

Constructing electronic interconnected bimetallic selenides-filled porous carbon nanosheets for stable and highly efficient sodium-ion half/full batteries

Lei Zhang^{a, c}, Xiao Li^c, Linlin Tai^c, Chunping Shen^d, Jun Yang^{b*}, Chencheng Sun^{a*}, Hongbo Geng^{c*}, Xiaobing Zuo^c

^aSchool of Electronic and Information Engineering, Changshu Institute of Technology, Changshu 215500, Jiangsu, China

^bSchool of Material Science & Engineering, Jiangsu University of Science and Technology, Zhenjiang, 212003, China

^cSchool of Materials Engineering, Changshu Institute of Technology, Changshu, Jiangsu 215500, China

^dJiangsu Tenpower Lithium Co., Ltd., Zhangjiagang, Jiangsu, China

E-mail address: iamjyang@just.edu.cn; ccsun@cslg.edu.cn; hbgeng@cslg.edu.cn.

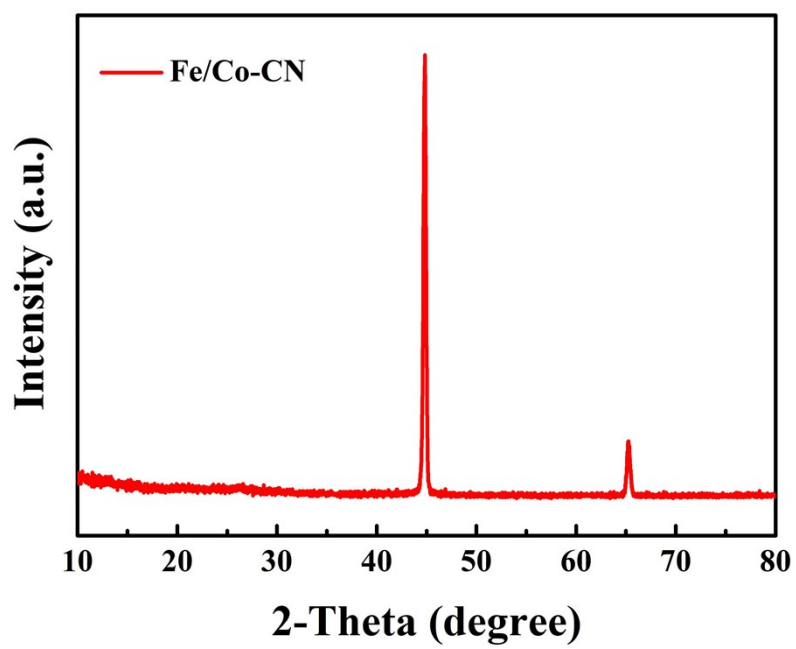


Figure S1. XRD pattern of Fe/Co-CN precursor.

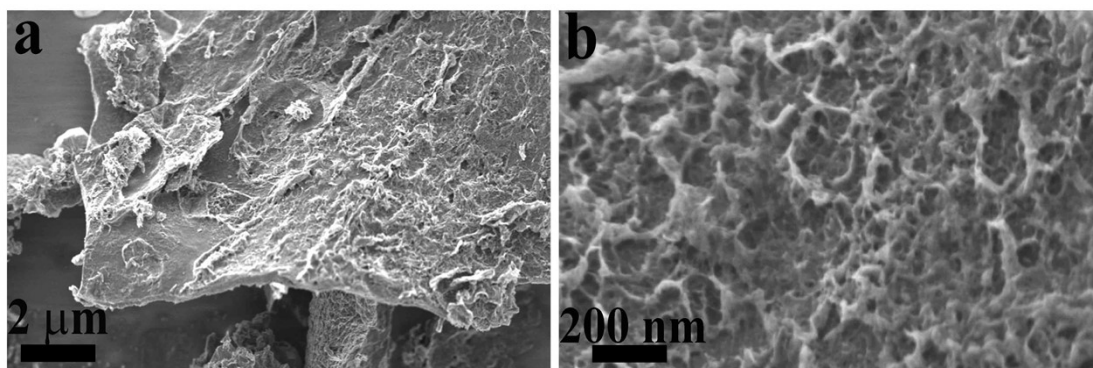


Figure S2. (a, b) SEM image of Fe/Co-CN precursor.

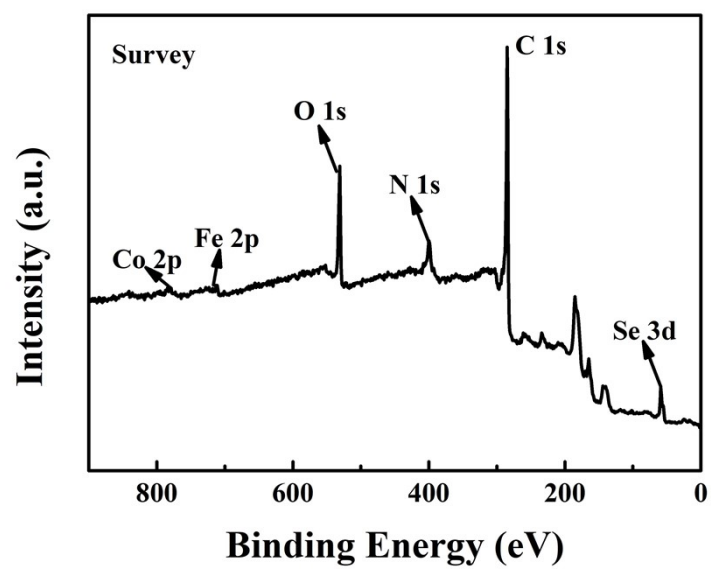


Figure S3. XPS spectra of FeSe₂/CoSe₂-CN.

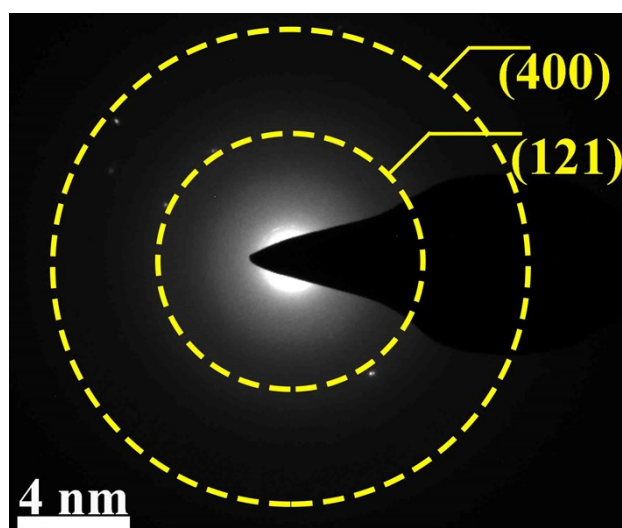


Figure S4. SAED pattern of FeSe₂/CoSe₂-CN.

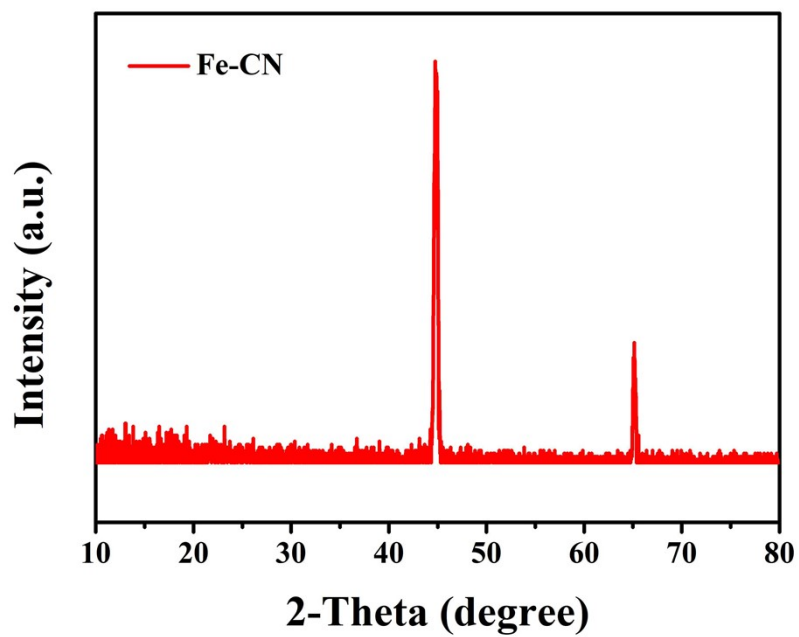


Figure S5. XRD pattern of Fe-CN precursor.

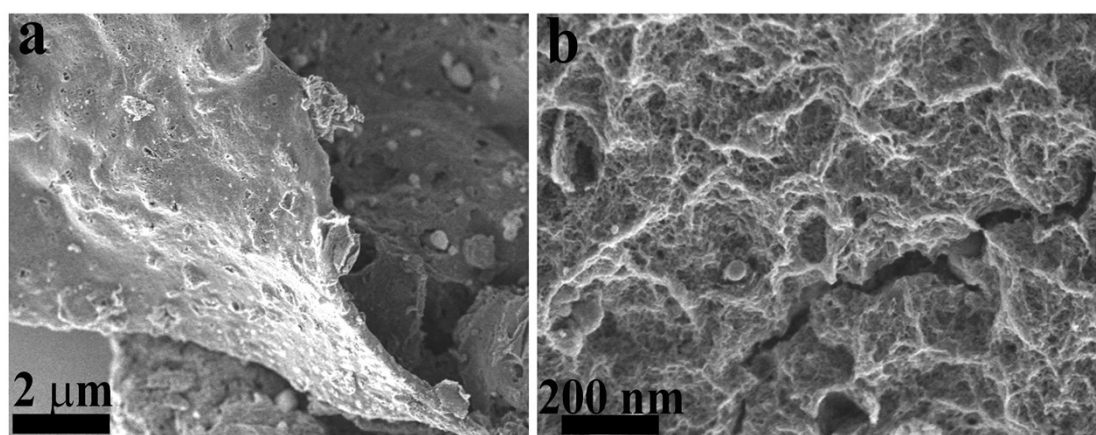


Figure S6. (a, b) SEM image of Fe-CN precursor.

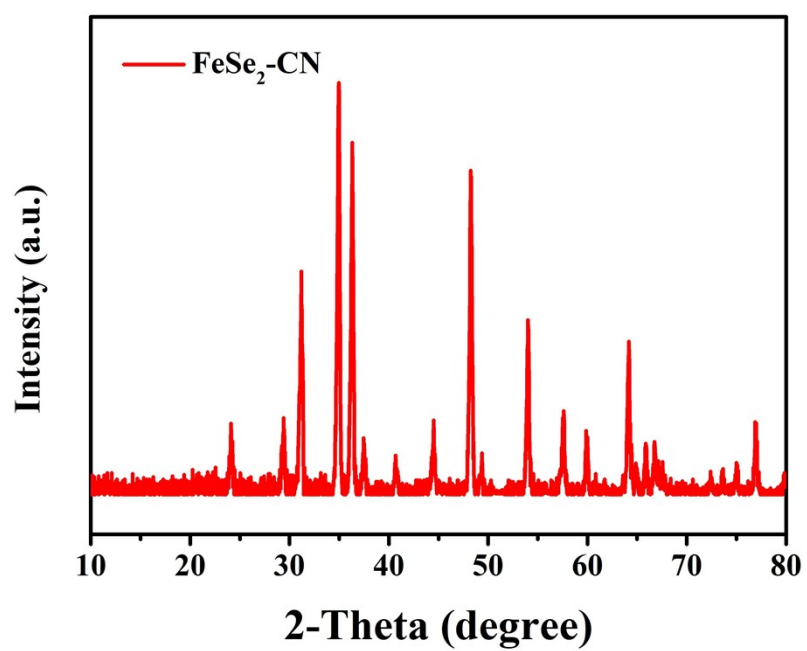


Figure S7. XRD pattern of FeSe₂-CN.

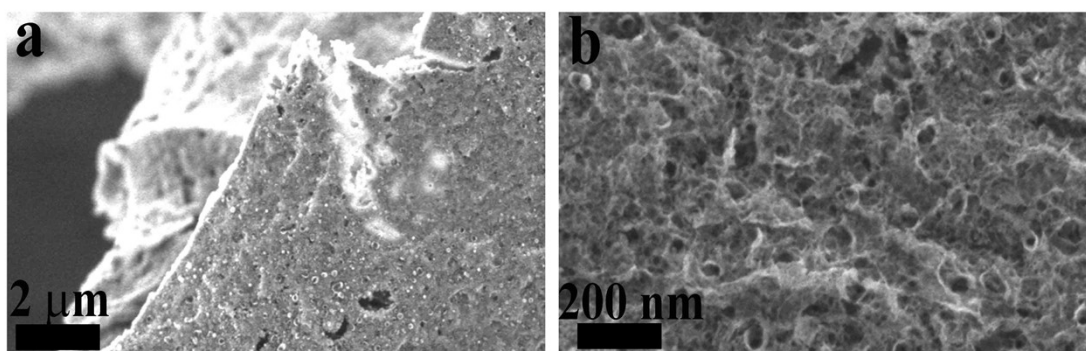


Figure S8. (a, b) SEM image of FeSe₂-CN.

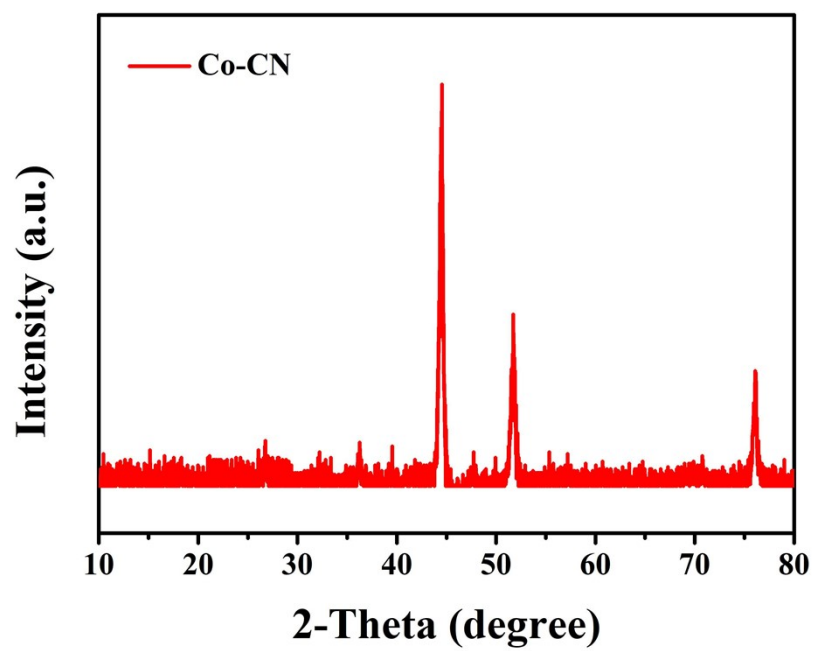


Figure S9. XRD pattern of Co-CN precursor.

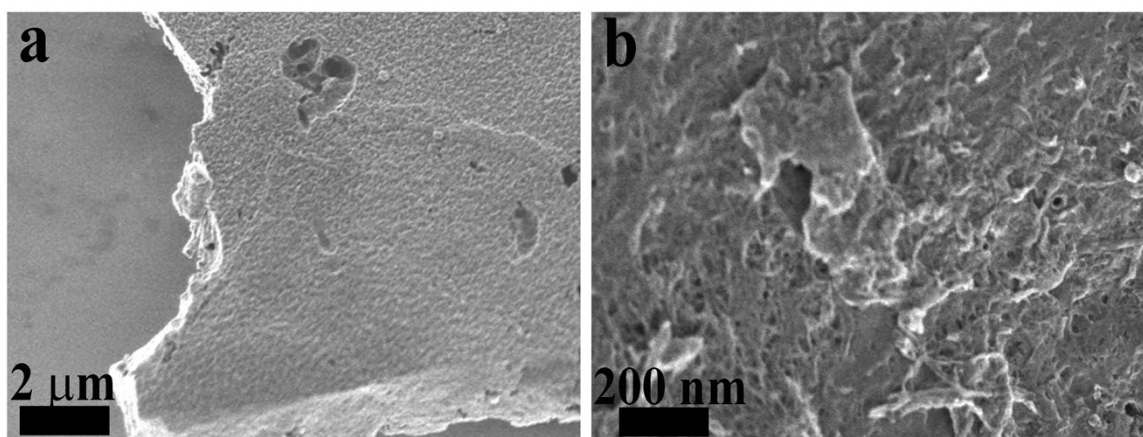


Figure S10. (a, b) SEM images of Co-CN precursor.

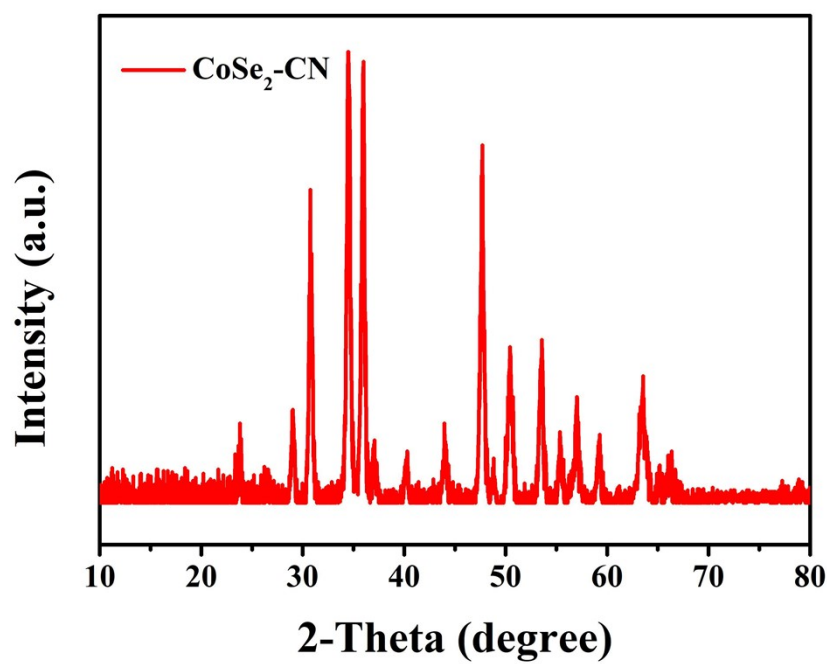


Figure S11. XRD pattern of CoSe₂-CN.

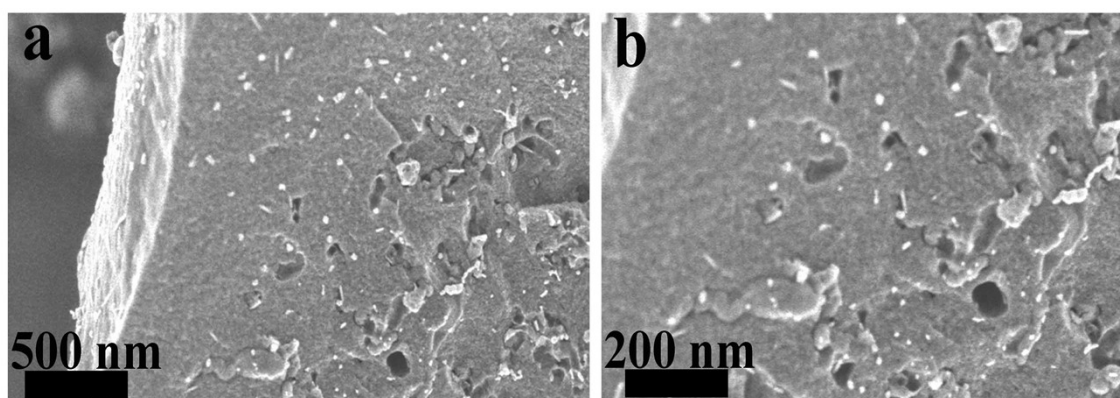


Figure S12. (a,b) SEM image of CoSe₂-CN.

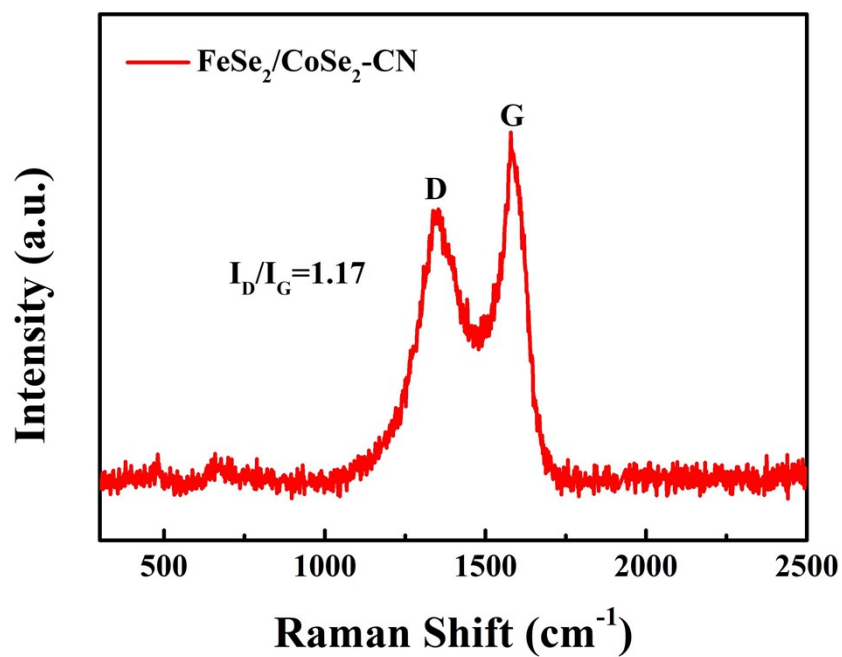


Figure S13. Raman spectrum of FeSe₂/CoSe₂-CN.

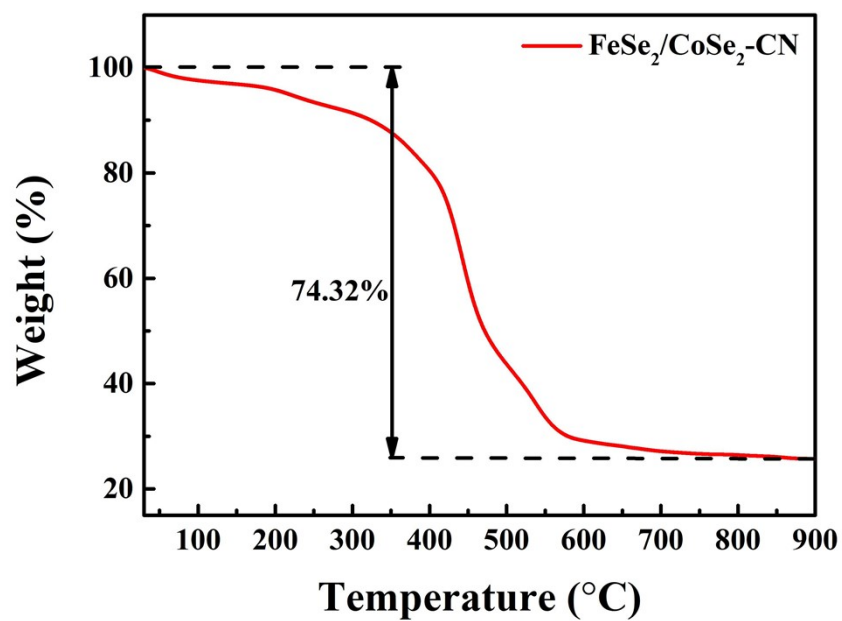


Figure S14. TGA curve of FeSe₂/CoSe₂-CN.

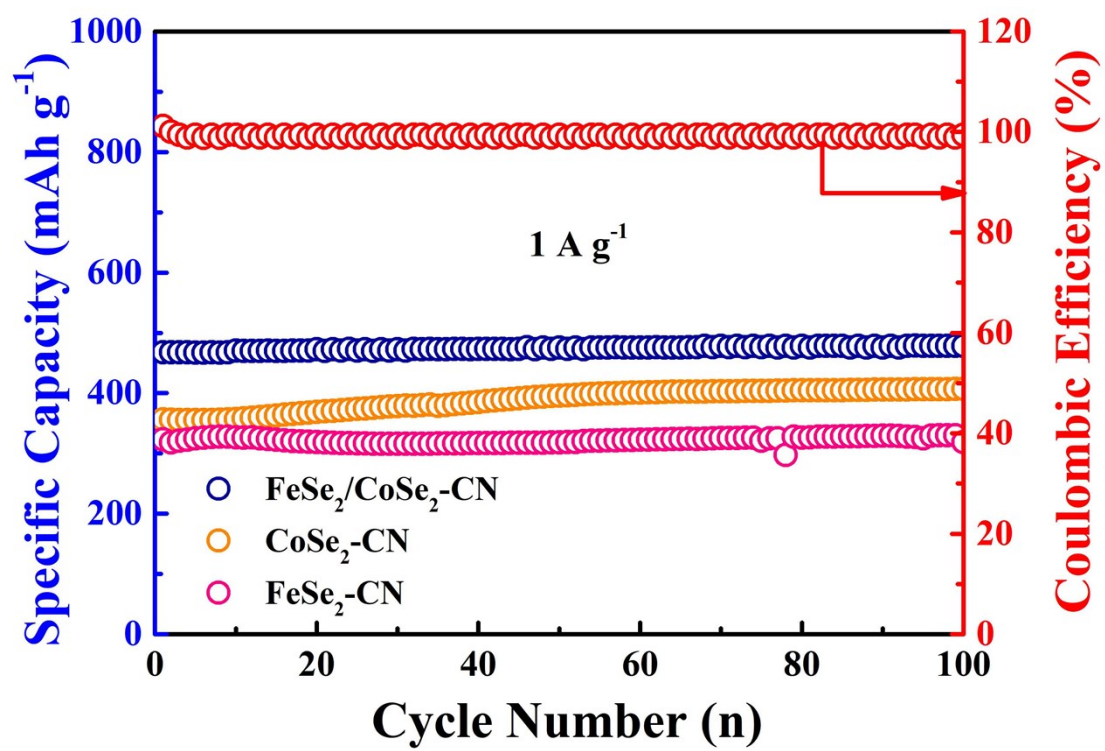


Figure S15. The stability comparison of FeSe₂/CoSe₂-CN, FeSe₂-CN and CoSe₂-CN at 1 A g⁻¹.

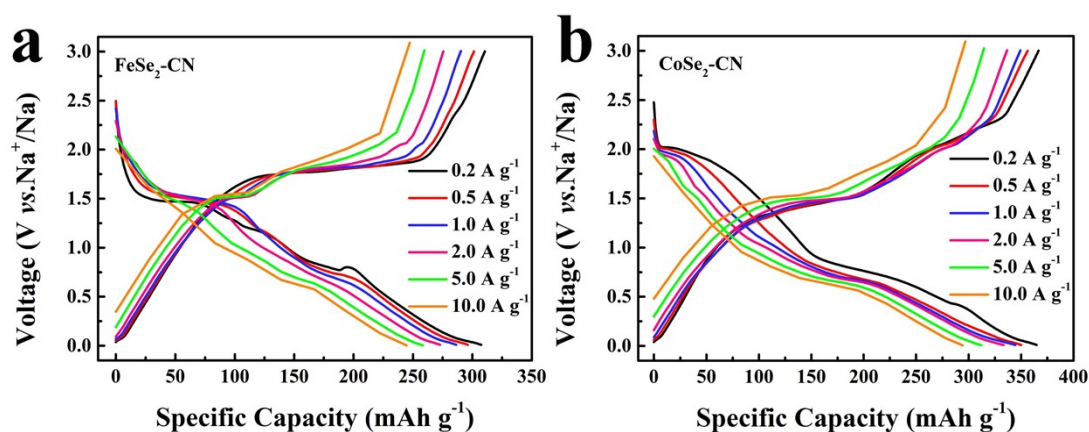


Figure S16. The discharge-charge curves of (a) $\text{FeSe}_2\text{-CN}$ and (b) $\text{CoSe}_2\text{-CN}$ at various current densities from 0.2 to 10 A g^{-1} .

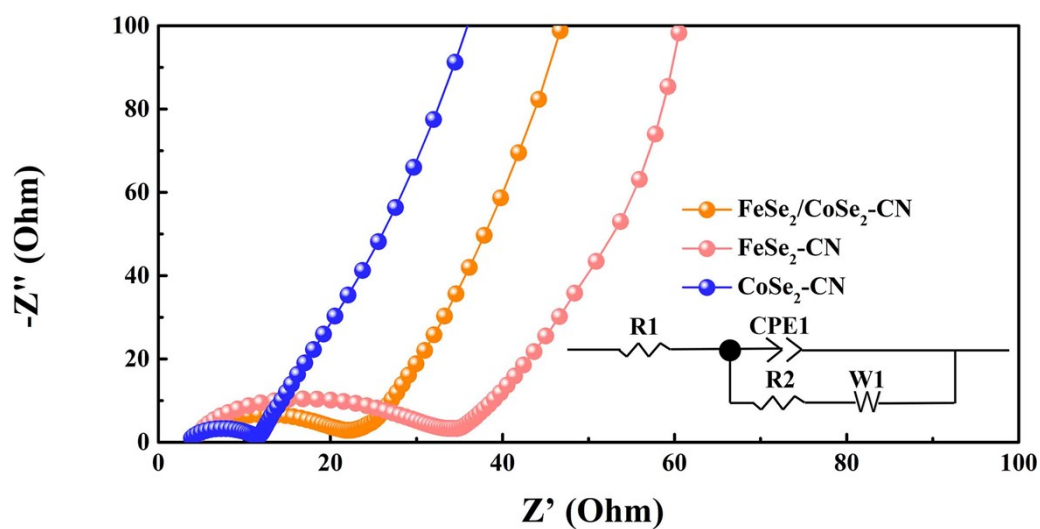


Figure S17. Nyquist plots of the $\text{FeSe}_2\text{-CN}$, $\text{CoSe}_2\text{-CN}$ and $\text{FeSe}_2/\text{CoSe}_2\text{-CN}$ (Inset is the corresponding equivalent circuit).

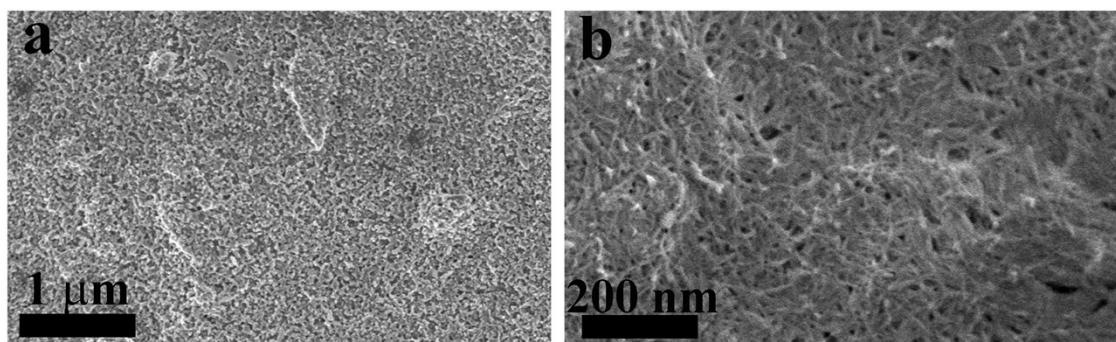


Figure S18. SEM images of FeSe₂/CoSe₂-CN after 50 cycles.

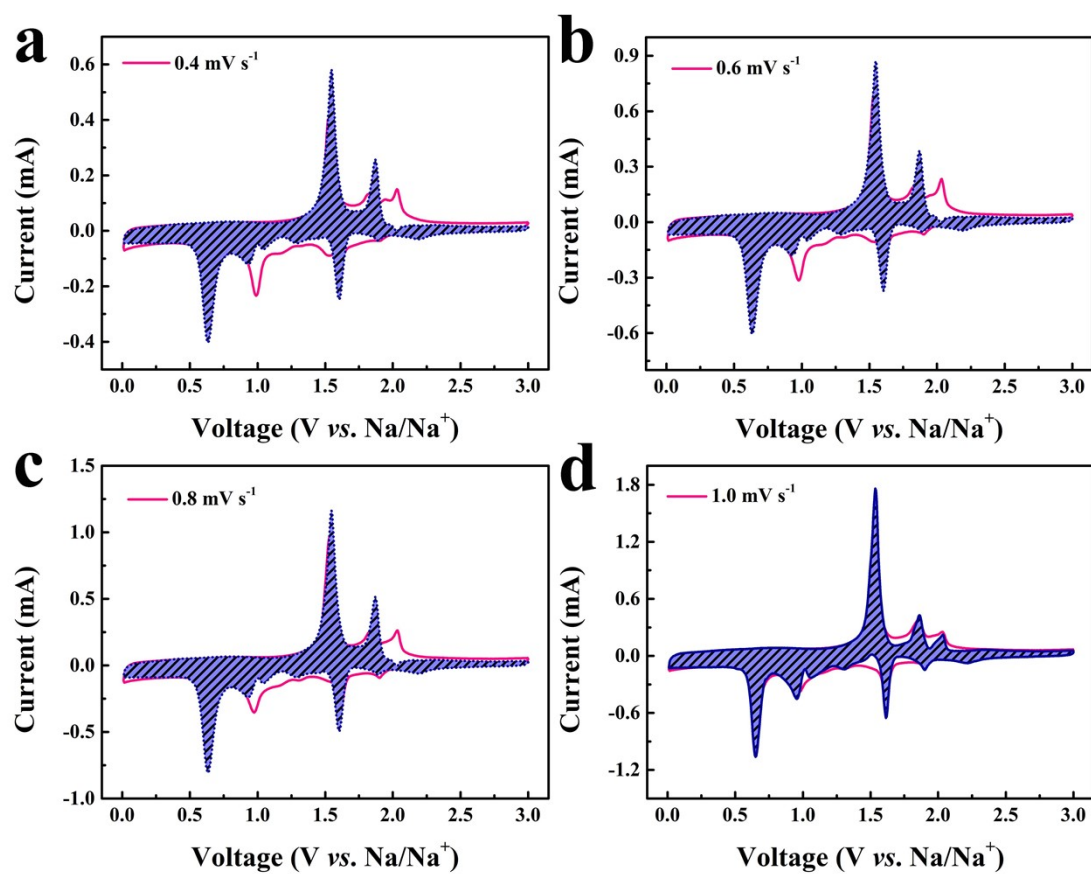


Figure S19. Capacitive contribution (shaded region) in CV curves (black line) under the scan rate of (a) 0.4 mV s⁻¹, (b) 0.6 mV s⁻¹, (c) 0.8 mV s⁻¹ and (d) 1.0 mV s⁻¹.

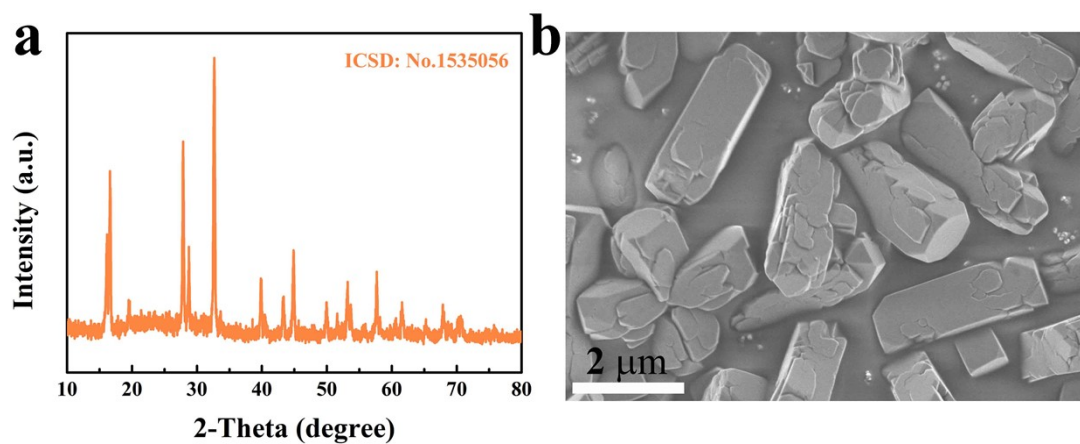


Figure S20. (a) XRD pattern of $\text{Na}_3\text{V}_2(\text{PO}_4)_2\text{O}_2\text{F}$. (b) SEM images of $\text{Na}_3\text{V}_2(\text{PO}_4)_2\text{O}_2\text{F}$.