

Supplementary Information for:

Novel double-cathode configuration to improve cycling stability of lithium-sulfur battery

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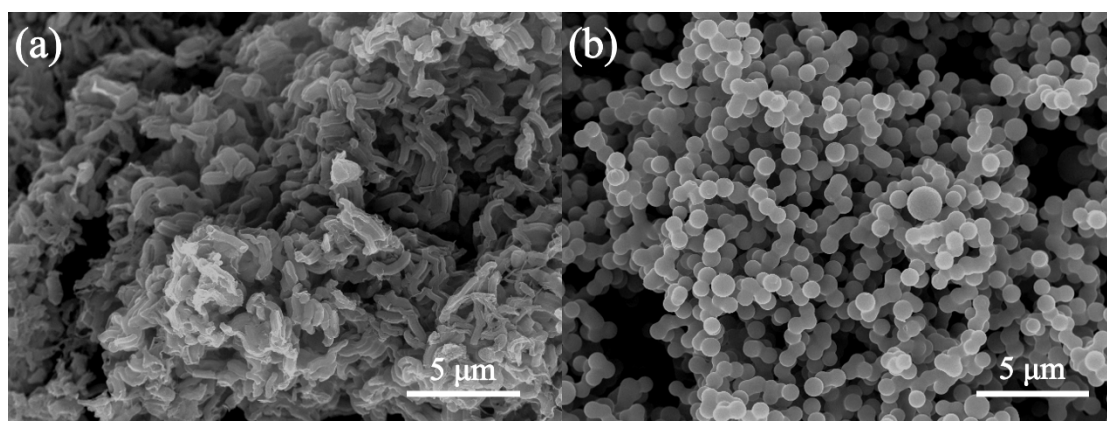


Fig. S1 SEM images of (a) CMK-3 purchased and (b) MiPCS synthesized.

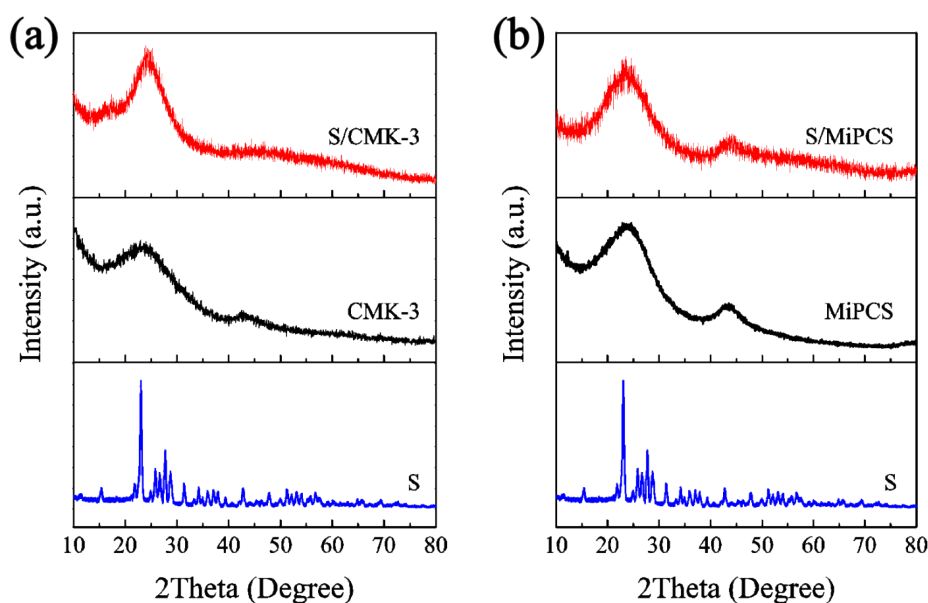


Fig. S2 XRD patterns of pristine S, CMK-3, S/CMK-3, MiPCS and S/MiPCS.

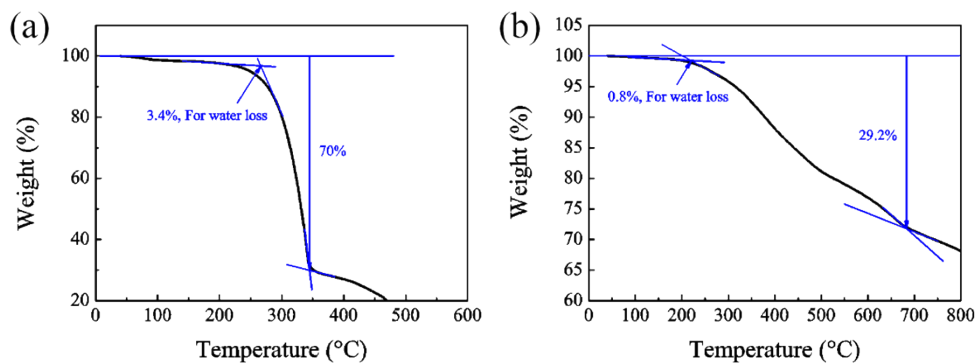


Fig. S3 Thermo-gravimetric analysis (TGA) of (a) S/CMK-3 and (b) S/MiPCS.

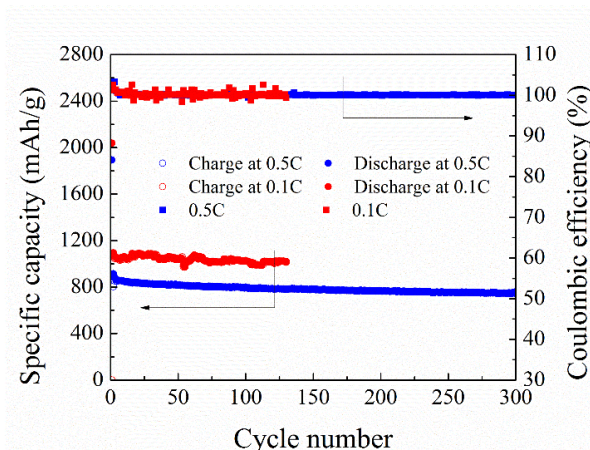


Fig. S4 Cycling performance of the S/MiPCS cell at 0.1C and 0.5C at 1.0–3.0 V.

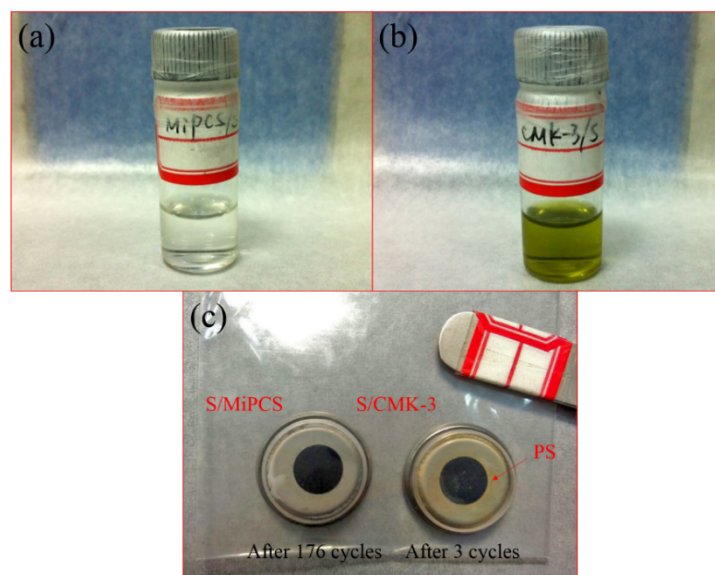


Fig. S5 Electrolyte of (a) S/MiPCS and (b) S/CMK-3 cathodes collected from cycled cells at 0.2C between 1–3 V after 3 cycles. (c) Disassembled cells of S/MiPCS and S/CMK-3.

Three S/CMK-3 cells and S/MiPCS cells were disassembled to collect electrolyte for considering different sulfur loading. Both of them were washed with 2 ml DME, and 1.5 ml was stored in a transparent 5 ml glass bottle.

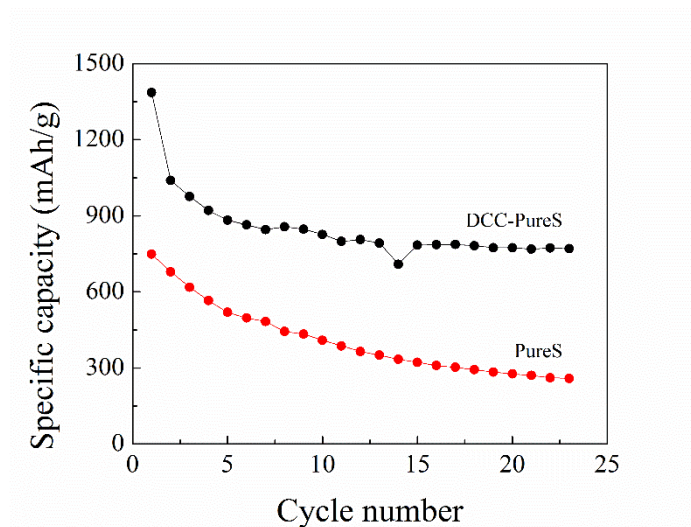


Fig. S6 Cycling performance comparison of the PureS cathode cell and DCC-PureS.

Table S1 Comparison of specific capacity of S/CMK-3 cathode, S/MiPCS cathode and DCC.

	S/CMK-3 cathode	S/MiPCS cathode	DCC(S/CMK-3@S/MiPCS) cathode
Mass specific capacity (mAh/g) (0.5C)	400	190	320
Area specific capacity (mAh/cm ²) (0.5C)	1.15	0.29	1.34

Gravimetric specific capacity is based on the mass of S/C, super P and binder.