Supporting Information

Facile fabrication of high performance $TiNb_2O_7$ anode for large-scale electrical energy storage

Li-Qian Cheng,[a] Yijuan He,[a] Kai Chen,*[b] Zhenhua Ma,[a] Ruiping Liu,[a] Na Liu[b] and Yichen Deng[b]

[a] *Department of Materials Science and Engineering, China University of Mining & Technology, Beijing, 100083, Beijing, China*

[b] *QingTao (Kunshan) Energy Development Co., Ltd., 215334, Suzhou, China*

E-mail: chenkai_qingtao@163.com

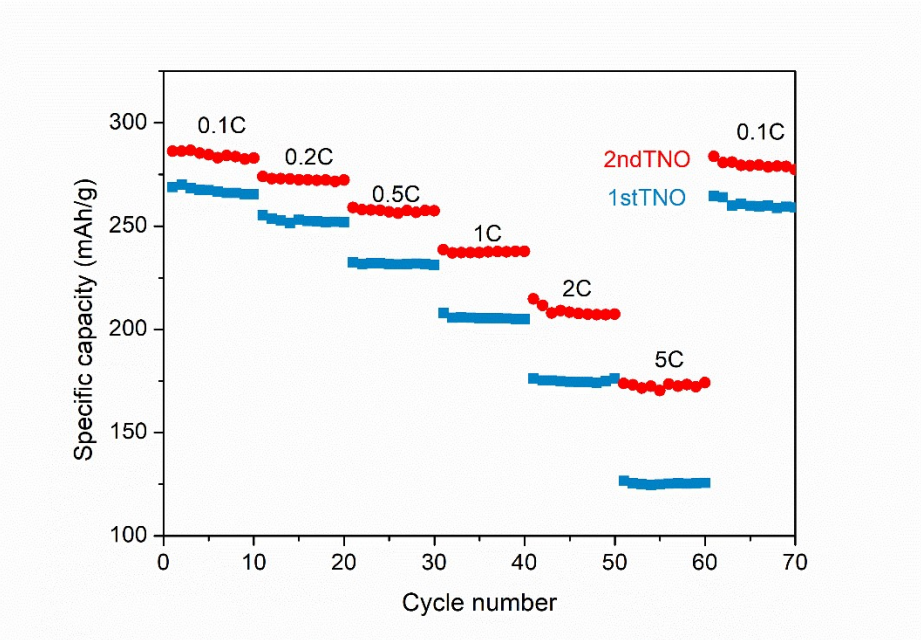

Figure S1 Capacity retention of 1stTNO and 2ndTNO anodes at different rates.

Equation (S1)

$$I_P = 0.4463nFA_s cv^{1/2}\sqrt{\frac{nFD}{RT}} \quad \text{(S1)}$$

where I_P is the peak current in CV curves, R is the gas constant, T is the absolute temperature, F is the Faraday constant, n is the number of electrons transferred per molecule, c is the molar concentration of lithium ions in the solid, v is the scan speed, and A_s is the surface area of the electrode, which can be obtained from the product of A (the active surface area of the electrode), m (mass loading), and S (the surface area of TNO per unit weight).

Table S1 The Li^+ diffusion coefficients of 1stTNO and 2ndTNO powders.

Sample	$D_{lithiation}$ **($cm^2 \cdot s^{-1}$)**	$D_{delithiation}$ **($cm^2 \cdot s^{-1}$)**
1stTNO	6.581×10^{-17}	9.206×10^{-17}
2ndTNO	1.240×10^{-16}	1.348×10^{-16}