Supporting Information

Novel carbon channels from loofah sponge for construction of metal sulfide@carbon composites with robust electrochemical energy storage

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Figure S1. SEM image of pristine loofah sponge fibre.
Figure S2. SEM (a-b) and TEM (c-d) images of LSDCM/MoS$_2$.

Figure S3. SEM (a) and TEM (b) images of pristine MoS$_2$. 
Figure S4. TGA curve of LSDCM/MoS$_2$/N-C composite

Figure S5. Electrochemical performance of LSDCM used in LIBs: (a) CV curves at a scan rate of 0.1 mV s$^{-1}$ between 0.01 and 3.0 V and (b) Galvanostatic discharge/charge profiles at 200 mA g$^{-1}$. 
Figure S6. Cycling stability of LSDCM/MoS$_2$/N-C for LIBs at a high current density of 4 A g$^{-1}$

![Graph](image1.png)

Figure S7. A SEM image of LSDCM/MoS$_2$/N-C after 50 cycles.

![SEM Image](image2.png)
Figure S8. Electrochemical performance of LSDCM for SIBs: (a) CV curves at a scan rate of 0.1 mV s$^{-1}$ between 0.01 and 3.0 V (vs. Na$^+$/Na) and (b) Galvanostatic discharge-charge profiles at 200 mA g$^{-1}$.

Figure S9. Cycling stability of LSDCM/MoS$_2$/N-C for SIBs at a high current density of 4 A g$^{-1}$. 
Figure S10. Schematic illustration of advantages for lithium or sodium storage.