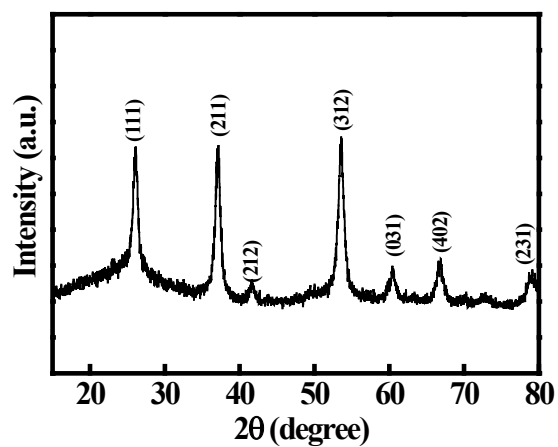


## **Supplementary information (ESI)**

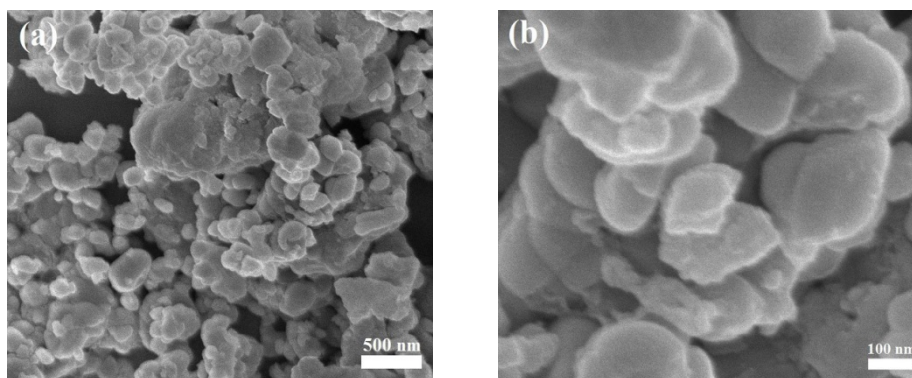
### **High-surface-area F-doped amorphous MoO<sub>x</sub> for high-performance lithium storage properties**

Bing Liu, Xinyu Zhao, Ying Xiao, Changwen Hu and Minhua Cao\*

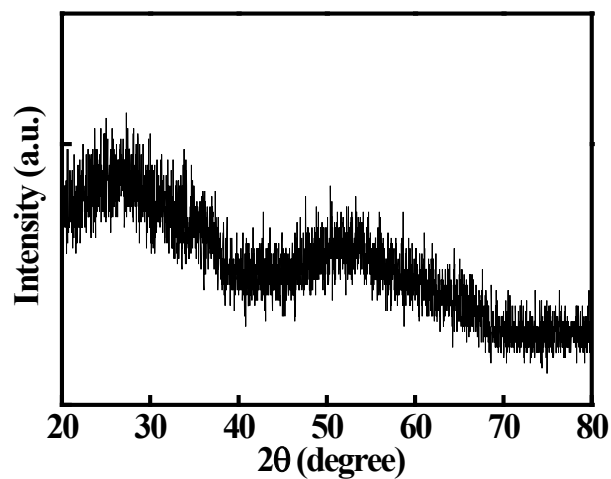
Key Laboratory of Cluster Science, Ministry of Education of China, Beijing Key Laboratory of Photoelectronic/Electrophotonic Conversion Materials, Department of Chemistry, Beijing Institute of Technology, Beijing 100081, P. R. China.



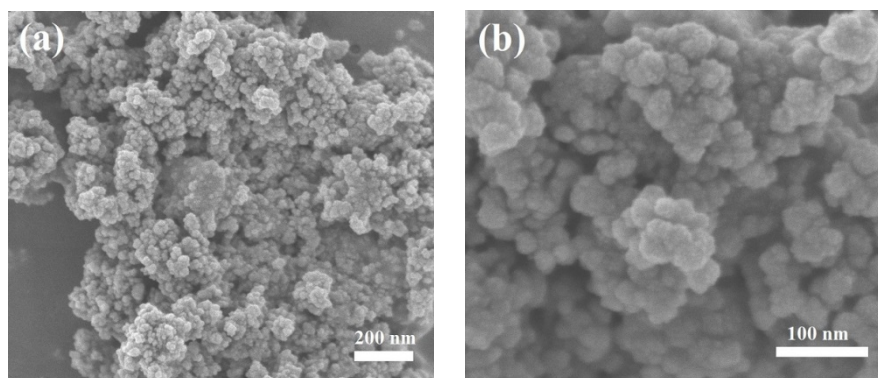
**Fig. S1** XRD pattern of F-doped MoO<sub>2</sub> NPs obtained by thermal treatment of F-doped *α*-MoO<sub>x</sub>.



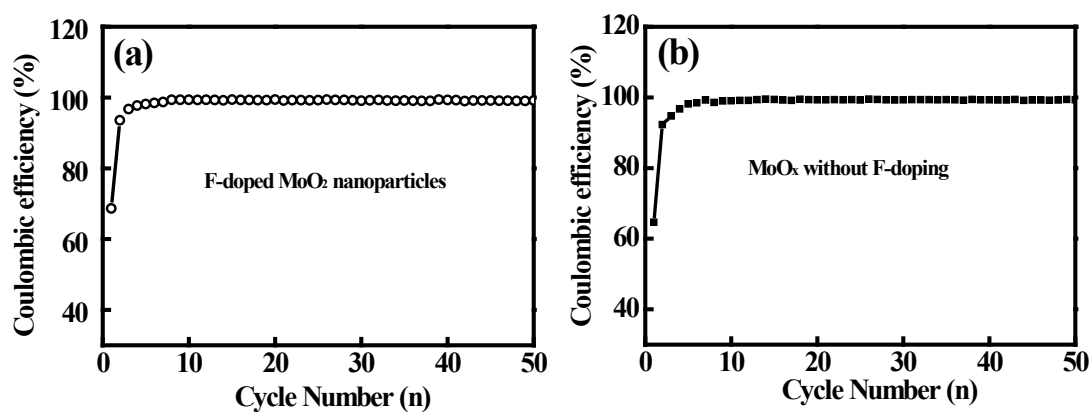
**Fig. S2** FE-SEM images of F-doped MoO<sub>2</sub> NPs (a) low-magnification and (b) high-magnification.



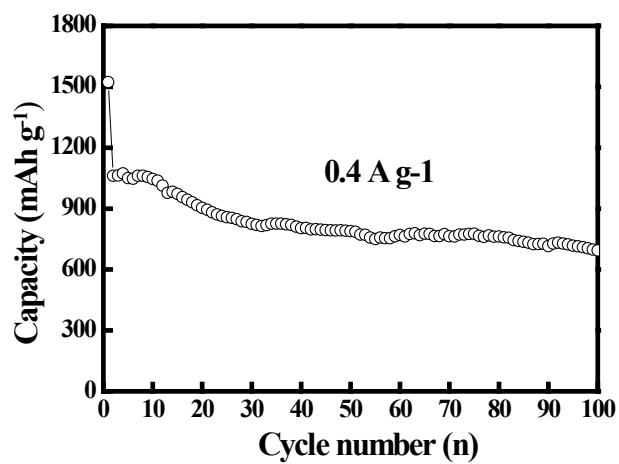
**Fig. S3** XRD pattern of  $\alpha$ -MoO<sub>x</sub> sample without F doping.



**Fig. S4** FE-SEM images of  $\alpha$ -MoO<sub>x</sub> sample without F doping (a) low-magnification and (b) high-magnification.



**Fig. S5** The coulombic efficiency of (a) F-doped MoO<sub>2</sub> NPs and (b) *a*-MoO<sub>x</sub> sample without F doping.



**Fig. S6** Cycling performance of the F-doped  $\alpha$ -MoO at a current density of  $0.4 \text{ A g}^{-1}$  for 100 cycles.