Electronic Supplementary Material (ESI) for Nanoscale.

Supplmentary Materials for

Sandwich Electrode designed for high performance lithium-ion battery

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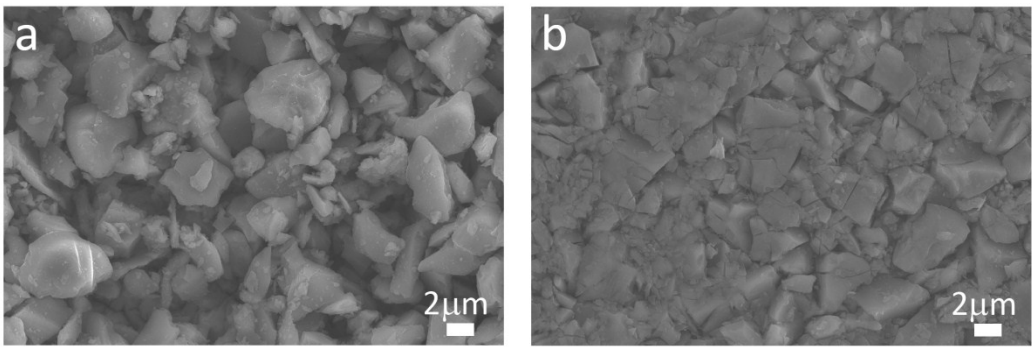

Figure S1. The SEM images of the Si particles before (a) and after (b) calendaring process. After calendaring process, the fracture of Si particles happened. However, the fractured Si particles remained micrometer-sized. The small size change of Si particles would not make huge impact on the electrochemical performance. And the Si particles have a better contact after calendaring process. Accordingly, we thought the calendaring process was in favor of the electrodes.

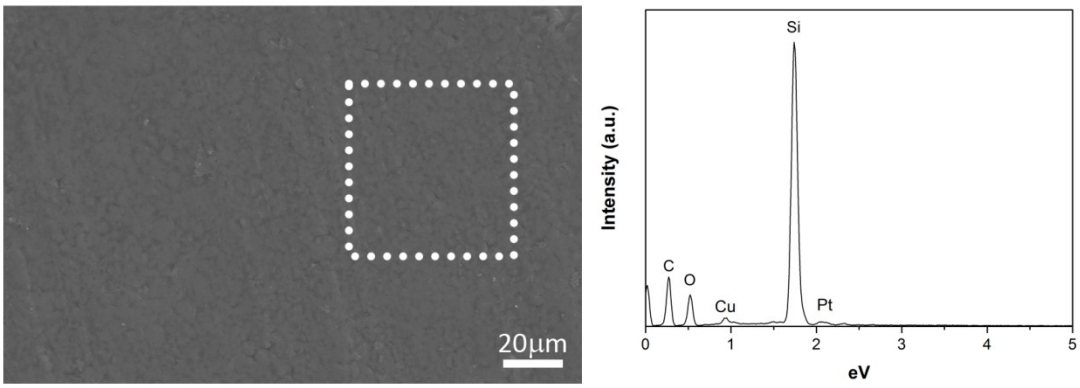

Figure S2. The EDS analysis of the sandwich structured electrodes.

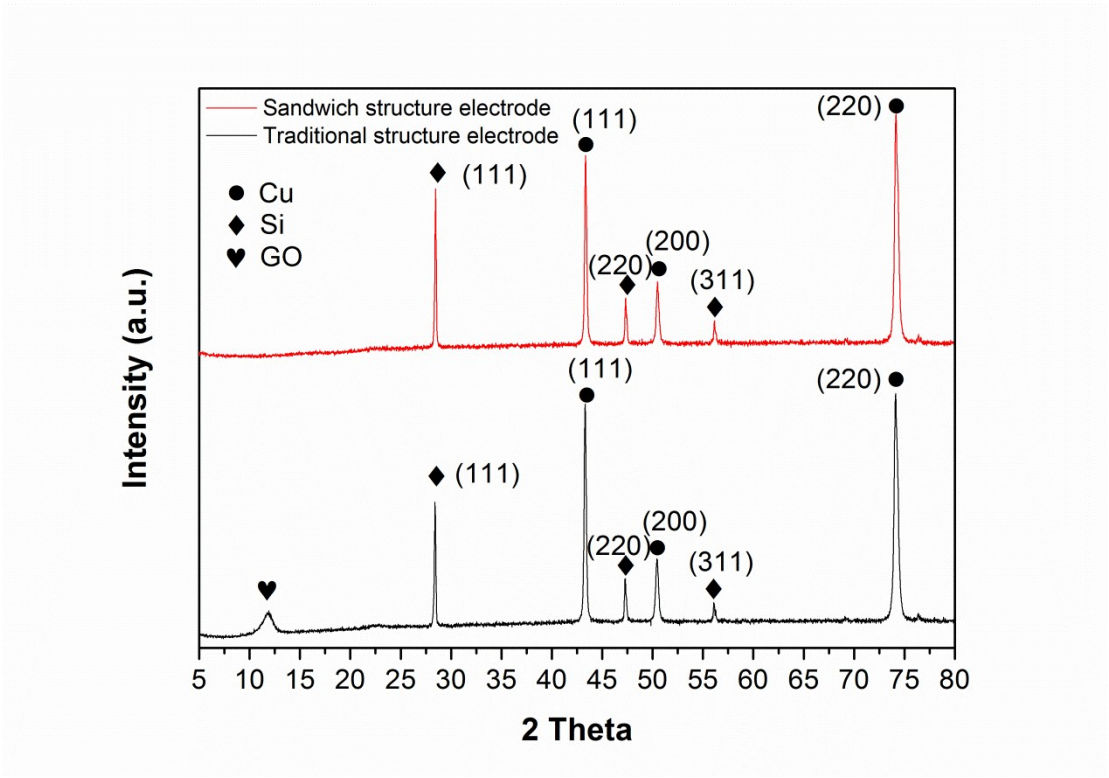

Figure S3. The XRD analysis of the sandwich structure electrodes and the traditional structure electrodes (Si electrode without graphene oxide coating).

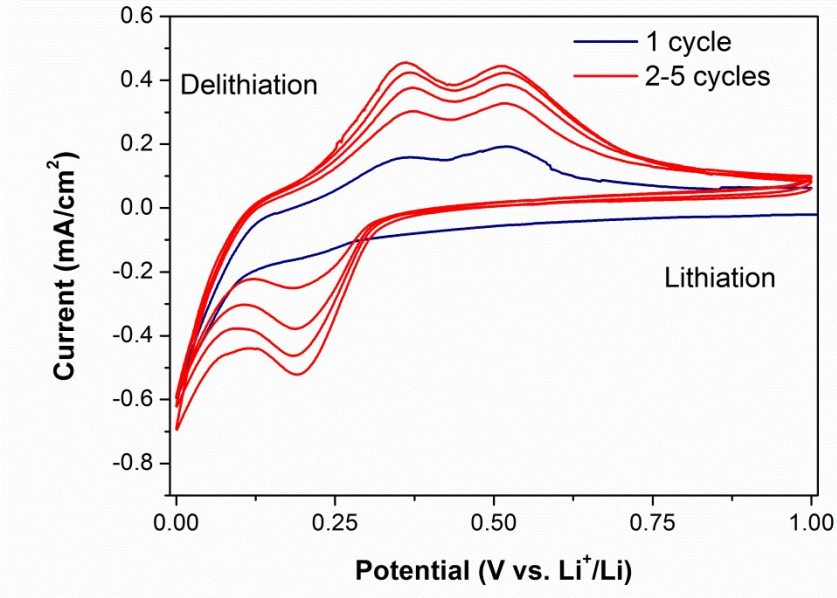

Figure S4. The cyclic voltammetry curve of the sandwich electrodes.

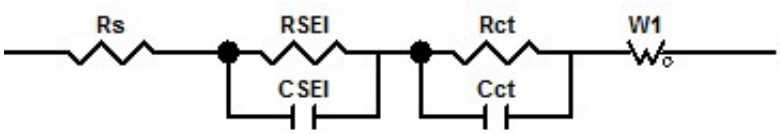

Figure S5. The electrical equivalent circuit used for fitting the impedance spectra of the electrodes.

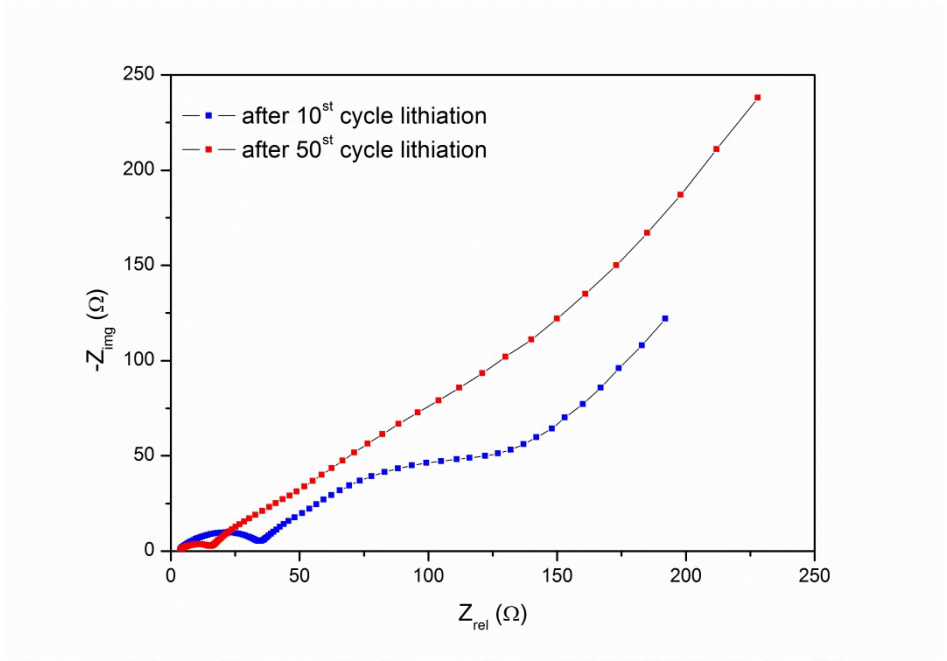

Figure S6. Nyquist plots of EIS spectra of the sandwich electrode in lithiation stage at different cycling.

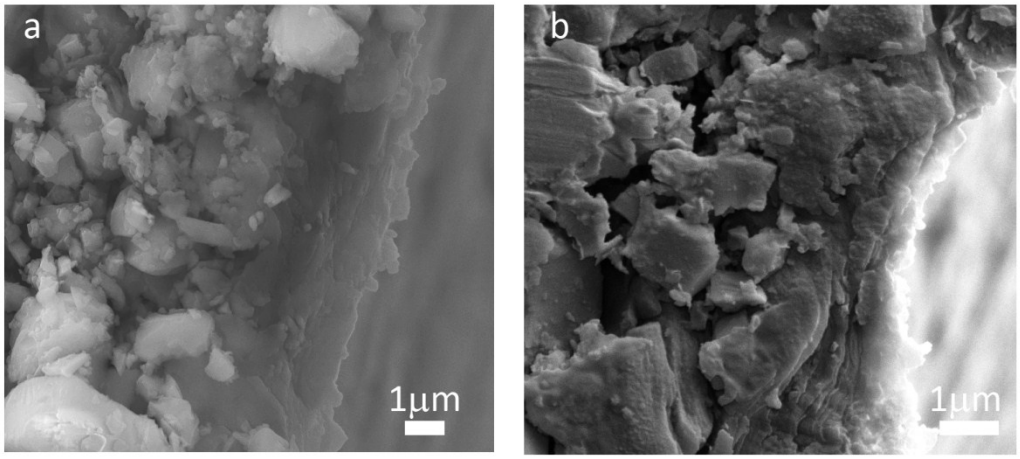

Figure S7. The high magnification SEM images of the cross section of the sandwich structured electrode before (a) and after (b) cycling.