Supplementary information (ESI)

High-surface-area F-doped amorphous MoOₓ for high-performance lithium storage properties

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**Fig. S1** XRD pattern of F-doped MoO$_2$ NPs obtained by thermal treatment of F-doped $\alpha$-MoO$_x$.

**Fig. S2** FE-SEM images of F-doped MoO$_2$ NPs (a) low-magnification and (b) high-magnification.
**Fig. S3** XRD pattern of $a$-MoO$_x$ sample without F doping.

**Fig. S4** FE-SEM images of $a$-MoO$_x$ sample without F doping (a) low-magnification and (b) high-magnification.
**Fig. S5** The coulombic efficiency of (a) F-doped MoO$_2$ NPs and (b) $a$-MoO$_x$ sample without F doping.
**Fig. S6** Cycling performance of the F-doped $a$-MoO at a current density of 0.4 $\text{A g}^{-1}$ for 100 cycles.