

## Supporting information

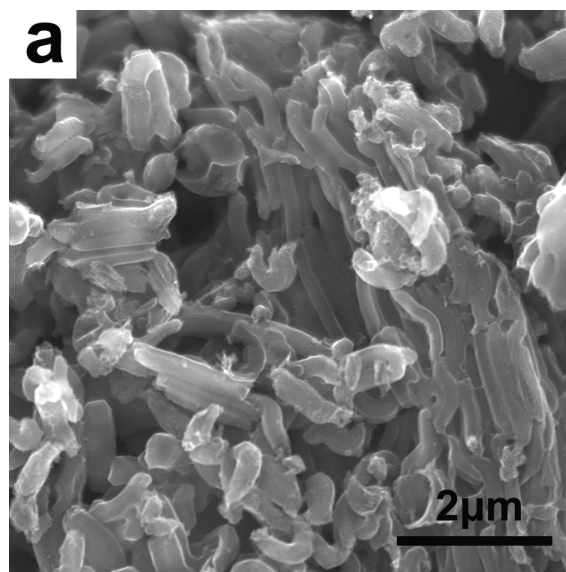


Figure S1 A typical SEM image of OMC sample, clearly showing the rod-like morphology products.

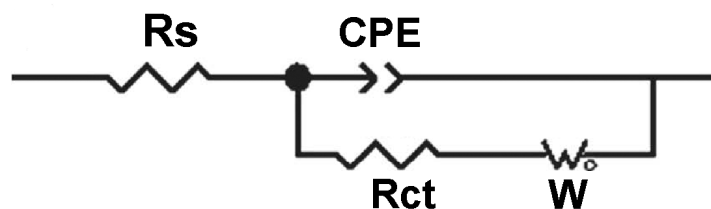


Figure S2 An equivalent circuit model used to analyze the measured impedance data.

The equivalent circuit diagram used for the fitting of the EIS data is presented in Fig. S2 in supporting information, which includes the bulk solution resistance  $R_s$ , a constant phase element (CPE) accounting for the double layer capacitance, and the semi-circle is correlated with the  $\text{Li}^+$  charge transfer resistance at the interface  $R_{ct}$ . The linear portion is designated to Warburg impedance ( $W$ ), which is attributed to the diffusion of  $\text{Li}^+$  into the bulk of the electrode materials.