Supplementary Materials

Preparation and Electrochemical Characterization of Si@C Nanoparticles as an Anode Material for Lithium-Ion Batteries via Solvent-Assisted Wet Coating Process

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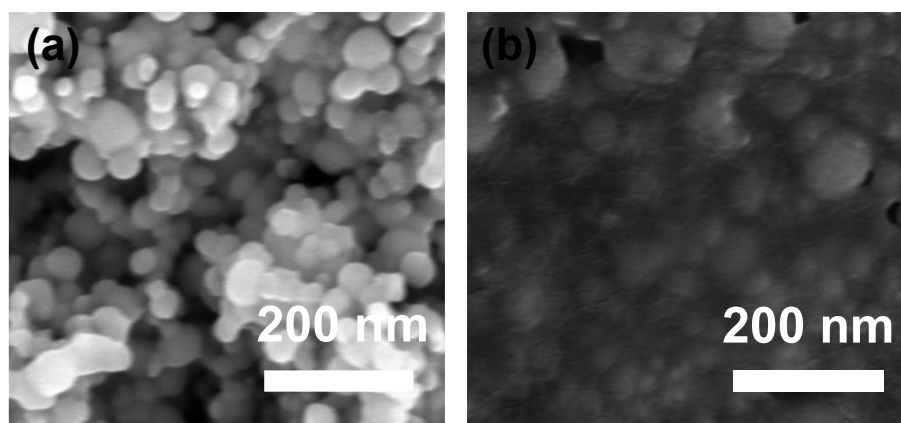
Figure S1. The SEM image of (**a**) Si NPs and (**b**) phenolic resin-coated Si NPs.
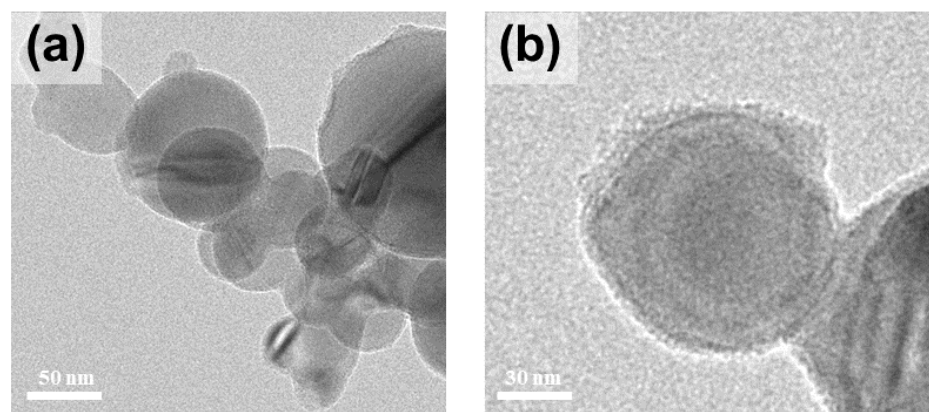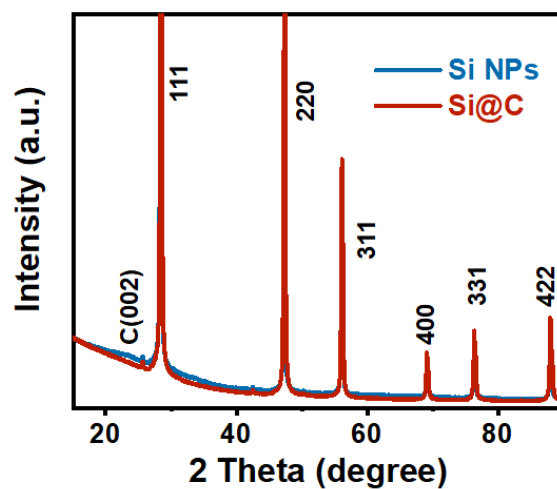

Figure S2. High resolution TEM images of (**a**,**b**) Si@C.
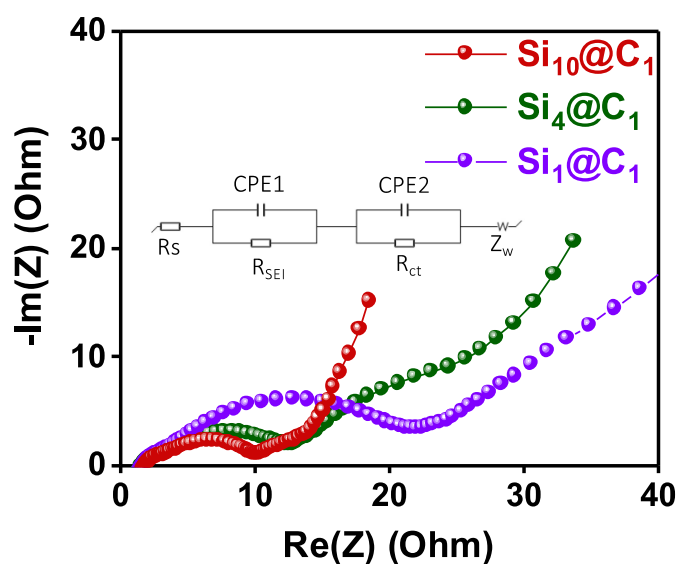
Figure S3. XRD data of Si NPs and Si@C.

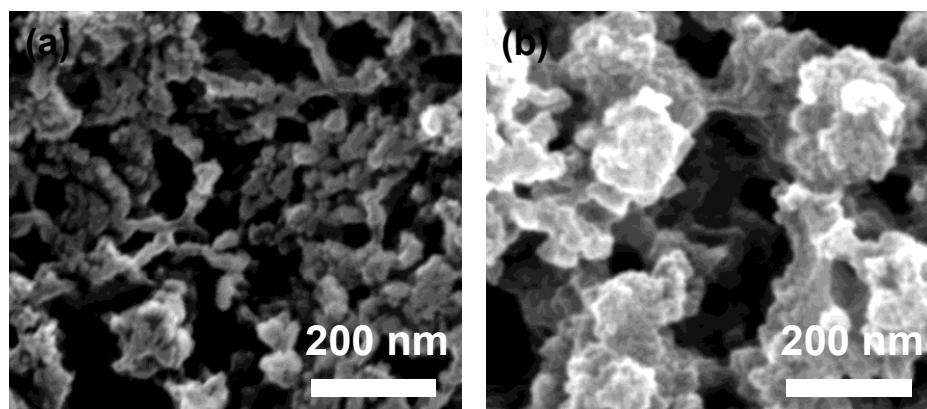**Figure S4.** EIS data of $Si_{10}@C_1$, $Si_4@C_1$, and $Si_1@C_1$.

Figure S5. The SEM image of (**a**) Si NPs electrode and (**b**) $Si_{10}@C_1$ electrode after 100 cycles.
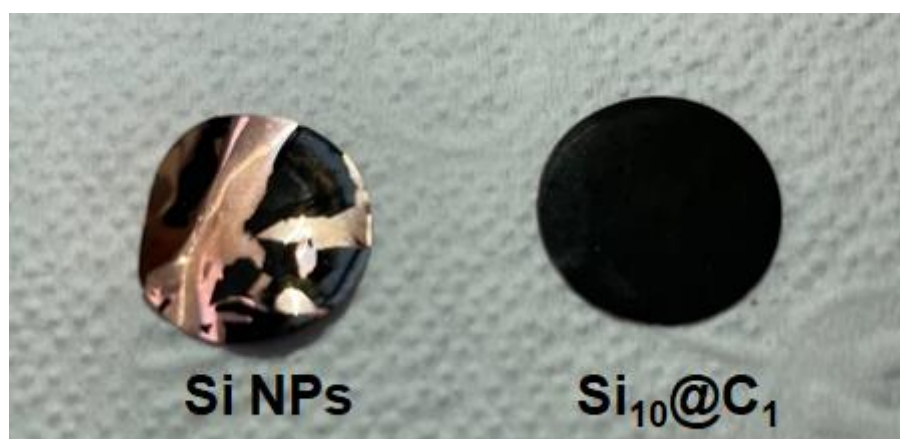
Figure S6. The photo image of Si and $Si_{10}@C_1$ electrodes after 100 cycles.
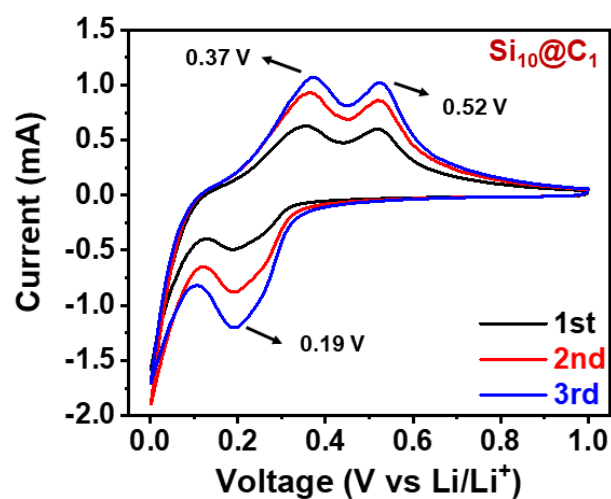

Figure S7. The cyclic voltammetry curves of Si@C anode.

Table S1. EIS data of Si NPs and $Si_{10}@C_1$.

Electrodes.	R_s	R_{SEI}	R_{ct}
Si NPs	1.82	19.46	7.68
$Si_{10}@C_1$ NPs	1.84	10.04	3.51

Table S2. Comparison of electrochemical performance of various carbon-coated silicon anodes.

Active Material	Carbon Precursors	Discharge Capacity (mA h g^{-1})	ICE (%)	Retention (%)/Cycles	Capacity after Cycles (mA h g^{-1})	Ref
Si NPs (~50 nm)	Phenolic resin	2283	66.7	86.3/50	1107	[1]
Si NPs (~100 nm)	Dopamine	2258	72.2	83/50	804	[2]
Si NPs	Graphene/ egg white	2169	86.2	56/200	1045	[3]
Si NPs (50~100 nm)	rGO	2200	61	63/200	968	[4]
Si NPs (~50 nm)	Reusable phenolic resin	3092	83.5	100/50	1140	Our work

Reference

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