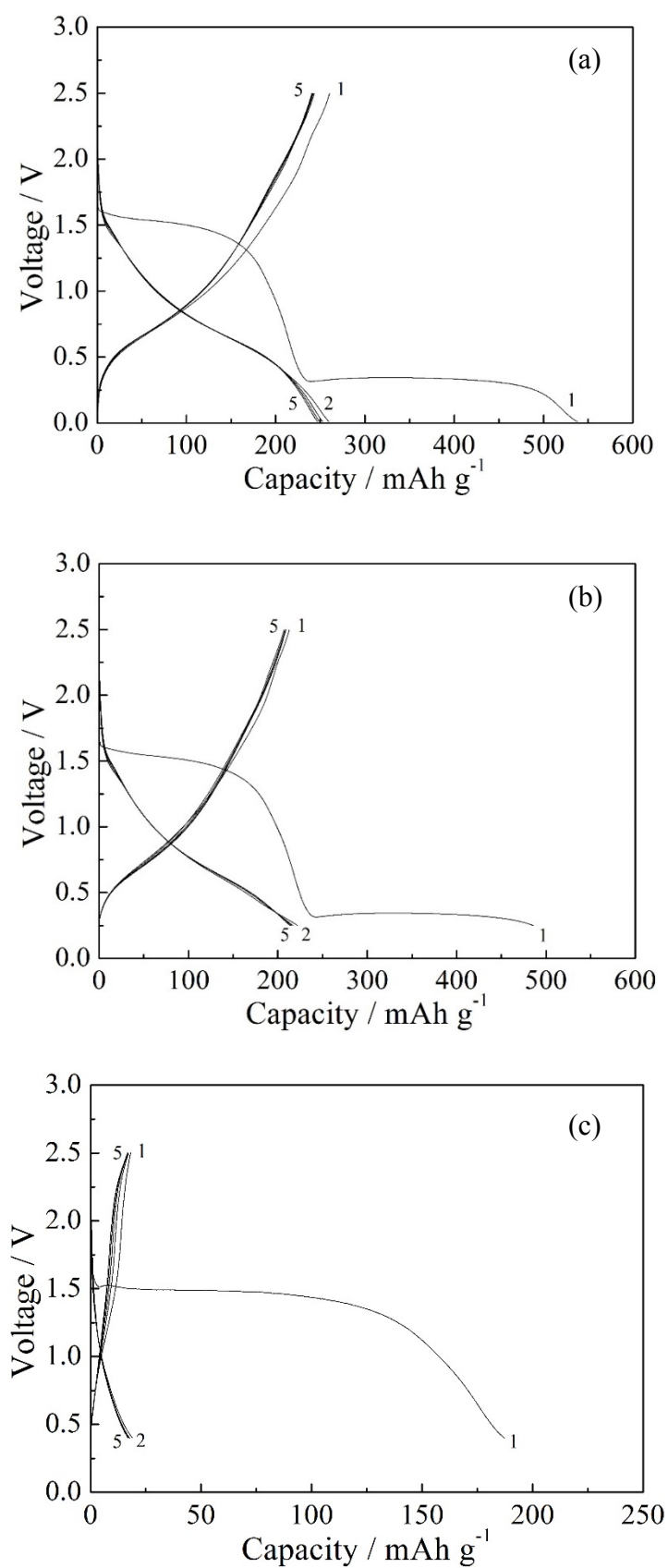


Figure S2. Charge-discharge curves of TiO_2/C electrodes at current rate of 20 mA g^{-1} at 363 K . Cut-off voltage: (a) 0.01-2.5 V, (b) 0.25-2.5 V and (c) 0.4-2.5 V.

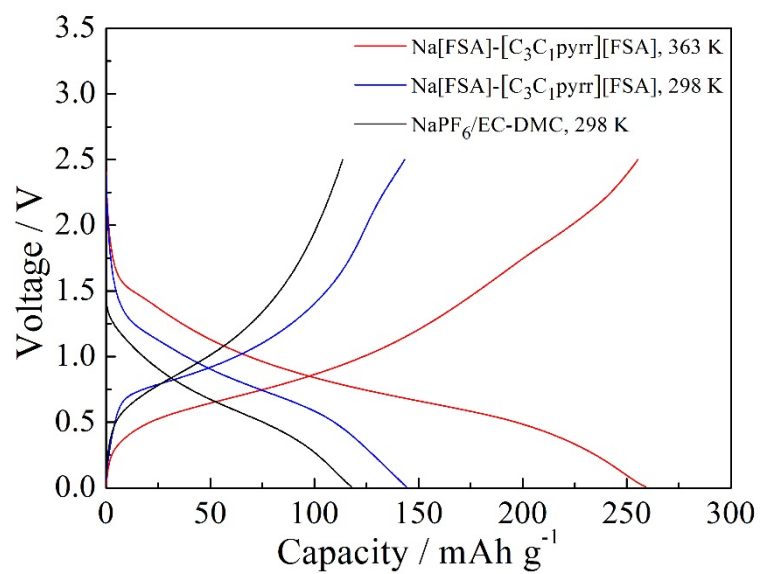


Figure S3. Charge-discharge curves of TiO_2/C electrode in $\text{Na}[\text{FSA}]\text{-}[\text{C}_3\text{C}_1\text{pyrr}][\text{FSA}]$ at 363 K and 298 K, and in $1\text{M-NaPF}_6/\text{EC-DMC}$ at 298 K. Current rate: 10 mA g^{-1} .

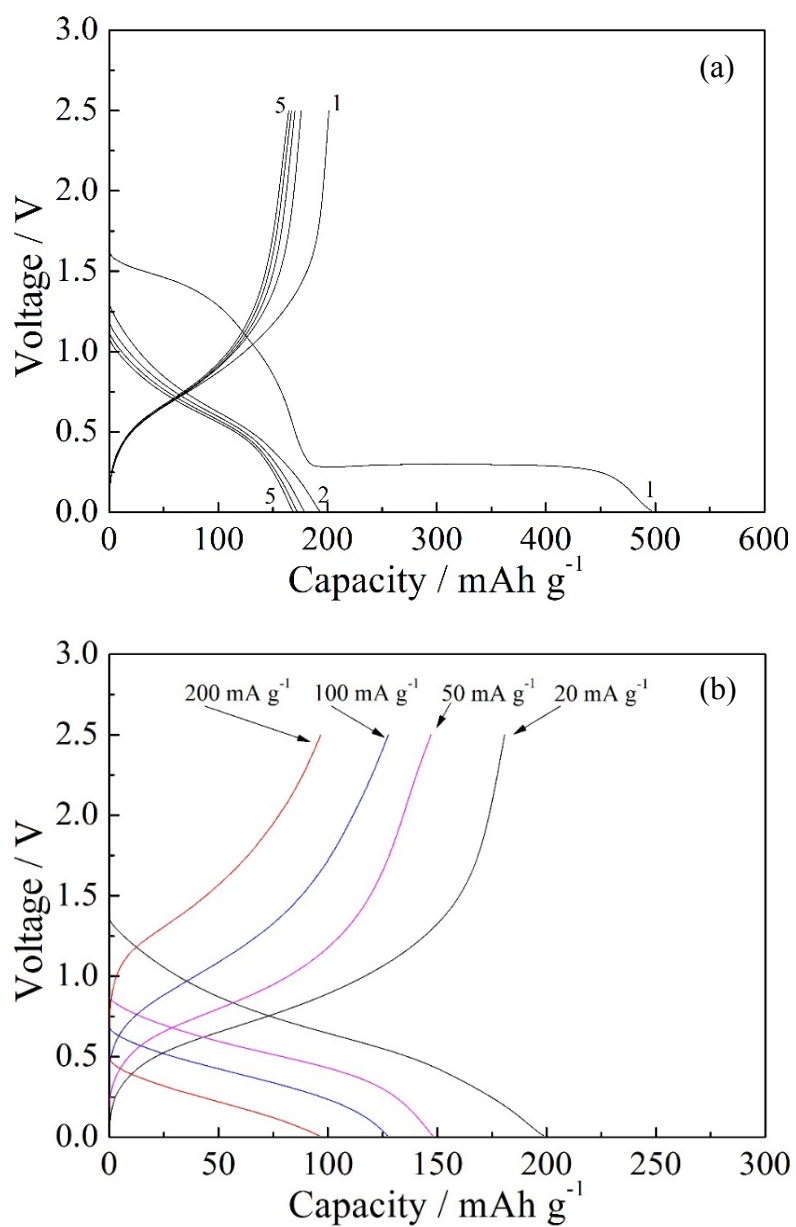


Figure S4. Charge-discharge curves of TiO_2 electrode at 363 K: (a) at current rate of 20 mA g⁻¹ and (b) at current rates of 20-200 mA g⁻¹.

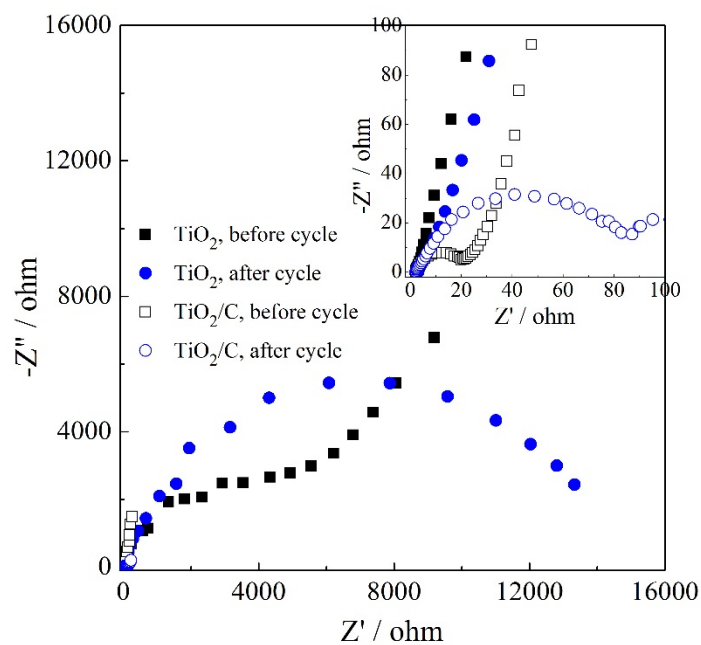


Figure S5. Nyquist plots of TiO_2 and TiO_2/C electrodes before and after charge-discharge testing. (Electrochemical impedance measurements were performed in the frequency range of 200 kHz to 100 mHz with an AC voltage signal of 10 mV)

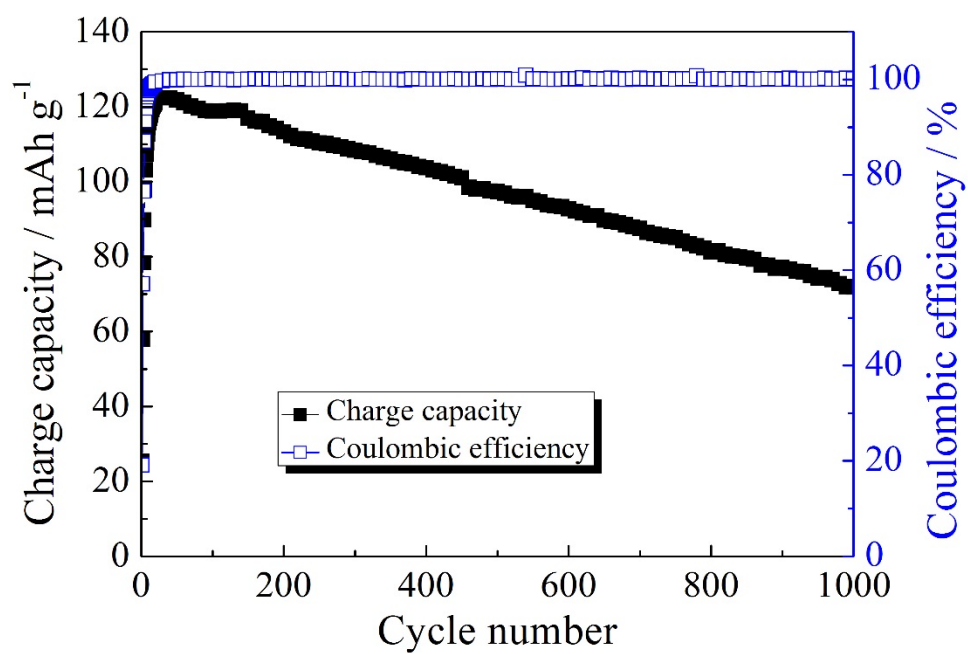


Figure S6. Cycling performance of TiO_2 electrode at current rate of 200 mA g^{-1} at 363 K.