

Supporting information for

Vertically Aligned Binder-Free TiO₂ Nanotube Arrays Doped with Fe, S and Fe-S for Li-ion Batteries

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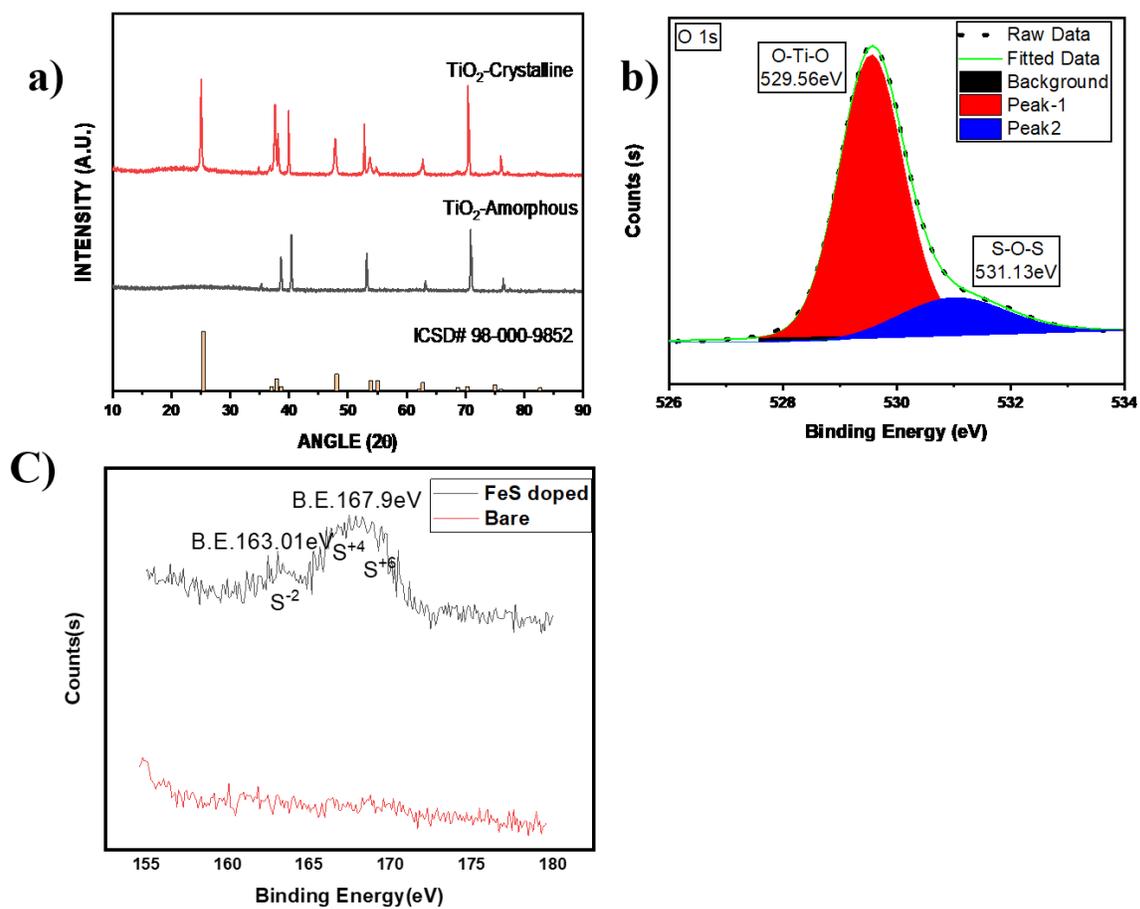


Fig. S1(a) XRD results of amorphous and crystalline TNTs. The diffraction peak notations Ti respond to titanium. (b) XPS spectra for O 1s of Fe-S doped TNTs.

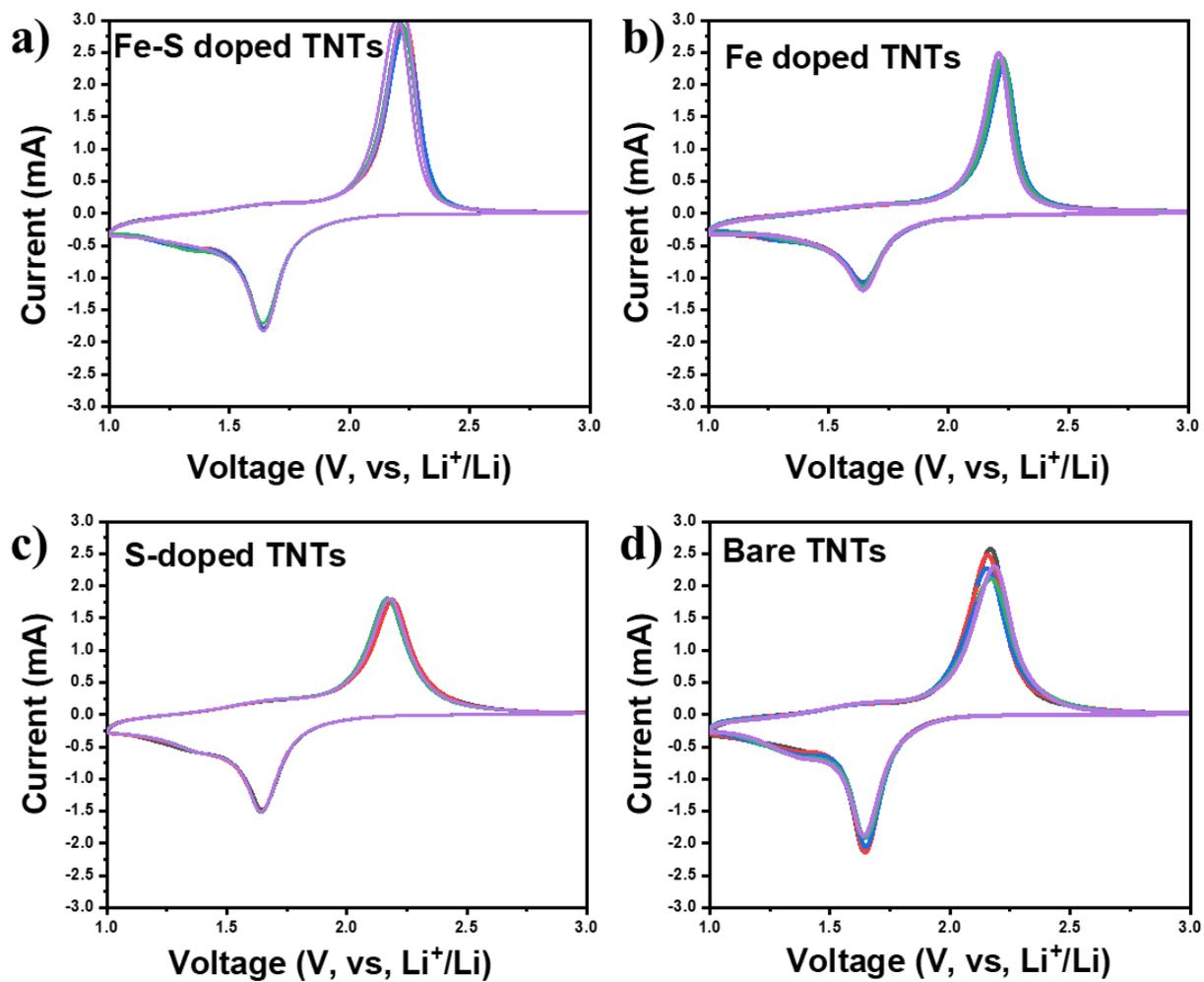


Fig. S2 (a), (b), (c) and (d) Cyclic voltammetry curves at a scan rate 0.5 mVs^{-1} for Fe-S, Fe, S doped TNTs and bare TNTs (thickness of $12 \mu\text{m}$), respectively.

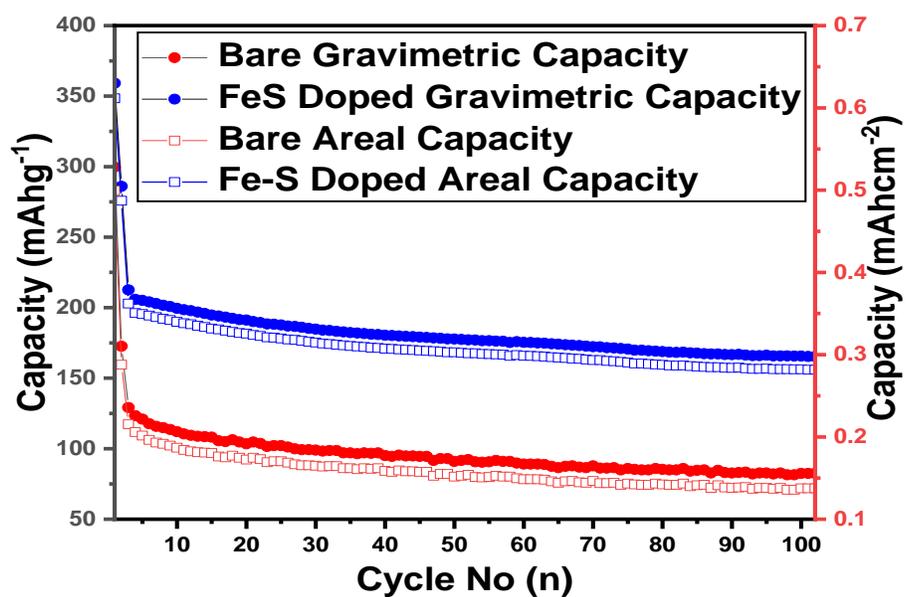


Fig. S3 Gravimetric and areal capacity retention with cycling of bare and Fe-S doped TNT anodes discharged at current density of 0.3mAcm^{-2} .

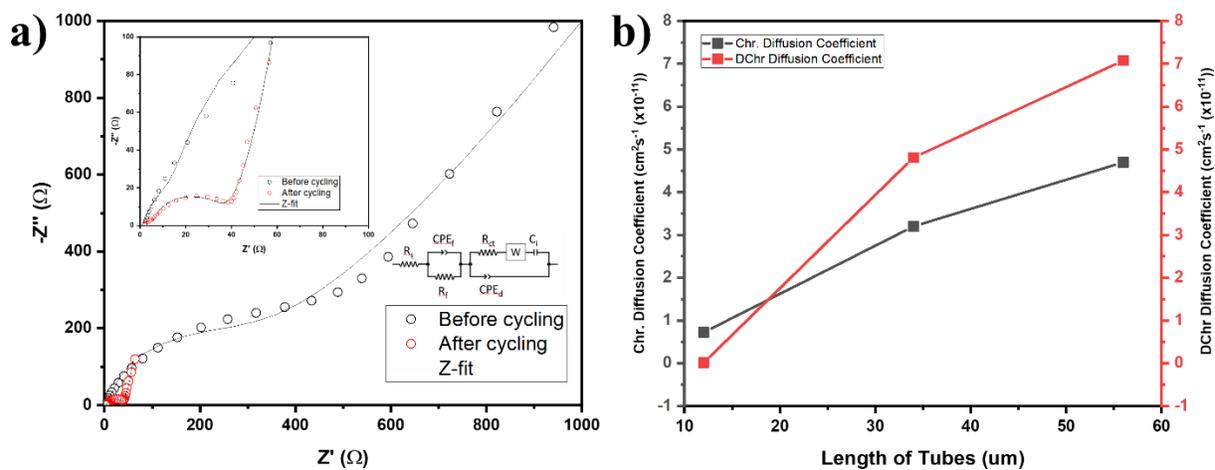


Fig. S4 (a) EIS spectrum of before and after cycling for Fe-S doped TNTs. (b) Diffusion coefficient values as calculated using Randles–Sevcik equation for doped and elongated TNTs, respectively.

Table S1†. Calculated lattice parameters and crystallite sizes of TNTs.

Material	Lattice constant (d_{011}) ^a	Avg. crystallite size ^b
Bare	0.350 nm	45.930 nm
Fe doped	0.454 nm	39.636 nm
S doped	0.452 nm	30.319 nm
Fe-S doped	0.455 nm	32.380 nm

^a calculated via Bragg's equation. ^b calculated via Scherrer equation