Structural engineering of bimetallic selenides for high-energy density sodium-ion half/full batteries

Jing Zhu\textsuperscript{a}, Xiaoyu Chen\textsuperscript{a}, Lei Zhang\textsuperscript{c}, Quan Wang\textsuperscript{c,*} Jun Yang\textsuperscript{b,*}, Hongbo Geng\textsuperscript{c,*}

\textsuperscript{a}College of Science\&State Key Laboratory of Tea Plant Biology and Utilization, Anhui Agricultural University, 130 Changjiang West Road, Anhui, 230036, China

\textsuperscript{b}School of Material Science \& Engineering, Jiangsu University of Science and Technology, Zhenjiang, 212003, China

\textsuperscript{c}School of Materials Engineering, Changshu Institute of Technology, Changshu, Jiangsu 215500, China

E-mail address: wangquan@cslg.edu.cn; iamjyang@just.edu.cn; hbgeng@gdut.edu.cn
**Figure S1.** (a) XRD pattern and (b) SEM image of ZIF-8.

**Figure S2.** Full XPS survey spectrum of ZnSe/MoSe$_2$@NC.
**Figure S3.** (a) XRD pattern and (b) SEM image of ZnSe.

**Figure S4.** (a) XRD pattern and SEM image of MoSe$_2$. 
Figure S5. BET surface area of ZnSe/MoSe$_2$@NC.

BET Surface Area: 44.09 m$^2$/g

Figure S6. GCD curves of ZnSe: (a) initial 5 cycles at 0.1 A g$^{-1}$; (b) 0.1 to 5 A g$^{-1}$. 
Figure S7. GCD curves of MoSe$_2$: (a) initial 5 cycles at 0.1 A g$^{-1}$; (b) 0.1 to 5 A g$^{-1}$.

Figure S8. Capacitive contribution in CV curves 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$^{-1}$. 