

MoO₂ nanoparticles embedded in N-doped hydrangea-like carbon as sulfur host for high-performance lithium sulfur batteries

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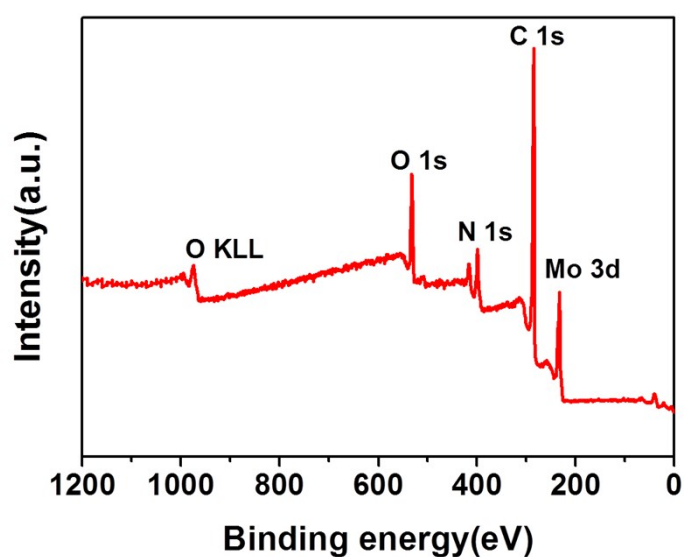


Fig.S1 XPS of MHC-2 composite

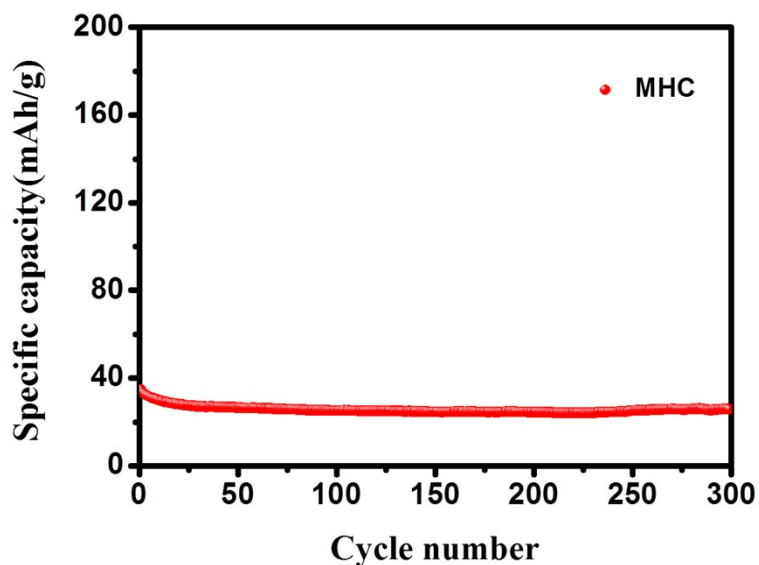


Fig.S2 specific capacity of MHC at 1 A g^{-1} for 300 cycles

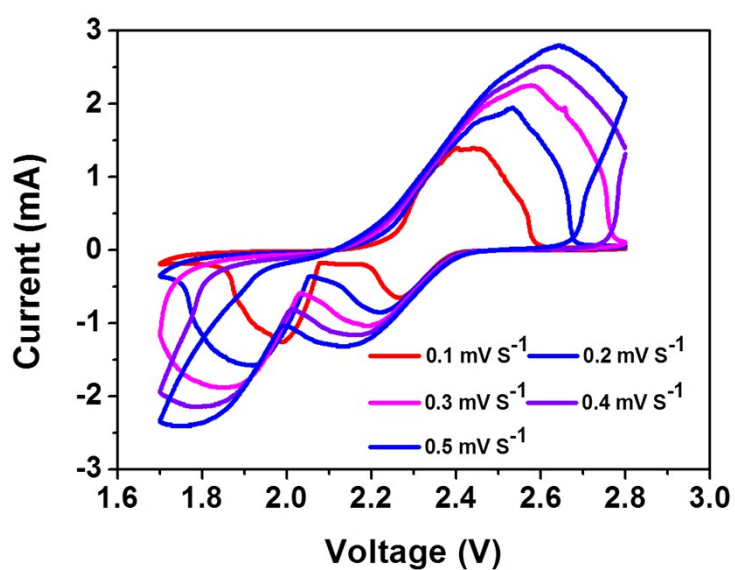


Fig.S3 CV curves of AB/S electrode from 0.1 to 0.5 mV S^{-1}

Table S1 slope of the fitted line for the peak current at different scan rates

Slope(mA/V s^{-1}) ^{0.5}	Peak a	Peak c ₁	Peak c ₂
MHC/S-2	182.43	105.33	148.34
AB/S	111.14	53.05	93.16

Table S2 The chemical performance comparison of MHC with other matrixs reported in the literatures

matrix	Rate behavior	cycle performance (initial-final)	S content
α -MoO ₃ ^[1]	1151 mA h g ⁻¹ 0.1C	684-649 mA h g ⁻¹ 350 cycles 2C	85%
TiO ₂ @TiN ^[2]	931 mA h g ⁻¹ 0.1C	823-525 mA h g ⁻¹ 200 cycles 2C	60%
Mo ₂ C@C ^[3]	1099 mA h g ⁻¹ 0.1C	800-650 mA h g ⁻¹ 300cycles 1C	80%
RuO ₂ @NMCs ^[4]	1103 mA h g ⁻¹ 0.2C	1065-934 mA h g ⁻¹ 500 cycles 0.5C	70%
MnO/MPC ^[5]	900 mA h g ⁻¹ 0.1A g ⁻¹	723-515mAh g ⁻¹ 150cycles 0.2 A g ⁻¹	75%
NiFeO ₄ /C ^[6]	1041mA h g ⁻¹ 0.2A g ⁻¹	-700 mA h g ⁻¹ 500 cycles 0.5 A g ⁻¹	70%
MoO ₂ /NC ^{this work}	1057mA h g ⁻¹ 0.2A g ⁻¹	797-680mA h g ⁻¹ 300cycles 1.0A g ⁻¹	75%

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