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Bulk boron doping and surface carbon coating enabling fast-charging and stable Si anodes: from thin film to thick Si electrodes

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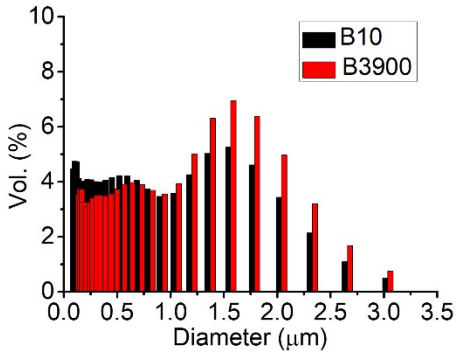

Fig. S1 The diameter distribution of as fabricated boron doped Si powders.

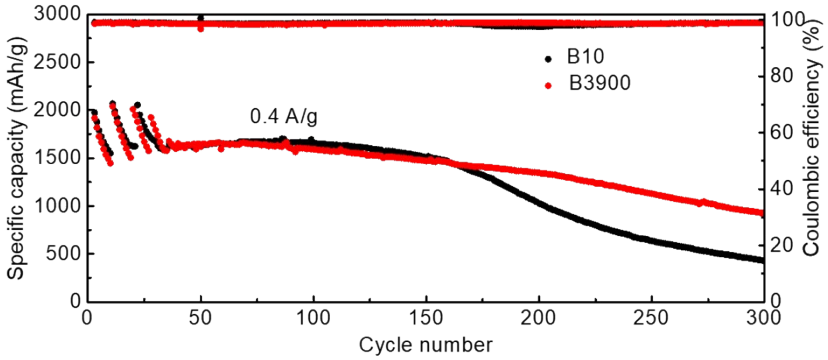

Fig. S2 The cycling performance of carbon coated boron doped Si electrodes at 0.4 A/g.

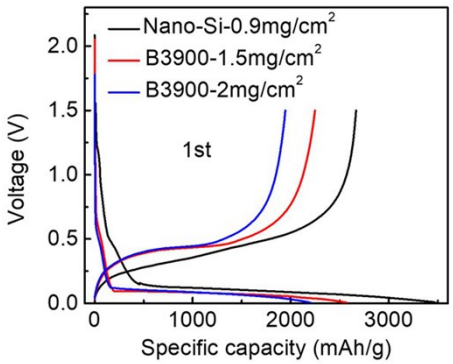

Fig. S3 The initail charge-dischage voltage profiles of Nano-Si, B3900 electrodes.

Table 1. Kinetics parameters of B10 and B3900 electrodes based on EIS data.

Sample	R_e (Ω)	R_{ct} (Ω)	s ($cm^2\ S^{-0.5}$)	D_{Li+} ($cm^2\ S^{-1}$)
B10	2.62(4.19%)	13.32(8.89%)	38.78	6.39×10^{-12}
B3900	2.16(1.96%)	7.42(8.41%)	32.69	8.99×10^{-12}

Table 2. The diffusion coefficient evaluated by CV curves.

Sample	Slope	D_{Li+} (cm^2 S^{-1})
B10	2.89	1.08×10^{-12}
B3900	7.97	8.24×10^{-12}