

# **A novel nitrogen-doped carbon-coated SnSe<sub>2</sub> based on post-synthetic modified MOF as high-performance anode materials for LIBs and SIBs**

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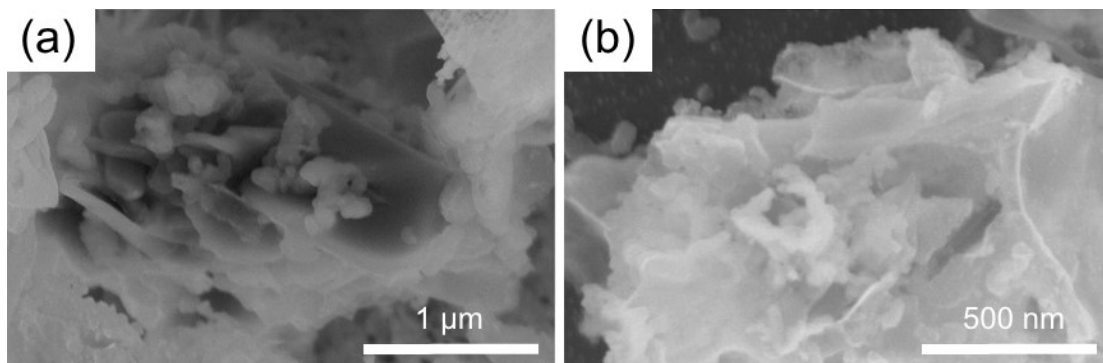
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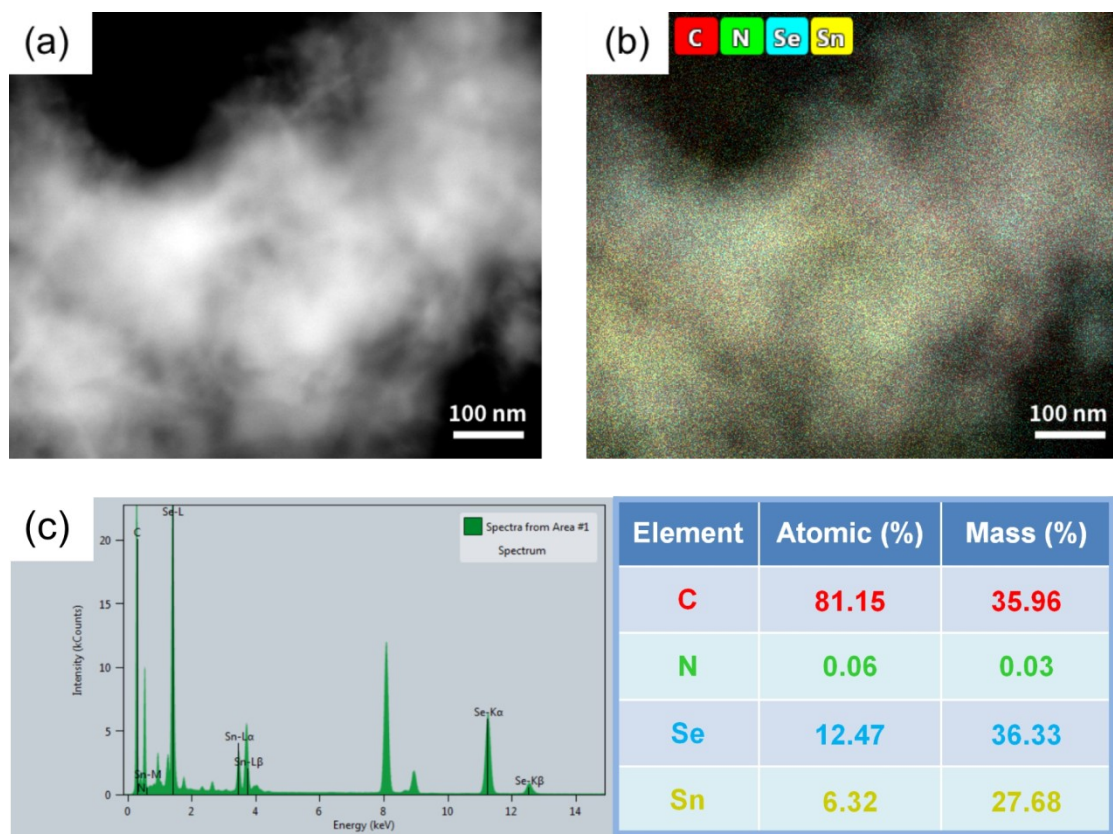
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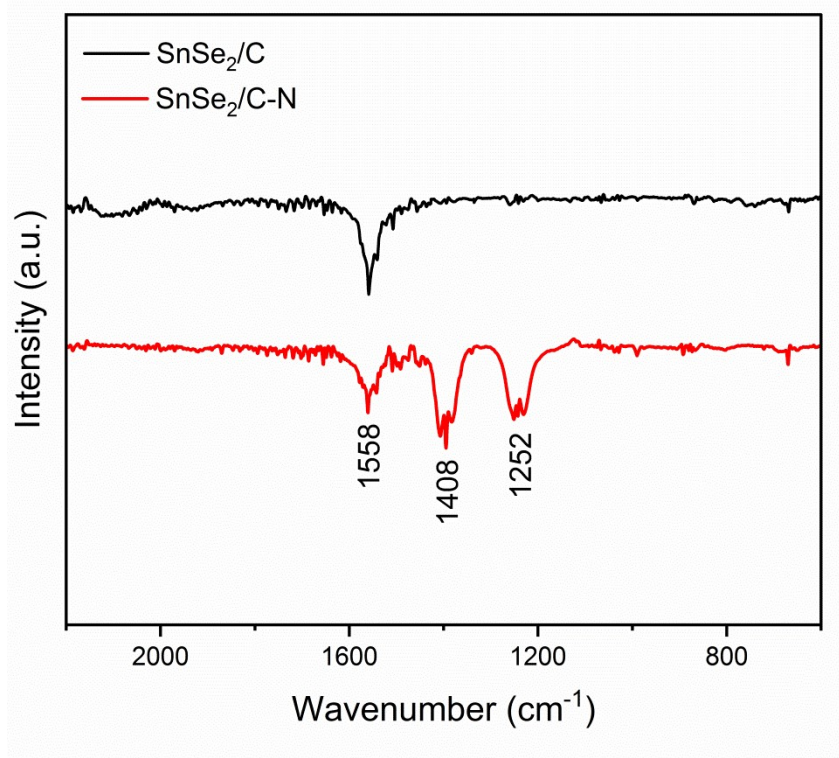
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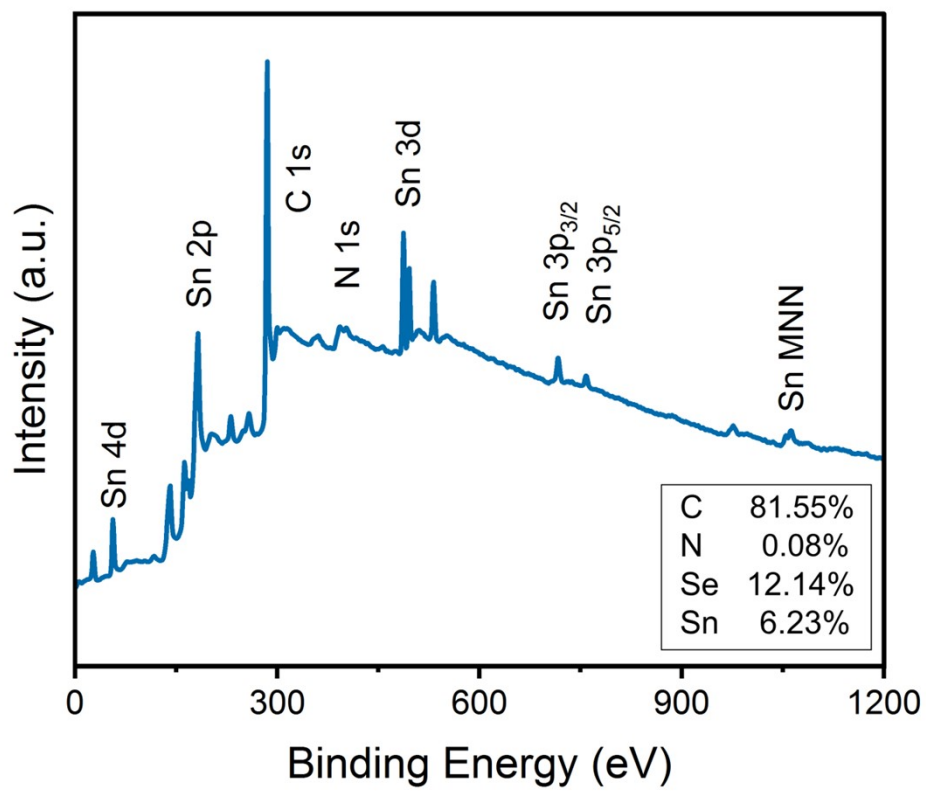
**Fig. S1** The SEM images of SnSe<sub>2</sub>/C-N after 100 cycles of charge/discharge in LIBs.



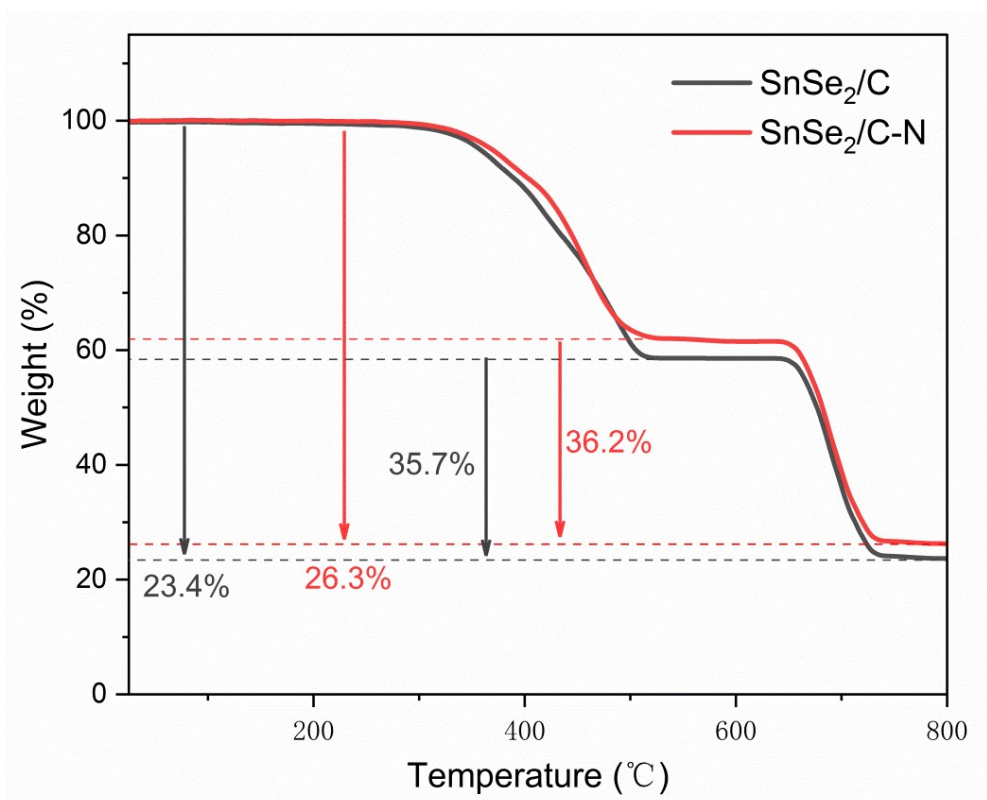
**Fig. S2** EDS mapping images for SnSe<sub>2</sub>/C-N: (a) HAADF image; (b) all elements labeled image; and (c) all elements' EDS spectra.



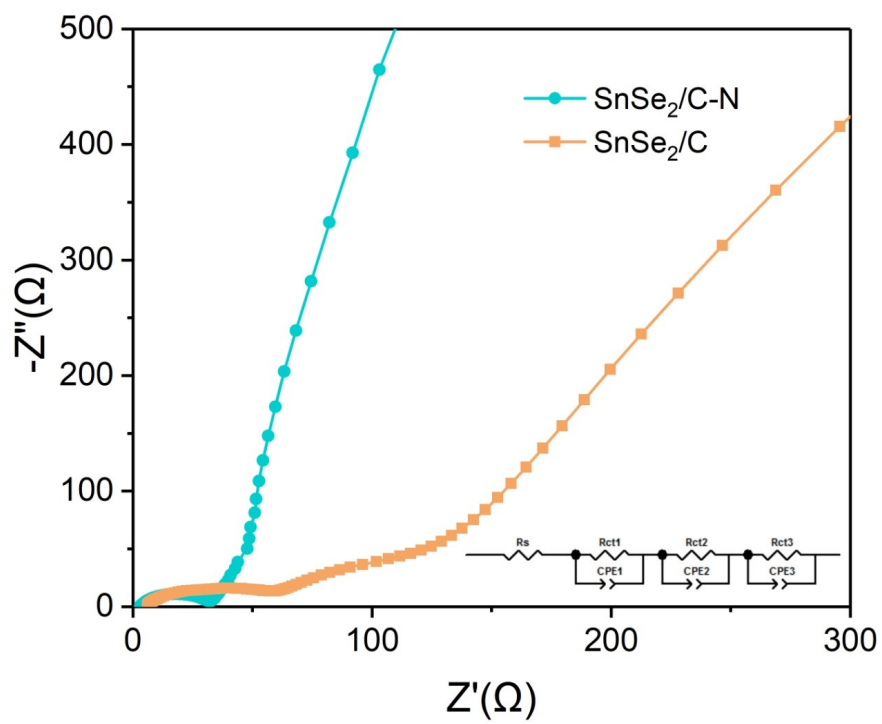
**Fig. S3** Comparison of FT-IR of  $\text{SnSe}_2/\text{C}$  and  $\text{SnSe}_2/\text{C-N}$ .



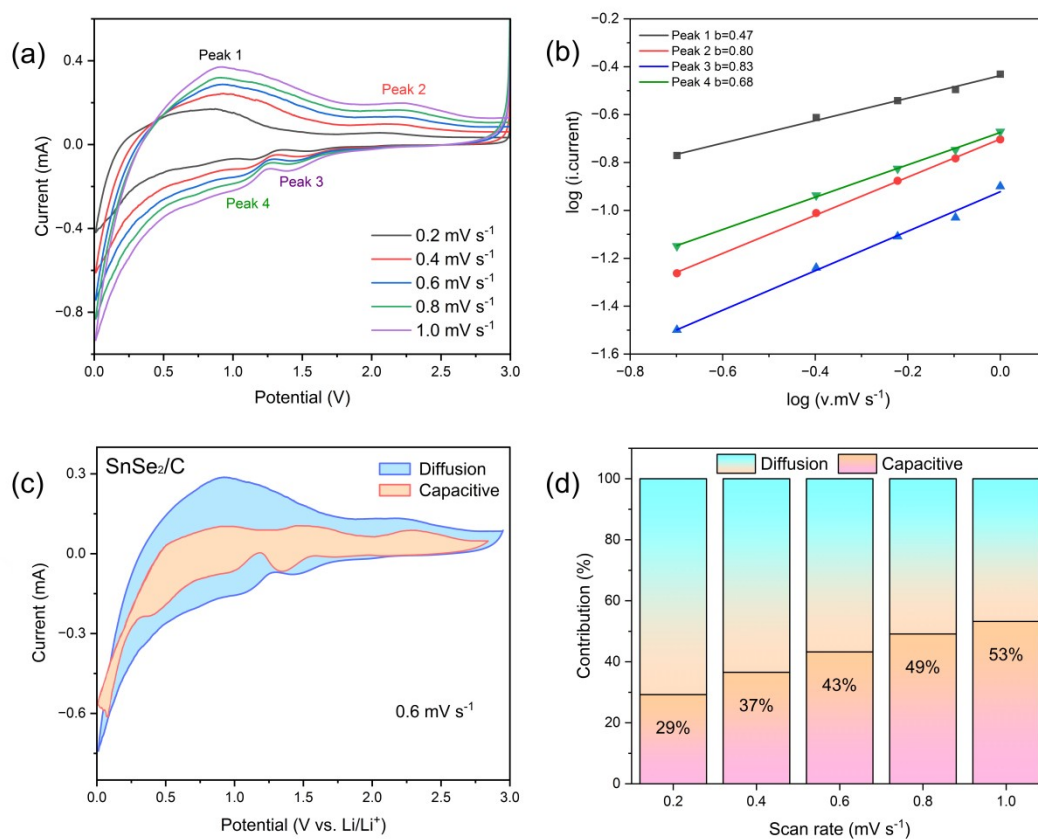
**Fig. S4** The XPS spectra of the SnSe<sub>2</sub>/C-N composite.



**Fig. S5** Thermogravimetric analysis patterns of SnSe<sub>2</sub>/C and SnSe<sub>2</sub>/C-N.



**Fig. S6** EIS of SnSe<sub>2</sub>/C and SnSe<sub>2</sub>/C-N electrodes for LIBs.



**Fig. S7** (a) CV curves of SnSe<sub>2</sub>/C for different scan rates (0.2-1.0 mV s<sup>-1</sup>), (b) log (scan rate) /log (current) plots, (c) Contribution of pseudocapacitive (orange area) at 0.6 mV s<sup>-1</sup>, and (d) Histogram of the pseudocapacitive contributions at different scan rates.