

Table S1. The LIB electrochemical performance comparison of reported silicon anode materials with different nanostructure.

Anodes	Structure	Current density	Capacity (mAh g ⁻¹)	After cycles	Ref
SMCs	Silicon micron cages	1 A g ⁻¹	1035.1	300	This work
H-Si	Si nanoparticles	0.2 C	839	1000	9
Si frameworks	(3D-interconnected) Si frameworks	2 A g ⁻¹	970	500	11
SNRs	Silicon nanorods	5.0 A g ⁻¹	816	500	7
pSi/C	Nanosheets	4 A g ⁻¹	1313.5	500	6
D-Si-6	Si nanoparticles	0.2 C	970	500	8
Si nanoparticles	Si nanoparticles	3 A g ⁻¹	870	1000	15
PSi/SCNT-SRGO	weave cage-like carbon wrapped mesoporous silicon	1 A g ⁻¹	1008	600	22
SC-NF	Nanoscale Silicon inside Carbon Fiber	0.5 A g ⁻¹	720	200	23
Si/p-NC/CNTs	Si embedded porous N-doped carbon combining with carbon nanotubes	0.3 A g ⁻¹	1126.3	100	24