Electronic Supplementary Information for

Microporous Carbon Coated Silicon Core/Shell Nanocomposite via in situ Polymerization for Advanced Li-Ion Battery Anode Material

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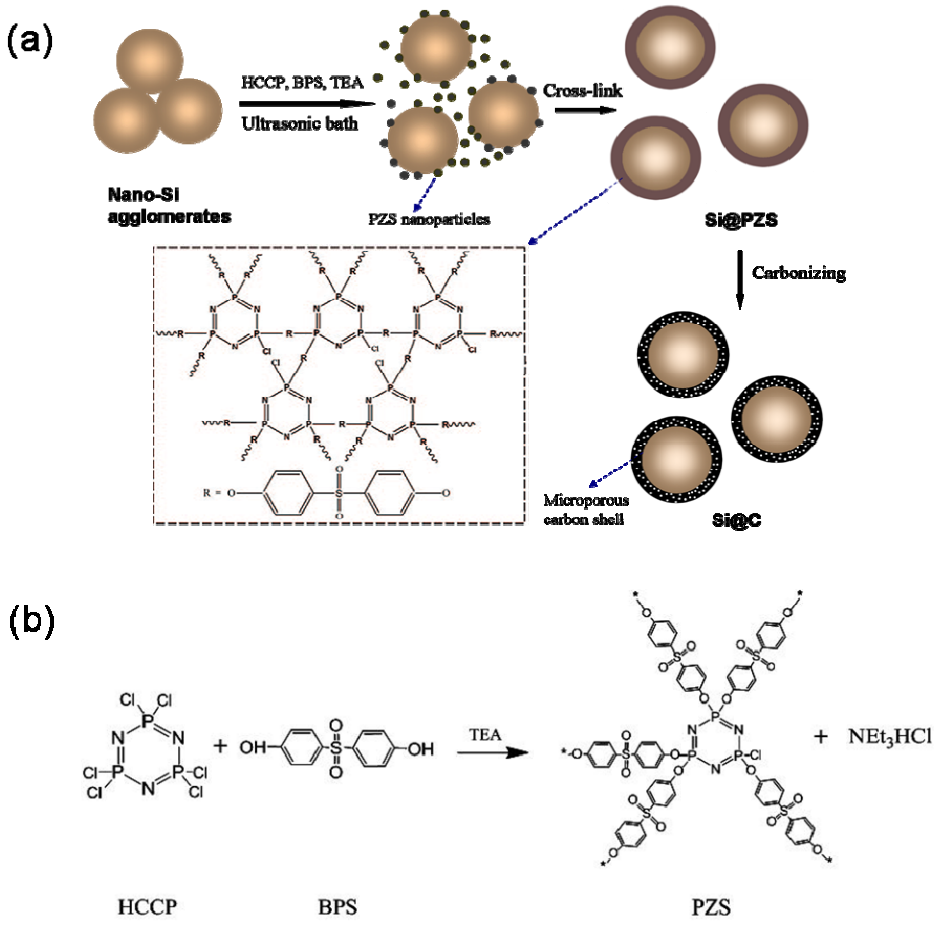
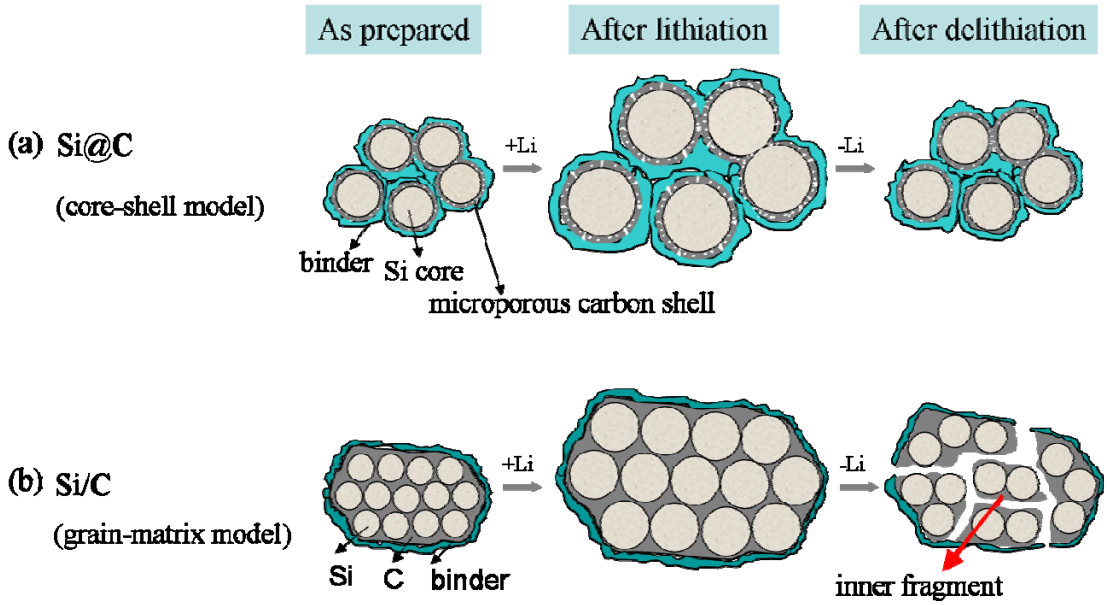
Surface Elements	Atomic Percentage (%)	Binding Energy (eV) (main components)
C_{1s}	65.4	284.6
O_{1s}	24.6	532.6
Si_{2p3}	8.62	103.2
Cl_{2p3}	0.08	202.2
N_{1s}	0.53	399.2
P_{2p3}	0.69	132.6
S_{2p3}	0.09	164.2

Table S1. Atomic composition and binding energies of the elements on the surface (at a probing depth of ca. 10 nm) of the Si@C core-shell nanocomposite by the XPS measurement.



Scheme S1 (a) Schematic illustration of the formation of Si@C nanocomposite. (b) The chemical structure of PZS polymer and the polycondensation route of co-monomers HCCP and BPS.



Scheme S2 Schematic representation of the possible capacity fading mechanisms of (a) the core/shell Si@C nanocomposite and (b) the conventional Si/C composite.

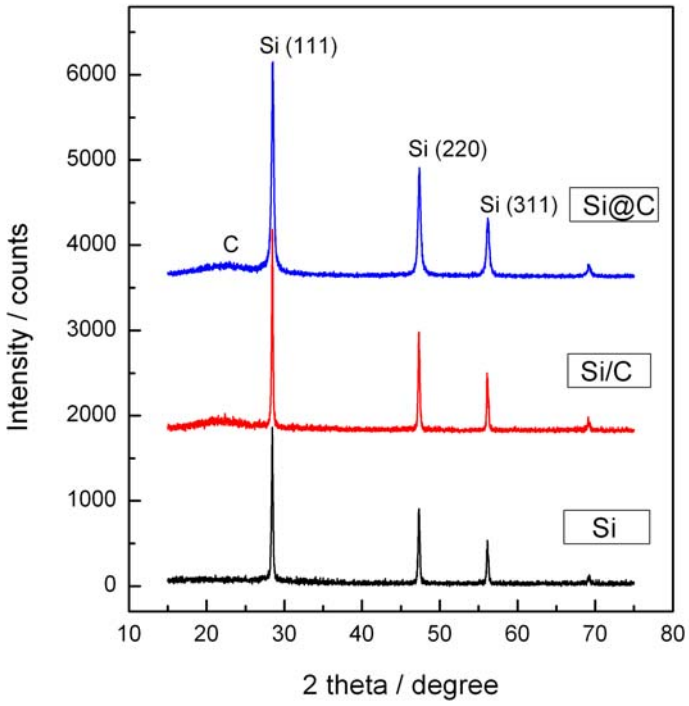


Figure S1. X-ray diffraction patterns (Cuk$_\alpha$, λ=1.5418Å) of the Si@C core-shell nanocomposite, conventional Si/C composite and pure nano Si (50~100 nm).

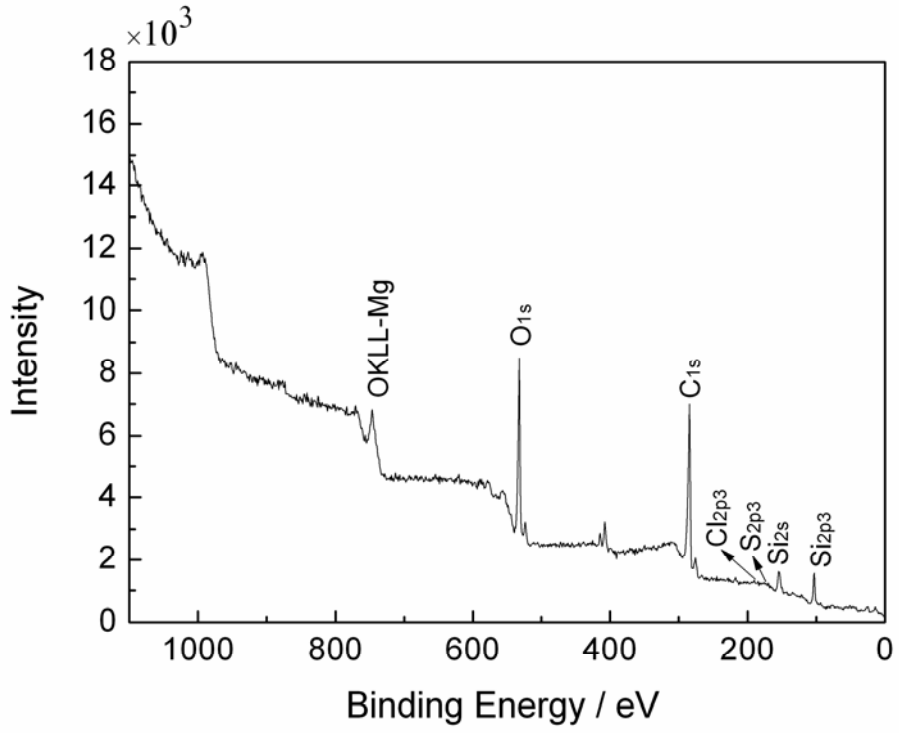


Figure S2. XPS spectra ($Mg_{K\alpha}$, hν=1253.6 eV) of the Si@C core-shell nanocomposite.

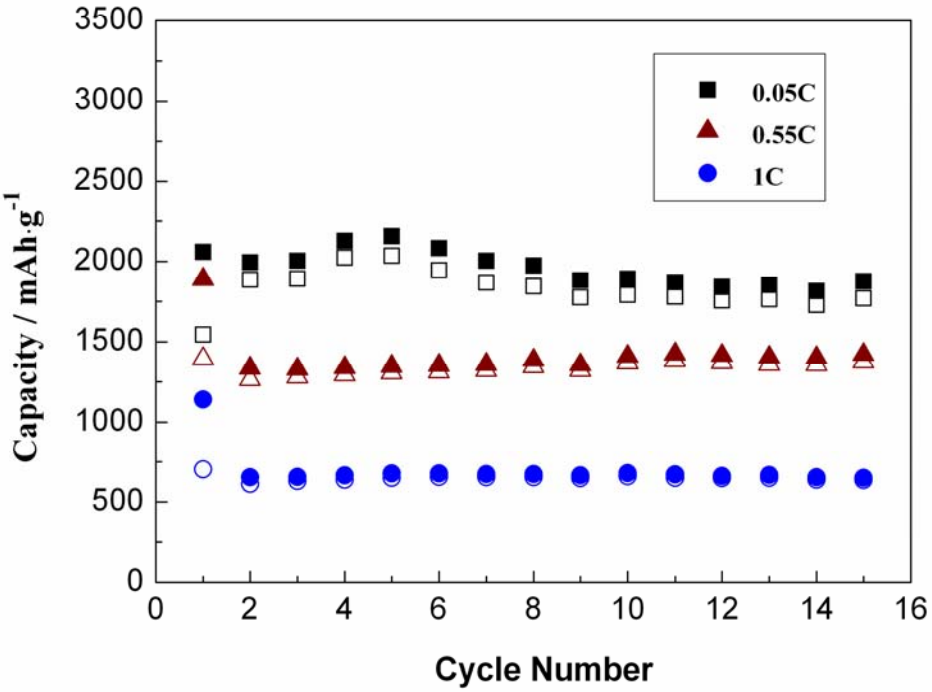


Figure S3. Reversible capacities of the Si@C electrode at different charge/discharge rates.(solid symbols: discharge; open symbols: charge)