Supporting information for:

3D Visualization of Inhomogeneous Multi-Layered Structure and Young's Modulus of Solid Electrolyte Interphase (SEI) on Silicon Anode for Lithium ion Batteries

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Voltage profile of Sample 7-18

Voltage profile of Sample 8-18 are shown in Figure S1, the potentiostatical discharging time is 48h.

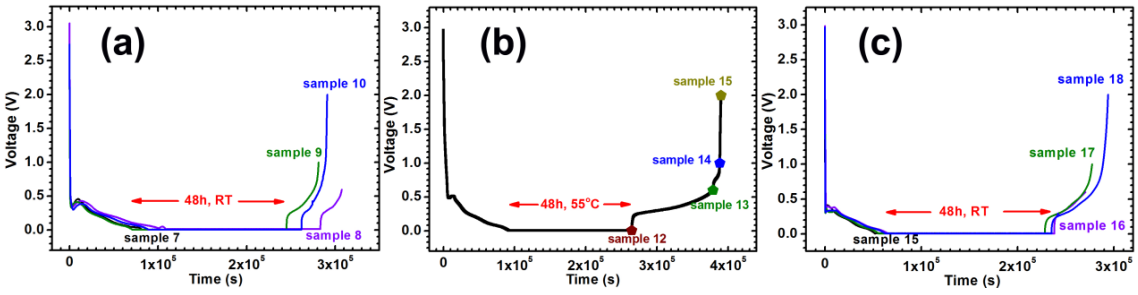

Figure S1. Voltage profile of (a) Sample 7-10, (b) Sample 11-14. (c) Sample 15-18.

Detail information of SEI structure

Double-layered SEI is shown in Figure S2a, b. A set of elastic and yield region is from 18nm-70nm, another set is 0-18nm, which can be

clearly observed in Figure S2b, as in Figure S2d, decrease of force from 132nN to 122nN as the deformation increase from 37nm-43nm, we infer that bubble exists inside the layered SEI.

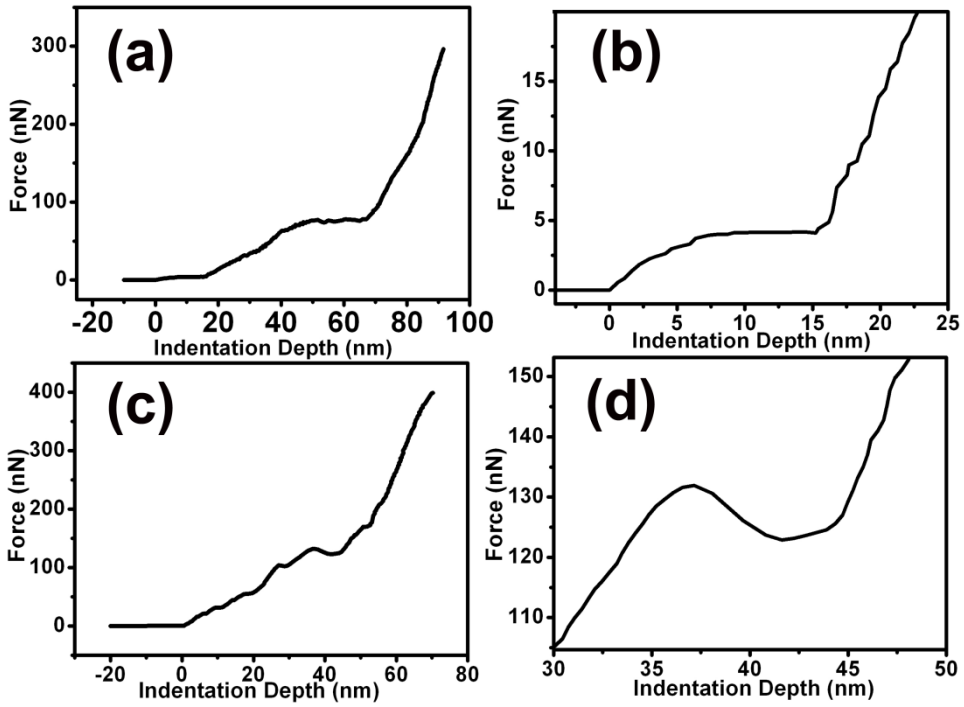

Figure S2. (a) Double-layered structure of SEI, (b) enlarged region of 0-25nm of (a), (c) bubble structure of SEI, (d) enlarged region of 30-47nm of (c).