3D porous hybrids of defect-rich MoS$_2$/graphene nanosheets with excellent electrochemical performance as anode materials for lithium ion batteries

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Electronic Supplementary Information

**Fig. S1** FESEM image of bulk MoS$_2$. The digital image (inset) shows the poor dispersibility of bulk MoS$_2$ in aqueous solution (3 mg mL$^{-1}$).

**Fig. S2** FESEM images of dr-MoS$_2$ NSs (a) before and (b) after the thermal reduction process.

**Fig. S3** TEM images of dr-MoS$_2$ NSs (a) before and (b) after the thermal reduction process.

**Fig. S4** (a) TEM and (b) HRTEM images of df-MoS$_2$ NSs.

**Fig. S5** FESEM images, corresponding EDX spectra and EDX mapping images of (a) dr-MoS$_2$/GNS (2:1), (b) dr-MoS$_2$/GNS (6:1) and (c) dr-MoS$_2$/GNS (10:1) hybrids.

**Fig. S6** XRD patterns of dr-MoS$_2$ NSs before and after the thermal reduction process.

**Fig. S7** (a) XPS survey spectrum and (b) high resolution C 1s spectrum of GO sheets.

**Fig. S8** First three discharge and charge curves of GNS in the voltage range from 0.01 to 3.0 V at a current density of 0.1 A g$^{-1}$.

**Fig. S9** Comparison of the cycling performance of dr-MoS$_2$ NSs, df-MoS$_2$ NSs and bulk MoS$_2$ at a current density of 0.1 A g$^{-1}$. 

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Fig. S1
Fig. S5
Fig. S6
Fig. S7
Fig. S8
Fig. S9