

Supporting Information

Nitrogen and titanium-codoped porous carbon nanocomposites derived from metal-organic framework as cathode to address polysulfides shuttle effects by Ti-assisted N-inhibiting strategy

Meng-Ting Li,^{a,b*} Jun Chen,^a Ke Ren,^a Xian-Hong Li,^a Hai-Yang Gao,^a Da-Qiang Sun,^b and Yang Yu^{*a}

a. College of Chemistry and Chemical Engineering, Qufu Normal University, Qufu, 273165, People's Republic of China.
E-mail: limt0205@qfnu.edu.cn

b. Shandong Sacred Sun Power Sources Co.,Ltd. No.1,Shengyang Road,Qufu,Shandong 273100,China

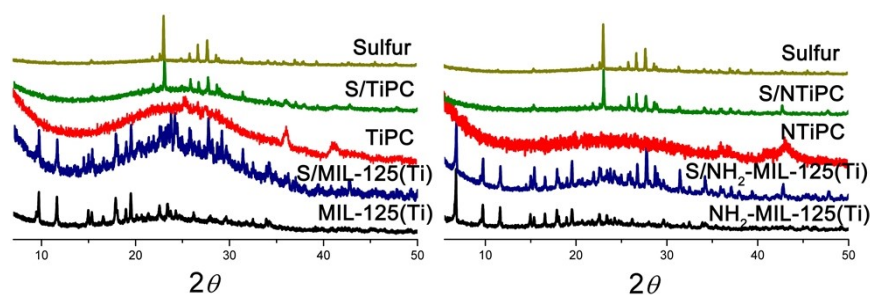


Figure S1 XRD patterns of sulfur, MIL-125(Ti), NH₂-MIL-125(Ti), S/MIL-125(Ti), S/NH₂-MIL-125(Ti), TiPC, S/TiPC and S/NTiPC composites.

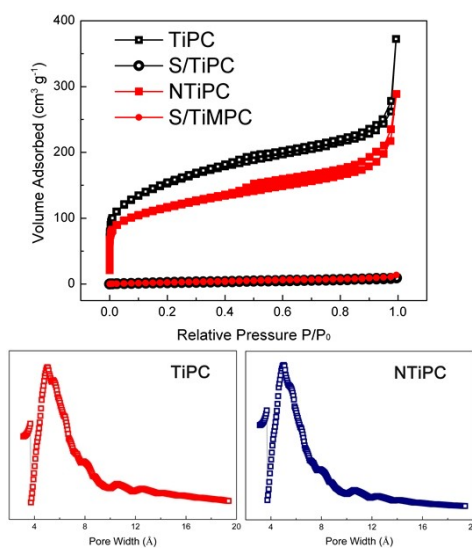


Figure S2 Nitrogen isotherms recorded at 77 K for TiPC, NTiPC S/TiPC and S/NTiPC. And the pore size distributions of TiPC and N TiPC obtained by Original Density Functional Theory method.

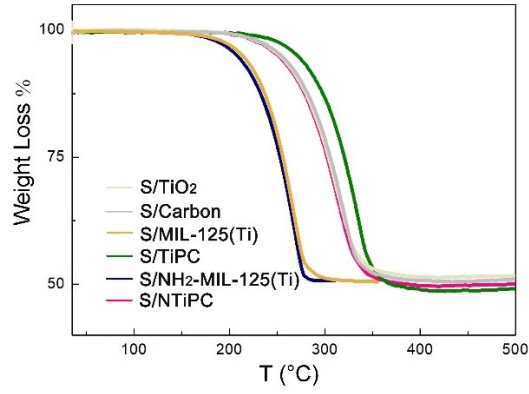


Figure S3 TGA of S/TiO₂, S/Carbon, S/MIL-125(Ti), S/TiPC, S/NH₂-MIL-125(Ti) and S/NTiPC.

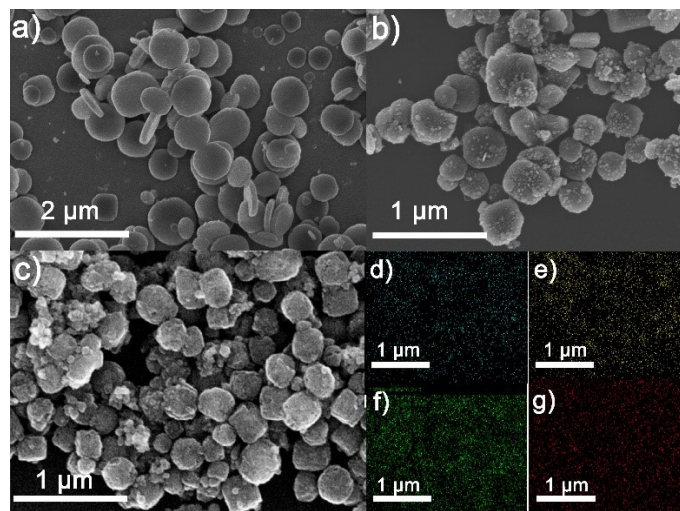


Figure S4 (a), (b) and (c) SEM images of MIL-125(Ti), TiPC and S/TiPC, respectively. The elemental mapping of (d) carbon, (e) oxygen, (f) titanium and (g) sulfur of S/TiPC.

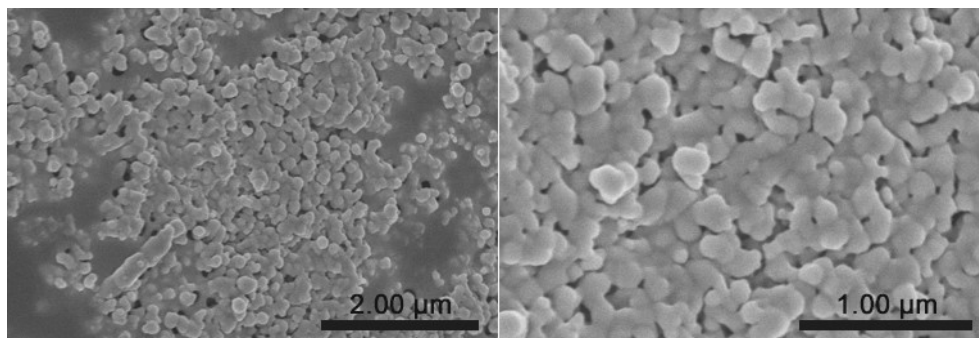


Figure S5 SEM images of S/NTiPC cathode after few cycles of discharge/charge cycling.

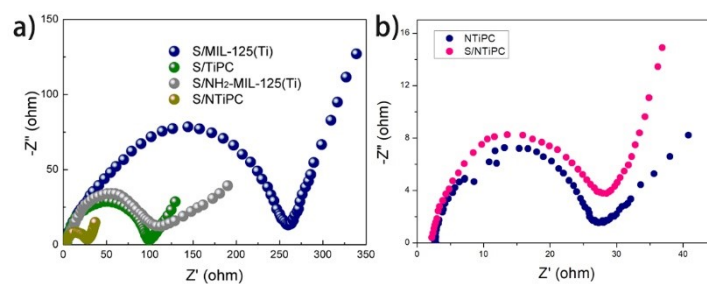


Figure S6 EIS of a) S/MIL-125(Ti), S/TiPC, S/NH₂-MIL-125(Ti) and S/NTiPC cathodes, b) NTiPC and S/NTiPC cathodes in Li-S battery before cycling performance.

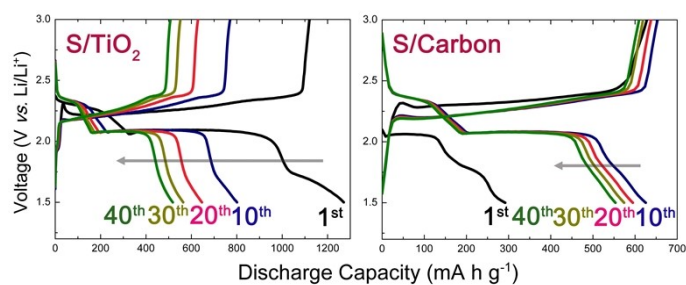


Figure S7 Discharge/charge curves of the S/TiO₂, S/Carbon cathodes at different cycles at 0.5 C.

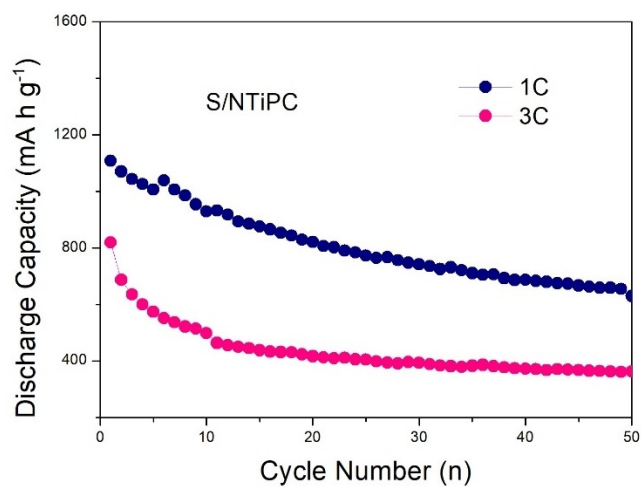


Figure S8 The discharge capacity of S/NTiPC cathode at 1 C and 3C.

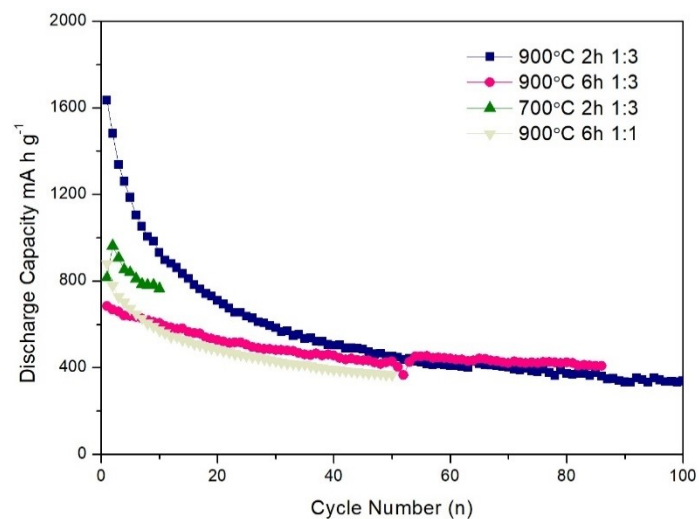


Figure S9 The discharge capacity of S/NTiPC cathodes under different conditions at 0.5 C.

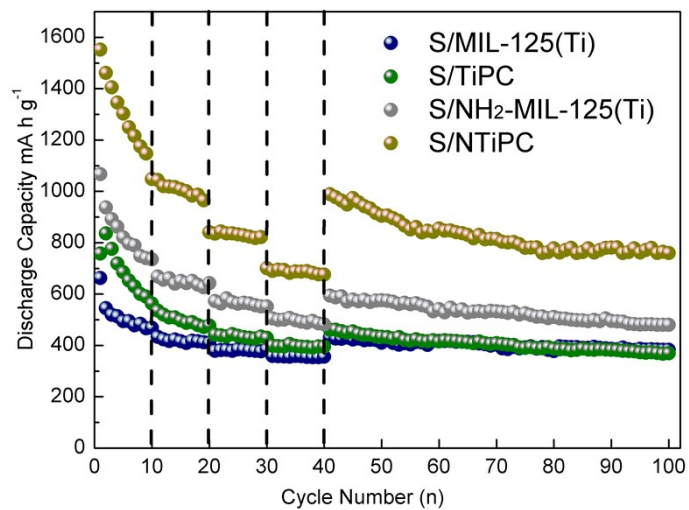


Figure S10 The S/MIL-125(Ti), S/TiPC, S/NH₂-MIL-125(Ti) and S/NTiPC cathodes at various C-rates.