Electronic supplementary information

Fe, S co-doped anatase TiO_2 nanotubes as anodes with improved electrochemical performance for lithium ion batteries

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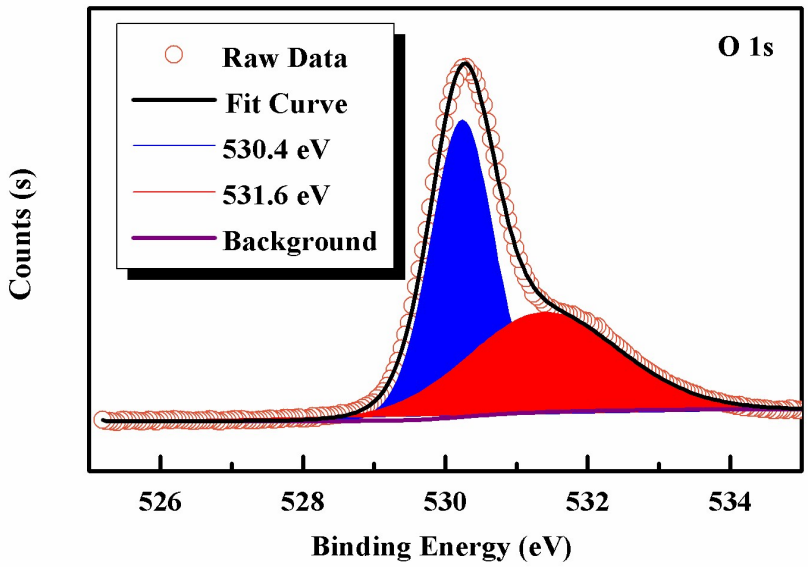

Fig. S1 the O 1s XPS spectra of FSTNTs

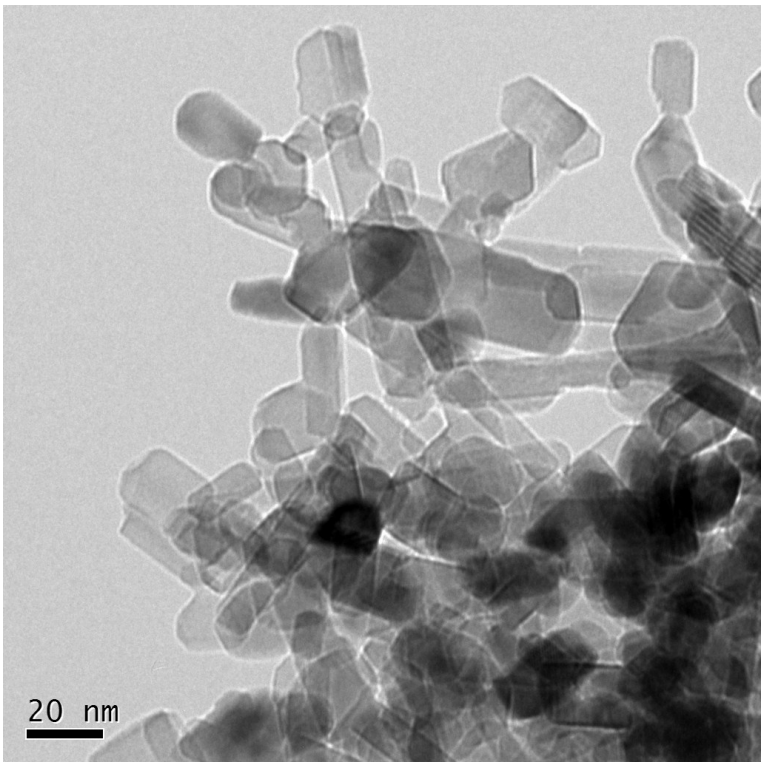

Fig. S2 The TEM image of FST.

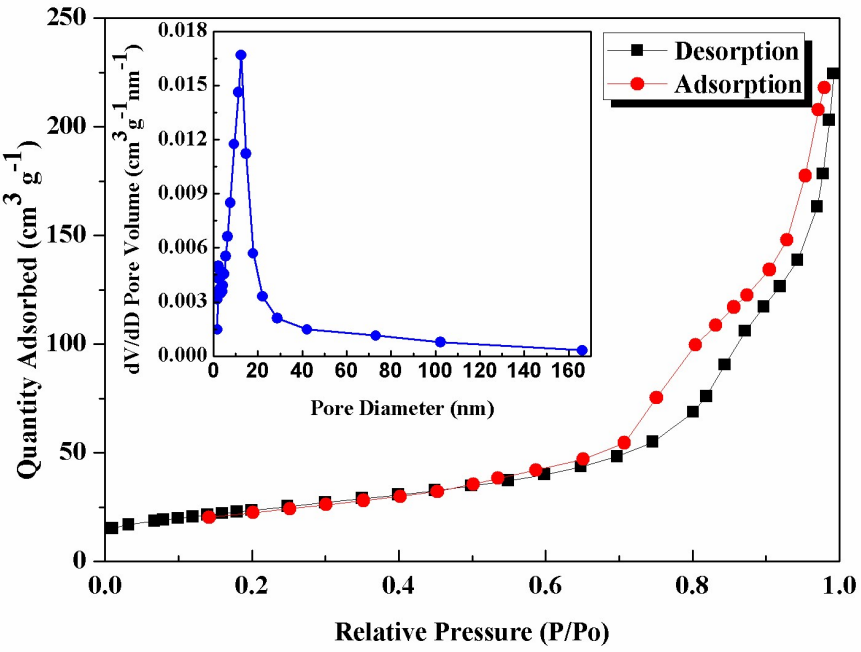

Fig. S3 N_2 adsorption-desorption isotherms and pore size distribution curves (inset) of FSTNTs.

As it can be seen from the Fig. S3, the FSTNTs shows a well-defined adsorption step and exhibits a typical type-IV isotherm and mesopore structure.

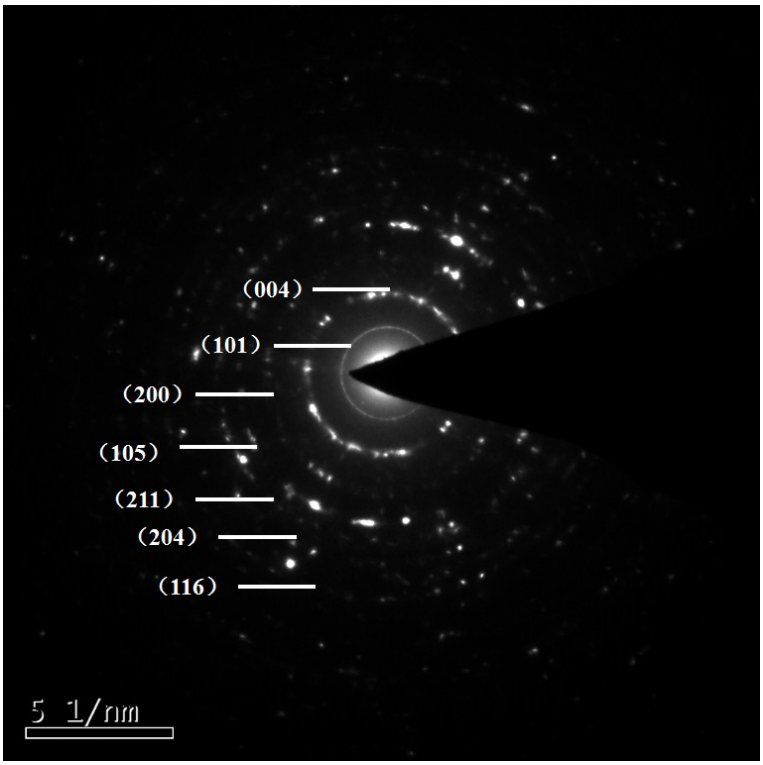

Fig. S4 The SAED patterns of FSTNTs.

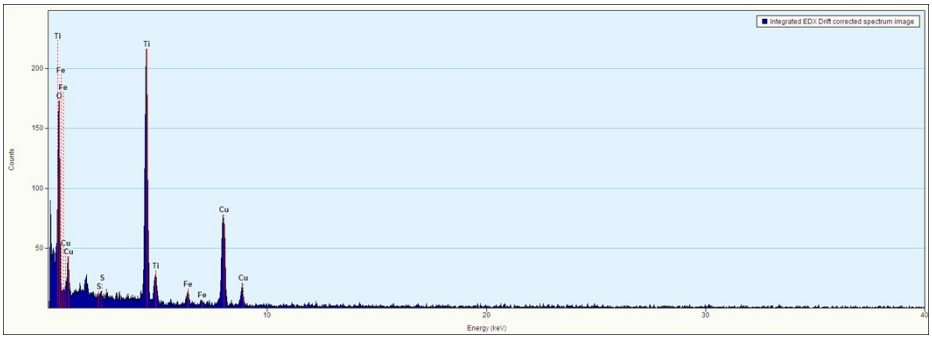

Fig. S5 The EDS spectra of FSTNTs.

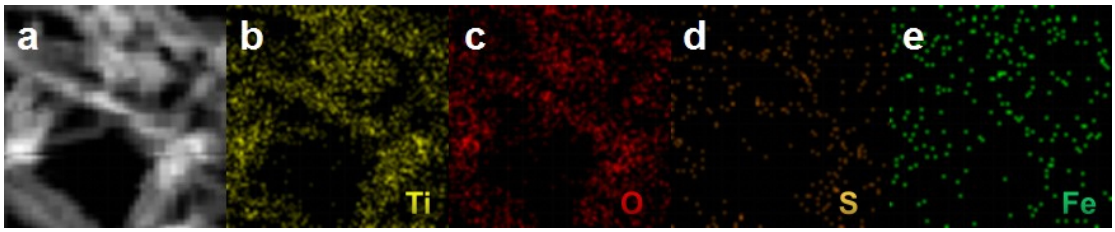

Fig. S6 The HRTEM of FSTNTs

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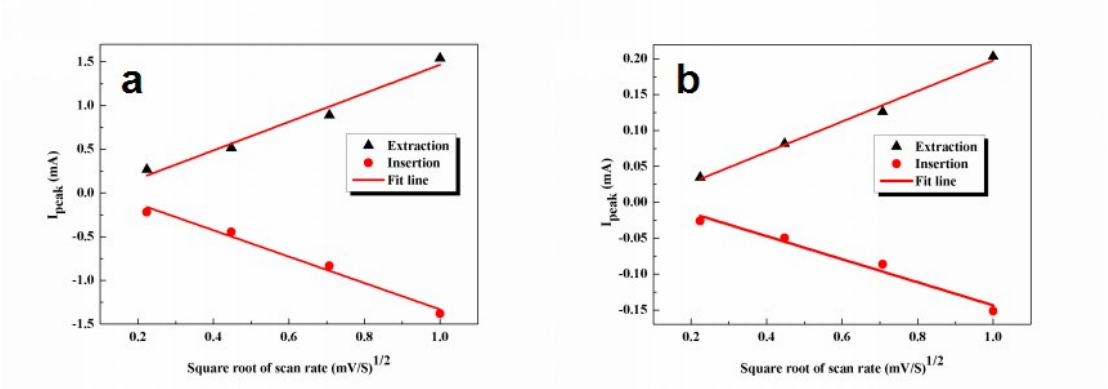

Fig. S7 The linear relationship between I_{peak} and $v^{1/2}$ for FSTNTs (a) and TNTs electrode (b).

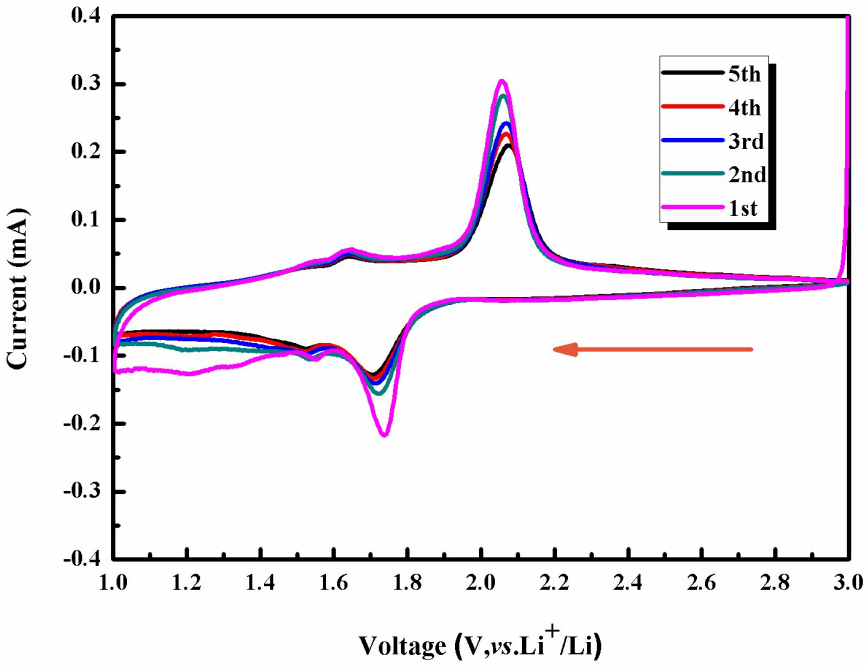

Fig. S8 The CV curves of FSTNTs electrode in the initial five cycles at a scan rate of 0.2 mV S^{-1}.

Table. S1 The measured parameters of the whole samples.

Samples	d_{101}[a]/nm	Average crystallite size[b]/nm	Iron content/at%	sulfur content/at%
FSTNTs	0.3530	16.30	3.09	2.23
FTNTs	0.3524	17.31	2.43	-
STNTs	0.3505	15.12	-	1.74
TNTs	0.3509	20.33	-	-

[a] The values are calculated based on Bragg's equation; [b] The values are calculated based on Scherrer formula.

Table. S2 Solution resistance (Rs) and charge transfer resistance (Rct) derived from the equivalent circuit model of the whole samples for LIBs.

Sample	FSTNTs	FTNTs	STNTs	TNTs
Rs/Ω	2.204	1.943	2.306	1.921
Rct/Ω	44.89	70.11	78.7	93.11