## **Supplementary Information**

Fig. S1 The SEM images of Al foil, the insert is the digital image.

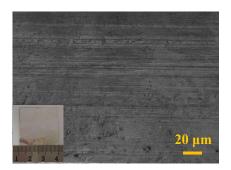


Fig. S2 The Cross-section SEM image of the Al@MnO<sub>2</sub> prepared at 18 h.

