Supplementrary Information

Sandwich-Type $CoSe_2$-CNWs@rGO/S Composites with Efficient Trapping and Catalytic Conversion of Polysulfides in Lithium–Sulfur Batteries.

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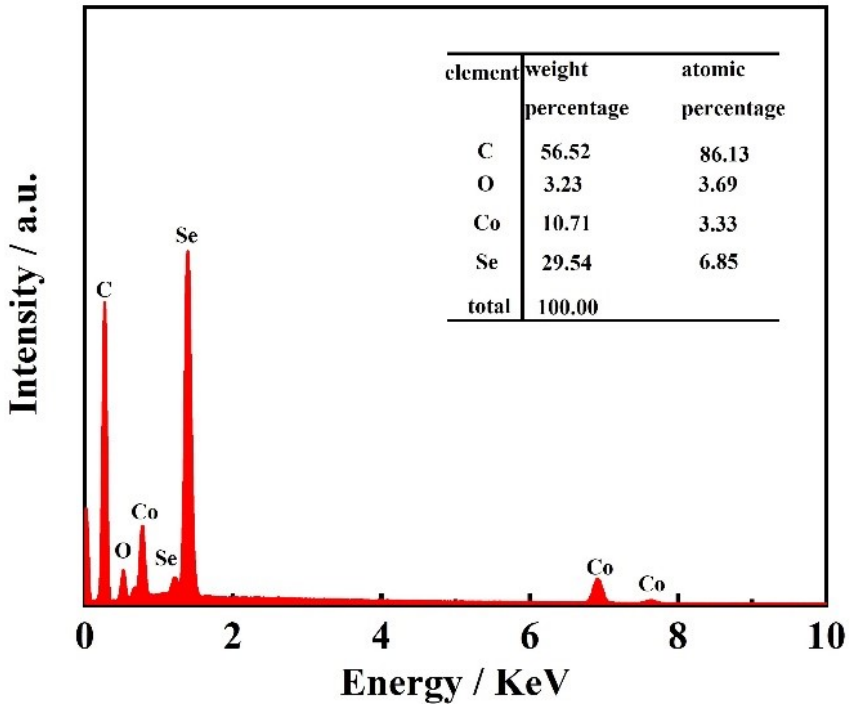

Fig. S1 the EDS spectrum of the $CoSe_2$-CNWs@rGO.

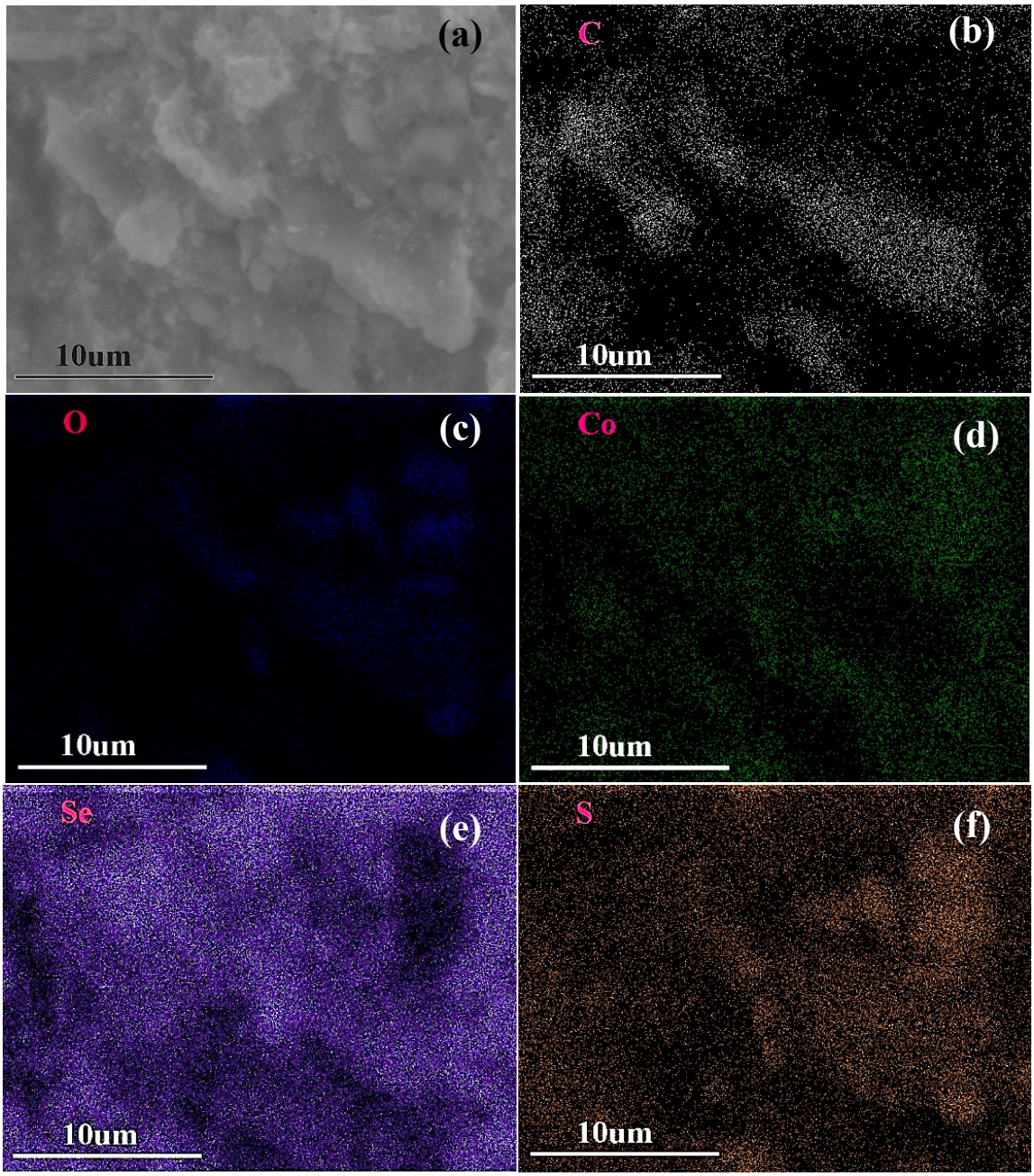

Fig. S2 SEM image and corresponding EDX elemental mapping of $CoSe_2$-CNWs@rGO/S.

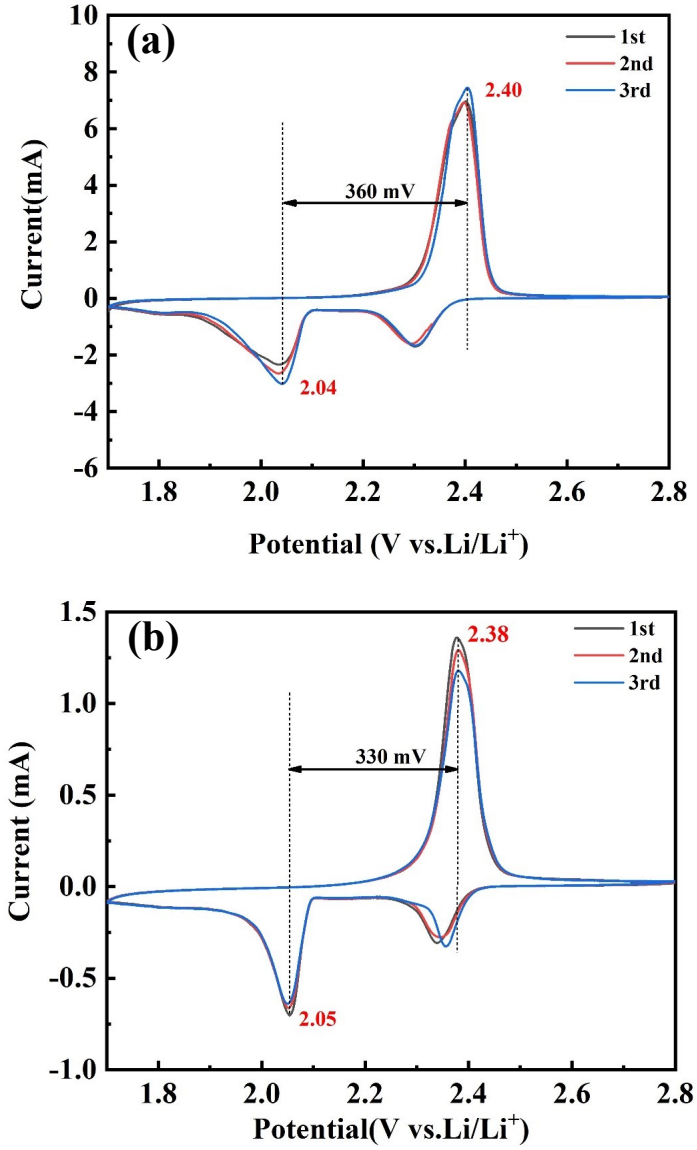

Fig. S3 CV curves of (a) Co-CNWS/S and (b) $CoSe_2$-CNWS/S at 0.1 mV s^{-1} in a potential window from 1.7 to 2.8 V.

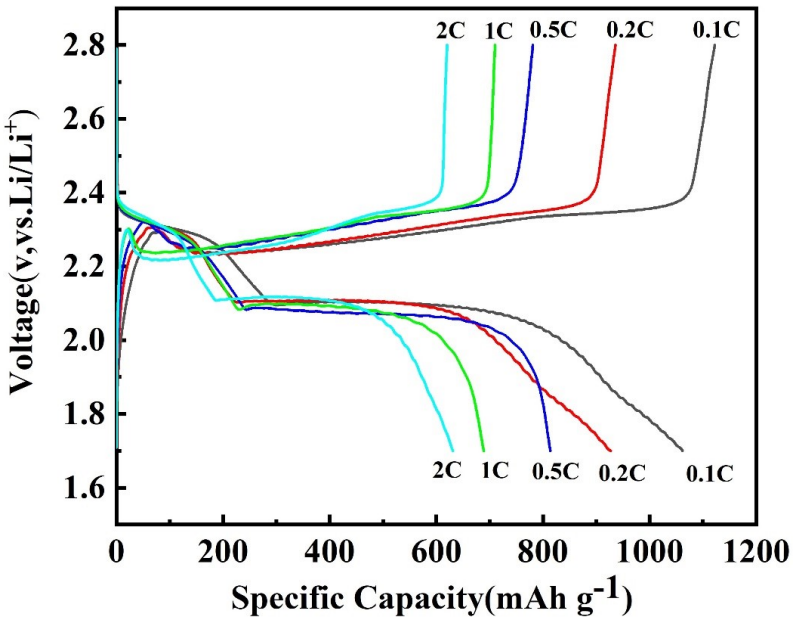

Fig. S4 The galvanostatic charge-discharge profiles of the $CoSe_2$-CNWs@rGO/S cathode at different current density.

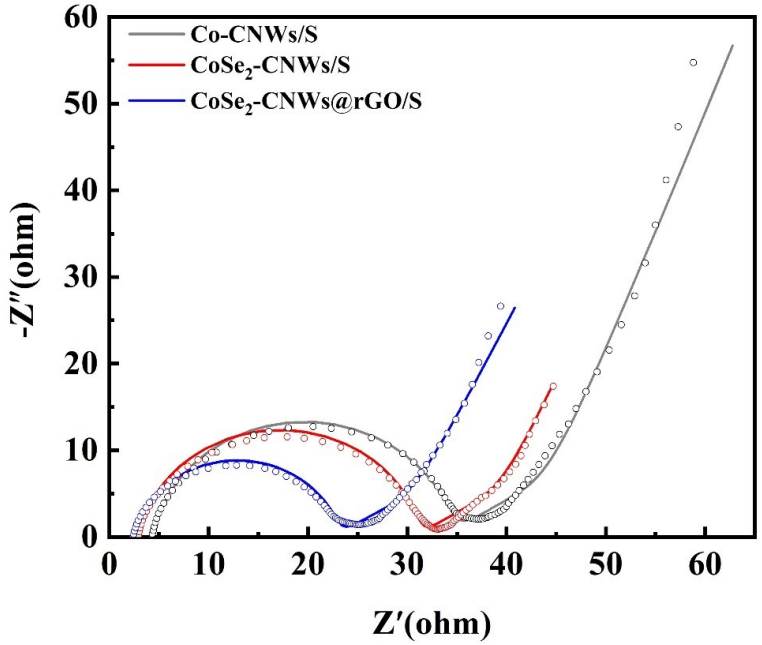

Fig. S5 Nyquist plots of Co-CNWs/S, $CoSe_2$-CNWs/S, and $CoSe_2$-CNWs@rGO/S electrodes before cycling.

Fig S5 shows the EIS plots of $CoSe_2$-CNWs@rGO/S, $CoSe_2$-CNWs/S, and Co-CNWs/S electrodes before cycling. The fitting values indicate the lowest R_e and R_{ct} in the $CoSe_2$-CNWs@rGO/S electrode (2.67 and 20.68 Ω), while the R_e and R_{ct} values in $CoSe_2$-CNWs/S (3.05 and 27.91 Ω) and Co-CNWs/S (4.37 and 30.69 Ω) are much higher. This results confirm the enhancement of the cathode conductivity due to the coupling with $CoSe_2$ and rGO.