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Supporting Information

Preparation of Porous Silicon Composite Anode Material Coated with Open Pore Polymethyl Acrylate and its Electrochemical Performance as a Carbon Source

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Table S1. BET adsorption parameters of PSi and PSi@C samples

Sample	Specific surface area（m^2/g）	Total pore volume（cm^3/g）	Average pore diameter（nm）
PSi	78.86	0.52	26.58
Unopened PSi@C	15.83	0.038	9.74
Open pore PSi@C	27.56	0.23	32.97

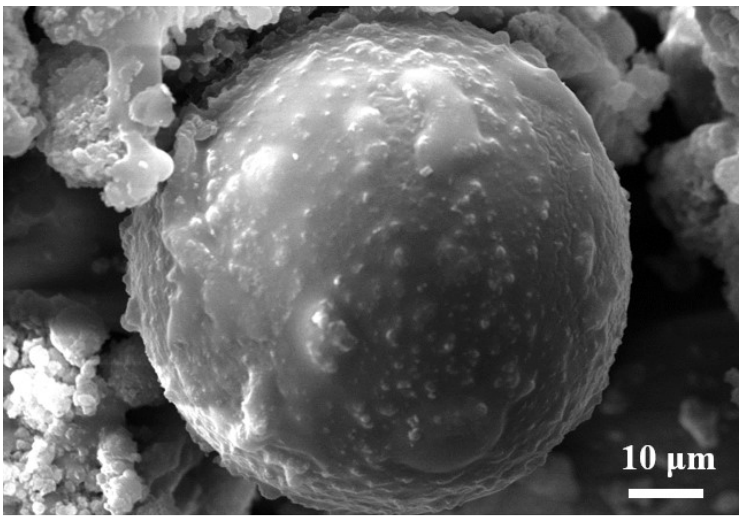

Fig.S1 SEM images of PSi@PMA microspheres before carbonization.

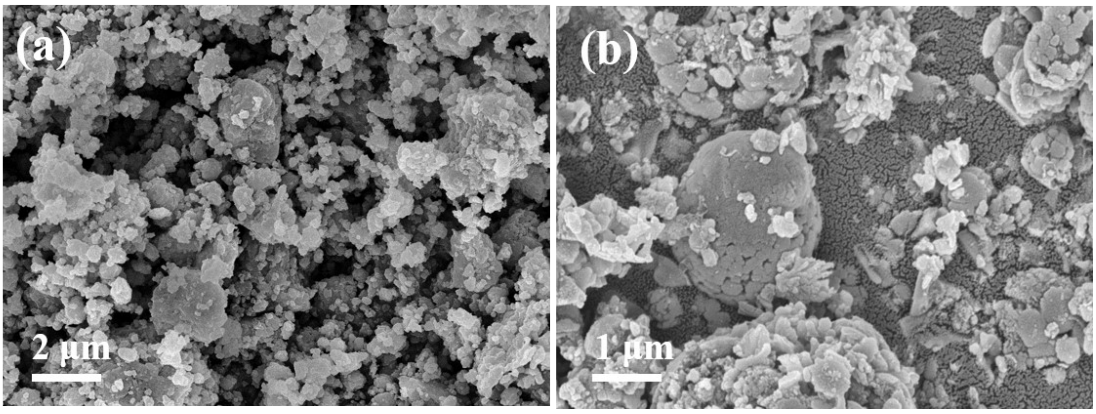

Fig.S2 (a-b) shows the SEM image of PSi@C microspheres after carbonization without opening process.

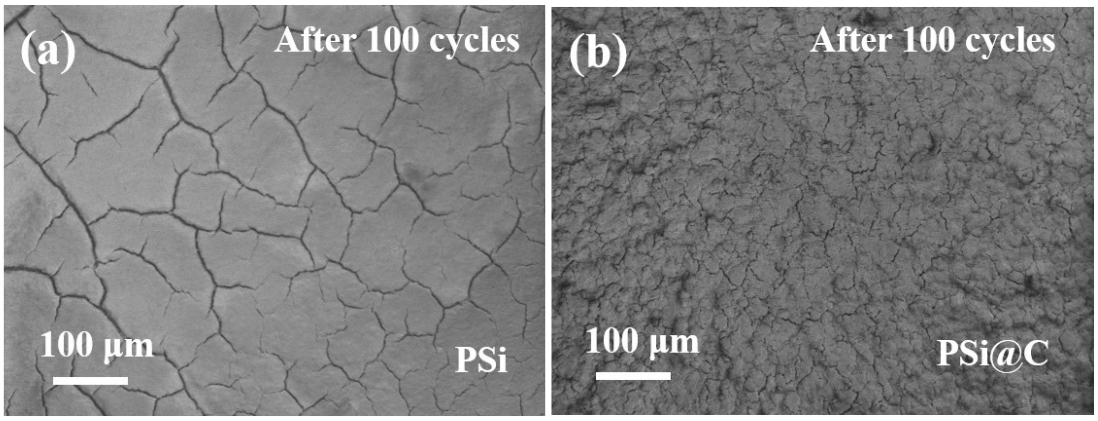

Fig.S3 SEM images of surface cracking of PSi electrode (a) and PSi@C electrode (b) after 100 cycles.

Table S2. AC impedance parameters of open-pore and unopened-pore carbon coated electrodes

Sample	Number of cycles	Rs（Ω）	Rct（Ω）	D_{Li}^{+}（cm^2s^{-1}）
Unopened PSi@C	0	5.67	173.21	1.91×10^{-14}
	3	3.43	65.51	3.36×10^{-14}
	10	29.24	75.11	1.75×10^{-11}
	55	7.31	69.91	6.94×10^{-11}
	300	11.49	32.62	3.71×10^{-10}
Open pore PSi@C	0	5.24	72.91	1.32×10^{-13}
	3	9.62	64.57	1.90×10^{-11}
	10	20.88	53.94	9.22×10^{-11}
	55	13.76	29.88	1.43×10^{-9}
	300	7.91	24.61	2.18×10^{-9}