

## Supporting Information

### Mg ion pre-intercalated MnO<sub>2</sub> nanospheres as high-performance cathode materials for aqueous Zn-ion batteries

Pu Xu, Huimin Yi, Gejun Shi, Zhennan Xiong, Yingying Hu, Ruilin Wang, Huihui Zhang,

Baofeng Wang\*

Shanghai Key Laboratory of Materials Protection and Advanced Materials in Electric Power,  
Shanghai University of Electric Power, Shanghai 200090, China

E-mail address: [wangbaofeng@shiep.edu.cn](mailto:wangbaofeng@shiep.edu.cn)

#### Supplemental Figures and Table:

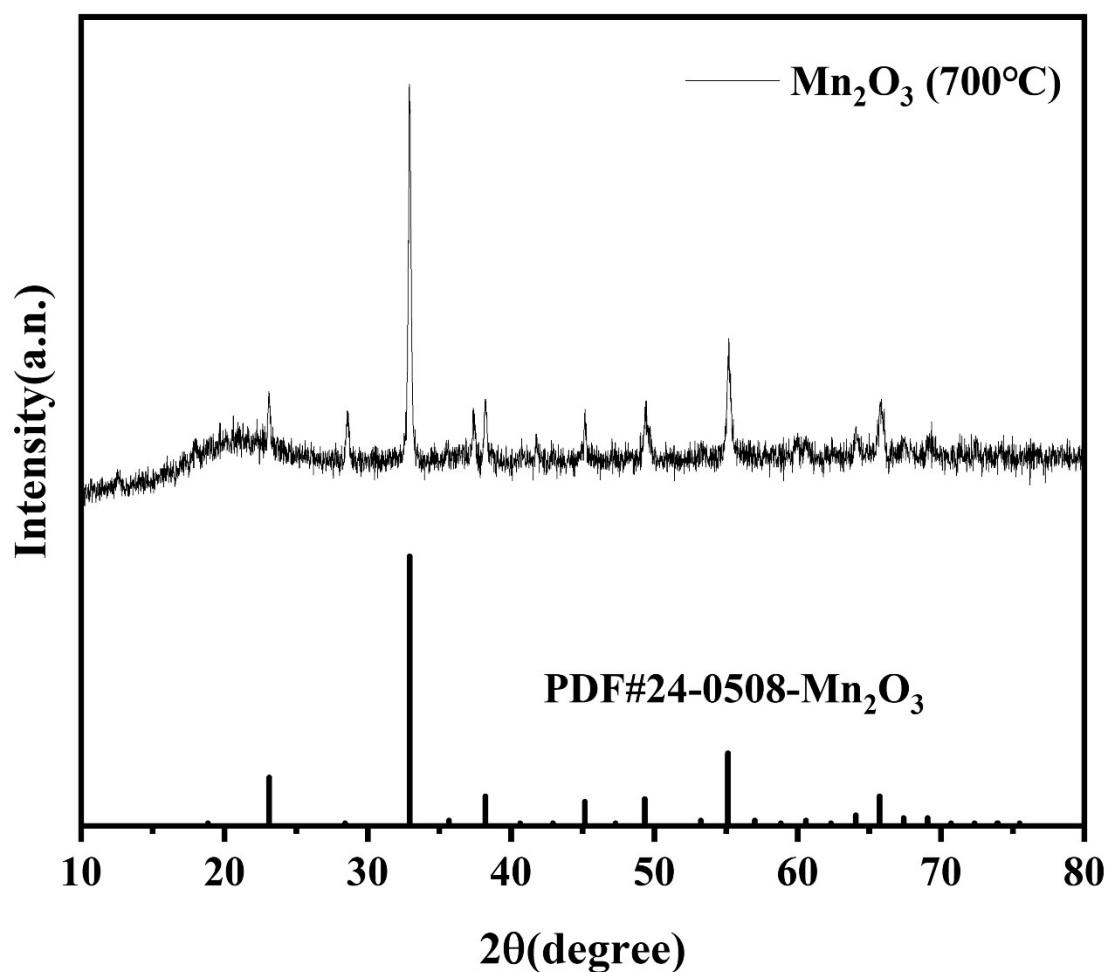


Figure S1. XRD patterns of the Mn<sub>2</sub>O<sub>3</sub>

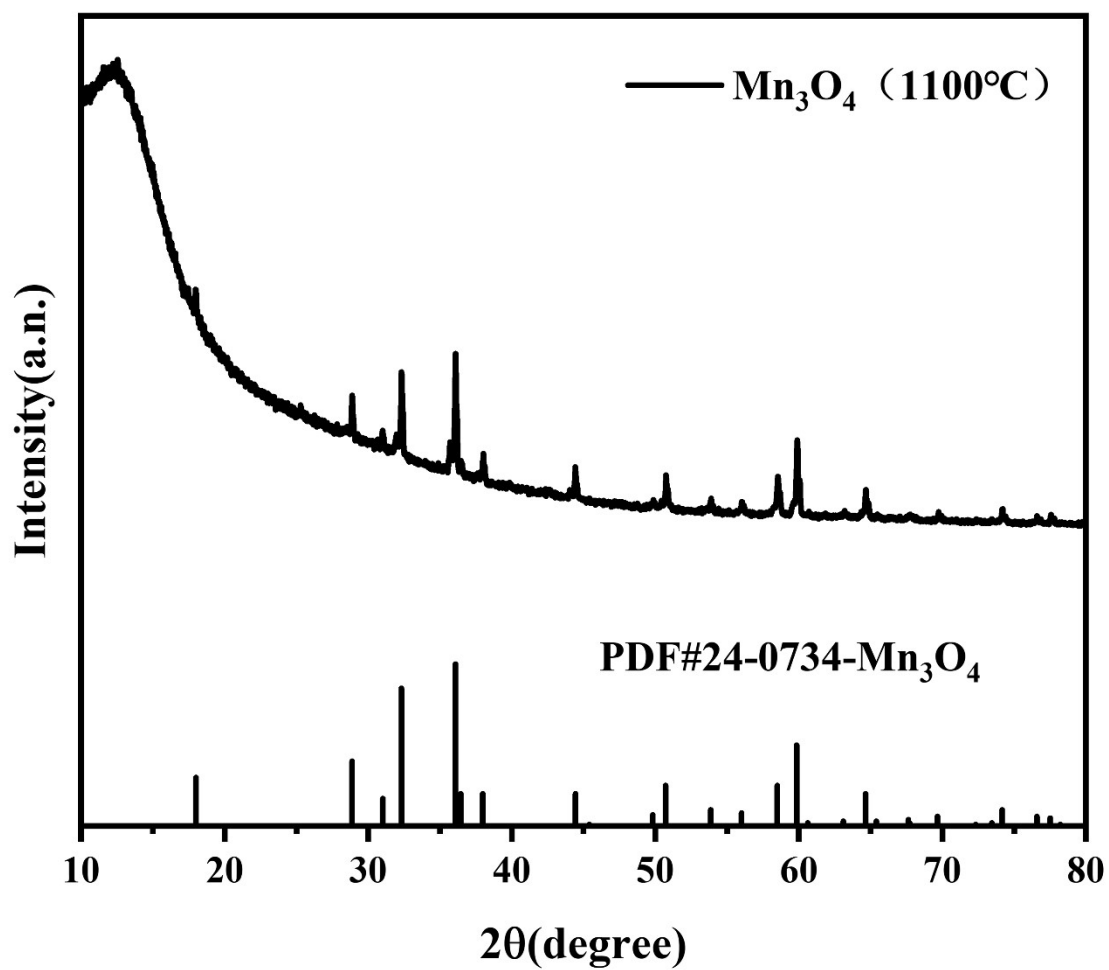


Figure S2. XRD patterns of the  $\text{Mn}_3\text{O}_4$

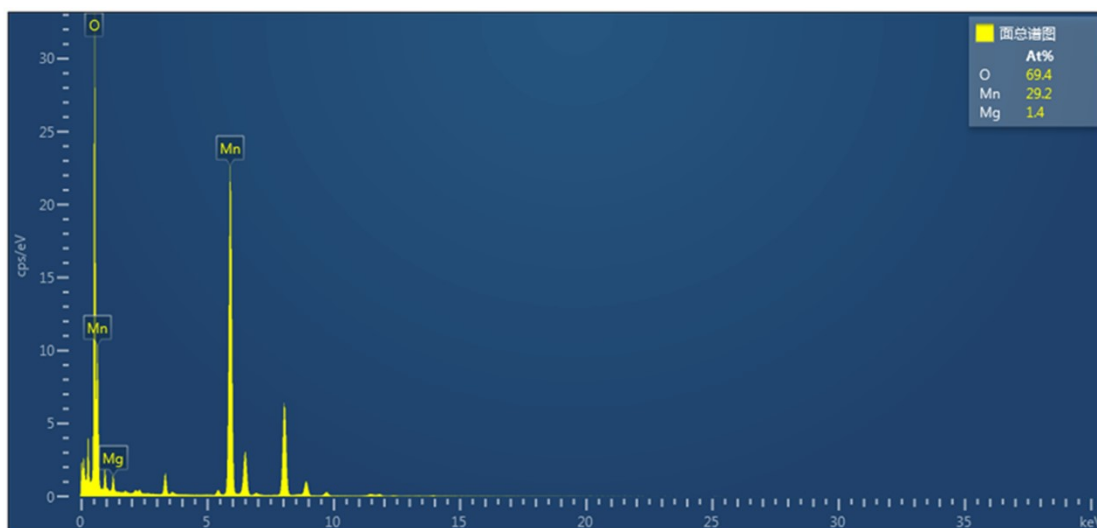


Figure S3. EDS pattern of the  $\text{MnO}_2$

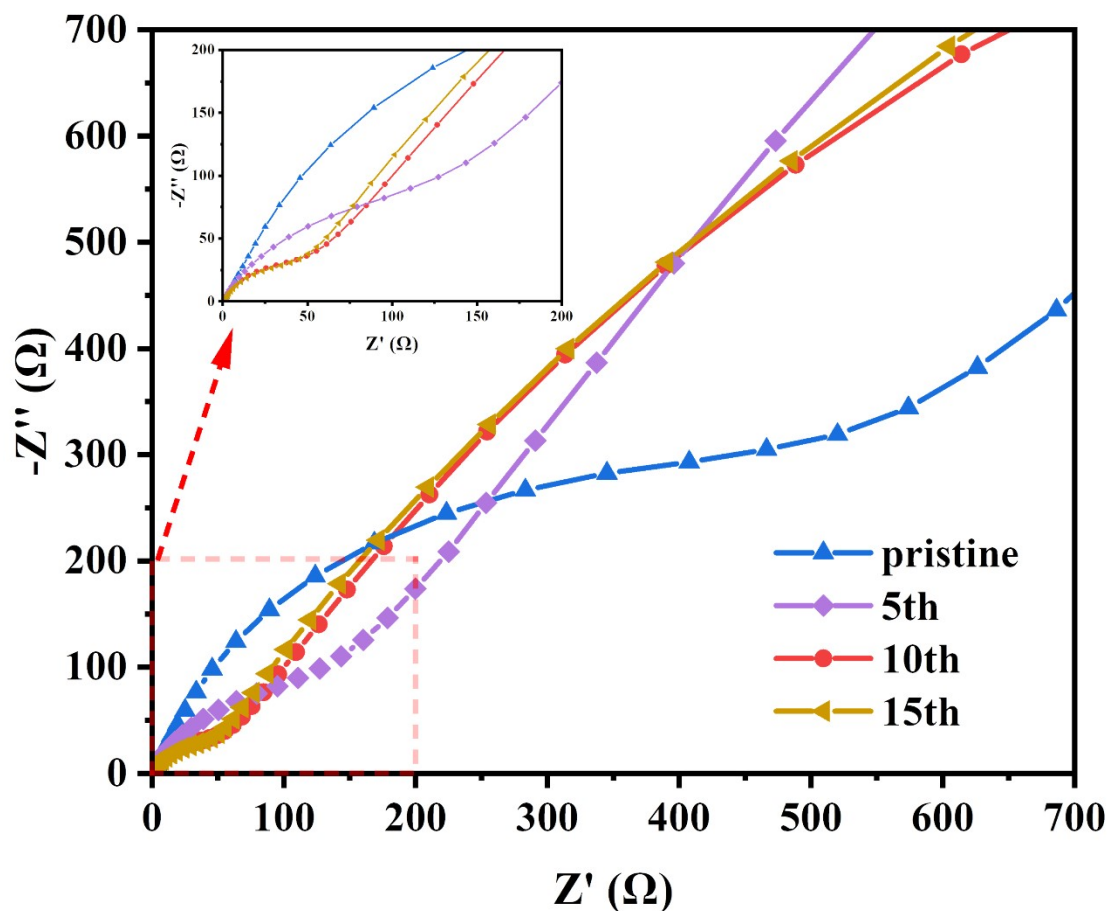


Figure S4. Nyquist plots of MnO<sub>2</sub> at different cycles

Table S1:

Electrochemical performance of MnO<sub>2</sub> as cathode materials for ZIBs.

Cathode Material	Current density (mA/g)	Cycle number (n)	Capacity (mA h/g)	References
$\alpha$ -MnO <sub>2</sub>	100	50	96.8	1
$\alpha$ -MnO <sub>2</sub> nanorods	83	50	160	2
$\alpha$ -MnO <sub>2</sub>	300	100	103	3
$\alpha$ -MnO <sub>2</sub>	100	300	140	4
$\beta$ -MnO <sub>2</sub>	100	100	105	5
$\beta$ -MnO <sub>2</sub> nanorods	100	50	150	6
$\delta$ -MnO <sub>2</sub>	100	100	96	5
$\delta$ -MnO <sub>2</sub>	83	100	112	7
$\delta$ -MnO <sub>2</sub>	100	150	45	8
MnO <sub>2</sub> /CNT	155	100	145	9
MnO <sub>2</sub> @C	66	50	189	10
<b>MnO<sub>2</sub></b>	<b>300</b>	<b>100</b>	<b>247</b>	<b>This work</b>
<b>MnO<sub>2</sub></b>	<b>800</b>	<b>800</b>	<b>146</b>	<b>This work</b>

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