

Supporting Information

1. The specific capacitance (C_s , F g⁻¹) from the GCD curves was calculated according the equation :

$$C_s = \frac{It}{m\Delta V} \quad (1)$$

where I , t , m and ΔV are the discharge current (A) , the discharge time (s), the mass of the active substance (g) and the potential range (V), respectively.

2. The specific capacitance (C_s , F g⁻¹) from the CV curves was calculated according the equation:

$$C_s = \frac{1}{mv(V_a - V_c)} \int_{V_a}^{V_c} I(V) dV \quad (2)$$

where I , m , v , V_a , V_c and ΔV are the discharge current (A) , the mass of the active substance (g), the scan rate (V s⁻¹), maximum voltage (V), minimum voltage (V) and the potential range (V), respectively.

3. The energy density (E , Wh Kg⁻¹) and power density (P , W Kg⁻¹) of the device were calculated basing on the equations below:

$$E = \frac{C_s \Delta V^2}{7200} \quad (3)$$

$$P = \frac{3600E}{t} \quad (4)$$

The C_s of the ASC was the achieved from the same equation of electrode except that the m contains the total mass of cathode and anode active materials.

Fig. S1 SEM images of the (a) Cobalt-sulfur and (b) manganese-sulfur and XRD patterns of the (c) CS-5, (d) MS-5.

Fig. S2 N₂ adsorption/desorption isotherms and pore size distributions of (a, b) MCS-1, (c, d) MCS-5, (e, f) MCS-10 and (g, h) MCS-15

Fig. S3 (a) CV curves of MCS-1 electrode, (b) CV curves of MCS-10 electrode, (c) CV curves of MCS-15 electrode.

Fig. S4 (a) GCD curves of MCS-1 electrode, (b) GCD curves of MCS-10 electrode, (c) GCD curves of MCS-15 electrode.

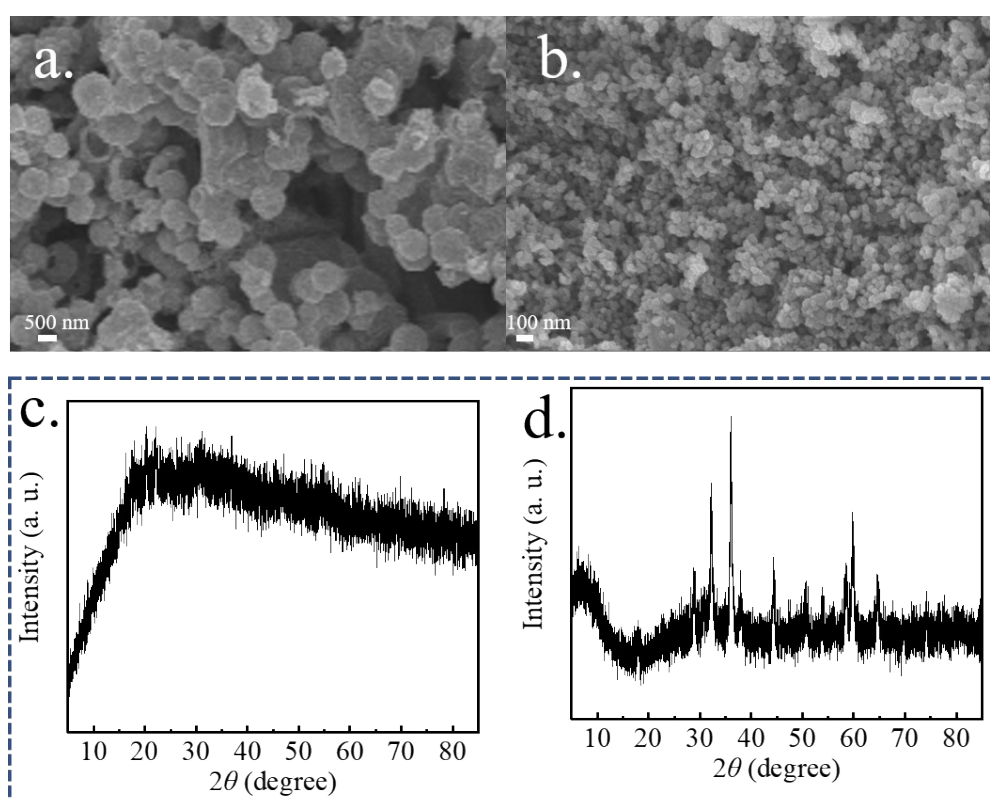


Fig. S1 SEM images of the (a) Cobalt-sulfur, (b) manganese-sulfur and (c)CS-5, (d) MS-5 XRD patterns.

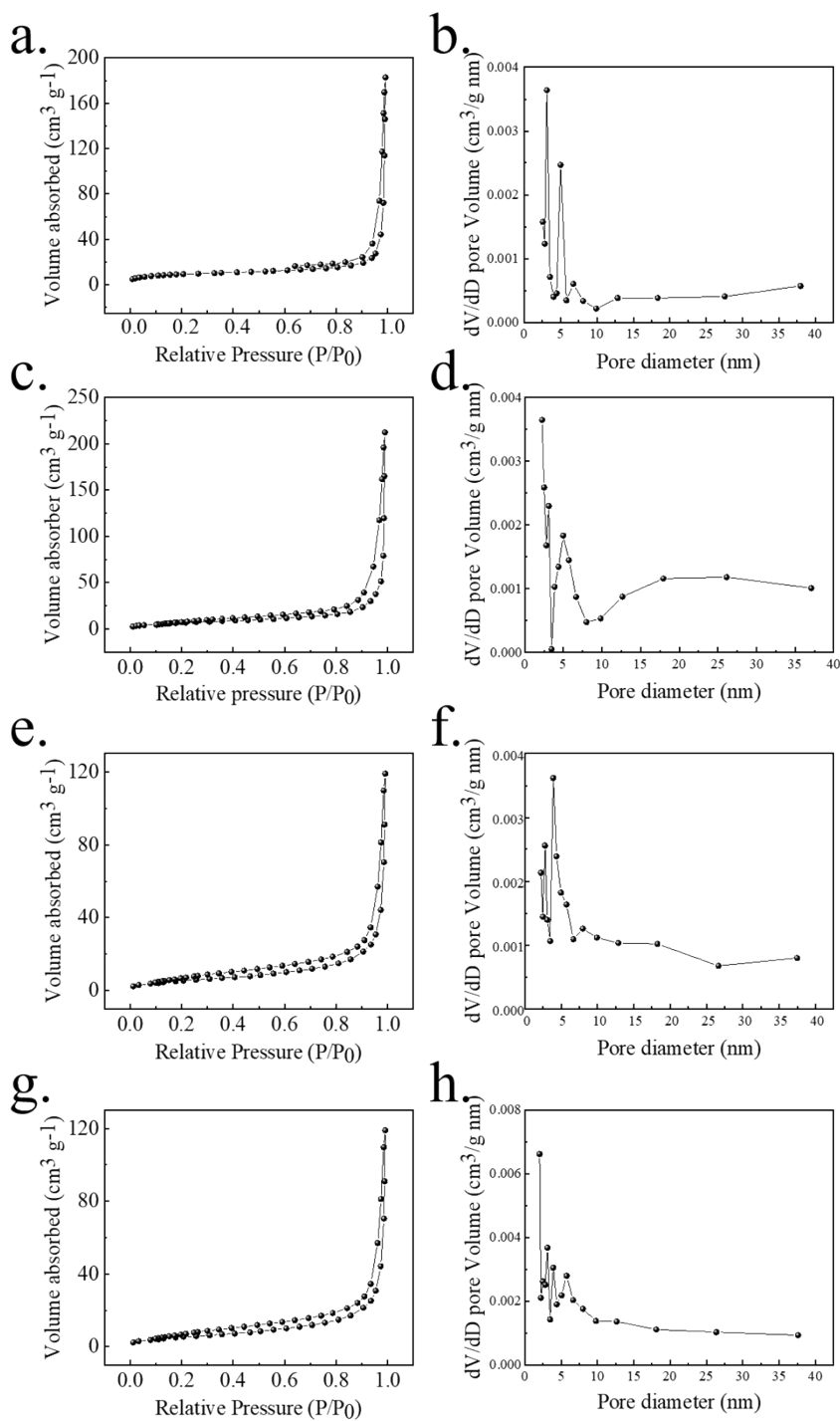


Fig. S2 N₂ adsorption/desorption isotherms and pore size distributions of (a, b) MCS-

1, (c, d) MCS-5, (e, f) MCS-10 and (g, h) MCS-15

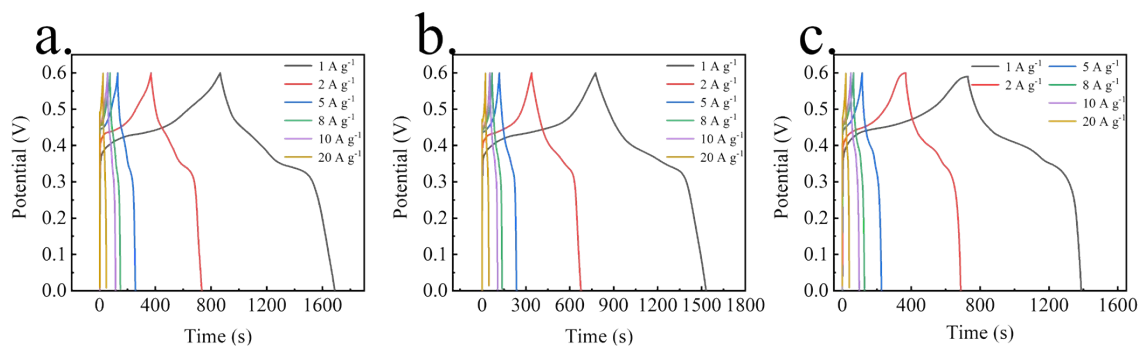


Fig. S3 (a) GCD curves of MCS-1 electrode, (b) GCD curves of MCS-10 electrode, (c) GCD curves of MCS-15 electrode

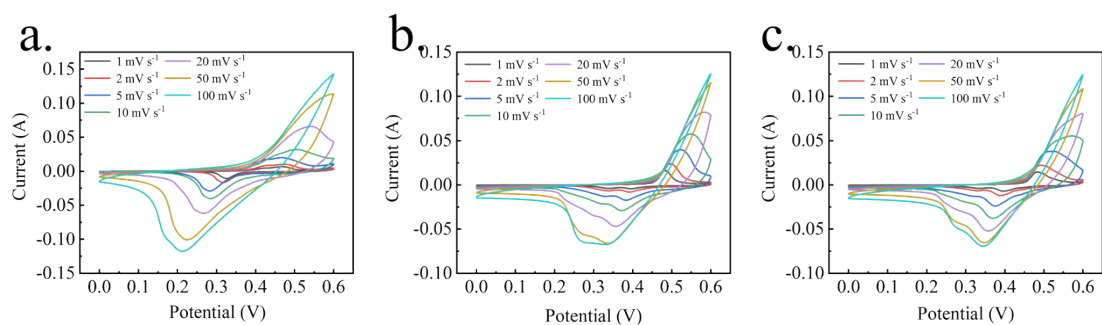


Fig. S4 (a) CV curves of MCS-1 electrode, (b) CV curves of MCS-10 electrode, (c) CV curves of MC-15 electrode.