Supplementary Information

Scalable Synthesis of Highly Dispersed Silicon Nanoapheres by RF Thermal Plasma and their use as Anode Materials for High-Performance Li-ion Batteries

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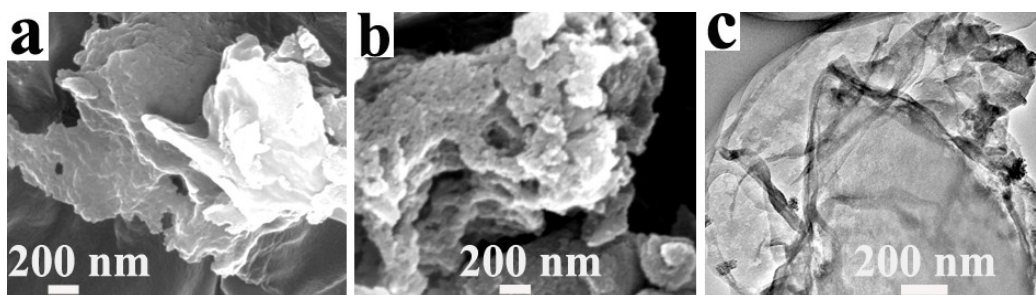
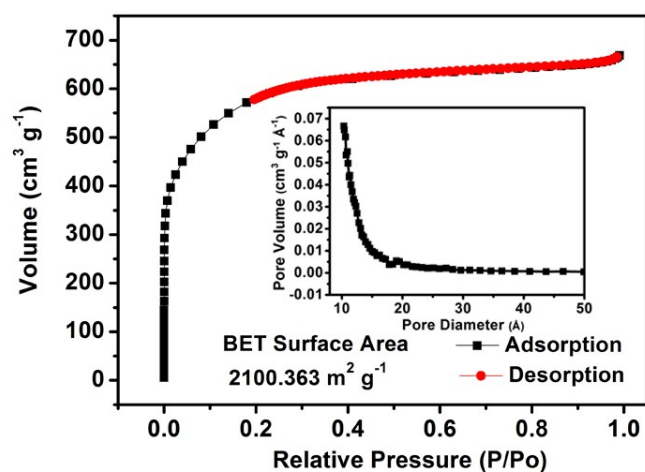**Fig. S1** (a)-(b) SEM image and (c)TEM image of porous carbon (PC)

Fig. S2 N_2 adsorption–desorption isotherm of PC and the inset is the corresponding

BJH pore size distribution

Table S1. Detailed Parameters for RF Induction Thermal Plasma Processing

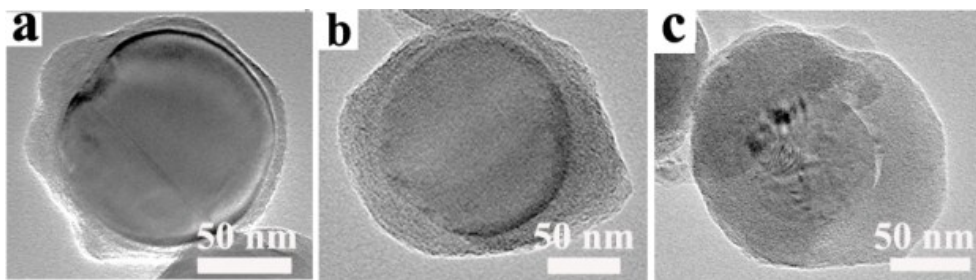| parameters	values
Plasma power	10 kW
Central gas, argon	0.8 m^3 h^{-1}
Sheath gas, argon	1.0 m^3 h^{-1}
Carrier gas, argon	0.3 m^3 h^{-1}
Cooling gas, argon	0-2 m^3 h^{-1}
Powder feeding rate	2 g min^{-1}

Fig. S3 TEM images of SiNS/PC-1:2 (a), SiNS/PC-1:1 (b), and SiNS/PC-4:1composites (c)

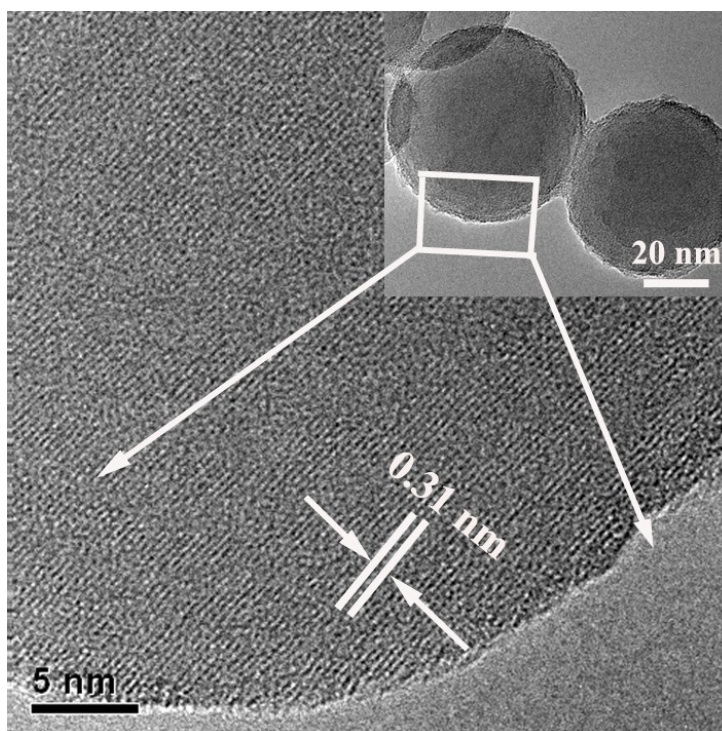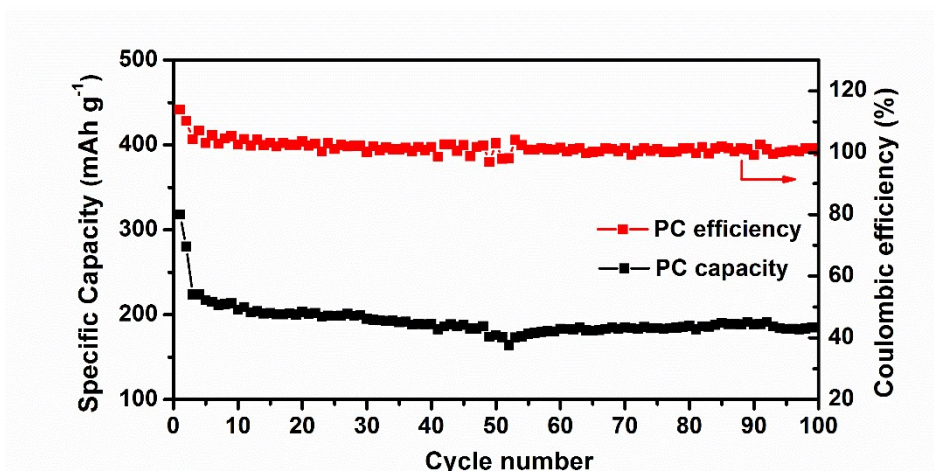**Fig. S4** The magnified and HRTEM images of single Si nanosphere

Fig. S5 The cycling performance of porous carbon electrode.